

Via Electronic Filing

April 15, 2013

Dr. Burl Haar
Minnesota Public Utilities Commission
121 Seventh Place East
Suite 350
St. Paul MN 55101-2147

**Re: Geronimo Energy's Distributed Solar Energy Proposal
In the Matter of the Petition of Northern States Power Company to Initiate a
Competitive Resource Acquisition Process
Docket No. E002/CN-12-1240**

Dear Dr. Haar:

Geronimo Wind Energy, LLC d/b/a Geronimo Energy ("Geronimo"), is pleased to submit the enclosed Distributed Solar Energy Proposal for up to 100 megawatts ("MW") AC of solar energy to meet a portion of need for new additional generation identified in Xcel Energy's 2011-2025 Resource Plan in Docket No. E002/RP-10-825.

Geronimo's alternative Distributed Solar Energy Proposal offers a new generation resource that is environmentally superior to fossil fuel alternatives that may be proposed in this docket. Solar energy is a renewable resource with no carbon or other air emissions and minimal water usage and environmental impacts. Geronimo is proposing approximately 30 separate solar installations, ranging from 2 MW to 10 MW, distributed at or near Xcel Energy distribution and transmission substations throughout the State. The geographic distribution of the installations increases the reliability of the resource and allows Geronimo to interconnect the facilities with minimal additional transmission needed.

This alternative proposal is submitted pursuant to Minnesota Statutes section 216B.2422, subdivision 5. Geronimo's proposal contains the data requirements for alternate providers set forth in Xcel Energy's August 28, 2006 Compliance Filing in Docket No. E002/RP-04-1752, as further supplemented by the Department's comments in this docket. A copy of this filing is being served on the service list of record in this docket.

Certain information in this proposal and Appendices C, D, E, F and H has been designated as Trade Secret information pursuant to Minnesota Statutes section 13.37, subdivision 1(b). Separate Trade Secret versions of this proposal and the relevant appendices will be efiled and mailed to those parties that are eligible and request paper service. In particular, the information relating to cost, price and points of

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interconnection has been designed as Trade Secret because it derives independent economic value, actual or potential, from not being generally known to, and not being readily ascertainable by proper means by, other persons who can obtain economic value from its disclosure or use. Disclosure of the Trade Secret provisions would have a detrimental effect by providing valuable information not otherwise readily ascertainable and from which could be obtained economic value. Consistent with the Commission's March 5, 2013 Order in this docket, Geronimo understands that the Trade Secret information will be available to the Commission, the Minnesota Department of Commerce, the Office of Administration Hearings, the Office of the Attorney General and any independent evaluator, but not to other bidders, including Xcel Energy, until such time as the Administrative Law Judge modifies that ruling.

Please contact Nathan Franzen at (952) 988-9000 or me at (612) 492-7412 with any questions regarding this filing.

Sincerely,

/s/ Christina K. Brusven

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**GERONIMO ENERGY'S
DISTRIBUTED SOLAR ENERGY PROPOSAL**

**In the Matter of the Petition of Northern States Power Company to
Initiate a Competitive Resource Acquisition Process**

Docket No. E002/CN-12-1240

Submitted April 15, 2013



**STATE OF MINNESOTA
BEFORE THE
PUBLIC UTILITIES COMMISSION**

Beverly Jones Heydinger	Chair
David C. Boyd	Commissioner
Nancy Lange	Commissioner
J. Dennis O'Brien	Commissioner
Betsy Wergin	Commissioner

**IN THE MATTER OF THE PETITION OF
NORTHERN STATES POWER COMPANY TO
INITIATE A COMPETITIVE RESOURCE
ACQUISITION PROCESS**

**GERONIMO ENERGY'S
DISTRIBUTED SOLAR
ENERGY PROPOSAL**

DOCKET No. E002/CN-12-1240

SUMMARY OF FILING

Pursuant to Minnesota Statutes, section 216B.2422, subdivision 5, Geronimo Energy filed a Distributed Solar Energy Proposal to provide up to 100 megawatts alternating current of solar energy to meet a portion of Xcel Energy's capacity and energy needs between 2017 and 2019. Geronimo proposes to construct and operate distributed solar energy facilities, ranging from 2 to 10 MW, located on up to 31 sites adjacent to distribution or transmission substations dispersed throughout Xcel Energy's Upper Midwest Service Territory. Geronimo proposes an in-service date for the Project of December, 2016. This will allow the capacity to be available to meet Xcel Energy's peak demand for the summer season of 2017.

As proposed, the 100 MW Project will provide Xcel Energy with 72 MW of accredited capacity to meet its peak capacity obligations in the Midwest Independent System Operator's Planning Reserve Sharing Pool. The Project will also provide approximately 200,000 MWh of energy in Year 1 of which 70 percent is on peak and 100 percent is produced during the hours of 5:00 a.m. and 9:00 p.m. CST. In addition, the Project will supply renewable energy credits that Xcel Energy can use to meet its Renewable Energy Standards. As a renewable resource, the Distributed Solar Energy Proposal has a number of significant environmental benefits, as it has no carbon or other air emissions and minimal water usage and environmental impacts.

**GERONIMO ENERGY'S
DISTRIBUTED SOLAR ENERGY PROPOSAL**

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**GERONIMO ENERGY'S
DISTRIBUTED SOLAR ENERGY PROPOSAL**

1.0 EXECUTIVE SUMMARY

Geronimo Wind Energy, LLC d/b/a Geronimo Energy (“Geronimo”) is pleased to offer Northern States Power Company d/b/a Xcel Energy (“Xcel Energy”) an innovative approach to meet a portion of its capacity and energy needs between 2017 and 2019. Geronimo proposes to construct and operate up to 100 megawatt (“MW”) alternating current (“AC”) of distributed solar energy, located on up to 31 sites adjacent to distribution or transmission substations dispersed throughout Xcel Energy’s Upper Midwest service territory (the “Project”).

As a non-wind variable generation resource, the proposal will provide Xcel Energy with 72 MW of accredited capacity to meet its peak capacity obligations in the Midwest Independent Transmission System Operator’s (“MISO”) Planning Reserve Sharing Pool and up to 200,000 MWh of primarily on-peak energy each year. In addition, the Project will supply Renewable Energy Credits (“RECs”) that Xcel Energy can use to meet its Renewable Energy Standards or Objectives or a specific solar requirement in the states in which it serves. Xcel Energy could also market the Solar Renewable Energy Credits (“S-RECs”) to other utilities that need to meet solar-specific requirements in other states.

Geronimo proposes an aggregate in-service date for the Project of December, 2016 with the flexibility to bring a portion online in 2014 and 2015 to meet demand as warranted. This will allow the capacity to be available to meet Xcel Energy’s peak demand for the summer season of 2017 as required and meet any interim capacity need fluctuations.

The Distributed Solar Energy Proposal meets each of the four criteria the Commission uses to determine whether to grant a Certificate of Need to a large generating facility:

A. The probable result of denial would be an adverse effect upon the future adequacy, reliability or efficiency of energy supply to the applicant, to the applicant’s customers, or to the people of Minnesota and neighboring states.

The Minnesota Public Utilities Commission has determined that Xcel Energy has demonstrated a need for 150 MW of capacity and associated energy by 2017, which will increase up to 500 MW of capacity by 2019. Denial of the Distributed Solar Energy Project would result in Xcel Energy’s failure to meet its customers’ peak demand and its obligations as a member of the MISO Reserve Sharing Pool.

B. A more reasonable and prudent alternative to the proposed facility has not been demonstrated by a preponderance of the evidence on the record.

The Project has a number of advantages when compared with possible alternatives to meet Xcel Energy’s needs. The project is cost-competitive with fossil fuel alternatives, especially when considering environmental costs. The modular nature of the Project provides flexibility to advance, phase or delay the Project to match Xcel Energy’s fluctuating resource needs. The Project also supplies RECs that can be used to meet Xcel Energy’s Renewable Energy Standards.

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TRADE SECRET DATA HAS BEEN EXCISED**

Finally, the distributed nature of the project will reduce losses, increase reliability and enhance ease of interconnection.

C. The proposed facility will provide benefits to society in a manner compatible with protecting the natural and socioeconomic environments, including human health.

The Project has no air emissions and extremely low environmental impacts. It will displace pollutants emitted by fossil fuel-fired generating resources, including carbon dioxide, which is considered a significant contributor to climate change. It will meet the needs of many of the state's electric consumers at a competitive cost and assist Xcel in meeting its renewable energy standards, while enhancing the economic base in at least 18 Minnesota counties and creating up to 500 temporary construction jobs and 10 permanent positions.

D. The record does not demonstrate that the design, construction, or operation of the proposed facility...will fail to comply with relevant policies, rules, and regulations of other state and federal agencies and local government.

The Project will comply with all relevant requirements and in addition will fulfill important state energy policies with respect to renewable energy and environmental protection. In particular, the facility meets the requirements of Minnesota Statutes §§ 216B.2422, subd. 4 and 216B.243, subd. 3a, which state that the Commission may not approve a nonrenewable energy facility unless it determines that a renewable facility is not in the public interest, or more expensive than the nonrenewable facility including consideration of environmental costs. It is further consistent with state policies relating to the promotion of distributed energy resources and the reduction of greenhouse gasses.

This Distributed Solar Energy Proposal offers a cost-competitive and environmentally superior alternative to fossil fuel generators that is clearly in the public interest and can reliably deliver accredited capacity, energy, RECS and other environmental attributes to meet Xcel Energy's needs for new generation. Approval of the Project is in the public interest because it meets all of Minnesota's laws supporting acquisition of clean, renewable energy and moves Xcel forward on its long-term resource acquisition where a majority of its new and refurbished generation resources come from renewable energy and demand side management.

Geronimo respectfully requests that the Commission approve this Distributed Solar Energy Proposal to meet up to 100 MW (AC) of Xcel Energy's 2017 generation needs.

2.0 BACKGROUND

On August 2, 2010, Xcel Energy filed its 2011-2025 Resource Plan with the Minnesota Public Utilities Commission ("Commission"). Among other things, Xcel Energy proposed closing down the remaining coal units at its Black Dog Generating Plant and constructing a new, 700 MW natural-gas combined cycle plant at the same site to meet a 2016 resource need caused by a combination of load growth and retiring generation. On March 15, 2011, Xcel Energy filed a Certificate of Need ("CN") for the Black Dog Repowering Project in a competitive acquisition process at the Commission. Calpine Corporation filed an alternative proposal to meet Xcel Energy's need.

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TRADE SECRET DATA HAS BEEN EXCISED**

Over the same period, Xcel Energy's forecast of load growth declined significantly, reducing and delaying its need for future resources. On December 1, 2011, Xcel Energy filed an update to its Resource Plan filing, modifying its expected resource needs.¹ On December 7, 2011, it petitioned the Commission to withdraw its CN application for the Black Dog facility.²

Due to additional changes in load forecasts, costs of alternative resources and uncertainties in federal regulations, on April 2, 2012, Xcel Energy further modified its analysis regarding resource needs by providing a Notice of Changed Circumstances and petition to change and delay implementation of the extended power uprate at the Prairie Island Nuclear Generating Plant.

When Xcel Energy's 2011-2025 Resource Plan came before the Commission for approval, the Commission determined that Xcel Energy had demonstrated a need for an additional 150 MW of capacity in 2017, increasing up to 500 MW in 2019. The Commission determined that this need should be met through Xcel's competitive acquisition process and that it was appropriate to consider a variety of proposals, including resources that meet all or a portion of the need; peaking resources, intermediate resources, or a combination of the two; and resources from new or existing generation. Consistent with the Commission's Order, Xcel Energy issued a Notice of Competitive Acquisition Process providing notice that the Commission would be considering alternative proposals in this docket.

This proposal follows the content requirements established by the Commission for competitive acquisition proposals. Appendix A includes a table summarizing the content requirements and provides a completeness checklist referencing where each data requirement can be found in this filing. Appendix B provides a list of acronyms used throughout this proposal.

Geronimo believes that the dynamic nature of Xcel Energy's 2011-2025 Integrated Resource Plan underscores the importance of approving a resource that can flexibly meet Xcel Energy's established need for new generation by 2017 while also cost-effectively meeting the State's important renewable and environmental policies and goals. This Project will allow Xcel Energy to meet a portion of its capacity needs while also providing Xcel Energy and its customers with a number of other valuable benefits, especially when compared with traditional fossil fuel alternatives. The distributed nature of the Project increases reliability, reduces losses and transmission costs and offers modular development that can be phased to more closely match Xcel Energy's resource needs. The Project also provides further diversification of Xcel Energy's energy mix.

¹ Xcel Energy's Resource Plan Update, *In the Matter of the Petition of Northern States Power Company, a Minnesota Corporation, for Approval of the 2011-2025 Resource Plan*, Docket No. E002/RP-10-825 (December 1, 2011).

² Xcel Energy's Motion to Withdraw Application, *In the Matter of the Petition of Northern States Power Company for a Certificate of Need for the Black Dog Generating Plant Repowering Project*, Docket No. E002/CN-11-184 (December 7, 2011).

3.0 GENERAL PROJECT INFORMATION

3.1 PROJECT DESCRIPTION

The Project consists of distributed photovoltaic power plants to be located at up to 31 sites serving Xcel Energy loads in MISO Planning Resource Zone 1.³ The distributed solar facilities range in size from 2 MW to 10 MW and will utilize a linear axis tracker to increase the accredited capacity of the systems to 72 percent, based on MISO's accreditation methods for non-wind variable generation resources.

Geronimo has sized the solar facilities on an individual basis to offset approximately 20 percent of the existing load at each respective substation. By locating the solar facilities in close proximity to existing substations (for the purposes of this filing, the areas surrounding the substations are referred to as "Distributed Energy Generation Zones" or "DEGZ"), the Project is able to make efficient use of existing transmission facilities equipment. Each Distributed Energy Generation Zone ranges in size from 20 to 70 acres and has been selected based on availability of land, proximity to Xcel Energy distribution or MISO transmission substations, and limited environmental impacts.

Geronimo has secured site control or is in final negotiations for approximately 50 percent of the Project located within the targeted Distributed Energy Generation Zones. Site control over the remaining sites is expected to be complete in the summer of 2013. This proposal included analysis for 31 primary and alternate sites that have currently been identified and are located throughout Xcel Energy's Upper Midwest service territory. Geronimo may add additional future sites that meet the same peaking loading and other performance-related characteristics.

The Project's primary components include a nominal 300 watt photovoltaic module mounted on a linear axis tracking system and a centralized inverter(s). The tracking system foundations will utilize a driven pier and do not require concrete. Balance of plant components includes electrical cables, conduit, step up transformers and metering equipment. The solar facilities will be fenced and seeded in a low growth seed mix to reduce run-off from existing conditions and improve water quality. **Figure 1** is a photograph of the existing Saint John's University Solar Farm in Collegeville, Minnesota ("Saint John's Solar Farm"). The Project will utilize similar components and look very similar to the Saint John's Solar Farm.

³ Geronimo's proposed Distributed Energy Generation Zones are at locations serving Xcel load. They are in Xcel's local balancing area, which MISO has assigned to Planning Resource Zone 1. See map at <https://www.midwestiso.org/layouts/MISO/ECM/Redirect.aspx?ID=143520> at page 11.

Figure 1 Photograph of Saint John’s University Solar Farm, Collegeville, Minnesota



3.2 GERONIMO’S EXPERIENCE, QUALIFICATIONS AND FINANCIAL STRENGTH

Geronimo, a Minnesota limited liability company, is a Midwest-focused renewable energy development company headquartered in Minneapolis, Minnesota with satellite offices in central Minnesota, southwest Minnesota, North Dakota, Illinois and Michigan. Geronimo has a three gigawatt development pipeline, with active developments in seven states throughout the Midwest. Geronimo has fully developed three renewable energy projects, including the 20 MW Odin Wind Farm near Odin, Minnesota, the 18.9 MW Marshall Wind Farm near Marshall, Minnesota, and the 200 MW Prairie Rose Wind Farm near Hardwick, Minnesota. These wind farms became commercially operational in 2007, 2009 and 2012, respectively.

Renewable energy from the Prairie Rose Wind Farm is being sold to Xcel Energy pursuant to a power purchase agreement. Geronimo was one of 143 bidders that participated in Xcel Energy’s 2010 RFP and was selected from a pool totaling over 9,000 MW. Geronimo’s strategic partner, Enel Green Power North America, Inc. (“EGPNA”), provided common equity for the Prairie Rose project (approximately \$149 million) along with GE Financial Services (approximately \$156 million). The Prairie Rose Wind Farm tax equity (totaling \$190 million) was provided by a syndicate led by JP Morgan, which includes Wells Fargo and Metropolitan Life Insurance Company.

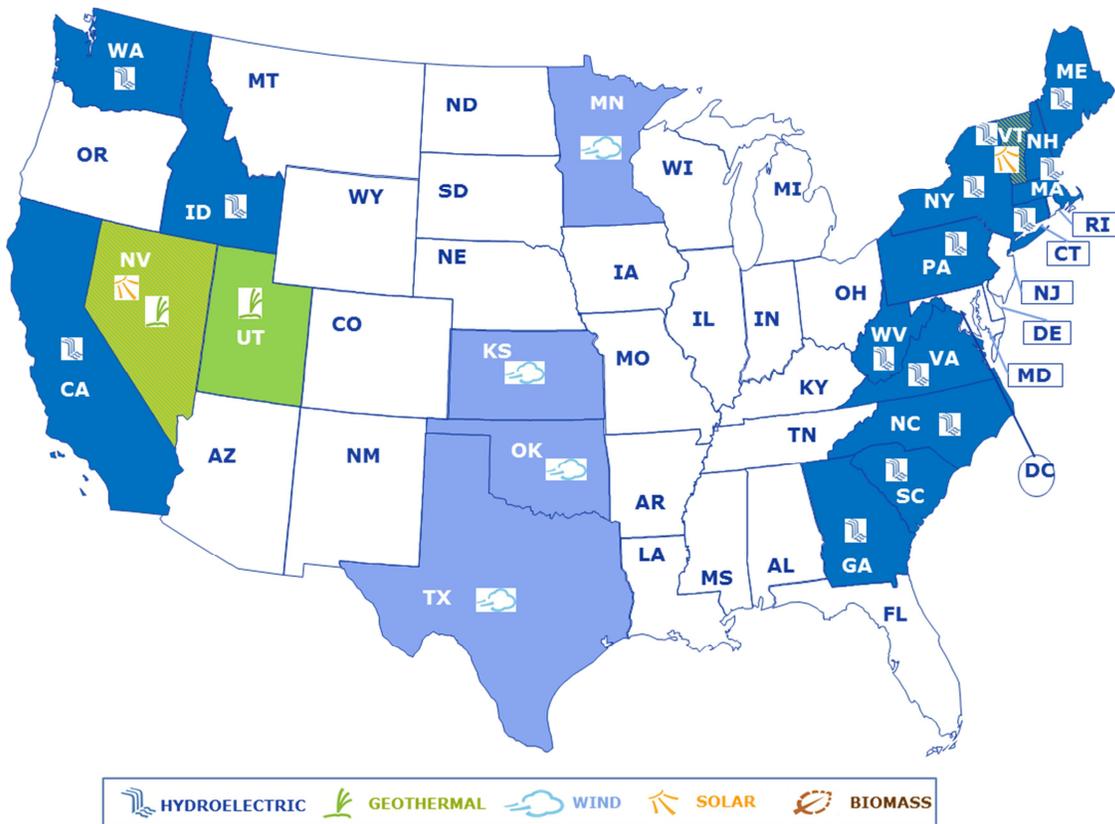
Geronimo’s team of 33 employees has expertise in wind and solar development, wind and solar resource assessment, finance, land acquisition, title services, environmental permitting, energy policy, transmission, and utility planning. Geronimo’s Chairman, Noel Rahn, has lifelong roots in Minnesota’s rural economy and an extensive resume as a Wall Street executive. Our Director of Solar, Nathan Franzen, is the former General Manager of Westwood Renewables, LLC. There, he developed both the 400 kW Saint John’s Solar Farm and the 600 kW Minneapolis Convention Center Solar Project. As the Director of Solar at Westwood Professional Services, Inc., he worked on more than 100 solar projects totaling more than 1000 MW, including the 2 MW Slayton Solar Project that recently came on line on Xcel Energy’s system. He also

manages the operation and maintenance for over 1 MW of solar in Minnesota. Geronimo’s extensive experience in renewable project development will ensure a smooth and timely process in all phases of the Project.

EGPNA is a leading owner and operator of renewable energy plants in North America with projects operating and under development in 21 U.S. states and three Canadian provinces. EGPNA owns and operates over 90 plants with an installed capacity of more than 1.2 GW powered by renewable hydropower, wind, geothermal, solar and biomass energy. This dedication to a diverse suite of renewable technologies sets EGPNA apart from other independent power producers.

EGPNA employs more than 320 people in North America with technical, operational, and financial expertise. As depicted in Figure 2, EGPNA owns and operates 1,239 MW of renewable projects with an asset base of approximately \$2.5 billion. EGPNA currently operates over 90 projects with a total installed capacity of 1,239 MW, which consists of: 832 MW of wind power, 313 MW of hydropower, 21 MW of biomass power, 47 MW of geothermal power and 26 MW of solar.

Figure 2 Map of EGPNA’s Existing U.S. Renewable Energy Facilities



EGPNA is the North American wholly-owned subsidiary of Enel Green Power (“EGP”). EGP is the second leading producer of renewable energy in the world, with a total installed capacity of 8 GW produced from about 700 renewable energy facilities in operation worldwide, including over 160 MW of solar energy that is has operated for over 18 years. EGP has assets of \$21 billion

and 2012 revenues of \$3.3 billion. EGP is a wholly-owned subsidiary of Enel SpA, which is one of the world's largest power companies with 98 GW of net installed capacity worldwide and trades on the Milan stock exchange. Enel SpA has an investment-grade credit rating from S&P (BBB+), Moody's (Baa2), and Fitch (BBB+).

As Geronimo's largest shareholder, EGPNA supports Geronimo's project development and working capital needs. Geronimo will leverage EGPNA's vast experience and technical expertise in the renewable energy industry, along with its sources of capital, equipment and services to develop, construct and operate solar energy facilities in a competitive, cost effective manner. EGPNA provides Geronimo access to solar equipment from top-tier manufacturers at preferred prices and to tax equity investors and lenders to finance solar projects at competitive rates. Geronimo and EGPNA work together on all strategy, project development, and bidding activities to ensure that each project has the necessary resources and support to succeed. Geronimo believes its strategic relationship with EGPNA allows it to develop, construct and finance solar energy projects at the most competitive prices in the industry, which translates to competitive energy prices for utility ratepayers.

3.3 PROJECT MANAGEMENT

The Geronimo project management team consists of:

Nathan Franzen, the project manager for the Project, is the Director of Solar at Geronimo Energy. His responsibilities include all oversight and project management, including maintaining the project schedule and budget. His experience comprises oversight and project management of over 100 commercial and utility-scale solar projects in 16 states. He was the project manager for two of the Midwest's first solar projects: the 400kW Saint John's Solar Farm which has a power purchase agreement with Xcel Energy and the 600kW Minneapolis Convention Center Solar Project located with Xcel Energy's service territory. The Saint John's Solar Farm has a power purchase agreement with Xcel Energy and utilizes the same technology that is proposed for the Project. In addition, he served as the engineering manager for the 2 MW Slayton Solar project in Slayton, Minnesota.

Betsy Engelking, Vice President of Development at Geronimo Energy, will act as an advisor to the Project. Her experience includes employment as Director of Resource Planning at Xcel Energy, as well as similar positions with Great River Energy and the Minnesota Public Utilities Commission.

Glen Skarbakka, Geronimo's Vice President of Transmission, will also act as an advisor to the Project. His experience includes employment as Manager of Resource Planning at Great River Energy, as well as more than thirty years of experience in the transmission and power resources segments of the electric industry.

3.4 PROJECT CONTACTS

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4.0 NEED SUMMARY

In its March 5, 2013 Order on Xcel Energy's Resource Plan⁴, the Commission determined the Xcel Energy had demonstrated need for an additional 150 MW of capacity in 2017, increasing up to 500 MW in 2019. It further determined that in Xcel Energy's competitive acquisition process, parties could propose a variety of resources to meet Xcel Energy's need, including resources that address all or a portion of the identified need; peaking resources, intermediate resources, or a combination of the two; and resources that rely on new or existing generation.

Geronimo's Distributed Solar Energy Proposal will supply Xcel Energy with 72 MW of accredited capacity from 100 MW (AC) of newly constructed ground-mounted solar generation facilities located in advantageous locations throughout Xcel Energy's Upper Midwest service territory. This expected accredited capacity value is based on MISO's capacity accreditation method for non-wind variable resources, which is derived from historical hourly net output for the hours of 1500-1700 EST during June, July and August over the most recent three consecutive years. While there is no historical information associated with the proposed Project, Geronimo used generation data from two existing solar facilities and industry leading modeling software, PVSyst, to determine the expected accredited capacity value.

Geronimo proposes to complete the Project over a two year period, with the Project fully operational by December, 2016. The proposal, however, offers Xcel Energy an unprecedented level of flexibility that will permit the Company, within certain parameters, to advance, delay or otherwise phase the Project to more closely match its capacity needs. Over the past decade, Xcel Energy's demand forecast has changed frequently, and sometimes rapidly, at times requiring the Company to either file emergency requests to build peaking facilities or cancel or delay planned facilities. With longer lead times required for many electric generation facilities, it can be difficult for Xcel Energy to respond quickly to demand fluctuations that suddenly change the need for resources. Geronimo's Project can be partially in service as early as 2014, or could, if desired, be spread over a number of years, providing Xcel Energy with an incremental amount of capacity each year.⁵

⁴ *In the Matter of Xcel Energy's 2011-2025 Integrated Resource Plan*, ORDER APPROVING PLAN, FINDING NEED, ESTABLISHING FILING REQUIREMENTS, AND CLOSING DOCKET, DOCKET E-002/RP-10-825.

⁵ To the extent that the investment tax credit for solar is not extended, installations that come on line after 2016 may be subject to a price increase.

In addition to MISO accredited capacity, the Project will supply Xcel Energy with approximately 200,000 MWH annually of reliable, deliverable on-peak energy. The geographic dispersion of the Project will increase reliability, because the total Project will be less susceptible to outages due to equipment failure or transmission outage. Because each facility will be located at a distribution substation and be sized as a fraction of the peak load on the substation, the Project will experience substantially lower losses than most conventional power plants. In addition, the distribution level interconnections will have less lead time, lower risk and lower cost than typical transmission interconnections.

5.0 DISTRIBUTED SOLAR PROJECT

5.1 PROJECT DESCRIPTION

The Project will consist of up to 100 MW of distributed photovoltaic power plants to be located at up to 31 sites serving Xcel Energy loads in MISO Planning Resource Zone 1.⁶ The distributed solar facilities range in size from 2 MW to 10 MW and will utilize a linear axis tracker to increase the accredited capacity of the systems to 72 percent, based on MISO accreditation methods for non-wind variable generation resources. Should MISO's accreditation rules be modified, system modifications may be required to optimize the facilities under the new rules. This could result in the elimination of the tracker mechanism.

Geronimo has sized the systems on an individual basis to offset approximately 20 percent of the existing load at each respective substation. The location of each Distributed Energy Generation Zone was selected to make efficient use of existing transmission facilities equipment. Each Distributed Energy Generation Zone ranges in size from 20 to 70 acres, is in close proximity to Xcel Energy distribution or MISO transmission substations and has limited environmental impacts.

The Project's primary components include a nominal 300 watt photovoltaic module mounted on a linear axis tracking system and a centralized inverter(s). The tracking system foundations will utilize a driven pier and do not require concrete. Balance of plant components includes electrical cables, conduit, step up transformers and metering equipment. The solar facilities will be fenced and seeded in a low growth seed mix to reduce run-off from existing conditions and improve water quality.

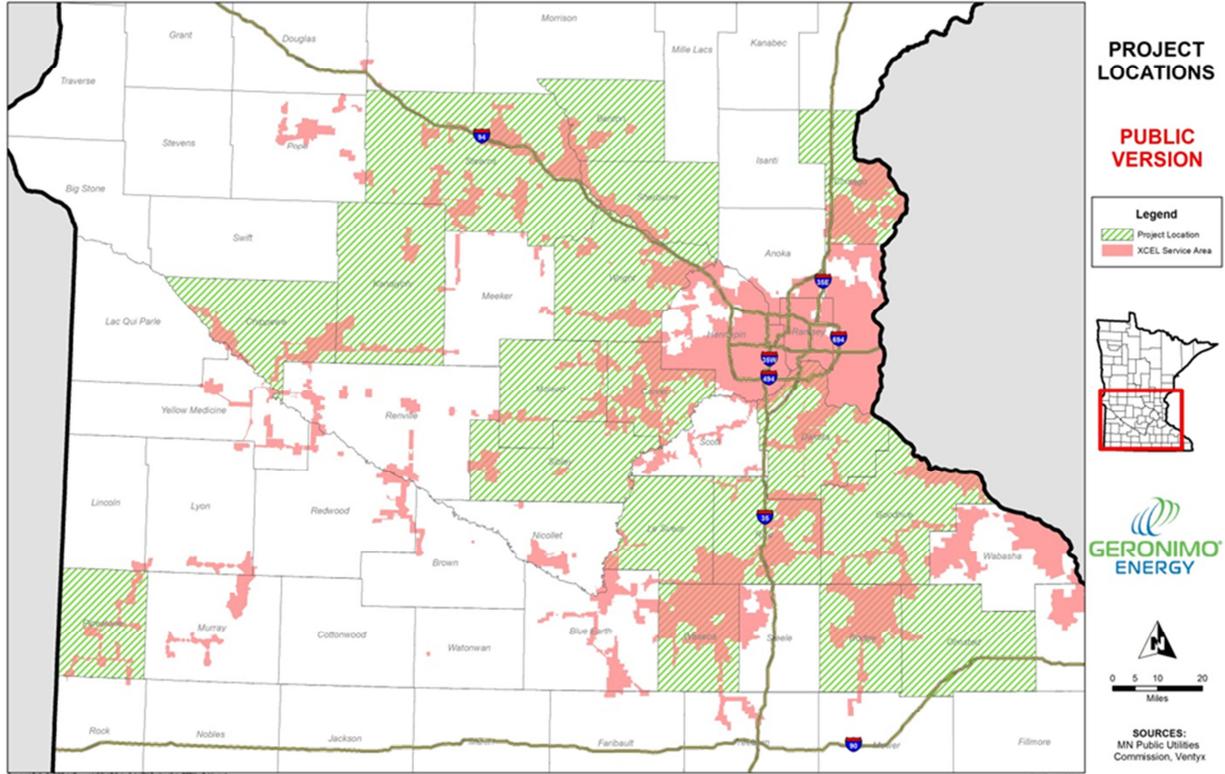
The Project will generate electricity from sunlight; therefore, no fuel is required. Further, heat rates are not applicable to solar facilities.

⁶ Geronimo's proposed Distributed Energy Generation Zones are at locations serving Xcel load. They are in Xcel's local balancing area, which MISO has assigned to Planning Resource Zone 1. See map at <https://www.midwestiso.org/layouts/MISO/ECM/Redirect.aspx?ID=143520> at page 11.

5.2 FACILITY LOCATIONS

The proposed facilities are at sites serving Xcel Energy loads in MISO Planning Resource Zone 1. Figure 3 shows the counties where the Distributed Energy Generation Zones are located as well as Xcel Energy's service territory.

Figure 3 Counties Hosting Distributed Solar Facilities



Trade Secret Appendix C contains detailed site location maps.⁷ Geronimo has currently identified 31 Distributed Energy Generation Zones as primary and alternative locations, and expects that other sites may be considered if they meet the peak-load and other operating characteristics of this proposal. The locations are currently designated as Trade Secret because land acquisition negotiations are ongoing at approximately 50 percent of the sites. Once all negotiations are final, Geronimo will provide a public filing showing the locations. Geronimo expects site control to be complete in the summer of 2013.

5.3 NOMINAL GENERATION CAPABILITY

The nameplate generation capability of the Project is proposed to be 100 MW AC. Each facility will be designed utilizing a DC to AC ratio that optimizes the accredited capacity of the array

⁷ As an independent power producer, Geronimo does not have a system map. The maps in Figure 3 and Appendix C are provided as an alternative to this data requirement.

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according to MISO guidelines, the site specific interconnection capacity and the losses associated with cable losses, thermal losses and other associated derates. A total of 31 Distributed Energy Generation Zones have been evaluated and identified as suitable for development. The installed capacity for the selected sites is 133 MW which will be reduced to 100 MW during final design, permitting and engineering processes. This provides flexibility in the siting, sizing and permitting of the facilities based on site specific constraints.

There are over 150 additional Distributed Energy Generation Zones within Planning Resource Zone 1 and with a capacity of 2 MW or greater are available as substitute project site locations should additional locations be required or desired to increase the scale of the Project due to its unique value proposition.

Due to the modular nature of the proposed facilities, the total nameplate generation capabilities can be adjusted in terms of system size and scheduling of installation. This provides Xcel Energy flexibility to increase or decrease the generation capabilities as market conditions warrant.

Nominal generation characteristics are summarized below by Distributed Energy Generation Zone:

Table 1 Nominal generation Characteristics by Site

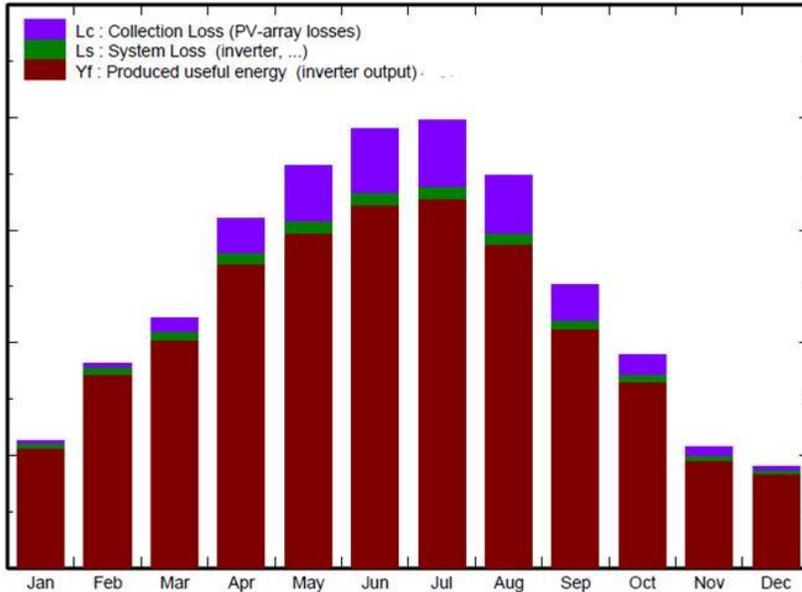
DEGZ #⁸	Interconnection	MW - AC⁹	MW - DC	MWh/year
1.	69kV	10	13	19,785
2.	Distribution	2	2.6	3,930
3.	Distribution	2	2.6	3,929
4.	Distribution	2	2.6	3,935
5.	Distribution	2.5	3.25	4,833
6.	69kV	10	13	19,676
7.	115kV	10	13	19,441
8.	Distribution	2	2.6	3,856
9.	Distribution	2	2.6	3,855
10.	Distribution	4	5.2	7,697
11.	Distribution	2.5	3.25	6,127
12.	69kV	10	13	19,372
13.	Distribution	2	2.6	3,859
14.	Distribution	2	2.6	3,917
15.	Distribution	5.5	7.15	10,663
16.	Distribution	7.5	9.75	14,461
17.	Distribution	2	2.6	3,960
18.	Distribution	3	3.9	5,939
19.	Distribution	2	2.6	4,101
20.	Distribution	2	2.6	3,862
21.	69kV	10	13	19,222
22.	Distribution	2.5	3.25	4,894
23.	Distribution	3	3.9	7,124
24.	Distribution	4	5.2	7,716
25.	Distribution	2	2.6	3,865
26.	Distribution	8.5	11.05	16,434
27.	Distribution	3	3.9	5,777
28.	Distribution	2.5	3.25	4,815
29.	Distribution	6	7.8	11,578
30.	Distribution	3	3.9	5,798
31.	Distribution	3	3.9	5,778
	Totals	133	172	260,099

⁸ In order to protect the Trade Secret locations of the Distributed Energy Generation Zones through this filing, each individual facility has been numbered 1-31. Trade Secret Appendix D provides a table correlated each number to its geographic location.

⁹ The aggregate nameplate capacity of the Distributed Energy Generation Zones shown on this table exceeds the proposed 100 MW (AC) size of the Project because the table lists all primary and alternate sites. The final size of the Project will be consistent with the 100 MW (AC) proposed size unless modified by the Commission.

Figure 4 below illustrates the expected generation pattern by month for a 2 MW facility.

Figure 4 Normalized productions (per installed kWp): Nominal power 2592 kWp



5.4 ECONOMICS OF SCALE

Generally, economies of scale (system size) do not affect the generation characteristics of the proposed facilities due to the fact that the efficiency of a photovoltaic system depends primarily on the characteristics of the individual modules and the inverter. This allows excellent flexibility to adjust system size for site specific constraints without impacting the facilities' overall efficiencies.

Economies of scale do affect the capital cost of the Project. Should a smaller Project be more advantageous to Xcel Energy, Geronimo reserves the right to adjust its capital costs per MW to reflect the revised project size.

5.5 ANNUAL CAPACITY ACCREDITATION

MISO bases the accredited capacity for non-wind variable generation on the historical net output for the hours 1500 to 1700 Eastern Standard Time during June, July, and August over the most recent three consecutive years. This time corresponds to the hours ending 2 p.m., 3 p.m., and 4 p.m. Central Standard Time.¹⁰ Xcel Energy's forecasted demands reported under the MISO Resource Adequacy Requirements are on an hourly basis.

¹⁰ Comments of the Minnesota Department of Commerce, Division of Energy Resources, Docket No E002/GR-10-971 dated December 3, 2013, at 6.

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Based on an analysis using MISO’s accreditation method, the proposed photovoltaic power plants have an accredited capacity of 72 percent of their AC rating. The accredited capacity value for the Project was determined using a TMY3 (typical meteorological-year, version 3) data set produced by the National Renewable Energy Laboratory (“NREL”) and three years of production data from the Saint John’s Solar Farm 400kW linear axis tracker in Collegeville, Minnesota.

The TMY3 data is an hourly time series spanning one calendar year produced from a combination of satellite and surface radiance measurements from a variety of platforms and is intended to represent the typical conditions at a given location. System topology – panels, inverters, string counts and lengths, and loss assumptions – and the TMY3 time series were entered into PVSyst, an industry-standard modeling program for the estimation of energy production by solar facilities, and used to derive the generation values presented.

The generation data was then cross referenced with data obtained from Xcel Energy’s production meter the Saint John’s Solar Farm in Collegeville, Minnesota. The Saint John’s Solar Farm utilizes identical technology and provides an excellent proxy for generation characteristics of the proposed solar facilities.

Table 2 below summarizes the annual capacity characteristics of the solar facilities based upon the average of the TMY 3 data as modeled through the PVSyst program and the data from the Saint John’s Solar Farm. Trade Secret Appendix E provides the PVSyst model results for each Distributed Energy Generation Zone.

Table 2 Summary of Comparison of Annual Capacity Characteristics

Data Source	AC Capacity
Saint John's Solar Farm	71.20%
PVSyst	72.40%
Average	71.80%

Due to the geographical disbursement of the proposed Project sites, the portfolio of solar facilities as a whole will have a smaller standard deviation on its energy output than that of one single solar project. For example, on a cloudy day, when a cloud may temporarily cover a single project site and lower its energy output, another solar facility in a different part of the state may not be experiencing cloudiness and will be at full output. Whereas, with one single solar facility, that single site may have larger changes in output than that of a 30-facility portfolio. This dispersion of plants across a broad geographical range around Xcel Energy’s Upper Midwest service territory gives a diversified generation output, with a lower standard deviation of total portfolio output during peak hours than that of one single large solar facility.

Similarly, from an operations perspective, having multiple locations increases the reliability of the system as opposed to one single unit. For example, when comparing a 100 MW natural gas peaking unit against 20 different solar facilities, if that one 100 MW natural gas peaking unit fails, all 100 MW are unavailable; whereas, with 20 different solar facilities, if one solar facility fails, then only approximately 5 percent of the total energy output potential is unavailable.

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Utilizing the methodology described above. The accredited capacity value for each respective Distributed Energy Generation Zone is detailed in Table 3 below.

Table 3 Distributed Energy Generation Zone Accredited Capacity Values

DEGZ #	MW - AC¹¹	Capacity Rating
1.	10	7.2
2.	2	1.44
3.	2	1.44
4.	2	1.44
5.	2.5	1.8
6.	10	7.2
7.	10	7.2
8.	2	1.44
9.	2	1.44
10.	4	2.88
11.	2.5	1.8
12.	10	7.2
13.	2	1.44
14.	2	1.44
15.	5.5	3.96
16.	7.5	5.4
17.	2	1.44
18.	3	2.16
19.	2	1.44
20.	2	1.44
21.	10	7.2
22.	2.5	1.8
23.	3	2.16
24.	4	2.88
25.	2	1.44
26.	8.5	6.12
27.	3	2.16
28.	2.5	1.8
29.	6	4.32
30.	3	2.16
31.	3	2.16
TOTAL	133	95

¹¹ The aggregate nameplate capacity of the Distributed Energy Generation Zones shown on this table exceeds the proposed 100 MW (AC) size of the Project because the table lists all primary and alternate sites. The final size of the Project will be consistent with the 100 MW (AC) proposed size unless modified by the Commission.

Geronimo will follow MISO Module E's guidelines for Generation Verification Test Capacity to obtain the accredited capacity for all site locations.

5.6 OPERATIONAL AND MAINTENANCE CONSIDERATIONS

5.6.1 Service Life and Availability

The Project's estimated average annual availability is in excess of 97 percent. The expected service life of the proposed facilities is 25-40 years. The minimum specifications for the solar module production warranty are 90 percent of nameplate capacity at year 10 and 80 percent of nameplate capacity at year 25. Similarly, the inverters are warranted to be free from defects in material and workmanship for a period of 10 years. The components of the inverter can be replaced and repaired if maintenance is required. The tracking system and associated foundation piers are made of aluminum and galvanized steel and have a useful life in excess of 25 years.

5.6.2 Operations and Maintenance Plan

Geronimo's strategic partner EGP currently provides O&M services on 32 solar projects across the globe totaling over 142 MW of operating nameplate capacity. Utilizing this experience, a unique maintenance plan will be created for the Project to ensure the performance of the solar facilities. It will include a scheduled check of the main items and a predictive maintenance approach of the devices subjected to derating/degradation. The main scheduled activities are listed below:

- Housekeeping of the site: road maintenance, grass cutting, fence and gate inspection, lighting system check, and PV panel washing (if required).
- Performance monitoring: weekly or monthly download of the data acquired by the on-site met station (energy produced, alarms, faults, etc.).
- Inspection of the main equipment:
 - PV panels: visual check of the panels, tracking system and surrounding grounds to verify the integrity of the panels and tracking structure, the presence of animals and nests, etc.
 - Inverters, transformer and electrical panels:
 - Visual check of the devices including the connection cabinet and the grounding network. Check for presence of water and dust;
 - Electrical check: measurement of the insulation level and dispersion. Check of the main switches and safety devices (fuses);
 - Noise: check of abnormal sounds.
- Cabling and Wiring: visual check of the buried and aerial electrical line and connection box to verify their status.

All maintenance activities will be performed by qualified personnel. Notably, maintenance can be performed without shutting down the entire plant. As an example, if a module needed repair, that particular section of the array can be disconnected from the array by opening the combiner box circuit. The module can then be replaced and the combiner box circuit closed. This

temporary shutdown would affect less than one percent of the array’s production capability for a 10 MW plant. Additionally, the power production circuits are separated from the tracking circuits. This allows the photovoltaic modules to operate during an unscheduled outage of the tracker system.

There will be an area for the storage of the spare parts and the tools. The generation plant will be remotely operated through a real time control system. All the monitored data will be managed by EGPNA or contracted out to a qualified subcontractor.

Table 4 describes the O&M tasks and their frequency.

Table 4 Operations and Maintenance Tasks and Frequency

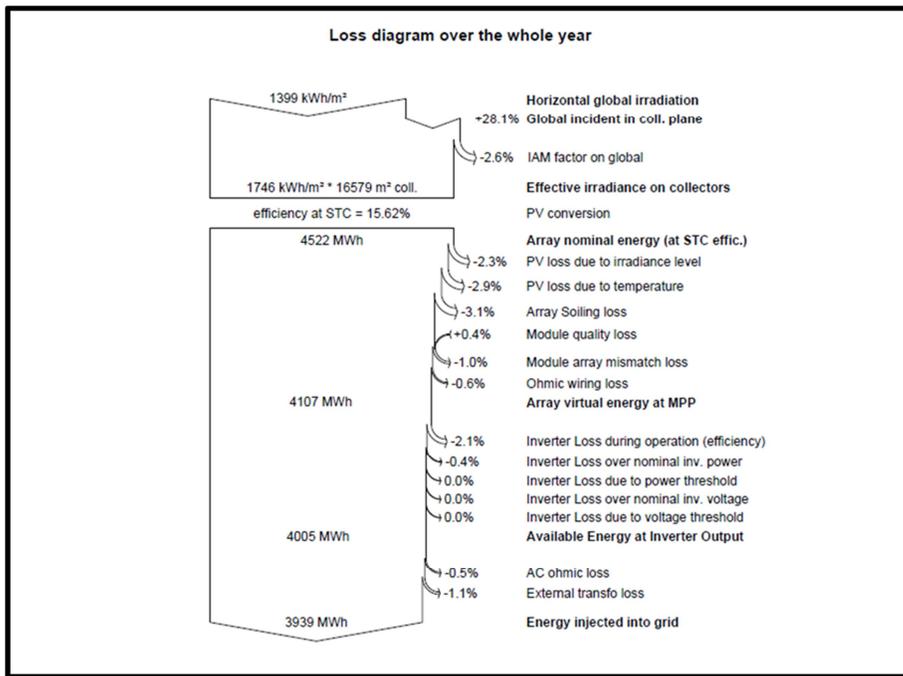
<i>Plant device and job</i>	<i>Frequency</i>
Photovoltaic Field	
PV modules visual check	<i>Every two months</i>
Wirings and Junction boxes visual check	<i>Quarterly</i>
PV strings measurement of the insulation	<i>Quarterly</i>
PV strings and string boxes faults	<i>Weekly (1)</i>
PV panels washing	<i>Yearly (if required)</i>
Grass cutting (<i>if necessary at site</i>)	<i>Once in Spring, once in Summer</i>
Electric boards	
Case visual check	<i>Twice Yearly</i>
Fuses check	<i>Twice Yearly</i>
Surge arresters check	<i>Twice Yearly</i>
Torque check	<i>Twice Yearly</i>
DC voltage and current check	<i>Twice Yearly</i>
Grounding check	<i>Twice Yearly</i>
Inverter	
Case visual inspection	<i>Every two months</i>
Air intake and filters inspections	<i>Every two months</i>
Conversion stop for lack of voltage	<i>Twice Yearly</i>
AC voltage and current check	<i>Twice Yearly</i>
Conversion efficiency inspection	<i>Twice Yearly</i>
Datalogger memory download	<i>Twice Yearly</i>
Fuses check	<i>Twice Yearly</i>
Grounding check	<i>Twice Yearly</i>
Torque check	<i>Twice Yearly</i>
Support structures	
Visual check	<i>Twice Yearly</i>
PV modules torque check on random sample	<i>Twice Yearly</i>

EGP’s Operations & Maintenance (O&M) group in North America currently employs 195 people. Within the EGP O&M group is a global Operational Excellence Group dedicated to identifying areas where O&M staff can enhance the performance of EGP’s global operating assets. This group will monitor, implement, and analyze key performance indicators of effectiveness and efficiency and will coordinate and manage all sites associated with the Project.

5.6.3 Efficiency

The individual facilities will have performance ratios of between 78-85 percent depending on the final design and site specific environmental conditions. Figure 5 below illustrates the items that affect production capabilities for a typical 2 MW system. The typical items include module soiling, temperature, module voltage mismatch as well as inverter and transformer losses. In addition, Geronimo has assumed a [TRADE SECRET DATA HAS BEEN EXCISED] percent system unavailability loss in addition to the system losses modeled below. Generally, losses stay consistent with changes in site size. Larger sites may have slightly great electrical losses, but those are accommodated for in the overall sizing of the individual sites.

Figure 5 Representative 2 MW Solar Facility System Losses



6.0 PROJECT COST AND PRICING

6.1 PROJECT COST

The total project cost is estimated at \$[TRADE SECRET DATA HAS BEEN EXCISED], or [TRADE SECRET DATA HAS BEEN EXCISED] /kW +/- 10 percent, depending on the current market for panels and construction services at time construction. The estimated annual operations and maintenance costs are \$[TRADE SECRET DATA HAS BEEN

EXCISED]/kW/Yr or approximately **[\$[TRADE SECRET DATA HAS BEEN EXCISED]/kWh.**

There are no fuel costs associated with the Project. Nominal purchases of electricity will be necessary to run the Project, and that power will be acquired from local electricity utility, similarly to any other commercial or industrial business. For example, a 10,000 kW Nameplate AC Solar facility will only require approximately 12 kW of power during night hours when no energy is being generated.

6.2 COMPETITIVE PRICING

Geronimo is pleased to offer annual, defined pricing for this Project throughout the proposed 20 year contract. Solar energy requires no fuel, and therefore pricing is not dependent on future forecasts of natural gas or other fuels. Adding solar energy to Xcel Energy's resource mix will allow the Company to reduce its dependence on natural gas and hedge the future volatility of rates.

The energy that will be delivered from this Project is high value energy that is only produced during the daylight hours, and is mainly produced during the MISO on-peak hours when market energy prices are typically higher. To mirror pricing for accredited capacity resources, Geronimo is proposing a price for the Project's accredited capacity, energy, RECs and the environmental attributes that includes both a fixed and a variable price component. Because this resource does not incur costs in the same way as a thermal generation facility, however, Geronimo is also proposing an alternative pricing that bundles the Project's economic attributes based only on MWh generated.

Table 5 shows the prices for each proposal for each year of the 20-year term. This pricing is inclusive of all renewable energy credits and other environmental attributes. This pricing is applicable at the Point of Interconnection ("POI") and does not include any transmission or delivery costs beyond the POI. Geronimo is not proposing any additional payments for fixed or variable O&M, fuel, taxes or other costs. This pricing assumes that Xcel Energy is obligated by the power purchase agreement to take all energy produced by the Project.

Table 5 Annual Price

Fixed + Variable			Bundled Price
	\$/MWh	\$/kW-month*	\$/MWh)
Year 1			
Year 2			
Year 3			
Year 4			
Year 5			
Year 6			
Year 7			
Year 8			
Year 9			
Year 10			
Year 11			
Year 12			
Year 13			
Year 14			
Year 15			
Year 16			
Year 17			
Year 18			
Year 19			
Year 20			

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*Note: kW based upon AC nameplate rating

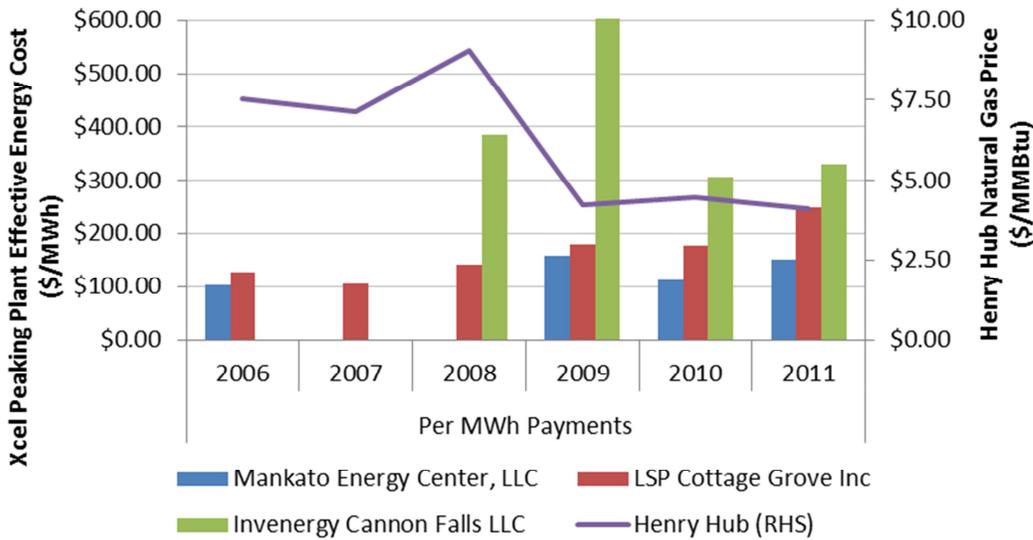
Geronimo’s pricing is competitive with all-in costs of natural gas-fired facilities that Xcel Energy already has under contract, even before considering the Project’s REC values and other associated environmental benefits. As shown on Table 6 and Figure 6, Xcel Energy has reported total cost of energy and capacity for various natural gas peaking facility contracts on Xcel Energy’s system as ranging from approximately \$135-300 MWh.

Table 6: Per MWh Payments for Xcel Energy Natural Gas Facilities

	Per MWh Payments					
	2006	2007	2008	2009	2010	2011
Mankato Energy Center, LLC	\$104.83	-	-	\$158.30	\$113.57	\$151.31
LSP Cottage Grove Inc	\$128.13	\$106.30	\$140.86	\$180.06	\$177.19	\$249.87
Invenergy Cannon Falls LLC	-	-	\$384.96	\$954.81	\$305.79	\$329.84

Source: Ventyx Velocity Suite – FERC Form 1, Per MWh payment = Total Cost ÷ MWh Generated

Figure 6 Total Energy & Capacity Costs for Xcel Energy’s Natural Gas Peaking Facilities



Source: Ventyx Velocity Suite – FERC Form 1, Per MWh payment = Total Cost ÷ MWh Generated

**Please note Calpine Corp Plant data showed zero generation in 2007 or 2008; Invenergy LLC came on line in 2008.*

6.3 ESTIMATE OF FACILITY’S EFFECT ON RATES

Because the cost of this Project exceeds the average cost of Xcel Energy’s wholesale generation, and likely replaces generation previously provided by an aged coal-fired generating plant, Geronimo expects the proposal to slightly increase rates. The increase will likely be comparable to rate increases caused by that of other reasonable alternatives.

Geronimo believes this proposal is competitively priced, especially when all environmental costs and benefits are considered. The relative costs and rate impacts of each proposal, including the Project, will be analyzed by the Minnesota Department of Commerce and Xcel Energy as part of their evaluation of the alternative proposals in this docket. Appendix F includes the Strategist Assumptions for the Project to facilitate this review.

7.0 ENVIRONMENTAL INFORMATION

7.1 VISUAL IMPACTS

Geronimo's proposal would convert approximately 700 acres of agricultural or vacant land to multiple solar facilities characterized by complex geometric forms, lines, and surfaces that may be novel to and divergent from the surrounding rural landscape. Most of the developed area would be utilized with rows of solar PV panels. Solar PV employs glass panels that are designed to maximize absorption and minimize reflection to increase electricity production efficiency.

Interconnection facilities

Distribution Line: The proposed gen-tie would be typical distribution line construction similar to the existing voltage, size, and type of distribution lines in the vicinity of the interconnection point (typically distribution wires strung on wood poles approximately 35 feet high and approximately 150 feet apart.)

Substation: Substations, if required, will be low profile typical of distribution voltage substations and will include a fenced area, a small control house and electrical transformation and switching equipment. It will generally be of a light industrial nature.

7.2 LAND USE AND REQUIREMENTS

The Project in its entirety will convert 700 acres to solar energy facilities including panels, operations facilities, substations and interconnection facilities as described in Section 6.1. These facilities will be located on agricultural or industrial land or other land uses determined by the local land use and zoning authorities to be compatible with solar energy production. These determinations will be made through public processes and will not be out of the scope of normal land use changes that occur on a day-to-day basis in municipalities.

The Project would not require or cause any land use impacts for water storage, cooling systems or solid waste storage.

7.3 WILDLIFE

The proposed Project will have limited impacts to wildlife and will be likely only related to indirect effects associated with habitat conversion from agricultural or vacant land to the solar facility. Because any given site's acreage will be small compared to the available habitat around the site, the impacts associated with any habitat conversion will be minimal. Geronimo will coordinate with the DNR, FWS and other relevant agencies to review and ensure that all facilities have been appropriately sited to avoid any direct or indirect impacts to State and Federally listed species.

To provide an initial screening of the sites, Geronimo contracted with Westwood Professional Services to perform GIS desktop level assessments of the proposed Distributed Energy Generation Zones and identify locations of environmental sensitivity. Trade Secret Appendix H provides maps illustrating the Distributed Energy Generation Zones relative to sensitive environmental features. The initial screening identified a number of environmentally sensitive areas in or near many of the Distributed Energy Generation Zones. However, because of the small number of acres impacted by the solar facilities, Geronimo will be able to avoid these features when siting the Project.

7.4 TRAFFIC

For every two megawatts of installed capacity, Geronimo estimates that there will be between 27 and 35 trucks used for delivery during construction and light duty trucks on a daily basis for transportation of construction workers to and from the site during construction. Once construction is complete the individual solar facilities will see one to two trucks on site at intervals associated with the maintenance schedule in Section 5.6.2 during normal operations.

Geronimo does not anticipate that the project will generate perceivable changes to barge and rail traffic.

7.5 AIR EMISSIONS

The Project will have no air emissions and will avoid emissions associated with other fossil generation facilities. Geronimo undertook analysis using U.S. Environmental Protection Agency (“EPA”) data for emissions and generation data for the MISO-Minnesota Zone from Ventyx avoided emissions related to the Project. Table 7 provides a summary of the estimated reduction in pollutants from the Project based on a 2012 generation profile. Appendix I provides further detail regarding the analysis and assumptions used in calculating these estimates.

Table 7 Estimated Avoided Pollutants

Pollutant	Tons/Year
CO2	(94,133.00)
CO	(115.98)
NOX	(63.26)
PM10	(27.08)
VOC	(3.44)
SO2	(10.48)

7.6 WATER

The Project will not use any water for alternate cooling systems. The Project may, on occasion, and on a site-by-site basis, require water for cleaning of panels on a yearly or six-month basis. Geronimo conservatively estimates that water used for washing will be approximately 10,000 gallons per MW of installed nameplate capacity annually. Geronimo anticipates that actual water usage will be much lower based on experiences at operating facilities in Minnesota (e.g., the St. John’s Solar Farm).

7.7 RADIOACTIVE RELEASES AND WASTE

The Project will not generate any radioactive or solid waste under normal operating procedures. No parts require greasing or oiling on a regular basis.

7.8 NOISE

The main source of noise will be from the transformers and from the rotation of the tracking system. The proposal will not generate noise at levels different than those already present in the in landscape of the Distributed Energy Generation Zones. All electrical equipment will be designed to National Electrical Manufacturer Association (“NEMA”) Standards. Table 8 summarizes typical noise generated from different voltage transformers that will be used to step up the electricity from the proposed solar facilities.

Table 8 Transformer Noise Levels

Eq. Two-Winding (kVA)	Self-Cooled/Ventilated (dB(a))	Self-Cooled/Sealed (dB(a))	Eq. Two Winding (kVA)	Ventilated Cored Air Cooled (dB(a))
0-50	50	50	-	
51-150	55	55	-	
151-300	58	57	3-300	67
301-500	60	59	301-500	67
501-700	62	61	501-833	67
701-1000	64	63	834-1167	67
1001-1500	65	64	1168-1667	68
1501-2000	66	65	1668-2000	69
2001-3000	68	66	2001-3333	71
2001-4000	70	68	3334-5000	73
4001-5000	71	69	5001-6667	74
5001-6000	72	70	6668-8333	75
6001-7500	73	71	8334-10000	76

All transformers will be sited such that the sound generated by them will attenuate to levels below Minnesota State Noise Standards before it reaches any residences or community buildings.

7.9 CONSTRUCTION AND OPERATION WORK FORCE

The Project will create approximately 500 construction related jobs and 10 permanent positions to operate and maintain the facilities. Geronimo estimates that each site will require an average of six unique construction jobs, plus 3.3 jobs per installed MW (i.e., a 1 MW site will create approximately 10 construction jobs). Additional, during construction other, non-construction jobs such as engineering and surveying will be needed. Geronimo used the National Renewable Energy Laboratory’s (“NREL”) Jobs and Economic Development Impacts (“JEDI”) PV tool¹² to calculate jobs associated with the design construction and installation of the Project and estimated a total of 793 Full Time Equivalent jobs created during the construction cycle.

7.10 NUMBER AND SIZE OF TRANSMISSION FACILITIES

The Project is proposing limited transmission facilities that will interconnect the solar facilities to the transmission grid. Transmission facilities will be short (approximately 0.5 to 3 miles) for each solar facility. All distribution voltage interconnection facilities will be permitted at the local level.

¹² <https://jedi.nrel.gov/>.

8.0 TRANSMISSION AND DELIVERABILITY

Each of the Distributed Energy Generation Zones is located within MISO Planning Resource Zone 1, which includes Xcel Energy's loads in Minnesota. The proposed distribution-interconnected facilities will interconnect directly to Xcel Energy distribution feeders or Xcel Energy distribution substations serving Xcel Energy load. For the proposed facilities interconnecting at Xcel Energy transmission substations, Geronimo will request MISO Network Resource Interconnection Service, which will allow Xcel Energy to designate them as network resources. In either case, Xcel Energy will incur no additional transmission cost.

In aggregate, the proposed facilities will provide a high level of reliability through geographic diversity. Individual transmission or generating equipment outages will affect only a subset of the proposed facilities. Each of the proposed facilities has been sited and sized to be less than approximately 20 percent of the peak load at the POI. This ensures that the effects of outages or output fluctuations at each site will be less than or comparable to existing load variability. The reliability of distribution or transmission service affecting the proposed facilities will be comparable to the reliability of service to loads at the POI.

9.0 SCHEDULING CONSIDERATIONS

9.1 IN-SERVICE DATE

The proposed in service date is December 1, 2016 in order to meet a portion of the 150 MW of capacity for the 2017 summer requirements. In addition, due to the modular nature of distributed generation and the technology, if needed, a portion of the facilities could be brought on-line prior to December 1, 2016 in order to meet current market conditions. This provides Xcel Energy with significant flexibility in order to efficiently meet its customers' needs for energy and capacity.

9.2 PLANNED MAINTENANCE

The proposed facilities do not require any planned maintenance events that would prohibit operation of the plant. All planned maintenance would take place during non-daylight hours.

9.3 EXPECTED MINIMUM LOAD

No minimum load is required for solar facilities.

9.4 RAMP RATES

As a non-wind variable resource that utilizes solar irradiance as a fuel resource, ramp rates are determined by solar irradiance. Downward ramp control can be accommodated for larger facilities that utilize a plant controller.

9.5 LIMITATIONS ON OPERATIONS

The facilities utilize photovoltaic technology which requires solar irradiance to produce energy and capacity. Production will be limited by the availability of solar irradiance.

9.6 GUARANTEED PERFORMANCE FACTORS

Geronimo and its contracting partner have never missed a commercial operation deadline. The proposed construction and procurement schedule for the Project have been vetted for fatal flaws and include flexibility in the critical path of the procurement, permitting and construction schedules. The selected technology is offered by numerous vendors in the marketplace. This provides flexibility in the procurement of the module, inverter and racking technologies protecting the project from sole source procurement risk. Similarly, as a distributed generation project, the schedule for site permitting and construction can be modified to accommodate site specific constraints without impacting the overall schedule of the project at large. Together, this allows the Project with tremendous flexibility to ensure commercial operation by December 2016.

9.7 PERMIT MILESTONES

The Project will require local land use permits. In many jurisdictions, there may not be existing zoning specifically for solar energy facilities. Geronimo anticipates that land use permitting will take between 60 and 120 days to complete, varying according to local processes in place for ordinance amendments and zoning approvals. Table 9 provides a summary of the timelines associated with the permits needed for the Project.

Table 9 Permitting Timeline

Category	Timeline
Land Use Permitting	60-120 days
Wetland Permitting	90 days
Stormwater Permitting	60-120 days
Right of Way Permitting	30 days
Construction Permitting	30 days

9.8 FINANCING, ENGINEERING, CONSTRUCTION AND PROCUREMENT MILESTONES

The following tables provide a summary of Geronimo's milestone dates for financing, engineering and procurement. Because of the modular nature of the proposal, milestone dates will be assigned in finality in the contract document and will be based off of the contractual in-service date unique to each Distributed Energy Generation Zone.

Table 10 Financing Timeline

Item	Completion
Financial Syndication	60 days before construction
Financing Closed	30 days before construction

Table 11 Engineering Timeline

Item	Completion
Geotechnical Evaluation	20 days before completion of Civil

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	Design
Electrical Design	75 days before construction
Civil Design	75 days before construction
Transportation Plan	75 days before construction
Interconnection Design	90 days before construction

Table 12 Procurement Timeline

Item	Completion	
Land		
Option Secured	3 rd Q 2013	
Lease activated/Purchase Closed	220 days before construction	
Equipment	Ordered	Delivered
Panels	120 days before construction	Will vary by location
Inverters	150 days before construction	Will vary by location
Medium/High Voltage Switching	150 days before construction	Will vary by location
Low Voltage Equipment	100 days before construction	Will vary by location
Transformers	200 days before construction	Will vary by location
Control House	150 days before construction	Will vary by location

The proposal is for multiple sites of varying size, Table 13 provides data on how Geronimo will schedule the construction process for each Distributed Energy Generation Zone including task duration and key predecessors.

Table 13 Construction Timeline

Task	Duration	Key Predecessor
Site Preparation, Grubbing and Clearing	2 days per acre	Construction begins
Laydown and Temporary Job Site Trailers	7 days	Construction begins
Civil Construction	10 days per acre (May vary according to terrain)	Laydown and Temporary Job Site Trailers
Substation	100 days	Laydown and Temporary Job Site Trailers
PV Mounting Posts	5 days/MW	Site Preparation, Grubbing and Clearing
Underground Collection System	4 days/MW	Site Preparation, Grubbing and Clearing
Electrical Enclosure/Inverter	15 days/unit	Laydown and Temporary

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		Job Site Trailers
Tracker Installation	3 days/MW	PV Mounting Posts
PV Module Installation	3 days/MW	Tracker Installation
Interconnection Tie	10 days/100 feet	Laydown and Temporary Job Site Trailers
Testing	20 days	Interconnection Tie

10.0 CERTIFICATE OF NEED CRITERIA

Minnesota Rule, part 7849.0120 sets forth the criteria the Commission uses to assess the need for a large electric generating facility. The Commission must grant a CN to an applicant upon determining that:

A. [T]he probable result of denial would be an adverse effect upon the future adequacy, reliability, or efficiency of energy supply to the applicant, to the applicant's customers, or to the people of Minnesota and neighboring states (Part 7849.0120(A));

B. [A] more reasonable and prudent alternative to the proposed facility has not been demonstrated by a preponderance of the evidence on the record (Part 7849.0120(B));

C. [B]y a preponderance of the evidence on the record, the proposed facility, or a suitable modification of the facility, will provide benefits to society in a manner compatible with protecting the natural and socioeconomic environments, including human health (Part 7849.0120(C)); and

D. [T]he record does not demonstrate that the design, construction, or operation of the proposed facility, or a suitable modification of the facility, will fail to comply with relevant policies, rules, and regulations of other state and federal agencies and local governments (Part 7849.0120(D)).

As discussed further below, the Project satisfies all four of the Commission's criteria for granting a certificate of need for the Project.

10.1 DENIAL OF THE DISTRIBUTED SOLAR ENERGY PROPOSAL WILL ADVERSELY AFFECT THE ADEQUACY, RELIABILITY AND EFFICIENCY OF XCEL ENERGY'S ENERGY SUPPLY

As noted previously in this filing, the Minnesota Public Utilities Commission has determined that Xcel Energy has demonstrated a need for 150 MW of capacity and associated energy by 2017, which will increase up to 500 MW of capacity by 2019. Not only does Xcel Energy's demand continue to grow, but some of its current generation resources are facing possible retirement, and some of its current contracts are expiring over the next decade. A notable example is the Black Dog Generating Plant coal-fired Units 3 and 4, with a summer rated capacity of 253 MW, which Xcel Energy plans to retire in the 2016 time frame.

Denial of the Distributed Solar Energy Proposal would prevent Xcel from meeting its peak capacity needs as identified by the Commission, which could potentially lead to blackouts or brownouts across its system. In addition, Xcel Energy may fail to meet its requirements as a member of MISO's Reserve Sharing Pool, which could cause the Company to incur a Capacity Deficiency Charge from MISO in an amount that could exceed \$268,000/MW-year.¹³

10.2 THE DISTRIBUTED SOLAR ENERGY PROPOSAL IS THE MOST REASONABLE AND PRUDENT ALTERNATIVE PRESENTED

This competitive acquisition process has been established to assist the Commission in evaluating the best alternative to meet Xcel Energy's need for additional generation identified in its most recently-approved integrated resource plan. Applying the factors set forth in Minnesota Rule, Part 7849.0120(B), the Project has many advantages when compared to other alternatives that may be proposed in this alternative proposal process.

Size, Type, Timing: In evaluating alternatives, the Commission examines whether the Project is the appropriate size, whether it is the right type, and whether the timing is appropriate. With respect to the size of the Project, Geronimo is proposing up to 31 distributed sites for a total Project size of up to 100 MW. Geronimo recognizes that Xcel Energy will also need to acquire additional generation to meet its total 150 MW need in 2017 and up to 500 MW need in 2019. However, the Commission's Orders do not require that the entire need be satisfied from a single project. Moreover, given the limited penetration of solar facilities in Minnesota, adding 100 MW of solar to Xcel Energy's system by 2017 will represent by far the most significant solar installation in Minnesota to date. By proposing a number of locations ranging from 2 MW to 10 MW, this proposal allows Geronimo to capture the advantages of interconnecting smaller, separate generators while providing Xcel Energy and its ratepayers the economies of scale that help drive down capital costs.

Regarding the type of facility, Geronimo is proposing multiple solar photovoltaic generating facilities. Solar energy is a qualified renewable energy under Minnesota law. Solar provides approximately 70 percent of its power during MISO's on peak hourly cohort and has an expected accredited capacity rating of 72 percent of its AC nameplate.

With respect to timing, this proposal offers the Commission and Xcel Energy the flexibility to bring portions of the Project online at different times. Providing flexible in-service dates allows Xcel Energy to better monitor and adjust its operations as these new, distributed generators come online. Ultimately, however, Geronimo is proposing that up to 100 MW AC will be available and in-service by year-end 2016. The proposed in-service date will ensure delivery of the energy ahead of Xcel Energy's 2017 need established in Docket No. E002/RP-10-825. In addition to meeting Xcel Energy's identified resource plan need, this proposal will also provide 100 MW of renewable energy to satisfy Xcel Energy's obligations under the RES for 2016 and beyond.

¹³ The MISO Capacity Deficiency Charge is 2.748 times the Cost of New Entry (CONE). CONE represents the cost of a new simple cycle combustion turbine. For the planning year beginning June 1, 2013, the Capacity Deficiency Charge is $2.748 \times \$97,650 = \$268,342.20$ /MW-year.

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Cost Analysis: Geronimo believes that the cost of the Project compares favorably to the cost of new natural-gas fired generation resources when all costs and benefits are considered.

According to MISO, the Cost of New Entry (“CONE”) of a new combustion turbine generation resource in the MISO Region is approximately \$95,690/MW-Year,¹⁴ or \$7.97/kW-Month. The proposed capacity payment for the 100 MW AC distributed solar portfolio is \$[**TRADE SECRET DATA HAS BEEN EXCISED**]/kW-Month. Because the proposed solar Project is estimated to have an accredited capacity of 72 percent of its AC nameplate capacity, this equates to a cost of \$[**TRADE SECRET DATA HAS BEEN EXCISED**]/kW-Month for actual accredited capacity for the solar facility, received by Xcel Energy, thus, this Distributed Solar Energy Proposal offers a capacity savings of approximately \$[**TRADE SECRET DATA HAS BEEN EXCISED**]/kW-Month, when comparing against MISO’s FERC filing.¹⁵ In addition, according to Xcel Energy, the loss factor on its transmission and distribution system is 5.7 percent for a primary voltage customer.¹⁶ The Project, as a distributed generation portfolio would interconnect primarily to the distribution system which reduces line loss by approximately four percent as compared to a nondistributed generation facility thereby increasing the value of the energy by the same value. These figures do not include the additional environmental benefits of a solar energy facility.

Additionally, the Project has no start-up costs. Start-up costs for a natural gas peaking plant depend on plant characteristics (i.e., size and technology) and the costs incurred by the off-taking utility are directly proportional to the amount of times the plant must start. This can be a significant factor to a natural gas peaking plant over cost.

Finally, the Project provides additional benefits when environmental benefits (\$4.99 - \$17.81/MWh) and/or S-RECs are considered. Neither of these benefits was included in the above capacity cost or energy cost figures above yet represents a significant benefit of a solar generation facility.

Potential Environmental and Socioeconomic Impacts: The Project will have a net benefit to local and regional economies while having limited impacts to the environment. The Project will result in the conversion of up to 700 acres from agricultural or light industrial uses to solar energy facilities. This conversion will result in limited increases of impervious surfaces and no added emissions. The Project will generate some increases in traffic during construction but will not have a noticeable impact once construction is complete. The Project will generate significant revenue in local communities associated with the increased construction activity, the payment of

¹⁴ See David B. Patton, Ph.D., IMM for MISO, 2010 State of the Market Report, p.8 (June 2011) (available at: <https://www.midwestiso.org/Library/Repository/Report/IMM/2010%20State%20of%20the%20Market%20Presentat ion.pdf>), citing MISO’s Annual CONE Recalculation Filing at the FERC, Docket ER11-4185-000 (August 1, 2011).

¹⁵ FERC Docket No. ER11-4185-000.

¹⁶ Minnesota Department of Commerce Comments, In the Matter of the Application of Northern States Power Company for Authority to Increase Rates for Electric Sales in Minnesota, Docket No. E002/GR-10-971 (December 3, 2012) at 7.

taxes, and the payments to landowners participating in the Project. In addition to direct payments, there will be significant induced benefits from the Project. Using NREL's JEDI will generate approximately \$22,311,760 in earnings and the operation phase will generate \$442,750 in earnings.

The local economy will benefit from the procurement of balance of plant components such as steel for the racking foundations, cable, conduit and other commodities utilized for the construction of the facilities.

Reliability: The Project will provide a high level of reliability through geographic diversity. Outages of individual transmission elements or generating facilities will affect only a subset of the proposed facilities. Each of the proposed facilities will be available at least 97 percent of the time. The Project's estimated availability is supported by the fact that the Saint John's Solar Farm has had a 99 percent operational track record in its first three years of operation. In addition, the inverters for the Project (which convert the DC power generated by the photovoltaic models to AC power) can support power quality through voltage and frequency regulation on the respective distribution or transmission feeder, thereby increasing the reliability of the grid. As discussed in Sections 5.6.1 and 5.6.2, solar equipment has a service life of 25-40 years and maintenance can be performed without taking the entire plant offline.

10.3 THE PROJECT BENEFITS SOCIETY AND IS COMPATIBLE WITH THE NATURAL AND SOCIOECONOMIC ENVIRONMENTS

Minnesota Rule, part 7849.0120(C) requires an applicant for a CN to address whether the proposed Project will benefit society in a manner that is compatible with protecting natural and socioeconomic environments, including human health. Applying the factors set forth in Minnesota Rule, Part 7849.0120(C), the energy produced by the Project will provide significant and numerous societal benefits, with minimal negative impacts.

Xcel Energy's Identified Energy Needs: In Xcel Energy's most recently approved integrated resource plan, the Commission found that Xcel Energy needs 150 MW of new generation by 2017 and up to 500 MW by 2019. Approving this Project, which will deliver up to 100 MW (AC) of solar energy by 2016, will fulfill a significant portion of Xcel Energy's identified need.

Potential Environmental and Socioeconomic Impacts Compared to No-Build Alternative: One of the greatest attributes of solar energy is its minimal impact on the environment. The Project will not release carbon dioxide, sulfur dioxide, nitrogen oxides, mercury, or particulate matter. It will not require water for power generation and will not discharge wastewater containing any heat or chemicals during operation. It will produce energy without the extraction, processing, transportation, or combustion of fossil fuels. The Project will be sited so as to minimize the impact on the environment.

The development of solar energy will diversify and strengthen the economic base of the counties where the solar facilities are located. Wages and salaries paid to contractors and workers will contribute to the total personal income of the region. At least part of the wages paid to temporary and permanent Project workers will be circulated and recirculated within the county and the state. Expenditures made by Geronimo for equipment, operating supplies, and other

products and services will benefit businesses in the host counties and the state. Landowners with solar panels or other Project facilities on their land will receive annual land payments, and these payments will diversify and strengthen the local economy.

Negative impacts to socioeconomic resources will be relatively minor. Approximately 700 acres of land will be temporarily removed from its current use in pasture or agricultural production as a result of project construction. This represents only 0.0013 percent of the State of Minnesota's land areas. In addition, due to the low impact design of the proposed facility, the land can be easily converted back to its current use at the end of the useful life of the facility.

Project construction will not negatively impact leading industries within the Project area. There is no indication that any minority or low-income population will be adversely impacted by Project. Additionally, the Project does not consume fuel and is therefore largely insulated from risks associated with the future costs, availability, and transportation of fuels.

Not building an electrical generation facility would result in no physical impact to the environment in the Distributed Energy Generation Zones. On the other hand, not building such a facility would also not provide an increase in the income stream to county residents and businesses, or an increase in the amount of low-cost, clean, reliable renewable energy available to state or Xcel Energy and its customers. The Project will have minimal impact on the physical environment, while simultaneously providing significant benefits to society.

Promotional Practices: Geronimo does not serve retail customers and has not engaged in any promotional practices that gave rise to Xcel Energy's need for new generation.

Inducing Future Development: The Project will not directly affect development in the host counties but will provide significant benefits to the local economy and local landowners. Landowners in the areas surrounding the Distributed Energy Generation Zones will benefit from property payments. The Project will also provide significant income opportunities for local residents through the creation of 500 temporary construction and 10 permanent operations and maintenance positions.

Socially Beneficial Uses of Output: The Project will provide Xcel Energy with affordable, clean, renewable energy that will help meet energy and capacity demands and the RES. In addition, the local economy will benefit from landowner payments, income from jobs created and local spending.

10.4 THE PROJECT IS CONSISTENT WITH FEDERAL, STATE AND LOCAL RULES AND POLICIES

This Project has several key attributes making it a superior resource choice when considering the various state and federal energy and environmental policies that influence acquisition of new generation resource in Minnesota. The Project offers a competitively-priced, distributed, solar resource that can meet a significant portion of Xcel Energy's established need for 150 MW of new generation by 2017.

10.4.1 Minnesota Law and Energy Policies

As discussed below, the Project is consistent with statutory requirements promoting clean renewable resources through the state's CN and resource acquisition processes.

10.4.1.1 Renewable Energy Standards

This Project will provide Xcel Energy with significant benefits beyond capacity and on-peak energy. First and foremost, the Project will provide Xcel Energy with renewable energy credits that can be used to meet its renewable energy standards in Minnesota or its other jurisdictions, or marketed to further reduce the cost of energy from the Project. These RECs are uniquely qualified as solar, or "S-RECs," which can be used to meet a solar standard. Xcel Energy is not currently subject to a solar standard in any of its jurisdictions, although at the time of this filing a proposal for such a standard is pending in the Minnesota State Legislature.¹⁷ S-RECs typically have a higher value than general RECs and can be marketed to utilities that need to satisfy solar standards in other jurisdictions, and the proceeds used to acquire general RECs or offset other costs.

Table 14 below shows recent values for S-RECs in markets that have solar standards:

Table 14 S-REC Spot Prices as of April 10th, 2013

S-REC Type	(USD/MWh)
NJ S-REC 2012	\$110.00
MA S-REC 2012	\$240.00
MD S-REC 2012	\$155.00
PA S-REC 2012	\$12.50

Source: Bloomberg New Energy Finance; Prices as of April 10th, 2013

10.4.1.2 Renewable and Distributed Energy Preference

Over and above the Renewable Energy Standard, Minnesota Statutes require that a preference be shown for renewable energy, especially when also considering the acquisition of or cost recovery for non-renewable resources. Minn. Stat. § 216B.2422, subd. 4 states:

The commission shall not approve a new or refurbished nonrenewable energy facility in an integrated resource plan or a certificate of need, pursuant to section 216B.243, nor shall the commission allow rate recovery pursuant to section 216B.16 for such a nonrenewable energy facility, unless the utility has demonstrated that a renewable energy facility is not in the public interest.

This concept is further reinforced in the Certificate of Need statute, Minn. Stat. § 216B.243, subd. 3a, which states as follows:

¹⁷ See, e.g., HF 956 and SF 901, which, if passed, would require Xcel Energy to obtain 4 percent of its retail electric sales from solar energy by 2025.

The commission may not issue a certificate of need under this section for a large energy facility that generates electric power by means of a nonrenewable energy source, or that transmits electric power generated by means of a nonrenewable energy source, unless the applicant for the certificate has demonstrated to the commission's satisfaction that it has explored the possibility of generating power by means of renewable energy sources and has demonstrated that the alternative selected is less expensive (including environmental costs) than power generated by a renewable energy source. For purposes of this subdivision, "renewable energy source" includes hydro, wind, solar, and geothermal energy and the use of trees or other vegetation as fuel.

Geronimo's Distributed Solar Energy Proposal fully meets the definition of renewable in both of these statutes. This proceeding gives the Commission a full and fair opportunity to compare this Project against non-renewable resources and make findings as to their costs and the public interest, as required by the statute. In most resource proceedings, the Commission is unable to make these findings because no renewable resources are offered, or the only renewable resources put forward are hypothetical projects.

The Certificate of Need statute also discusses, in Minn. Stat. § 216B.243, subd. 3, item 6, the need to evaluate "possible alternatives for satisfying the energy demand or transmission needs including but not limited to ... distributed generation." The Project, spread over a number of sites with interconnections largely at distribution substations, is a distributed generation project that will provide Xcel Energy with the benefits of lower cost interconnections, little or no transmission cost or infrastructure, reduced losses and increased system reliability.

10.4.1.3 Greenhouse Gas Reduction Goals

The Project is also consistent with the state greenhouse gas reduction policy as discussed in Minn. Stat. § 216H.02, subd. 1, which establishes a goal of reducing greenhouse gas emissions to 15 percent below 2005 levels by 2015, 30 percent below by 2025, and 80 percent below by 2050. Geronimo's Project emits no greenhouse gasses, and to the extent that its energy will be used to replace that previously provided by the retiring Black Dog Generating Station coal-fired units 3 and 4, will have a positive impact on greenhouse gas reduction in Minnesota. As discussed further in Section 7.5 of this proposal, Geronimo estimates that the Project will annually displace 94,133 tons of carbon dioxide, based on an average system mix at the time the Project is expected to generate energy.

10.4.1.4 Environmental Cost Planning

As part of its evaluation of any non-renewable generating plant, Minn. Stat. § 216B.243, subd. 3(12) requires the Commission to evaluate the extent to which an applicant has considered the risk of environmental costs and regulation. This criterion is important to the extent the Commission is considering approval of any nonrenewable generating facilities submitted within this competitive bid proposal. As a solar facility, the Project is emission free. Moreover, renewable or carbon credits produced by the facility may help Xcel Energy offset the costs or requirements of any future carbon or other environmental regulations.

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The Commission has undertaken regular exercises in estimating both a high and a low cost associated with CO₂, CO, SO₂, PM₁₀, NO_x, and Pb. These estimates show an increasing price for these emissions over time. Using the current pricing the commission has for these emissions and data from the EPA and Ventyx, Geronimo estimated the displacement of each of these emissions and the relative cost savings associated.¹⁸ Table 15 provides the results of this analysis which estimates a minimum savings of \$4.99/MWh from this proposal and a maximum potential savings of up to \$17.81/MWh.

Table 15 Estimated Project Environmental Cost Savings

Emission	Tons	Cost/Ton		Total Cost
CO ₂	(94,133.00)	\$ 34.00	High	\$ (3,200,522.08)
		\$ 21.50	Mid	\$ (2,023,859.55)
		\$ 9.00	Low	\$ (847,197.02)
CO	(115.98)	\$ 1.86	High	\$ (215.71)
		\$ 1.46	Mid	\$ (169.32)
		\$ 1.06	Low	\$ (122.93)
NO _x	(63.26)	\$ 370.00	High	\$ (23,406.18)
		\$ 282.50	Mid	\$ (17,870.93)
		\$ 195.00	Low	\$ (12,335.69)
PM ₁₀	(27.08)	\$ 4,012.00	High	\$ (108,632.65)
		\$ 3,387.00	Mid	\$ (91,709.57)
		\$ 2,762.00	Low	\$ (74,786.48)
Total			High	\$ (3,332,776.62)
			Mid	\$ (2,133,609.37)
			Low	\$ (934,442.13)
\$/MWH			High	\$ (17.81)
			Mid	\$ (11.40)
			Low	\$ (4.99)

Appendix I provides more detail on the analysis completed in calculating these offsets and cost savings.

¹⁸ Order Establishing 2012 and 2013 Estimate of Future Carbon Dioxide Regulation Costs, In the Matter of Establishing and Estimate of the Costs of Future Carbon Dioxide Regulation on Electricity Generation under Minnesota Statutes § 216H.06, Docket E999/CI-07-1199 (November 2, 2012); and Notice of Updated Environmental Externality Values, In the Matter of the Investigation into Environmental and Socioeconomic Costs, Docket No. E999/CI-00-1636 (June 23, 2012).

The Project has several other environmental benefits as compared with traditional fossil fuel-fired plants. It will have no air emissions, uses no water, and will generate no solid waste. It has little noise, minimal visual impacts and will not disturb birds, bats or most other wildlife. Its land impacts are minimal and decommissioning costs are very low. Finally, as a distributed project that requires no fuel, the Project will minimize environmental disturbance caused by the need to construct significant transmission or fuel delivery and handling facilities.

10.5 FEDERAL ENERGY AND ENVIRONMENTAL RULES AND POLICIES

While primary responsibility for regulating the composition of Minnesota's energy resources falls to the Minnesota Public Utilities Commission, federal energy and environmental policies also play a significant role in determining the energy resources offered and selected to meet the needs of Minnesota customers.

Notably, the EPA has proposed a Carbon Pollution Standard for New Power Plants.¹⁹ Power plants represent the single largest source of industrial greenhouse gas emissions in the United States and account for approximately 40 percent of all U.S. anthropogenic CO₂ emissions.²⁰ EPA's proposed new source performance standard would set uniform national limits on the amount of carbon pollution new power plants can emit. EPA's proposed standards apply to fossil-fuel-fired boilers, integrated gasification combined cycle ("IGCC") units and stationary combined cycle turbine units that generate electricity for sale and are larger than 25 MW. The proposed standards would require covered units to achieve an emission rate of 1000 pounds of CO₂ per megawatt hour.

Federal energy policy also provides significant U.S. federal tax incentives to attract investment in renewable energy projects, including solar projects such as the Project. The federal business energy investment tax credit ("ITC") available under 26 USC § 48 allows taxpayers to take a tax credit equal to 30 percent of expenditures, with no maximum credit, for installation of eligible solar energy property placed in service prior to December 31, 2016. As noted in Section 9.1, while Geronimo Energy expects there will be rolling in-service dates for various tranches of the individual solar facilities, the Project plans to be in-service by year-end 2016 in order to qualify for the ITC.

In addition, the Federal Energy Regulatory Commission ("FERC") has implemented a number of policies and directives aimed at ensuring independent power producers have open and nondiscriminatory access to the transmission grid, to enable renewable generators, such as the Project, to interconnect and deliver power. Most recently, FERC issued Order 1000 further strengthening the requirements that public utilities participate in regional planning efforts and consider public policy needs in transmission planning. Recognizing the unique issues that solar projects can face interconnecting to the grid, FERC also issued Order No. 2006 (2005) that

¹⁹ Standards of Performance for Greenhouse Gas Emissions for New Stationary Sources: Electric Utility Generating Units, 77 Fed. Reg. 22392 (April 13, 2012).

²⁰ Table 2-1 from "Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2009," U.S. Environmental Protection Agency, EPA 430-R-11-005, April 2011.

required transmission providers to adopt standard procedures and interconnection agreements for connecting generating facilities of less than 20 MW and created fast track procedures for projects less than 2 MW. FERC is currently considering revising its rules related to small generator interconnections to further expedite interconnection for solar electric generation through a proposed rule change in Docket No. RM13-2-000.

President Obama has also been a significant supporter of increased renewable energy as part of a larger strategy to combat climate change and create clean energy jobs. President Obama signed Executive Order 13514 on Federal Leadership in Environmental, Energy, and Economic Performance in October 2009 that directed Federal agencies to reduce greenhouse gas pollution, eliminate waste, improve energy and water performance, and leverage Federal purchasing power to support innovation and entrepreneurship in clean energy technologies and environmentally-responsible products.

By providing up to 100 MW of new solar energy, the Project is consistent with these federal policies encouraging low carbon, renewable energy resources.

10.5.1 The Project Complies with Federal, State and Local Environmental Regulations

The Project will meet the requirements of all applicable federal, state, and local environmental laws and regulations. Table 16 provides a list of approvals the Project may need to obtain from governmental entities to demonstrate full compliance. Geronimo Energy is committed to obtaining all necessary environmental and other approvals required under federal, state, and local requirements. Section 9.0 sets forth a schedule and major milestones for acquiring all required approvals.

Table 16 List of Potential Permits and Approvals

Permit	Jurisdiction
Federal Approvals	
Section 404 Permit	U.S. Army Corp of Engineers
State Approvals	
Section 401 Certification	Minnesota Pollution Control Agency
General Permit (Construction)	Minnesota Pollution Control Agency
License for Very Small Quantity Generator of Hazardous Waste	Minnesota Pollution Control Agency
License to Cross Public Land and Water	Minnesota Department of Natural Resources
WCA Approval	Minnesota Board of Water and Soil
Access Driveway Permit	Minnesota Department of Transportation
Utility Permit on Trunk Highway Right-of-Way	Minnesota Department of Transportation
Oversize and/or Overweight Permit	Minnesota Department of Transportation
Water Supply Well Notification	Minnesota Department of Health

Plumbing Plan Review	Minnesota Department of Health
Local Approvals	
Land Use Permit	Counties
Right-of-way permits, road access permits, driveway permits for access roads and electrical collection system	Counties
WCA Approval	Counties
Land Use Permit	Townships
Right-of-way permits, road access permits, driveway permits for access roads and electrical collection system	Townships

11.0 STANDARD CONTRACT AND EXCEPTIONS

Because this aggregated distributed solar proposal differs significantly from a natural gas plant or other proposal, Geronimo has provided a proposed form of Solar Power Purchase Agreement (“Solar PPA”) in Appendix J. Geronimo proposes to execute the same form of the agreement for each individual facility. The form of Solar PPA sets forth customary terms and conditions for the sale and purchase of solar creditable capacity, energy and renewable energy credits and is subject to the negotiation of final terms by the parties and regulatory approval.

The form of Solar PPA is substantially the same form that was proposed in the Request for Proposals by the Public Service Company of Colorado with the following modifications; (i) references to parties, state commission and regional transmission authority to reflect the fact that the PPA will be with Northern States Power Company within MISO for Minnesota solar projects; (ii) provisions relating to the Right of First Offer & Option Agreement were removed and (iii) the requirement to provide additional security in the form of subordinated mortgage was removed, but the financial security requirements that are required on all Xcel Energy commercial power contracts in Minnesota remain; and (iv) the obligation of buyer to compensate seller for the solar facility’s creditable capacity has been added, but the parties are free to negotiate how the Solar PPA payments are allocated among creditable capacity, solar energy and renewable energy credits.

12.0 CONCLUSION

This Distributed Solar Energy Proposal offers cost-competitive and environmentally superior alternative to fossil fuel generators and can reliably deliver accredited capacity, energy, RECs and other environmental attributes to meet Xcel Energy's needs for new generation. Approval of the Project is in the public interest for the aforementioned reasons and because it meets all of Minnesota's laws supporting acquisition of clean, renewable energy and moves Xcel Energy forward on its long-term resource acquisition where a majority of its new and refurbished generation resources come from renewable energy and demand side management.

Geronimo respectfully requests that the Commission approve this Distributed Solar Energy Proposal to meet up to 100 MW (AC) of Xcel Energy's 2017 generation needs.

APPENDIX A

Alternative Proposal Content Requirements and Completeness Checklist

Minnesota Rule or Order	Required Information	Location of Required Content
7849.0120	Criteria – Probable result of denial would be an adverse effect upon the future adequacy, reliability, or efficiency of energy supply to applicant, customers, people of MN and neighboring states	Section 10.1
A 1	Accuracy of the applicant’s forecast	Xcel Energy’s Application
A 2	Effects of the applicant’s existing or expected conservation programs and state and federal conservation programs	Xcel Energy’s Application
A 3	Effects of promotional practices on energy demand	Section 10.3
A 4	Ability of current and planned facilities, not requiring certificates of need, to meet future demand	Xcel Energy’s Application
A 5	Effect of proposed facility in making efficient use of resources	Sections 7.0 and 10.4
7849.0120	Criteria – A more reasonable and prudent alternative has not been demonstrated	Section 10.2
B 1	Appropriate size, type and timing compared to reasonable alternatives	Section 10.2
B 2	Cost of the facility and its energy compared to reasonable alternatives	Section 10.2
B 3	Effects of the facility on natural and socioeconomic environments compared to the effects of reasonable alternative	Section 10.2
B 4	Expected reliability compared to reasonable alternatives	Section 10.2
7849.0120	Criteria - Project will provide benefits to society	Section 10.3
C 1	Relationship of the proposed facility, or suitable modification to overall state energy needs	Section 10.3
C 2	Effects of the facility on natural and socioeconomic environments compared to the effects of not building	Section 10.3
C 3	Effects of the facility or suitable modification in inducing future development	Section 10.3
C 4	Social beneficial uses of the output of the facility, or suitable modification including its uses to protect or enhance environmental quality	Section 10.3
D	Proposed facility or suitable modification will not fail to comply with relevant policies, rules and regulations of other state, federal, or local government agencies	Sections 10.4 and 10.5

Minnesota Rule or Order	Required Information	Location of Required Content
7849.0210	Filing Fees and Payment Schedule	Xcel Energy's Application
7849.0240	Need Summary and Additional Considerations	--
Subpart 1	Need Summary – Summary of major factors justifying need for the facility	Section 4.0
Subpart 2 A	Additional Considerations – Socially beneficial uses of the output of the facility, including to protect or enhance environmental quality	Exemption
B	Additional Considerations – Promotional activities that may have given rise to the demand for the facility	Section 10.3
C	Additional Considerations – Effects of facility in inducing future developments	Section 10.3
7849.0250	Description of Proposed LEGF and Alternatives	--
A 1	Description – Nominal generating capability and effects of economies of scale on the facility size and timing	Sections 5.3 and 5.4
A 2	Description – Anticipated operating cycle and annual capacity factor	Sections 5.3 and 5.5
A 3	Description – Type of fuel, reason for selection, projection of availability over life of the facility, and alternative fuels	Sections 5.1, 10.2 and 10.4
A 4	Description – Anticipated heat rate of the facility	Section 5.1
A 5	Description – Anticipated areas where facility will be located	Section 5.2 and Appendix C
B 1	Discussion of Alternatives – Purchased power	Exemption
B 2	Discussion of Alternatives – Increased efficiency of existing facilities including transmission lines	Exemption
B 3	Discussion of Alternatives – New transmission lines	Exemption
B 4	Discussion of Alternatives – New generating facilities of a different size and energy source	Exemption
B 5	Discussion of Alternatives – Reasonable combinations of alternatives	Exemption
C	Proposed Facility and Alternatives	--
C 1	Discuss – Capacity cost in current dollars/kilowatt	Section 6.2
C 2	Discuss – Service life	Section 6.5.1
C 3	Discuss – Estimated average annual availability	Section 6.5.1
C 4	Discuss – Fuel costs in current dollars/kilowatt hour	Section 6.1

Minnesota Rule or Order	Required Information	Location of Required Content
C 5	Discuss – Variable operating and maintenance costs in current dollars/kilowatt hour	Section 6.1
C 6	Discuss – Total cost in current dollars/kilowatt hour	Section 6.1
C 7	Estimate – Effect on rates system wide and in MN	Section 6.3
C 8	Efficiency – Expressed for a generating facility as the estimated heat rate	Section 5.6.3
C 9	Major Assumptions – For providing information relating to Items 1-8, including projected escalation rates for fuel costs, operating and maintenance costs as well as projected capacity factors	Sections 5.1; 5.5; 5.6 and Appendix F
D	Map Showing Applicant’s System	Xcel’s Application
E	Other Information – Relevant information about the proposed facility and alternatives necessary to determine need	--
7849.0270	Peak Demand and Electrical Consumption Forecast	Exemption
Subpart 1	Scope – application shall contain pertinent data concerning peak demand and annual electrical consumption within the applicant’s service area and system	Exemption
Subpart 2	Content of Forecast	Exemption
Subpart 3	Forecast Methodology	Exemption
Subpart 4	Data Base for Forecasts	Exemption
Subpart 5	Assumptions and Special Information	Exemption
Subpart 6	Coordination of Forecast with Other Systems	Exemption
7849.0280	System Capacity	Exemption
7849.0290	Conservation Programs	Exemption
7849.0300	Consequences of Delay – Discuss anticipated consequences if proposed facility is delayed	Exemption
7849.0310	Environmental Information – Provide environmental data in response to part 7849.0250, Item C or 7849.0260, Item C and information as requested in part 7849.320 to 7849.0340	Section 7.0
7849.0320	Generating Facilities	--
A	The estimated range of land requirements, including water storage, cooling systems and solid waste storage	Sections 7.1 and 7.2
B	Estimated vehicular, rail and barge traffic generated by construction and operation of the LEGF	Section 7.4

Minnesota Rule or Order	Required Information	Location of Required Content
C	Fossil-Fueled Facilities – Fuel	Not Applicable
D	Fossil-Fueled Facilities – Emissions	Not Applicable
E	Water Use for Alternate Cooling Systems	Section 7.6
F	Potential sources and types of discharges to water	Section 7.6
G	Radioactive Releases	Section 7.7
H	Potential types and quantities of solid wastes in tons/year	Section 7.7
I	Potential sources and types of audible noise generated	Section 7.8
J	Estimated work force required for construction and operation	Section 7.9
K	Minimum number and size of transmission facilities required to provide a reliable outlet	Section 7.10
7849.0330	Transmission Facilities	Not Applicable
7849.0340	Alternative of No Facility	Exemption
04-1752	Developer Experience and Qualifications	Section 3.2
04-1752	Pricing of Proposal	Section 6.2
04-1752	Term	Section 6.2
04-1752	In-Service Date	Section 9.1
04-1752	Contract Capacity	Section 6.2
04-1752	Fixed Operations and Maintenance Payment	Section 6.2
04-1752	Variable Operations and Maintenance Payment	Section 6.2
04-1752	Fuel Payment	Section 6.2
04-1752	Tax-related Payments	Section 6.2
04-1752	Other Costs	Section 6.2
04-1752	Scheduling Provisions	Section 9.0
04-1752	Planned Maintenance	Sections 5.6.2 and 9.2
04-1752	Expected Minimum Load	Section 9.3
04-1752	Ramp Rates	Section 9.4

Minnesota Rule or Order	Required Information	Location of Required Content
04-1752	Limitations on Operations	Section 9.5
04-1752	Discussion of Guaranteed Performance Factors, such as Construction Costs, Unit Completion, Availability and Efficiency	Section 9.6
04-1752	Other Key Contract Terms	Section 11.0
12-1240	Strategist Model Inputs	Appendix F
12-1240	Planning Reserve Zone Where Project is Located	Section 8.0
12-1240	Required Permits	Table 16
12-1240	Contracts with other Parties	Not Applicable

Appendix B
List of Acronyms

AC	alternating current
BTU	British Thermal Unit
CN	Certificate of Need
CO	Carbon Monoxide
CO ₂	Carbon Dioxide
CONE	Cost of New Entry
CST	Central Standard Time
DC	direct current
DEGZ	Distributed Energy Generation Zones
DNR	Minnesota Department of Natural Resources
EGP	Enel Green Power
EGPNA	Enel Green Power North America, Inc.
EIA	Energy Information Administration
EPA	U.S. Environmental Protection Agency
EST	Eastern Standard Time
FERC	Federal Energy Regulatory Commission
FIL	Filtered
FWS	U.S. Fish and Wildlife Service
GIS	Geographical Information System
GW	gigawatt
HF	House File
IGCC	integrated gasification combined cycle
ITC	investment tax credit
JED	Jobs and Economic Development Impacts [also used JEDI]
kVA	kilovolt-ampere
kW	Kilowatt
LEGF	Large Energy Generating Facility
MA	Massachusetts
MCBS	Minnesota County Biological Survey
MD	Maryland
MISO	Midwest Independent Transmission System Operator
MN	Minnesota
MnDNR	Minnesota Department of Natural Resources

MW	megawatt
MWh	megawatt hour
NEI	National Emission Inventory
NEMA	National Electrical Manufacturer Association
NHIS	Natural Heritage Inventory System
NJ	New Jersey
NOx	Nitrous Oxides
NREL	National Renewable Energy Laboratory
O&M	Operations and Maintenance
Pb	Lead
PA	Pennsylvania
PM10	Particulate Matter with a diameter of 10 micrometers or less
PM25	Particular Matter with a diameter of 2.5 micrometers or less
POI	Point of Interconnection
PPA	Power Purchase Agreement
PRI	Primary
PV	Photovoltaic
RECs	renewable energy credits
RES	Renewable Energy Standard
RFP	Request for Proposal
S&P	Standard & Poor's
SF	Senate File
SO2	Sulfur Dioxide
S-RECs	Solar renewable energy credits
TMY	typical meteorological year
TYP	Typical
U.S.	United States
USD	United States Dollars
VOC	Volatile Organic Compounds
WCA	Wetland Conservation Act

5469743



414 Nicollet Mall
Minneapolis, Minnesota 55401-1993

**PUBLIC DOCUMENT
TRADE SECRET DATA HAS BEEN EXCISED**

April 15, 2013

Dr. Burl W. Haar
Executive Secretary
Minnesota Public Utilities Commission
121 7th Place East, Suite 350
St. Paul, Minnesota 55101

RE: Petition to the Minnesota Public Utilities Commission
Seeking Approval for a Competitive Resource Acquisition
Proposal and for a Certificate of Need
Docket No. E002/CN-12-1240

Dear Dr. Haar:

Northern States Power Company, doing business as Xcel Energy, submits to the Minnesota Public Utilities Commission this Trade Secret version of Appendix C containing Non-Public operational and cost information pertaining to its proposal in the above-referenced docket to construct three 215 MW combustion turbine generators with in-service dates between 2017 – 2019.

The operational and cost information in Appendix C is designated as Trade Secret pursuant to Minnesota Statute § 13.37, subd. 1(b). The information derives independent economic value, actual or potential, from not being generally known to, and not being readily ascertainable by proper means by, other persons who can obtain economic value from its disclosure or use. This information was compiled as a result of significant investment of time and effort, is unique to Xcel Energy, and would be of economic value if disclosed to others who would otherwise not have access to it.

The Trade Secret version of Appendix C is being served by mail on the Office of the Attorney General and the Department of Commerce subject to the protections from disclosure contained in the Minnesota Government Data Practices Act and the Commission's Revised Procedures for Handling Trade Secret and Privileged Data (September 1, 1999). The Trade Secret version of Appendix C will also be provided to

Dr. Burl Haar
April 15, 2013
Docket No. E002/CN-12-1240
Page 2 of 2

those non-government parties who become eligible to review its Non-Public contents pursuant to a non-disclosure agreement with Xcel Energy or a protective order issued in this docket.

Please contact me at james.r.alders@xcelenergy.com or (612) 330-6742 if you have any questions regarding this filing.

Sincerely,

/s/

JAMES R. ALDERS
STRATEGY CONSULTANT
REGULATORY AFFAIRS

Enclosures

c: Service Lists

Appendix C
Project Operational and Cost Data

Table C1a
 Black Dog Unit 6
 Project Generating Capability

Summer Conditions (95°F, 30% Relative Humidity)			
Capability		Net Heat Rate (Btu/kWh) (HHV)	Efficiency (%) (HHV)
% of Base	MW		
<i>[TRADE SECRET DATA BEGINS...]</i>			
100 (Full Load)*			
<i>...TRADE SECRET DATA ENDS]</i>			
Winter Conditions (-5°F, 60% Relative Humidity)			
Capability		Net Heat Rate (Btu/kWh) (HHV)	Efficiency (%) (HHV)
% of Base	MW		
<i>[TRADE SECRET DATA BEGINS...]</i>			
100 (Full Load)*			
<i>...TRADE SECRET DATA ENDS]</i>			
Reference Temperature Conditions (59°F, 60% Relative Humidity)			
Capability		Net Heat Rate (Btu/kWh) (HHV)	Efficiency (%) (HHV)
% of Base	MW		
<i>[TRADE SECRET DATA BEGINS...]</i>			
50			
60			
70			
80			
90			
100 (Full Load)*			
*The facility will typically run up to its best efficiency load point.			
<i>...TRADE SECRET DATA ENDS]</i>			

PUBLIC DOCUMENT
TRADE SECRET DATA EXCISED
Docket No. E002/CN-12-1240

Table C1b
Red River Valley
Project Generating Capability (Applies to Each Unit – 1 and 2)

Summer Conditions (88°F, 42% Relative Humidity)			
Capability		Net Heat Rate (Btu/kWh) (HHV)	Efficiency (%) (HHV)
% of Base	MW		
<i>[TRADE SECRET DATA BEGINS...]</i>			
100 (Full Load)*			
<i>...TRADE SECRET DATA ENDS]</i>			
Winter Conditions (-5°F, 100% Relative Humidity)			
Capability		Net Heat Rate (Btu/kWh) (HHV)	Efficiency (%) (HHV)
% of Base	MW		
<i>[TRADE SECRET DATA BEGINS...]</i>			
100 (Full Load)*			
<i>...TRADE SECRET DATA ENDS]</i>			
Reference Temperature Conditions (41°F, 70% Relative Humidity)			
Capability		Net Heat Rate (Btu/kWh) (HHV)	Efficiency (%) (HHV)
% of Base	MW		
<i>[TRADE SECRET DATA BEGINS...]</i>			
50			
60			
70			
80			
90			
100 (Full Load)*			
*The facility will typically run up to its best efficiency load point.			
<i>...TRADE SECRET DATA ENDS]</i>			

**PUBLIC DOCUMENT
TRADE SECRET DATA EXCISED
Docket No. E002/CN-12-1240**

**Table C2a
Project Fuel Requirements – Black Dog Unit 6**

Rule Reference	Description	Project Data, per Unit
		<i>[TRADE SECRET DATA BEGINS...</i>
7849.0320, C(1)	Fuel (Natural Gas) Source	
7849.0320, C(2)	Fuel Requirement <ul style="list-style-type: none"> •summer, peak (95F) •winter, peak (-5F) •reference temperature, base load (59F) •Annual consumption (59F) 	
7849.0320, C(3)	Heat Input (HHV) <ul style="list-style-type: none"> •summer, peak (95F) •winter, peak (-5F) •reference temperature, base load (59F) 	
7849.0320, C(4)	Fuel (natural gas) Heat Value	
7849.0320, C(5)	Fuel Content: <ul style="list-style-type: none"> Sulfur Ash Moisture Content 	
		<i>...TRADE SECRET DATA ENDS]</i>

PUBLIC DOCUMENT
TRADE SECRET DATA EXCISED
Docket No. E002/CN-12-1240

Table C2b – North Dakota
Project Fuel Requirements, per Unit

Rule Reference	Description	Project Data, per Unit
		<i>[TRADE SECRET DATA BEGINS...</i>
7849.0320, C(1)	Fuel (Natural Gas) Source	
7849.0320, C(2)	Fuel Requirement <ul style="list-style-type: none"> •summer, peak (88F) •winter, peak (-5F) •reference temperature, base load (41F) •Annual consumption (41F) 	
7849.0320, C(3)	Heat Input (HHV) <ul style="list-style-type: none"> •summer, peak (88F) •winter, peak (-5F) •reference temperature, base load (41F) 	
7849.0320, C(4)	Fuel (natural gas) Heat Value	
7849.0320, C(5)	Fuel Content (Gas): <ul style="list-style-type: none"> Sulfur Ash Moisture Content 	
		<i>...TRADE SECRET DATA ENDS]</i>

PUBLIC DOCUMENT
TRADE SECRET DATA EXCISED
Docket No. E002/CN-12-1240

Table C3a
Project Cost Summary – Black Dog

Item	Black Dog Unit 6		
Unit	6	6 (Option 1)	6 (Option 2)
In-Service Date	March 2017	March 2018	March 2019
<i>[TRADE SECRET DATA BEGINS...</i>			
Project Base Capacity Cost			
Base Summer Capacity Costs in \$/kW			
Transmission Cost			
Gas Cost			
Base Total Cost in \$/kWh			
Annual Revenue Requirement in \$/kWh (In-Service Year)			
Fuel Costs in \$/kWh (In-Service Year)			
Variable O&M Costs in \$/kWh ((In-Service Year)			
Estimated Effect on Rates \$/kWh (MN & Total System)			
Sunk Costs if Canceled			
Estimated number of construction jobs			
Estimated amount of construction payroll to economy			
Estimated number of operations jobs			
<i>...TRADE SECRET DATA ENDS]</i>			

**PUBLIC DOCUMENT
TRADE SECRET DATA EXCISED
Docket No. E002/CN-12-1240**

**Table C3b
Project Cost Summary – North Dakota**

Item	North Dakota Units 1 and 2	
Unit	1	2
In-Service Date	March 2018	February 2019
	<i>[TRADE SECRET DATA BEGINS...</i>	
Project Base Capacity Cost		
Base Summer Capacity Costs in \$/kW		
Transmission Cost		
Gas Cost		
Base Total Cost in \$/kWh		
Annual Revenue Requirement in \$/kWh (In-Service Year)		
Fuel Costs in \$/kWh (In-Service Year)		
Variable O&M Costs in \$/kWh ((In-Service Year)		
Estimated Effect on Rates \$/kWh (MN & Total System)		
Sunk Costs if Canceled		
Estimated number of construction jobs		
Estimated amount of construction payroll to economy		
Estimated number of operations jobs		
	<i>...TRADE SECRET DATA ENDS]</i>	

**PUBLIC DOCUMENT
TRADE SECRET DATA EXCISED
Docket No. E002/CN-12-1240**

**Table C4a
Black Dog Unit 6**

Rule Reference	Description	Project Data
7849.0250, A(1)	Nominal Generating Capability of each Unit	about 214 MW
7849.0250, A(2)	Operating Cycle	Simple Cycle
7849.0250, A(2)	Expected Average Annual Capacity Factor	4 to 10 percent
7849.0250, C(2)	Service Life	35 Years
7849.0250, C(3)	Estimated Average Annual Availability	> 95 percent
7849.0320, A	Estimated Land Requirements	0 acres (inside existing structure)
7849.0320, E (1)	Estimated Maximum Groundwater Pumping Rate for each Unit Surface Water Appropriation	50 GPM peak, 34 GPM daily average during Summer operation for evaporative cooling 0 cfs for Project, 633 cfs for Site
7849.0320, E (2)	Estimated Annual Project Groundwater Appropriation (assuming RO purification process) for existing Units 2 and 5	1.2 million gallons/year or 3.7 acre-feet/year (X% of site appropriation)
7849.0320, E (3)	Annual Project Surface Water Consumption Unit 6	215,100 acre-feet (50% of site appropriation) for existing Units 2 and 5 0

**PUBLIC DOCUMENT
TRADE SECRET DATA EXCISED
Docket No. E002/CN-12-1240**

**Table C4b
Red River Valley Units 1 and 2**

Rule Reference	Description	Project Data
7849.0250, A(1)	Nominal Generating Capability of each Unit	about 214 MW
7849.0250, A(2)	Operating Cycle	Simple Cycle
7849.0250, A(2)	Expected Annual Capacity Factor	4 to 10 percent
7849.0250, C(2)	Service Life	35 Years
7849.0250, C(3)	Estimated Average Annual Availability	> 95 percent
7849.0320, A	Estimated Land Requirements	< 35 acres on site of approximately 160 acres
7849.0320, E (1)	Estimated Maximum Groundwater Pumping Rate for each Unit Surface Water Appropriation	50 GPM peak, 34 GPM daily average during Summer operation for evaporative cooling 0 cfs for Project, 633 cfs for Site
7849.0320, E (2)	Estimated Annual Project Groundwater Appropriation (assuming RO purification process)	1.2 million gallons/year or 3.7 acre-feet/year 0 if water is brought in by truck
7849.0320, E (3)	Annual Project Surface Water Consumption Unit 1 Unit 2	 0 0

Strategist Assumptions Documentation - Unit Performance & Cost Estimate

PROJECT: Black Dog Unit 6 CT (2017) PREPARED BY: Greg Ford/Elizabeth Karels
4/8/2013

PROJECT/UNIT DESCRIPTION AND SOURCE DOCUMENTATION:
[TRADE SECRET DATA BEGINS...]
...TRADE SECRET ENDS]

IN-SERVICE DATE: 3/1/2017 In-service: Strategist will assume in-service at the 1st of the month.
 RETIREMENT DATE: 12/31/2051 Retirement: Strategist will assume retirement on the last day of the month.

		Summer	Average	Winter
NET CAPACITY :		95F	59 F	-5 F
		[TRADE SECRET DATA BEGINS...]		
Minimum Capacity	(50%)			
Load Point 2	(60%)			
Load Point 3	(70%)			
Load Point 4	(80%)			
Load Point 5	(90%)			
Maximum Capacity	(100%)			
		...TRADE SECRET DATA ENDS]		

Minimum Capacity: For a combined cycle unit it should be the minimum generation in combined cycle configuration. Not CT only using bypass stacks.
Maximum Capacity: Should be the maximum net generation without duct firing.
Maximum With Ducts:
Emergency Capacity: Strategist will not dispatch a unit at this level, but the unit will be accredited this capacity for loads and resource calculations. This input is commonly used for coal plants with "gas topping".

		Average
		[TRADE SECRET DATA BEGINS...]
HEAT RATE:	Minimum Capacity	(50%)
	Load Point 2	(60%)
	Load Point 3	(70%)
	Load Point 4	(80%)
	Load Point 5	(90%)
	Maximum Capacity	(100%)
	Maximum With Ducts	
		...TRADE SECRET DATA ENDS]

Heat Rate: Strategist can only model a single heat rate curve per unit. For peakers a summer heat rate profile is appropriate. For intermediate and baseload plants the average conditions are appropriate.
Load Points: Please provide as many as available.

VARIABLE O&M: [TRADE SECRET DATA BEGINS...] **Variable O&M:** Typically chemicals and water only. Strategist will use an inflation rate, based on non-labor rates to escalate this value.

Ramp Rate: [TRADE SECRET DATA BEGINS...] **Ramp Rate:** Strategist will use this input to calculate the units contribution to spinning reserve.
 Start Time: [TRADE SECRET DATA BEGINS...] **Start Time:** This input used to determine quick start ability of unit.

FIXED O&M: 2013 dollars, \$thousands

2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
[TRADE SECRET DATA BEGINS...]									
...TRADE SECRET DATA ENDS]									

Fixed O&M: This cost should primarily be annual labor expenses. Strategist will use an inflation rate, based on labor rates to escalate this value.

MAINTENANCE SCHEDULE Weeks / Year

2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
[TRADE SECRET DATA BEGINS...]									
...TRADE SECRET DATA ENDS]									

FORCED OUTAGE RATE: [TRADE SECRET DATA BEGINS...] **Maintenance Schedule:** This yearly profile should reflect periodic major outages.
Forced Outage Rate: A simple % that reflects the probability of unplanned outages.

INITIAL CAPITAL COSTS: \$thousands

2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
[TRADE SECRET DATA BEGINS...]									
...TRADE SECRET DATA ENDS]									

Capital Notes: estimate in nominal dollars to COD in March 2017

Initial Capital: Capital costs should include everything "inside the fence". Transmission costs should include interconnection but not other grid upgrades (these will be provided by Transmission). Gas costs should include interconnection but not additional pipeline upgrades that will be paid by either Xcel's gas operations or another gas company.

	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
[TRADE SECRET DATA BEGINS...]										
...TRADE SECRET DATA ENDS]										

ON-GOING CAPITAL COST:

*2013 dollars, \$thousands,
or % of initial capital*

On-Going Capital Notes: 2013 Dollars; escalation should be applied at approved Corporate rates

On-Going Capital: Annual capital expenditures for regular maintenance and overhauls.

Emissions Data :

Average Emission Rates
lbs/mmBtu

	[TRADE SECRET DATA BEGINS...]	
lbs/mmBtu	SOx	
	NOx	
	CO2	
	HG	
	PM_10	
	CO	
	VOC	
	Pb	
	...TRADE SECRET DATA ENDS]	

Emissions Data: Data should reflect average emission rates stated in lbs/mmBtu using the units primary fuel. If lbs/mmbtu is not available Strategist does have the ability to model emissions as lbs/MWh.

Based on full load data

Water Usage

Average Water Consumption
gallons/MWh

	[TRADE SECRET DATA BEGINS...]	
gallons/MWh	Water Consumption	
	...TRADE SECRET DATA ENDS]	

Water Consumption: Data should reflect average water consumption per MWh.

SOx, NOx, CO2, and Hg inputs are mandatory for all OpCos

Strategist Assumptions Documentation - Transmission Project/Grid Upgrades

PROJECT: Black Dog Unit 6 CT (2017)	PREPARED BY: Greg Ford/Elizabeth Karels 4/8/2013
--	--

PROJECT DESCRIPTION AND SOURCE DOCUMENTATION:

[TRADE SECRET DATA BEGINS...]

...TRADE SECRET ENDS]

PROJECT INFORMATION

IN-SERVICE: 3/1/2017 In-service: Strategist will assume in-service at the 1st of the month.

Summer Average Winter

NET CAPACITY :

Maximum Capacity				Maximum Capacity: Should be the maximum net generation without duct firing.
Maximum With Ducts				Maximum With Ducts: Maximum with duct firing
Emergency Capacity				Emergency Capacity: This input is commonly used for coal plants with "gas topping".

...TRADE SECRET DATA ENDS]

EXPECTED CAPACITY FACTOR [TRADE SECRET DATA BEGINS...] Expected Capacity Factor: Based on Strategist simulations.

INITIAL CAPITAL COSTS: [TRADE SECRET DATA BEGINS...] [TRADE SECRET DATA BEGINS...]

...TRADE SECRET DATA ENDS]

\$thousands

	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023

...TRADE SECRET DATA ENDS]

Capital Notes: Nominal Dollars

Grid Upgrade Costs: The capital costs for additional grid upgrades needed to support the incremental generation of this project.

ON-GOING ANNUAL EXPENSES: [TRADE SECRET DATA BEGINS...] [TRADE SECRET DATA BEGINS...]

2013 dollars, \$thousands, or % of initial capital

On-Going Expenses Notes:

	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023

...TRADE SECRET DATA ENDS]

On-Going Costs: Annual cost for maintenance of proposed transmission infrastructure.

Strategist Assumptions Documentation - Gas Supply

PROJECT: **Black Dog Unit 6 CT (2017)**

PREPARED BY: **Richard Derryberry**
2/5/2013

PROJECT DESCRIPTION AND SOURCE DOCUMENTATION:

[TRADE SECRET DATA BEGINS...]

...TRADE SECRET ENDS]

PROJECT INFORMATION: *if additional project data is needed please contact Resource Planning Analytics*

IN-SERVICE: **3/1/2017** **In-service:** Strategist will assume in-service at the 1st of the month.
 Summer Average Winter

[TRADE SECRET DATA BEGINS...]

NET CAPACITY :

Maximum Capacity			
Maximum With Ducts			

Maximum Capacity: Should be the maximum net generation without duct firing.
Maximum With Ducts: Maximum with duct firing

...TRADE SECRET DATA ENDS]

Average

[TRADE SECRET DATA BEGINS...]

HEAT RATE:

Maximum Capacity	
Maximum With Ducts	

Expected Heat Rate: This value multiplied by the maximum capacity equals the peak fuel consumption (mmbtu/hour)

...TRADE SECRET DATA ENDS]

EXPECTED CAPACITY FACTOR **[TRADE SECRET DATA BEGINS...]**

Expected Capacity Factor: Based on Strategist simulations.

...TRADE SECRET DATA ENDS]

ANNUAL FIXED FUEL CHARGE *2013 dollars, \$thousands*

2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
[TRADE SECRET DATA BEGINS...]									

...TRADE SECRET DATA ENDS]

Fixed Charge Notes:

Annual Fixed Charge: Annual cost that do not vary by volume of gas burned in a given year.

VOLUMETRIC CHARGE: *2013 dollars, \$/mmbtu*

2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
NNG	NNG	NNG	NNG	NNG	NNG	NNG	NNG	NNG	NNG
[TRADE SECRET DATA BEGINS...]									

...TRADE SECRET DATA ENDS]

Volumetric Charge Notes:

Volumetric Charge: The cost to deliver fuel to the unit from a priced distribution hub (Ventura, CGI, Henry, etc). Please be sure to note the hub used in calculating this value.

Strategist Assumptions Documentation - Capital Asset Accounting

PROJECT: Black Dog Unit 6 CT (2017) PREPARED BY: Elizabeth Karels
3/6/2013

PROJECT INFORMATION

IN-SERVICE: 3/1/2017 In-service: Strategist will assume in-service at the 1st of the month.

UNIT TYPE: Combustion Turbine
 Summer Average Winter
[TRADE SECRET DATA BEGINS...]

NET CAPACITY: Maximum Capacity ...TRADE SECRET DATA BEGINS...
[TRADE SECRET DATA BEGINS...] ...TRADE SECRET DATA ENDS]

EXPECTED CAPACITY FACTOR: [TRADE SECRET DATA BEGINS...] Expected Capacity Factor: Based on Strategist simulations.

NEW UNIT CAPITAL COSTS \$thousands,

	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
	[TRADE SECRET DATA BEGINS...]									
	...TRADE SECRET DATA ENDS]									

Capital Notes:

Initial Capital: Capital costs should include everything "inside the fence".

ON-GOING CAPITAL COSTS 2013 dollars, \$thousands, or % of initial capital

	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
	[TRADE SECRET DATA BEGINS...]									
	...TRADE SECRET DATA ENDS]									

On-Going Capital Notes:

On-Going Capital: Annual capital expenditures for regular maintenance and overhauls.

TRANSMISSION CAPITAL COSTS: 2013 dollars, \$thousands, or % of initial capital

	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
	[TRADE SECRET DATA BEGINS...]									
	...TRADE SECRET DATA ENDS]									

Transmission Capital Notes:

Grid Upgrade Costs: The cost of additional grid upgrades needed to support the incremental generation of this project.

UNIT DEPRECIATION: [TRADE SECRET DATA BEGINS...]

BOOK LIFE	
BOOK DEPRECIATION	
TAX LIFE	
TAX DEPRECIATION	

DECOMMISSIONING EXPENSE: [TRADE SECRET DATA BEGINS...]

TRANSMISSION INVESTMENT DEPRECIATION:

BOOK LIFE	
BOOK DEPRECIATION	
TAX LIFE	
TAX DEPRECIATION	

OTHER CAPITAL RELATED INPUTS

AFUDC / CWIP: [TRADE SECRET DATA BEGINS...] AFUDC / CWIP: This input should be coordinated with Rates and Resource Planning

PROPERTY TAX RATE: [TRADE SECRET DATA BEGINS...] PROPERTY TAXES : Property Tax inputs should be coordinated with Tax Services
...TRADE SECRET DATA ENDS]

Strategist Assumptions Documentation - Transmission Project/Grid Upgrades											
PROJECT:	Black Dog Unit 6 CT (2018)	PREPARED BY:	Greg Ford/Elizabeth Karels 4/8/2013								
PROJECT DESCRIPTION AND SOURCE DOCUMENTATION:											
[TRADE SECRET DATA BEGINS...]											
[TRADE SECRET DATA ENDS]											
PROJECT INFORMATION											
IN-SERVICE:	3/1/2018	In-service: Strategist will assume in-service at the 1st of the month.									
		Summer	Average	Winter							
[TRADE SECRET DATA BEGINS...]											
NET CAPACITY :	Maximum Capacity				Maximum Capacity: Should be the maximum net generation without duct firing. Maximum With Ducts: Maximum with duct firing Emergency Capacity: This input is commonly used for coal plants with "gas topping".						
	Maximum With Ducts										
	Emergency Capacity										
[TRADE SECRET DATA ENDS]											
EXPECTED CAPACITY FACTOR	[TRADE SECRET DATA BEGINS...]	Expected Capacity Factor: Based on Strategist simulations.									
INITIAL CAPITAL COSTS:											
	[TRADE SECRET DATA ENDS]	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
	\$thousands	[TRADE SECRET DATA BEGINS...]									
	Capital Notes: Nominal Dollars	[TRADE SECRET DATA ENDS]									
	Grid Upgrade Costs: The capital costs for additional grid upgrades needed to support the incremental generation of this project.										
ON-GOING ANNUAL EXPENSES:											
	2013 dollars, \$thousands, or % of initial capital	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
	On-Going Expenses Notes:	[TRADE SECRET DATA BEGINS...]									
	On-Going Costs: Annual cost for maintenance of proposed transmission infrastructure.										
[TRADE SECRET DATA ENDS]											

Strategist Assumptions Documentation - Capital Asset Accounting

PROJECT: Black Dog Unit 6 CT (2018) PREPARED BY: Elizabeth Karels
3/6/2013

PROJECT INFORMATION

IN-SERVICE: 3/1/2018 In-service: Strategist will assume in-service at the 1st of the month.

UNIT TYPE: Combustion Turbine
 Summer Average Winter
[TRADE SECRET DATA BEGINS...]

NET CAPACITY: Maximum Capacity [TRADE SECRET DATA BEGINS...] ...TRADE SECRET DATA ENDS]

EXPECTED CAPACITY FACTOR: [TRADE SECRET DATA BEGINS...] Expected Capacity Factor: Based on Strategist simulations. ...TRADE SECRET DATA ENDS]

NEW UNIT CAPITAL COSTS \$thousands,

	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
[TRADE SECRET DATA BEGINS...]										

...TRADE SECRET DATA ENDS]

Capital Notes:

Initial Capital: Capital costs should include everything "inside the fence".

ON-GOING CAPITAL COSTS 2013 dollars, \$thousands, or % of initial capital

	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
[TRADE SECRET DATA BEGINS...]										

...TRADE SECRET DATA ENDS]

On-Going Capital Notes:

On-Going Capital: Annual capital expenditures for regular maintenance and overhauls.

TRANSMISSION CAPITAL COSTS: 2013 dollars, \$thousands, or % of initial capital

	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
[TRADE SECRET DATA BEGINS...]										

...TRADE SECRET DATA ENDS]

Transmission Capital Notes:

Grid Upgrade Costs: The cost of additional grid upgrades needed to support the incremental generation of this project.

UNIT DEPRECIATION: [TRADE SECRET DATA BEGINS...]

BOOK LIFE: [TRADE SECRET DATA BEGINS...]

BOOK DEPRECIATION: [TRADE SECRET DATA BEGINS...]

TAX LIFE: [TRADE SECRET DATA BEGINS...]

TAX DEPRECIATION: [TRADE SECRET DATA BEGINS...]

DECOMMISSIONING EXPENSE: [TRADE SECRET DATA BEGINS...]

TRANSMISSION INVESTMENT DEPRECIATION:

BOOK LIFE: [TRADE SECRET DATA BEGINS...]

BOOK DEPRECIATION: [TRADE SECRET DATA BEGINS...]

TAX LIFE: [TRADE SECRET DATA BEGINS...]

TAX DEPRECIATION: [TRADE SECRET DATA BEGINS...]

OTHER CAPITAL RELATED INPUTS

AFUDC / CWIP: [TRADE SECRET DATA BEGINS...] AFUDC / CWIP: This input should be coordinated with Rates and Resource Planning

PROPERTY TAX RATE: [TRADE SECRET DATA BEGINS...] PROPERTY TAXES: Property Tax inputs should be coordinated with Tax Services

...TRADE SECRET DATA ENDS]

Strategist Assumptions Documentation - Unit Performance & Cost Estimate

PROJECT: Black Dog Unit 6 CT (2019) PREPARED BY: Greg Ford/Elizabeth Karels
4/9/2013

PROJECT/UNIT DESCRIPTION AND SOURCE DOCUMENTATION:
[TRADE SECRET DATA BEGINS...]

...TRADE SECRET ENDS]

IN-SERVICE DATE: 3/1/2019 **In-service:** Strategist will assume in-service at the 1st of the month.
 RETIREMENT DATE: 12/31/2053 **Retirement:** Strategist will assume retirement on the last day of the month.

NET CAPACITY :	Ambient Conditions Assumptions	Summer	Average	Winter	
		95F	59 F	-5 F	
		[TRADE SECRET DATA BEGINS...]			
Minimum Capacity	(50%)				Minimum Capacity: For a combined cycle unit it should be the minimum generation in combined cycle configuration. Not CT only using bypass stacks. Maximum Capacity: Should be the maximum net generation without duct firing. Maximum With Ducts: Emergency Capacity: Strategist will not dispatch a unit at this level, but the unit will be accredited this capacity for loads and resource calculations. This input is commonly used for coal plants with "gas topping".
Load Point 2	(60%)				
Load Point 3	(70%)				
Load Point 4	(80%)				
Load Point 5	(90%)				
Maximum Capacity	(100%)				
		...TRADE SECRET DATA ENDS]			

HEAT RATE:	Average	[TRADE SECRET DATA BEGINS...]		
		Minimum Capacity	(50%)	
		[TRADE SECRET DATA BEGINS...]		Heat Rate: Strategist can only model a single heat rate curve per unit. For peakers a summer heat rate profile is appropriate. For intermediate and baseload plants the average conditions are appropriate. Load Points: Please provide as many as available.
Load Point 2	(60%)			
Load Point 3	(70%)			
Load Point 4	(80%)			
Load Point 5	(90%)			
Maximum Capacity	(100%)			
Maximum With Ducts				
		...TRADE SECRET DATA ENDS]		

VARIABLE O&M: [TRADE SECRET DATA BEGINS...] **Variable O&M:** Typically chemicals and water only. Strategist will use a inflation rate, based on non-labor rates to escalate this value.

Ramp Rate: [TRADE SECRET DATA BEGINS...] **Ramp Rate:** Strategist will use this input to calculate the units contribution to spinning reserve.
 Start Time: [TRADE SECRET DATA BEGINS...] **Start Time:** This input used to determine quick start ability of unit.

FIXED O&M: 2013 dollars, \$thousands

	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
	[TRADE SECRET DATA BEGINS...]									
	...TRADE SECRET DATA ENDS]									

Fixed O&M: This cost should primarily be annual labor expenses. Strategist will use an inflation rate, based on labor rates to escalate this value.

MAINTENANCE SCHEDULE Weeks / Year

	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
	[TRADE SECRET DATA BEGINS...]									
	...TRADE SECRET DATA ENDS]									

FORCED OUTAGE RATE: [TRADE SECRET DATA BEGINS...] **Maintenance Schedule:** This yearly profile should reflect periodic major outages.
Forced Outage Rate: A simple % that reflects the probability of unplanned outages.

INITIAL CAPITAL COSTS: [TRADE SECRET DATA BEGINS...] **Initial Capital:** Capital costs should include everything "inside the fence". Transmission costs should include interconnection but not other grid upgrades (these will be provided by Transmission). Gas costs should include interconnection but not additional pipeline upgrades that will be paid by either Xcel's gas operations or another gas company.

\$thousands

Capital Notes: estimate in nominal dollars to COD in March 2017

	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
	[TRADE SECRET DATA BEGINS...]									
	...TRADE SECRET DATA ENDS]									

Strategist Assumptions Documentation - Transmission Project/Grid Upgrades

PROJECT: **Black Dog Unit 6 CT (2019)** PREPARED BY: **Greg Ford/Elizabeth Karels**
4/9/2013

PROJECT DESCRIPTION AND SOURCE DOCUMENTATION:
 [TRADE SECRET DATA BEGINS...]
 [Redacted Box]
 ...TRADE SECRET ENDS]

PROJECT INFORMATION
 IN-SERVICE: **3/1/2019** **In-service:** Strategist will assume in-service at the 1st of the month.
 Summer Average Winter
 [TRADE SECRET DATA BEGINS...]
 NET CAPACITY :

Maximum Capacity			
Maximum With Ducts			
Emergency Capacity			

Maximum Capacity: Should be the maximum net generation without duct firing.
Maximum With Ducts: Maximum with duct firing
Emergency Capacity: This input is commonly used for coal plants with "gas topping".
 ...TRADE SECRET DATA ENDS]
 [TRADE SECRET DATA BEGINS...]
 EXPECTED CAPACITY FACTOR **Expected Capacity Factor:** Based on Strategist simulations.

INITIAL CAPITAL COSTS: [Redacted] **...TRADE SECRET DATA ENDS]**
 \$thousands

2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
[Redacted]									

Capital Notes: Nominal Dollars
Grid Upgrade Costs: The capital costs for additional grid upgrades needed to support the incremental generation of this project.
 ...TRADE SECRET DATA ENDS]

ON-GOING ANNUAL EXPENSES: **2013 dollars, \$thousands, or % of initial capital**
 [Redacted]
On-Going Expenses Notes:

2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
[Redacted]									

On-Going Costs: Annual cost for maintenance of proposed transmission infrastructure.
 ...TRADE SECRET DATA ENDS]

Strategist Assumptions Documentation - Capital Asset Accounting

PROJECT: Black Dog Unit 6 CT (2019) PREPARED BY: Elizabeth Karels
3/6/2013

PROJECT INFORMATION

IN-SERVICE: 3/1/2019 In-service: Strategist will assume in-service at the 1st of the month.

UNIT TYPE: Combustion Turbine Summer Average Winter
[TRADE SECRET DATA BEGINS...]

NET CAPACITY: Maximum Capacity
[TRADE SECRET DATA BEGINS...] ...TRADE SECRET DATA ENDS]

EXPECTED CAPACITY FACTOR Expected Capacity Factor: Based on Strategist simulations.

NEW UNIT CAPITAL COSTS \$thousands,

	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Capital Notes:	[TRADE SECRET DATA BEGINS...]									
	...TRADE SECRET DATA ENDS]									

Initial Capital: Capital costs should include everything "inside the fence".

ON-GOING CAPITAL COSTS 2013 dollars, \$thousands, or % of initial capital

	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
On-Going Capital Notes:	[TRADE SECRET DATA BEGINS...]									
	...TRADE SECRET DATA ENDS]									

On-Going Capital: Annual capital expenditures for regular maintenance and overhauls.

TRANSMISSION CAPITAL COSTS: 2013 dollars, \$thousands, or % of initial capital

	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Transmission Capital Notes:	[TRADE SECRET DATA BEGINS...]									
	...TRADE SECRET DATA ENDS]									

Grid Upgrade Costs: The cost of additional grid upgrades needed to support the incremental generation of this project.

UNIT DEPRECIATION: [TRADE SECRET DATA BEGINS...]

BOOK LIFE	
BOOK DEPRECIATION	
TAX LIFE	
TAX DEPRECIATION	

DECOMMISSIONING EXPENSE:

TRANSMISSION INVESTMENT DEPRECIATION:

BOOK LIFE	
BOOK DEPRECIATION	
TAX LIFE	
TAX DEPRECIATION	

OTHER CAPITAL RELATED INPUTS

AFUDC / CWIP: AFUDC / CWIP: This input should be coordinated with Rates and Resource Planning

PROPERTY TAX RATE: PROPERTY TAXES : Property Tax inputs should be coordinated with Tax Services
...TRADE SECRET DATA ENDS]

Strategist Assumptions Documentation - Unit Performance & Cost Estimate

PROJECT: Hankinson 1 CT (2018) PREPARED BY: Greg Ford/Elizabeth Karels
4/9/2013

PROJECT/UNIT DESCRIPTION AND SOURCE DOCUMENTATION:
[TRADE SECRET DATA BEGINS...]

...TRADE SECRET ENDS]

IN-SERVICE DATE: 3/1/2018 **In-service:** Strategist will assume in-service at the 1st of the month.
 RETIREMENT DATE: 12/31/2052 **Retirement:** Strategist will assume retirement on the last day of the month.

	Summer	Average	Winter
NET CAPACITY :			
Ambient Conditions Assumptions	88F	41 F	-5 F
	[TRADE SECRET DATA BEGINS...]		
Minimum Capacity (50%)			
Load Point 2 (60%)			
Load Point 3 (70%)			
Load Point 4 (80%)			
Load Point 5 (90%)			
Maximum Capacity (100%)			
	...TRADE SECRET DATA ENDS]		

Minimum Capacity: For a combined cycle unit it should be the minimum generation in combined cycle configuration. Not CT only using bypass stacks.
Maximum Capacity: Should be the maximum net generation without duct firing.
Maximum With Ducts:
Emergency Capacity: Strategist will not dispatch a unit at this level, but the unit will be accredited this capacity for loads and resource calculations. This input is commonly used for coal plants with "gas topping".

	Average
HEAT RATE:	
	[TRADE SECRET DATA BEGINS...]
Minimum Capacity (50%)	
Load Point 2 (60%)	
Load Point 3 (70%)	
Load Point 4 (80%)	
Load Point 5 (90%)	
Maximum Capacity (100%)	
Maximum With Ducts	
	...TRADE SECRET DATA ENDS]

Heat Rate: Strategist can only model a single heat rate curve per unit. For peakers a summer heat rate profile is appropriate. For intermediate and baseload plants the average conditions are appropriate.
Load Points: Please provide as many as available.

VARIABLE O&M: [TRADE SECRET DATA BEGINS...]

Variable O&M: Typically chemicals and water only. Strategist will use an inflation rate, based on non-labor rates to escalate this value.

Ramp Rate: [TRADE SECRET DATA BEGINS...] **Ramp Rate:** Strategist will use this input to calculate the units contribution to spinning reserve.
 Start Time: [TRADE SECRET DATA ENDS] **Start Time:** This input used to determine quick start ability of unit.

FIXED O&M: 2013 dollars, \$thousands

	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
	[TRADE SECRET DATA BEGINS...]									
	...TRADE SECRET DATA ENDS]									

Fixed O&M: This cost should primarily be annual labor expenses. Strategist will use an inflation rate, based on labor rates to escalate this value.

MAINTENANCE SCHEDULE Weeks / Year

	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
	[TRADE SECRET DATA BEGINS...]									
	...TRADE SECRET DATA ENDS]									

FORCED OUTAGE RATE: [TRADE SECRET DATA BEGINS...]

Maintenance Schedule: This yearly profile should reflect periodic major outages.
Forced Outage Rate: A simple % that reflects the probability of unplanned outages.

INITIAL CAPITAL COSTS: [TRADE SECRET DATA ENDS]
\$thousands

	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
	[TRADE SECRET DATA BEGINS...]									
	...TRADE SECRET DATA ENDS]									

Initial Capital: Capital costs should include everything "inside the fence". Transmission costs should include interconnection but not other grid upgrades (these will be provided by Transmission). Gas costs should include interconnection but not additional pipeline upgrades that will be paid by either Xcel's gas operations or another gas company.

Capital Notes: estimate in nominal dollars to COD in March 2017

	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
ON-GOING CAPITAL COST: 2013 dollars, \$thousands, or % of initial capital	[TRADE SECRET DATA BEGINS...]									
	...TRADE SECRET DATA ENDS]									
<i>On-Going Capital Notes: 2013 Dollars; escalation should be applied at approved Corporate rates</i>	On-Going Capital: Annual capital expenditures for regular maintenance and overhauls.									
Average Emission Rates										
Emissions Data :	lbs/mmBtu									
	[TRADE SECRET DATA BEGINS...]									
lbs/mmBtu	SOx									
	NOx									
	CO2									
	HG									
	PM_10									
	CO									
	VOC									
	Pb									
	...TRADE SECRET DATA ENDS]									
Average Water Consumption										
Water Usage	gallons/MWh									
	[TRADE SECRET DATA BEGINS...]									
gallons/MWh	Water Consumption									
	...TRADE SECRET DATA ENDS]									
	Water Consumption: Data should reflect average water consumption per MWh. SOx, NOx, CO2, and Hg inputs are mandatory for all OpCos									

Strategist Assumptions Documentation - Transmission Project/Grid Upgrades

PROJECT: Hankinson 1 CT (2018)

PREPARED BY: Greg Ford/Elizabeth Karels
4/9/2013

PROJECT DESCRIPTION AND SOURCE DOCUMENTATION:
 [TRADE SECRET DATA BEGINS...]

 ...TRADE SECRET ENDS]

PROJECT INFORMATION

IN-SERVICE: 3/1/2018 In-service: Strategist will assume in-service at the 1st of the month.

Summer Average Winter

NET CAPACITY : [TRADE SECRET DATA BEGINS...]

Maximum Capacity					Maximum Capacity: Should be the maximum net generation without duct firing. Maximum With Ducts: Maximum with duct firing Emergency Capacity: This input is commonly used for coal plants with "gas topping".
Maximum With Ducts					
Emergency Capacity					

...TRADE SECRET DATA ENDS]

EXPECTED CAPACITY FACTOR [TRADE SECRET DATA BEGINS...] Expected Capacity Factor: Based on Strategist simulations.

INITIAL CAPITAL COSTS: [TRADE SECRET DATA BEGINS...]

...TRADE SECRET DATA ENDS]
 \$thousands

	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023

...TRADE SECRET DATA ENDS]

Grid Upgrade Costs: The capital costs for additional grid upgrades needed to support the incremental generation of this project.

Capital Notes: Nominal Dollars

ON-GOING ANNUAL EXPENSES: 2013 dollars, \$thousands, or % of initial capital

[TRADE SECRET DATA BEGINS...]

	year								

...TRADE SECRET DATA ENDS]

On-Going Costs: Annual cost for maintenance of proposed transmission infrastructure.

On-Going Expenses Notes: No ongoing expenses expected.

Strategist Assumptions Documentation - Gas Supply																																		
PROJECT: Hankinson 1 CT (2018)	PREPARED BY: Richard Derryberry 4/4/2014																																	
PROJECT DESCRIPTION AND SOURCE DOCUMENTATION: <div style="border: 1px solid black; height: 40px; margin: 5px 0;"></div> <div style="text-align: right; font-size: small;">...TRADE SECRET ENDS]</div>																																		
PROJECT INFORMATION: <i>if additional project data is needed please contact Resource Planning Analytics</i>																																		
IN-SERVICE: 3/1/2018	In-service: Strategist will assume in-service at the 1st of the month. <div style="text-align: center; font-size: small;">Summer Average Winter</div>																																	
NET CAPACITY :	<table border="1" style="width: 100%; border-collapse: collapse; font-size: small;"> <tr> <td style="width: 30%; padding: 2px;">Maximum Capacity</td> <td style="width: 10%;"></td> </tr> <tr> <td style="padding: 2px;">Maximum With Ducts</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </table> <div style="text-align: center; font-size: x-small;">...TRADE SECRET DATA ENDS]</div> <div style="margin-top: 5px; font-size: small;"> Maximum Capacity: Should be the maximum net generation without duct firing. Maximum With Ducts: Maximum with duct firing </div>	Maximum Capacity								Maximum With Ducts																								
Maximum Capacity																																		
Maximum With Ducts																																		
HEAT RATE:	<table border="1" style="width: 100%; border-collapse: collapse; font-size: small;"> <tr> <td style="width: 30%; padding: 2px;">Maximum Capacity</td> <td style="width: 10%;"></td> </tr> <tr> <td style="padding: 2px;">Maximum With Ducts</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </table> <div style="text-align: center; font-size: x-small;">Average ...TRADE SECRET DATA ENDS]</div> <div style="margin-top: 5px; font-size: small; border: 1px solid gray; padding: 2px;"> Expected Heat Rate: This value multiplied by the maximum capacity equals the peak fuel consumption (mmbtu/hour). Please see Energy Supply data for additional capacity and heat rate data. </div>	Maximum Capacity							Maximum With Ducts																									
Maximum Capacity																																		
Maximum With Ducts																																		
EXPECTED CAPACITY FACTOR	<table border="1" style="width: 100%; border-collapse: collapse; font-size: small;"> <tr> <td style="width: 30%; padding: 2px;">[TRADE SECRET DATA BEGINS...]</td> <td style="padding: 2px;">Expected Capacity Factor: Based on Strategist simulations.</td> </tr> </table>	[TRADE SECRET DATA BEGINS...]	Expected Capacity Factor: Based on Strategist simulations.																															
[TRADE SECRET DATA BEGINS...]	Expected Capacity Factor: Based on Strategist simulations.																																	
INITIAL CAPITAL COSTS:	<table border="1" style="width: 100%; border-collapse: collapse; font-size: x-small;"> <tr> <td style="width: 30%; padding: 2px;">[TRADE SECRET DATA BEGINS...]</td> <td style="width: 10%; text-align: center;">2014</td> <td style="width: 10%; text-align: center;">2015</td> <td style="width: 10%; text-align: center;">2016</td> <td style="width: 10%; text-align: center;">2017</td> <td style="width: 10%; text-align: center;">2018</td> <td style="width: 10%; text-align: center;">2019</td> <td style="width: 10%; text-align: center;">2020</td> <td style="width: 10%; text-align: center;">2021</td> <td style="width: 10%; text-align: center;">2022</td> <td style="width: 10%; text-align: center;">2023</td> </tr> <tr> <td style="padding: 2px;">[TRADE SECRET DATA BEGINS...]</td> <td></td> </tr> <tr> <td style="padding: 2px;">[TRADE SECRET DATA BEGINS...]</td> <td></td> </tr> </table> <div style="text-align: right; font-size: x-small;">...TRADE SECRET DATA ENDS]</div> <div style="margin-top: 5px; font-size: x-small; border: 1px solid gray; padding: 2px;"> <i>Capital Notes: Nominal dollars</i> </div>	[TRADE SECRET DATA BEGINS...]	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	[TRADE SECRET DATA BEGINS...]											[TRADE SECRET DATA BEGINS...]										
[TRADE SECRET DATA BEGINS...]	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023																								
[TRADE SECRET DATA BEGINS...]																																		
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[TRADE SECRET DATA BEGINS...]																																		

Strategist Assumptions Documentation - Capital Asset Accounting

PROJECT: Hankinson 1 CT (2018) PREPARED BY: Elizabeth Karels
3/7/2013

PROJECT INFORMATION

IN-SERVICE: 3/1/2018 In-service: Strategist will assume in-service at the 1st of the month.

UNIT TYPE: Combustion Turbine
 Summer Average Winter
[TRADE SECRET DATA BEGINS...]

NET CAPACITY: Maximum Capacity
[TRADE SECRET DATA BEGINS...] ...TRADE SECRET DATA ENDS]

EXPECTED CAPACITY FACTOR Expected Capacity Factor: Based on Strategist simulations.

NEW UNIT CAPITAL COSTS \$thousands,

2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
[TRADE SECRET DATA BEGINS...]									
...TRADE SECRET DATA ENDS]									

Capital Notes:

Initial Capital: Capital costs should include everything "inside the fence".

ON-GOING CAPITAL COSTS 2013 dollars, \$thousands, or % of initial capital

2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
[TRADE SECRET DATA BEGINS...]									
...TRADE SECRET DATA ENDS]									

On-Going Capital Notes:

On-Going Capital: Annual capital expenditures for regular maintenance and overhauls.

TRANSMISSION CAPITAL COSTS: 2013 dollars, \$thousands, or % of initial capital

2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
[TRADE SECRET DATA BEGINS...]									
...TRADE SECRET DATA ENDS]									

Transmission Capital Notes:

Grid Upgrade Costs: The cost of additional grid upgrades needed to support the incremental generation of this project.

UNIT DEPRECIATION: [TRADE SECRET DATA BEGINS...]
 BOOK LIFE
 BOOK DEPRECIATION
 TAX LIFE
 TAX DEPRECIATION

DECOMMISSIONING EXPENSE:

TRANSMISSION INVESTMENT DEPRECIATION:
 BOOK LIFE
 BOOK DEPRECIATION
 TAX LIFE
 TAX DEPRECIATION

OTHER CAPITAL RELATED INPUTS

AFUDC / CWIP: AFUDC / CWIP: This input should be coordinated with Rates and Resource Planning

PROPERTY TAX RATE: PROPERTY TAXES : Property Tax inputs should be coordinated with Tax Services
...TRADE SECRET DATA ENDS]

Strategist Assumptions Documentation - Unit Performance & Cost Estimate

PROJECT: Hankinson 2 CT (2019) PREPARED BY: Greg Ford/Elizabeth Karels
4/8/2013

PROJECT/UNIT DESCRIPTION AND SOURCE DOCUMENTATION:
[TRADE SECRET DATA BEGINS...]
...TRADE SECRET ENDS]

IN-SERVICE DATE: 2/1/2019 In-service: Strategist will assume in-service at the 1st of the month.
 RETIREMENT DATE: 12/31/2053 Retirement: Strategist will assume retirement on the last day of the month.

	Summer	Average	Winter	
NET CAPACITY :	Average			
Ambient Conditions Assumptions	88F	41 F	-5 F	
	[TRADE SECRET DATA BEGINS...]			
Minimum Capacity (50%)				Minimum Capacity: For a combined cycle unit it should be the minimum generation in combined cycle configuration. Not CT only using bypass stacks. Maximum Capacity: Should be the maximum net generation without duct firing. Maximum With Ducts: Emergency Capacity: Strategist will not dispatch a unit at this level, but the unit will be accredited this capacity for loads and resource calculations. This input is commonly used for coal plants with "gas topping".
Load Point 2 (60%)				
Load Point 3 (70%)				
Load Point 4 (80%)				
Load Point 5 (90%)				
Maximum Capacity (100%)				
	...TRADE SECRET DATA ENDS]			

	Average			
HEAT RATE:	Average			
	[TRADE SECRET DATA BEGINS...]			
Minimum Capacity (50%)				Heat Rate: Strategist can only model a single heat rate curve per unit. For peakers a summer heat rate profile is appropriate. For intermediate and baseload plants the average conditions are appropriate. Load Points: Please provide as many as available.
Load Point 2 (60%)				
Load Point 3 (70%)				
Load Point 4 (80%)				
Load Point 5 (90%)				
Maximum Capacity (100%)				
Maximum With Ducts				
	...TRADE SECRET DATA ENDS]			

VARIABLE O&M: [TRADE SECRET DATA BEGINS...] Variable O&M: Typically chemicals and water only. Strategist will use a inflation rate, based on non-labor rates to escalate this value.

Ramp Rate: [TRADE SECRET DATA BEGINS...] Ramp Rate: Strategist will use this input to calculate the units contribution to spinning reserve.
 Start Time: [TRADE SECRET DATA ENDS] Start Time: This input used to determine quick start ability of unit.

	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
FIXED O&M: 2013 dollars, \$thousands	[TRADE SECRET DATA BEGINS...]									
	...TRADE SECRET DATA ENDS]									
	Fixed O&M: This cost should primarily be annual labor expenses. Strategist will use an inflation rate, based on labor rates to escalate this value.									

	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
MAINTENANCE SCHEDULE Weeks / Year	[TRADE SECRET DATA BEGINS...]									
	...TRADE SECRET DATA ENDS]									

FORCED OUTAGE RATE: [TRADE SECRET DATA BEGINS...] Maintenance Schedule: This yearly profile should reflect periodic major outages.
 Forced Outage Rate: A simple % that reflects the probability of unplanned outages.

	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
INITIAL CAPITAL COSTS: \$thousands	[TRADE SECRET DATA BEGINS...]									
	...TRADE SECRET DATA ENDS]									
Capital Notes: estimate in nominal dollars to COD in March 2017	Initial Capital: Capital costs should include everything "inside the fence". Transmission costs should include interconnection but not other grid upgrades (these will be provided by Transmission). Gas costs should include interconnection but not additional pipeline upgrades that will be paid by either Xcel's gas operations or another gas company.									

Strategist Assumptions Documentation - Transmission Project/Grid Upgrades											
PROJECT:	Hankinson 2 CT (2019)	PREPARED BY:	Greg Ford/Elizabeth Karels 4/8/2013								
PROJECT DESCRIPTION AND SOURCE DOCUMENTATION:											
[TRADE SECRET DATA BEGINS...]											
[TRADE SECRET DATA ENDS]											
PROJECT INFORMATION											
IN-SERVICE:	2/1/2019	In-service: Strategist will assume in-service at the 1st of the month.									
		Summer	Average	Winter							
[TRADE SECRET DATA BEGINS...]											
NET CAPACITY :	Maximum Capacity				Maximum Capacity: Should be the maximum net generation without duct firing. Maximum With Ducts: Maximum with duct firing Emergency Capacity: This input is commonly used for coal plants with "gas topping".						
	Maximum With Ducts										
	Emergency Capacity										
[TRADE SECRET DATA ENDS]											
EXPECTED CAPACITY FACTOR	[TRADE SECRET DATA BEGINS...]	Expected Capacity Factor: Based on Strategist simulations.									
INITIAL CAPITAL COSTS:											
	[TRADE SECRET DATA ENDS]	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
	\$thousands	[TRADE SECRET DATA BEGINS...]									
	Capital Notes: Nominal Dollars	[TRADE SECRET DATA ENDS]									
Grid Upgrade Costs: The capital costs for additional grid upgrades needed to support the incremental generation of this project.											
ON-GOING ANNUAL EXPENSES:											
	2013 dollars, \$thousands, or % of initial capital	year	year	year	year	year	year	year	year	year	year
		[TRADE SECRET DATA BEGINS...]									
	On-Going Expenses Notes: No ongoing expenses expected.	[TRADE SECRET DATA ENDS]									
On-Going Costs: Annual cost for maintenance of proposed transmission infrastructure.											

Strategist Assumptions Documentation - Gas Supply																							
PROJECT: Hankinson 2 CT (2019)	PREPARED BY: Richard Derryberry 4/4/2014																						
PROJECT DESCRIPTION AND SOURCE DOCUMENTATION: <div style="border: 1px solid black; height: 40px; margin: 5px 0;"></div> <div style="text-align: right; font-size: small;">...TRADE SECRET ENDS]</div>																							
PROJECT INFORMATION: <i>if additional project data is needed please contact Resource Planning Analytics</i>																							
IN-SERVICE: 2/1/2019	In-service: Strategist will assume in-service at the 1st of the month. <div style="display: flex; justify-content: space-around; font-size: small;"> Summer Average Winter </div>																						
NET CAPACITY :	<table border="1" style="width: 100%; border-collapse: collapse; font-size: small;"> <thead> <tr> <th style="width: 30%;"></th> <th style="width: 10%;"></th> <th style="width: 10%;"></th> <th style="width: 10%;"></th> <th style="width: 10%;"></th> </tr> </thead> <tbody> <tr> <td>Maximum Capacity</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Maximum With Ducts</td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table> <div style="text-align: right; font-size: small;"> Maximum Capacity: Should be the maximum net generation without duct firing. Maximum With Ducts: Maximum with duct firing </div>						Maximum Capacity					Maximum With Ducts											
Maximum Capacity																							
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HEAT RATE:	<table border="1" style="width: 100%; border-collapse: collapse; font-size: small;"> <thead> <tr> <th style="width: 30%;"></th> <th style="width: 10%;"></th> <th style="width: 10%;"></th> <th style="width: 10%;"></th> </tr> </thead> <tbody> <tr> <td>Maximum Capacity</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Maximum With Ducts</td> <td></td> <td></td> <td></td> </tr> </tbody> </table> <div style="text-align: right; font-size: small;"> Expected Heat Rate: This value multiplied by the maximum capacity equals the peak fuel consumption (mmbtu/hour). Please see Energy Supply data for additional capacity and heat rate data. </div>					Maximum Capacity				Maximum With Ducts													
Maximum Capacity																							
Maximum With Ducts																							
EXPECTED CAPACITY FACTOR	<table border="1" style="width: 100%; border-collapse: collapse; font-size: small;"> <thead> <tr> <th style="width: 30%;"></th> <th style="width: 10%;"></th> <th style="width: 10%;"></th> <th style="width: 10%;"></th> </tr> </thead> <tbody> <tr> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table> <div style="text-align: right; font-size: small;"> Expected Capacity Factor: Based on Strategist simulations. </div>																						
INITIAL CAPITAL COSTS:	<table border="1" style="width: 100%; border-collapse: collapse; font-size: small;"> <thead> <tr> <th style="width: 30%;"></th> <th style="width: 5%;">2014</th> <th style="width: 5%;">2015</th> <th style="width: 5%;">2016</th> <th style="width: 5%;">2017</th> <th style="width: 5%;">2018</th> <th style="width: 5%;">2019</th> <th style="width: 5%;">2020</th> <th style="width: 5%;">2021</th> <th style="width: 5%;">2022</th> <th style="width: 5%;">2023</th> </tr> </thead> <tbody> <tr> <td></td> <td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> </tr> </tbody> </table>		2014	2015	2016	2017	2018	2019	2020	2021	2022	2023											
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	<div style="border: 1px solid black; padding: 5px; font-size: small;"> <i>Capital Notes: Nominal dollars</i> </div>																						
ANNUAL O&M COSTS	<table border="1" style="width: 100%; border-collapse: collapse; font-size: small;"> <thead> <tr> <th style="width: 30%;"></th> <th style="width: 5%;">2018</th> <th style="width: 5%;">2019</th> <th style="width: 5%;">2020</th> <th style="width: 5%;">2021</th> <th style="width: 5%;">2022</th> <th style="width: 5%;">2023</th> <th style="width: 5%;">2024</th> <th style="width: 5%;">2025</th> <th style="width: 5%;">2026</th> <th style="width: 5%;">2027</th> </tr> </thead> <tbody> <tr> <td></td> <td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> </tr> </tbody> </table>		2018	2019	2020	2021	2022	2023	2024	2025	2026	2027											
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VOLUMETRIC CHARGE:	<table border="1" style="width: 100%; border-collapse: collapse; font-size: small;"> <thead> <tr> <th style="width: 30%;"></th> <th style="width: 5%;">2018</th> <th style="width: 5%;">2019</th> <th style="width: 5%;">2020</th> <th style="width: 5%;">2021</th> <th style="width: 5%;">2022</th> <th style="width: 5%;">2023</th> <th style="width: 5%;">2024</th> <th style="width: 5%;">2025</th> <th style="width: 5%;">2026</th> <th style="width: 5%;">2027</th> </tr> </thead> <tbody> <tr> <td></td> <td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> </tr> </tbody> </table>		2018	2019	2020	2021	2022	2023	2024	2025	2026	2027											
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	<div style="border: 1px solid black; padding: 5px; font-size: small;"> Volumetric Charge Notes: </div>																						
	<div style="border: 1px solid black; padding: 5px; font-size: small;"> Volumetric Charge: </div>																						

Strategist Assumptions Documentation - Capital Asset Accounting

PROJECT: Hankinson 2 CT (2019) PREPARED BY: Elizabeth Karels
3/7/2013

PROJECT INFORMATION

IN-SERVICE: 2/1/2019 In-service: Strategist will assume in-service at the 1st of the month.

UNIT TYPE: Combustion Turbine
 Summer Average Winter
[TRADE SECRET DATA BEGINS...]

NET CAPACITY: Maximum Capacity
[TRADE SECRET DATA BEGINS...] ...TRADE SECRET DATA ENDS]

EXPECTED CAPACITY FACTOR Expected Capacity Factor: Based on Strategist simulations.

NEW UNIT CAPITAL COSTS \$thousands,

	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
	[TRADE SECRET DATA BEGINS...]									
	...TRADE SECRET DATA ENDS]									

Capital Notes:

Initial Capital: Capital costs should include everything "inside the fence".

ON-GOING CAPITAL COSTS 2013 dollars, \$thousands, or % of initial capital

	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
	[TRADE SECRET DATA BEGINS...]									
	...TRADE SECRET DATA ENDS]									

On-Going Capital Notes:

On-Going Capital: Annual capital expenditures for regular maintenance and overhauls.

TRANSMISSION CAPITAL COSTS: 2013 dollars, \$thousands, or % of initial capital

	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
	[TRADE SECRET DATA BEGINS...]									
	...TRADE SECRET DATA ENDS]									

Transmission Capital Notes:

Grid Upgrade Costs: The cost of additional grid upgrades needed to support the incremental generation of this project.

UNIT DEPRECIATION: [TRADE SECRET DATA BEGINS...]

BOOK LIFE

BOOK DEPRECIATION

TAX LIFE

TAX DEPRECIATION

DECOMMISSIONING EXPENSE:

TRANSMISSION INVESTMENT DEPRECIATION:

BOOK LIFE

BOOK DEPRECIATION

TAX LIFE

TAX DEPRECIATION

OTHER CAPITAL RELATED INPUTS

AFUDC / CWIP: AFUDC / CWIP: This input should be coordinated with Rates and Resource Planning

PROPERTY TAX RATE: PROPERTY TAXES : Property Tax inputs should be coordinated with Tax Services
...TRADE SECRET DATA ENDS]

APPENDIX D
**Table Correlating Distributed Energy Generation Zones
Numbers and Facility Locations**

DEGZ #	Project
1.	[TRADE SECRET DATA EXCISED]
2.	[TRADE SECRET DATA EXCISED]
3.	[TRADE SECRET DATA EXCISED]
4.	[TRADE SECRET DATA EXCISED]
5.	[TRADE SECRET DATA EXCISED]
6.	[TRADE SECRET DATA EXCISED]
7.	[TRADE SECRET DATA EXCISED]
8.	[TRADE SECRET DATA EXCISED]
9.	[TRADE SECRET DATA EXCISED]
10.	[TRADE SECRET DATA EXCISED]
11.	[TRADE SECRET DATA EXCISED]
12.	[TRADE SECRET DATA EXCISED]
13.	[TRADE SECRET DATA EXCISED]
14.	[TRADE SECRET DATA EXCISED]
15.	[TRADE SECRET DATA EXCISED]
16.	[TRADE SECRET DATA EXCISED]
17.	[TRADE SECRET DATA EXCISED]
18.	[TRADE SECRET DATA EXCISED]
19.	[TRADE SECRET DATA EXCISED]
20.	[TRADE SECRET DATA EXCISED]
21.	[TRADE SECRET DATA EXCISED]
22.	[TRADE SECRET DATA EXCISED]
23.	[TRADE SECRET DATA EXCISED]
24.	[TRADE SECRET DATA EXCISED]
25.	[TRADE SECRET DATA EXCISED]
26.	[TRADE SECRET DATA EXCISED]
27.	[TRADE SECRET DATA EXCISED]
28.	[TRADE SECRET DATA EXCISED]
29.	[TRADE SECRET DATA EXCISED]
30.	[TRADE SECRET DATA EXCISED]
31.	[TRADE SECRET DATA EXCISED]

Appendix E – Cover Sheet**PVsyst Model Results for Each Distributed Energy Generation Zone**

Geronimo provides the attached PVsyst results for preliminary modeling purposes. The results of the models will change based on site specific environmental conditions, interconnection arrangements, and final equipment selected for the project. Please see Sections 5.3, 5.5, and 5.7.3 for a more detailed discussion of Project and site generation.

PVsyst Model Results for Distributed Energy Generation Zone 1-31 excised from Public Document because they contain Trade Secret Data.

APPENDIX F

Strategist Assumptions

Project Geronimo Distributed Solar Energy Proposal

NET CAPACITY

Minimum Capacity	0 MW
Maximum Capacity	100 MW

HEAT RATE Not Applicable

Variable Payment - Option 1	TRADE SECRET DATA EXCISED
Variable Payment - Option 2	TRADE SECRET DATA EXCISED

Start Charges Not Applicable

Capacity Price Option 1	TRADE SECRET DATA EXCISED
Capacity Price Option 2	TRADE SECRET DATA EXCISED

Maintenance Schedule	0 weeks per year
Forced Outage Rate	0.5%

EMISSIONS DATA lbs/MMBtu

Sox	0.00
Nox	0.00
CO2	0.00
HG	0.00
PM_10	0.00
CO2	0.00
VOC	0.00
Pb	0.00

Water Usage	
gallons/MWh	0.00

Expected Fuel Mix Not Applicable

Appendix F
Solar Energy Profile
Stratigist Typical Week per Month Generation as a Percent of AC Capacity

Capacity % based on AC Nameplate of entire 100 MW AC proposed Solar portfolio
 Capacity is based on Minnesota Department of Commerce, Division of Energy Resources Docket No. E002/GR-10-971

Month	Day of Week	Hour 0	Hour 1	Hour 2	Hour 3	Hour 4	Hour 5	Hour 6	Hour 7	Hour 8	Hour 9	Hour 10	Hour 11	Hour 12	Hour 13	Hour 14	Hour 15	Hour 16	Hour 17	Hour 18	Hour 19	Hour 20	Hour 21	Hour 22	Hour 23
1	SUNDAY																								
1	MONDAY																								
1	TUESDAY																								
1	WEDNESDAY																								
1	THURSDAY																								
1	FRIDAY																								
1	SATURDAY																								
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12	THURSDAY																								
12	FRIDAY																								
12	SATURDAY																								

TRADE SECRET DATA EXCISED

Appendix G Typical Solar Array

Designed: JNH
 Checked: ADC
 Drawn: JNH

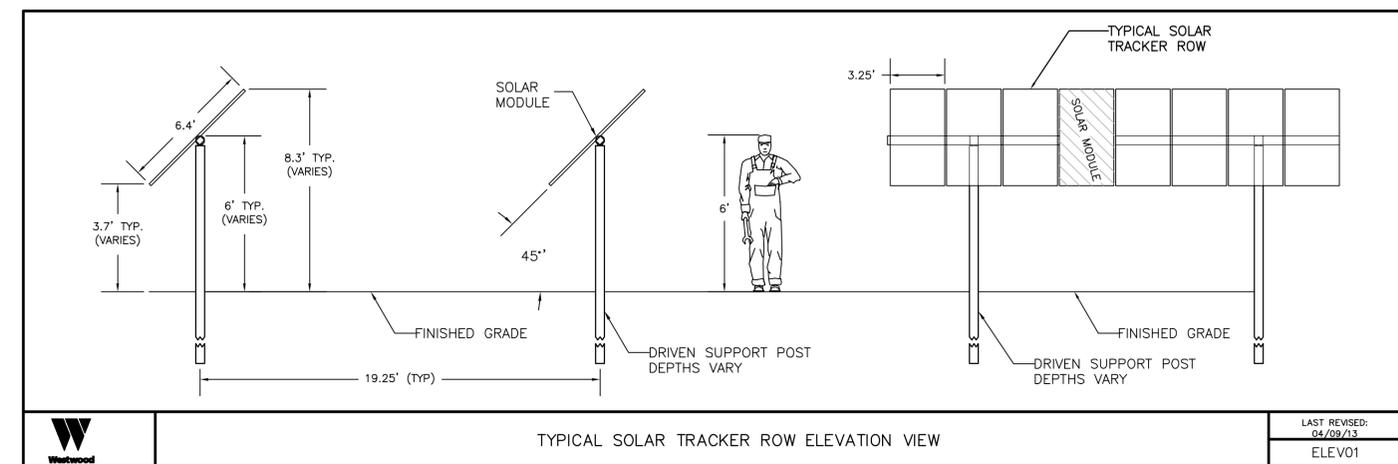
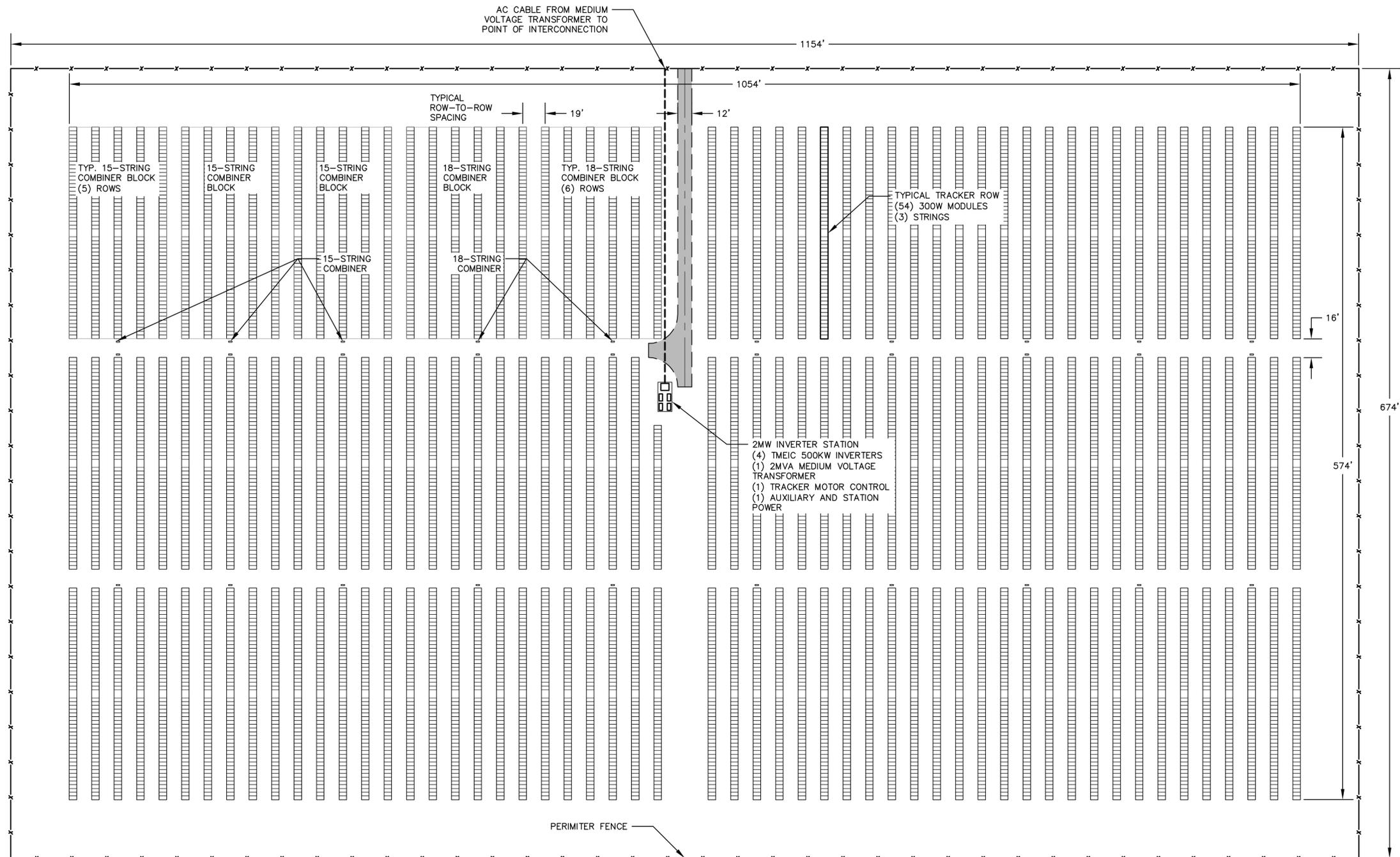
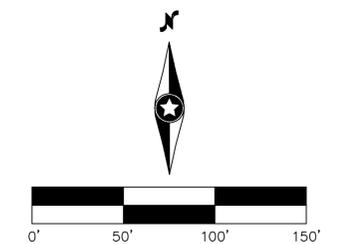
Record Drawing by/date:

Revisions:
 # DATE DESCRIPTION

Prepared for:



7650 Edinborough Way, Ste. 725
 Edina, MN 55435



GENERAL NOTES

1. PV FACILITY IS A 2MWac/2.619MWdc SINGLE-AXIS TRACKER.
 - 1.1. FACILITY SHALL BE COMPOSED OF:
 - 1.1.1. FOUR (4) 500KW ARRAYS, ONE INVERTER PER ARRAY.
 - 1.1.2. SIX (6) TRACKER BLOCKS.
2. ALL PV EQUIPMENT ON DC SIDE SHALL BE RATED FOR 1000V OPERATION.
3. MODULE: 300W CANADIAN SOLAR CS6X-300P 72-CELL MODULE
 - 3.1. SERIES STRING: 18 MODULES
 - 3.2. 485 STRINGS (8,730 MODULES) IN FACILITY
 - 3.3. 81 STRINGS PER TYPICAL TRACKER BLOCK
4. INVERTER: TMEIC SOLAR WARE 500
 - 4.1. Vmp FROM ARRAY: 669VDC, 1000VDC MAX.
 - 4.2. OUTPUT VOLTAGE: 300VAC
 - 4.3. FOUR (4) INVERTERS IN PV FACILITY. FACILITY SHALL USE FOUR (4) INVERTERS ON SINGLE SKID.
5. COMBINER: 1000V, INTEGRAL OUTPUT DISCONNECT, FUSED DC INPUTS
6. TRACKER: PV FACILITY SHALL USE SINGLE-AXIS HORIZONTAL TRACKER WITH BACKTRACKING.
 - 6.1. 19.25' ROW-TO-ROW SPACING.
7. PV SYSTEM SHALL BE INSTALLED PER NEC AND ALL APPLICABLE LOCAL, STATE AND NATIONAL CODES OR REGULATIONS.
8. PRELIMINARY DRAWINGS. NOT TO BE USED FOR CONSTRUCTION.

2MW Midwest Solar Farm

**EXHIBIT
 Not for Construction**

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PUBLIC DOCUMENT – Trade Secret Data Excised

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| Major/Minor Road | | | High Ecological Score | Animal Assemblage |
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Geronimo Energy Solar Farm

Stearns County, Minnesota

Preliminary Screening Study

Site: (70 Acres)



Westwood Professional Services, Inc.
7699 Anagram Drive
Eden Prairie, MN 55344
PHONE 952-937-5150
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www.westwoodps.com



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Geronimo Energy Solar Farm

Wright County, Minnesota

Preliminary Screening Study

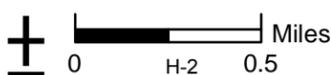
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Geronimo Energy Solar Farm

Kandiyohi and Meeker Counties, Minnesota

Preliminary Screening Study

Site: (14 Acres)



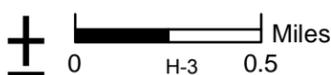
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GERONIMO ENERGY



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Geronimo Energy Solar Farm

Stearns County, Minnesota

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Site: (14 Acres)



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Geronimo Energy Solar Farm

Sherburne and Wright Counties, Minnesota

Preliminary Screening Study

Site: (17.5 Acres)



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Geronimo Energy Solar Farm

Dodge and Olmsted Counties, Minnesota

Preliminary Screening Study

Site: (70 Acres)



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Geronimo Energy Solar Farm

Chisago County, Minnesota

Preliminary Screening Study

Site: (70 Acres)



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Geronimo Energy Solar Farm

Chippewa County, Minnesota

Preliminary Screening Study

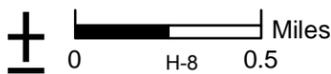
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Geronimo Energy Solar Farm

Sibley County, Minnesota

Preliminary Screening Study

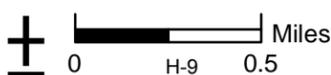
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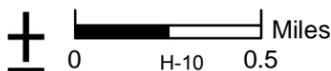
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Geronimo Energy Solar Farm

Chippewa, Lac Qui Parle, and Yellow Medicine Counties, Minnesota

Preliminary Screening Study

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Geronimo Energy Solar Farm

Goodhue County, Minnesota

Preliminary Screening Study

Site: (70 Acres)



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Geronimo Energy Solar Farm

Dakota and Washington Counties, Minnesota

Preliminary Screening Study

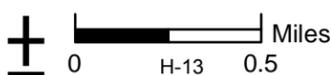
Site: (14 Acres)



Westwood Professional Services, Inc.
7699 Anagram Drive
Eden Prairie, MN 55344

PHONE 952-937-5150
FAX 952-937-5822
TOLL FREE 1-888-937-5150

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PUBLIC DOCUMENT – Trade Secret Data Excised

Legend

- | | | | | |
|--|-------------------------------|---------------------------|---|---------------------------|
| Distributed Generation Development Zones | 100-year Flood Zone | State Park | MCBS Rank | NHIS |
| County Boundary | National Wetlands Inventory | Scientific & Natural Area | High | Vertebrate Animal |
| Township | Public Waters Inventory (PWI) | Wildlife Management Area | Moderate | Community |
| Section | PWI Watercourse | Waterfowl Production Area | Outstanding | Invertebrate Animal |
| Interstate | USFWS Land Ownership | Nature Conservancy Lands | Regionally Specific Ecological Areas | Vascular Plant |
| Highway | Federal Land | | Moderate Ecological Score | Nonvascular Plant; Fungus |
| Major/Minor Road | | | High Ecological Score | Animal Assemblage |
| | | | Outstanding Ecological Score | Geologic |

Data Source(s): MnDNR Division of Lands & Minerals (2010); MnDNR Division of Water (2008); MnDNR Division of Parks & Recreation (2002); MnDNR Division of Fish & Wildlife (2008); MnDNR Division of Ecological Services (2008, 2013); National Atlas of U.S. (2005); USFWS National Wetlands Inventory (2009); MnDNR Central Region (2008); FEMA (2012); USFWS Cadastral Geodatabase (2013); ESRI (2011); USDA FSA NAIP (various); USGS/EPA (2010); Geronimo Energy (2013) and Westwood Professional Services (2013).

Geronimo Energy Solar Farm

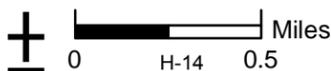
Le Sueur and Nicollet Counties, Minnesota

Preliminary Screening Study

Site: (14 Acres)



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PUBLIC DOCUMENT – Trade Secret Data Excised

Legend

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|--|-------------------------------|---------------------------|---|---------------------------|
| Distributed Generation Development Zones | 100-year Flood Zone | State Park | MCBS Rank | NHIS |
| County Boundary | National Wetlands Inventory | Scientific & Natural Area | High | Vertebrate Animal |
| Township | Public Waters Inventory (PWI) | Wildlife Management Area | Moderate | Community |
| Section | PWI Watercourse | Waterfowl Production Area | Outstanding | Invertebrate Animal |
| Interstate | USFWS Land Ownership | Nature Conservancy Lands | Regionally Specific Ecological Areas | Vascular Plant |
| Highway | Federal Land | | Moderate Ecological Score | Nonvascular Plant; Fungus |
| Major/Minor Road | | | High Ecological Score | Animal Assemblage |
| | | | Outstanding Ecological Score | Geologic |

Data Source(s): MnDNR Division of Lands & Minerals (2010); MnDNR Division of Water (2008); MnDNR Division of Parks & Recreation (2002); MnDNR Division of Fish & Wildlife (2008); MnDNR Division of Ecological Services (2008, 2013); National Atlas of U.S. (2005); USFWS National Wetlands Inventory (2009); MnDNR Central Region (2008); FEMA (2012); USFWS Cadastral Geodatabase (2013); ESRI (2011); USDA FSA NAIP (various); USGS/EPA (2010); Geronimo Energy (2013) and Westwood Professional Services (2013).

Geronimo Energy Solar Farm

Wright County, Minnesota

Preliminary Screening Study

Site: (38.5 Acres)



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Legend

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|--|-------------------------------|---------------------------|---|---------------------------|
| Distributed Generation Development Zones | 100-year Flood Zone | State Park | MCBS Rank | NHIS |
| County Boundary | National Wetlands Inventory | Scientific & Natural Area | High | Vertebrate Animal |
| Township | Public Waters Inventory (PWI) | Wildlife Management Area | Moderate | Community |
| Section | PWI Watercourse | Waterfowl Production Area | Outstanding | Invertebrate Animal |
| Interstate | USFWS Land Ownership | Nature Conservancy Lands | Regionally Specific Ecological Areas | Vascular Plant |
| Highway | Federal Land | | Moderate Ecological Score | Nonvascular Plant; Fungus |
| Major/Minor Road | | | High Ecological Score | Animal Assemblage |
| | | | Outstanding Ecological Score | Geologic |

Data Source(s): MnDNR Division of Lands & Minerals (2010); MnDNR Division of Water (2008); MnDNR Division of Parks & Recreation (2002); MnDNR Division of Fish & Wildlife (2008); MnDNR Division of Ecological Services (2008, 2013); National Atlas of U.S. (2005); USFWS National Wetlands Inventory (2009); MnDNR Central Region (2008); FEMA (2012); USFWS Cadastral Geodatabase (2013); ESRI (2011); USDA FSA NAIP (various); USGS/EPA (2010); Geronimo Energy (2013) and Westwood Professional Services (2013).

Geronimo Energy Solar Farm

Chisago, Minnesota and Polk, Wisconsin

Preliminary Screening Study

Site: (52.5 Acres)



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Legend

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|--|-------------------------------|---------------------------|---|---------------------------|
| Distributed Generation Development Zones | 100-year Flood Zone | State Park | MCBS Rank | NHIS |
| County Boundary | National Wetlands Inventory | Scientific & Natural Area | High | Vertebrate Animal |
| Township | Public Waters Inventory (PWI) | Wildlife Management Area | Moderate | Community |
| Section | PWI Watercourse | Waterfowl Production Area | Outstanding | Invertebrate Animal |
| Interstate | USFWS Land Ownership | Nature Conservancy Lands | Regionally Specific Ecological Areas | Vascular Plant |
| Highway | Federal Land | | Moderate Ecological Score | Nonvascular Plant; Fungus |
| Major/Minor Road | | | High Ecological Score | Animal Assemblage |
| | | | Outstanding Ecological Score | Geologic |

Data Source(s): MnDNR Division of Lands & Minerals (2010); MnDNR Division of Water (2008); MnDNR Division of Parks & Recreation (2002); MnDNR Division of Fish & Wildlife (2008); MnDNR Division of Ecological Services (2008, 2013); National Atlas of U.S. (2005); USFWS National Wetlands Inventory (2009); MnDNR Central Region (2008); FEMA (2012); USFWS Cadastral Geodatabase (2013); ESRI (2011); USDA FSA NAIP (various); USGS/EPA (2010); Geronimo Energy (2013) and Westwood Professional Services (2013).

Geronimo Energy Solar Farm

McLeod County, Minnesota

Preliminary Screening Study

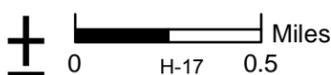
Site: (14 Acres)



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Legend

- | | | | | |
|--|-------------------------------|---------------------------|---|---------------------------|
| Distributed Generation Development Zones | 100-year Flood Zone | State Park | MCBS Rank | NHIS |
| County Boundary | National Wetlands Inventory | Scientific & Natural Area | High | Vertebrate Animal |
| Township | Public Waters Inventory (PWI) | Wildlife Management Area | Moderate | Community |
| Section | PWI Watercourse | Waterfowl Production Area | Outstanding | Invertebrate Animal |
| Interstate | USFWS Land Ownership | Nature Conservancy Lands | Regionally Specific Ecological Areas | Vascular Plant |
| Highway | Federal Land | | Moderate Ecological Score | Nonvascular Plant; Fungus |
| Major/Minor Road | | | High Ecological Score | Animal Assemblage |
| | | | Outstanding Ecological Score | Geologic |

Data Source(s): MnDNR Division of Lands & Minerals (2010); MnDNR Division of Water (2008); MnDNR Division of Parks & Recreation (2002); MnDNR Division of Fish & Wildlife (2008); MnDNR Division of Ecological Services (2008, 2013); National Atlas of U.S. (2005); USFWS National Wetlands Inventory (2009); MnDNR Central Region (2008); FEMA (2012); USFWS Cadastral Geodatabase (2013); ESRI (2011); USDA FSA NAIP (various); USGS/EPA (2010); Geronimo Energy (2013) and Westwood Professional Services (2013).

Geronimo Energy Solar Farm

Benton County, Minnesota

Preliminary Screening Study

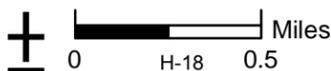
Site: (21 Acres)



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- | | | | | |
|--|-------------------------------|---------------------------|---|---------------------------|
| Distributed Generation Development Zones | 100-year Flood Zone | State Park | MCBS Rank | NHIS |
| County Boundary | National Wetlands Inventory | Scientific & Natural Area | High | Vertebrate Animal |
| Township | Public Waters Inventory (PWI) | Wildlife Management Area | Moderate | Community |
| Section | PWI Watercourse | Waterfowl Production Area | Outstanding | Invertebrate Animal |
| Interstate | USFWS Land Ownership | Nature Conservancy Lands | Regionally Specific Ecological Areas | Vascular Plant |
| Highway | Federal Land | | Moderate Ecological Score | Nonvascular Plant; Fungus |
| Major/Minor Road | | | High Ecological Score | Animal Assemblage |
| | | | Outstanding Ecological Score | Geologic |

Data Source(s): MnDNR Division of Lands & Minerals (2010); MnDNR Division of Water (2008); MnDNR Division of Parks & Recreation (2002); MnDNR Division of Fish & Wildlife (2008); MnDNR Division of Ecological Services (2008, 2013); National Atlas of U.S. (2005); USFWS National Wetlands Inventory (2009); MnDNR Central Region (2008); FEMA (2012); USFWS Cadastral Geodatabase (2013); ESRI (2011); USDA FSA NAIP (various); USGS/EPA (2010); Geronimo Energy (2013) and Westwood Professional Services (2013).

Geronimo Energy Solar Farm

Chippewa, Lac Qui Parle, and Yellow Medicine Counties, Minnesota

Preliminary Screening Study

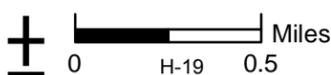
Site: (14 Acres)



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Legend

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|--|-------------------------------|---------------------------|---|---------------------------|
| Distributed Generation Development Zones | 100-year Flood Zone | State Park | MCBS Rank | NHIS |
| County Boundary | National Wetlands Inventory | Scientific & Natural Area | High | Vertebrate Animal |
| Township | Public Waters Inventory (PWI) | Wildlife Management Area | Moderate | Community |
| Section | PWI Watercourse | Waterfowl Production Area | Outstanding | Invertebrate Animal |
| Interstate | USFWS Land Ownership | Nature Conservancy Lands | Regionally Specific Ecological Areas | Vascular Plant |
| Highway | Federal Land | | Moderate Ecological Score | Nonvascular Plant; Fungus |
| Major/Minor Road | | | High Ecological Score | Animal Assemblage |
| | | | Outstanding Ecological Score | Geologic |

Data Source(s): MnDNR Division of Lands & Minerals (2010); MnDNR Division of Water (2008); MnDNR Division of Parks & Recreation (2002); MnDNR Division of Fish & Wildlife (2008); MnDNR Division of Ecological Services (2008, 2013); National Atlas of U.S. (2005); USFWS National Wetlands Inventory (2009); MnDNR Central Region (2008); FEMA (2012); USFWS Cadastral Geodatabase (2013); ESRI (2011); USDA FSA NAIP (various); USGS/EPA (2010); Geronimo Energy (2013) and Westwood Professional Services (2013).

Geronimo Energy Solar Farm

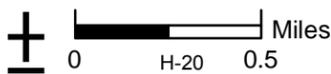
Wright County, Minnesota

Preliminary Screening Study

Site: (14 Acres)



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Legend

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|--|-------------------------------|---------------------------|---|---------------------------|
| Distributed Generation Development Zones | 100-year Flood Zone | State Park | MCBS Rank | NHIS |
| County Boundary | National Wetlands Inventory | Scientific & Natural Area | High | Vertebrate Animal |
| Township | Public Waters Inventory (PWI) | Wildlife Management Area | Moderate | Community |
| Section | PWI Watercourse | Waterfowl Production Area | Outstanding | Invertebrate Animal |
| Interstate | USFWS Land Ownership | Nature Conservancy Lands | Regionally Specific Ecological Areas | Vascular Plant |
| Highway | Federal Land | | Moderate Ecological Score | Nonvascular Plant; Fungus |
| Major/Minor Road | | | High Ecological Score | Animal Assemblage |
| | | | Outstanding Ecological Score | Geologic |

Data Source(s): MnDNR Division of Lands & Minerals (2010); MnDNR Division of Water (2008); MnDNR Division of Parks & Recreation (2002); MnDNR Division of Fish & Wildlife (2008); MnDNR Division of Ecological Services (2008, 2013); National Atlas of U.S. (2005); USFWS National Wetlands Inventory (2009); MnDNR Central Region (2008); FEMA (2012); USFWS Cadastral Geodatabase (2013); ESRI (2011); USDA FSA NAIP (various); USGS/EPA (2010); Geronimo Energy (2013) and Westwood Professional Services (2013).

Geronimo Energy Solar Farm

Stearns and Kandiyohi Counties, Minnesota

Preliminary Screening Study

Site: (70 Acres)



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Legend

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|--|-------------------------------|---------------------------|---|---------------------------|
| Distributed Generation Development Zones | 100-year Flood Zone | State Park | MCBS Rank | NHIS |
| County Boundary | National Wetlands Inventory | Scientific & Natural Area | High | Vertebrate Animal |
| Township | Public Waters Inventory (PWI) | Wildlife Management Area | Moderate | Community |
| Section | PWI Watercourse | Waterfowl Production Area | Outstanding | Invertebrate Animal |
| Interstate | USFWS Land Ownership | Nature Conservancy Lands | Regionally Specific Ecological Areas | Vascular Plant |
| Highway | Federal Land | | Moderate Ecological Score | Nonvascular Plant; Fungus |
| Major/Minor Road | | | High Ecological Score | Animal Assemblage |
| | | | Outstanding Ecological Score | Geologic |

Data Source(s): MnDNR Division of Lands & Minerals (2010); MnDNR Division of Water (2008); MnDNR Division of Parks & Recreation (2002); MnDNR Division of Fish & Wildlife (2008); MnDNR Division of Ecological Services (2008, 2013); National Atlas of U.S. (2005); USFWS National Wetlands Inventory (2009); MnDNR Central Region (2008); FEMA (2012); USFWS Cadastral Geodatabase (2013); ESRI (2011); USDA FSA NAIP (various); USGS/EPA (2010); Geronimo Energy (2013) and Westwood Professional Services (2013).

Geronimo Energy Solar Farm

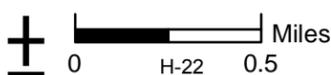
Goodhue, Olmsted and Dodge Counties, Minnesota

Preliminary Screening Study

Site: (17.5 Acres)



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PUBLIC DOCUMENT – Trade Secret Data Excised

Legend

Distributed Generation Development Zones	100-year Flood Zone	State Park	MCBS Rank	NHIS
County Boundary	National Wetlands Inventory	Scientific & Natural Area	High	Vertebrate Animal
Township	Public Waters Inventory (PWI)	Wildlife Management Area	Moderate	Community
Section	PWI Watercourse	Waterfowl Production Area	Outstanding	Invertebrate Animal
Interstate	USFWS Land Ownership	Nature Conservancy Lands	Regionally Specific Ecological Areas	Vascular Plant
Highway	Federal Land		Moderate Ecological Score	Nonvascular Plant; Fungus
Major/Minor Road			High Ecological Score	Animal Assemblage
			Outstanding Ecological Score	Geologic

Data Source(s): MnDNR Division of Lands & Minerals (2010); MnDNR Division of Water (2008); MnDNR Division of Parks & Recreation (2002); MnDNR Division of Fish & Wildlife (2008); MnDNR Division of Ecological Services (2008, 2013); National Atlas of U.S. (2005); USFWS National Wetlands Inventory (2009); MnDNR Central Region (2008); FEMA (2012); USFWS Cadastral Geodatabase (2013); ESRI (2011); USDA FSA NAIP (various); USGS/EPA (2010); Geronimo Energy (2013) and Westwood Professional Services (2013).

Geronimo Energy Solar Farm

Pipestone County, Minnesota

Preliminary Screening Study

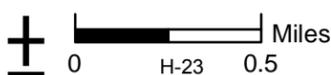
Site: (21 Acres)



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PUBLIC DOCUMENT – Trade Secret Data Excised

Legend

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|--|-------------------------------|---------------------------|---|---------------------------|
| Distributed Generation Development Zones | 100-year Flood Zone | State Park | MCBS Rank | NHIS |
| County Boundary | National Wetlands Inventory | Scientific & Natural Area | High | Vertebrate Animal |
| Township | Public Waters Inventory (PWI) | Wildlife Management Area | Moderate | Community |
| Section | PWI Watercourse | Waterfowl Production Area | Outstanding | Invertebrate Animal |
| Interstate | USFWS Land Ownership | Nature Conservancy Lands | Regionally Specific Ecological Areas | Vascular Plant |
| Highway | Federal Land | | Moderate Ecological Score | Nonvascular Plant; Fungus |
| Major/Minor Road | | | High Ecological Score | Animal Assemblage |
| | | | Outstanding Ecological Score | Geologic |

Data Source(s): MnDNR Division of Lands & Minerals (2010); MnDNR Division of Water (2008); MnDNR Division of Parks & Recreation (2002); MnDNR Division of Fish & Wildlife (2008); MnDNR Division of Ecological Services (2008, 2013); National Atlas of U.S. (2005); USFWS National Wetlands Inventory (2009); MnDNR Central Region (2008); FEMA (2012); USFWS Cadastral Geodatabase (2013); ESRI (2011); USDA FSA NAIP (various); USGS/EPA (2010); Geronimo Energy (2013) and Westwood Professional Services (2013).

Geronimo Energy Solar Farm

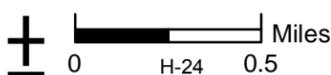
Dakota County, Minnesota

Preliminary Screening Study

Site: (28 Acres)



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Legend

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| Distributed Generation Development Zones | 100-year Flood Zone | State Park | MCBS Rank | NHIS |
| County Boundary | National Wetlands Inventory | Scientific & Natural Area | High | Vertebrate Animal |
| Township | Public Waters Inventory (PWI) | Wildlife Management Area | Moderate | Community |
| Section | PWI Watercourse | Waterfowl Production Area | Outstanding | Invertebrate Animal |
| Interstate | USFWS Land Ownership | Nature Conservancy Lands | Regionally Specific Ecological Areas | Vascular Plant |
| Highway | Federal Land | | Moderate Ecological Score | Nonvascular Plant; Fungus |
| Major/Minor Road | | | High Ecological Score | Animal Assemblage |
| | | | Outstanding Ecological Score | Geologic |

Data Source(s): MnDNR Division of Lands & Minerals (2010); MnDNR Division of Water (2008); MnDNR Division of Parks & Recreation (2002); MnDNR Division of Fish & Wildlife (2008); MnDNR Division of Ecological Services (2008, 2013); National Atlas of U.S. (2005); USFWS National Wetlands Inventory (2009); MnDNR Central Region (2008); FEMA (2012); USFWS Cadastral Geodatabase (2013); ESRI (2011); USDA FSA NAIP (various); USGS/EPA (2010); Geronimo Energy (2013) and Westwood Professional Services (2013).

Geronimo Energy Solar Farm

Chisago and Washington Counties, Minnesota

Preliminary Screening Study

Site: (14 Acres)



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| Distributed Generation Development Zones | 100-year Flood Zone | State Park | MCBS Rank | NHIS |
| County Boundary | National Wetlands Inventory | Scientific & Natural Area | High | Vertebrate Animal |
| Township | Public Waters Inventory (PWI) | Wildlife Management Area | Moderate | Community |
| Section | PWI Watercourse | Waterfowl Production Area | Outstanding | Invertebrate Animal |
| Interstate | USFWS Land Ownership | Nature Conservancy Lands | Regionally Specific Ecological Areas | Vascular Plant |
| Highway | Federal Land | | Moderate Ecological Score | Nonvascular Plant; Fungus |
| Major/Minor Road | | | High Ecological Score | Animal Assemblage |
| | | | Outstanding Ecological Score | Geologic |

Data Source(s): MnDNR Division of Lands & Minerals (2010); MnDNR Division of Water (2008); MnDNR Division of Parks & Recreation (2002); MnDNR Division of Fish & Wildlife (2008); MnDNR Division of Ecological Services (2008, 2013); National Atlas of U.S. (2005); USFWS National Wetlands Inventory (2009); MnDNR Central Region (2008); FEMA (2012); USFWS Cadastral Geodatabase (2013); ESRI (2011); USDA FSA NAIP (various); USGS/EPA (2010); Geronimo Energy (2013) and Westwood Professional Services (2013).

Geronimo Energy Solar Farm

Waseca County, Minnesota

Preliminary Screening Study

Site: (59.5 Acres)



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PUBLIC DOCUMENT – Trade Secret Data Excised

Legend

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|--|-------------------------------|---------------------------|---|---------------------------|
| Distributed Generation Development Zones | 100-year Flood Zone | State Park | MCBS Rank | NHIS |
| County Boundary | National Wetlands Inventory | Scientific & Natural Area | High | Vertebrate Animal |
| Township | Public Waters Inventory (PWI) | Wildlife Management Area | Moderate | Community |
| Section | PWI Watercourse | Waterfowl Production Area | Outstanding | Invertebrate Animal |
| Interstate | USFWS Land Ownership | Nature Conservancy Lands | Regionally Specific Ecological Areas | Vascular Plant |
| Highway | Federal Land | | Moderate Ecological Score | Nonvascular Plant; Fungus |
| Major/Minor Road | | | High Ecological Score | Animal Assemblage |
| | | | Outstanding Ecological Score | Geologic |

Data Source(s): MnDNR Division of Lands & Minerals (2010); MnDNR Division of Water (2008); MnDNR Division of Parks & Recreation (2002); MnDNR Division of Fish & Wildlife (2008); MnDNR Division of Ecological Services (2008, 2013); National Atlas of U.S. (2005); USFWS National Wetlands Inventory (2009); MnDNR Central Region (2008); FEMA (2012); USFWS Cadastral Geodatabase (2013); ESRI (2011); USDA FSA NAIP (various); USGS/EPA (2010); Geronimo Energy (2013) and Westwood Professional Services (2013).

Geronimo Energy Solar Farm

Le Sueur and Waseca Counties, Minnesota

Preliminary Screening Study

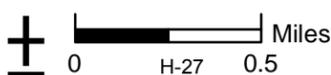
Site: (21 Acres)



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Eden Prairie, MN 55344

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PUBLIC DOCUMENT – Trade Secret Data Excised

Legend

- | | | | | |
|--|-------------------------------|---------------------------|---|---------------------------|
| Distributed Generation Development Zones | 100-year Flood Zone | State Park | MCBS Rank | NHIS |
| County Boundary | National Wetlands Inventory | Scientific & Natural Area | High | Vertebrate Animal |
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Geronimo Energy Solar Farm

Rice County, Minnesota

Preliminary Screening Study

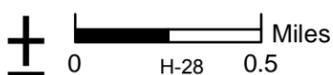
Site: (17.5 Acres)



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| Highway | Federal Land | | Moderate Ecological Score | Nonvascular Plant; Fungus |
| Major/Minor Road | | | High Ecological Score | Animal Assemblage |
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Geronimo Energy Solar Farm

Carver County, Minnesota

Preliminary Screening Study

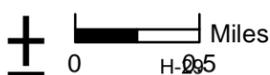
Site: (42 Acres)



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Geronimo Energy Solar Farm

Chisago, Washington, and Anoka Counties, Minnesota

Preliminary Screening Study

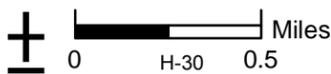
Site: (21 Acres)



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PUBLIC DOCUMENT – Trade Secret Data Excised

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- | | | | | |
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| Distributed Generation Development Zones | 100-year Flood Zone | State Park | MCBS Rank | NHIS |
| County Boundary | National Wetlands Inventory | Scientific & Natural Area | High | Vertebrate Animal |
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Geronimo Energy Solar Farm

Goodhue County, Minnesota

Preliminary Screening Study

Site: (21 Acres)



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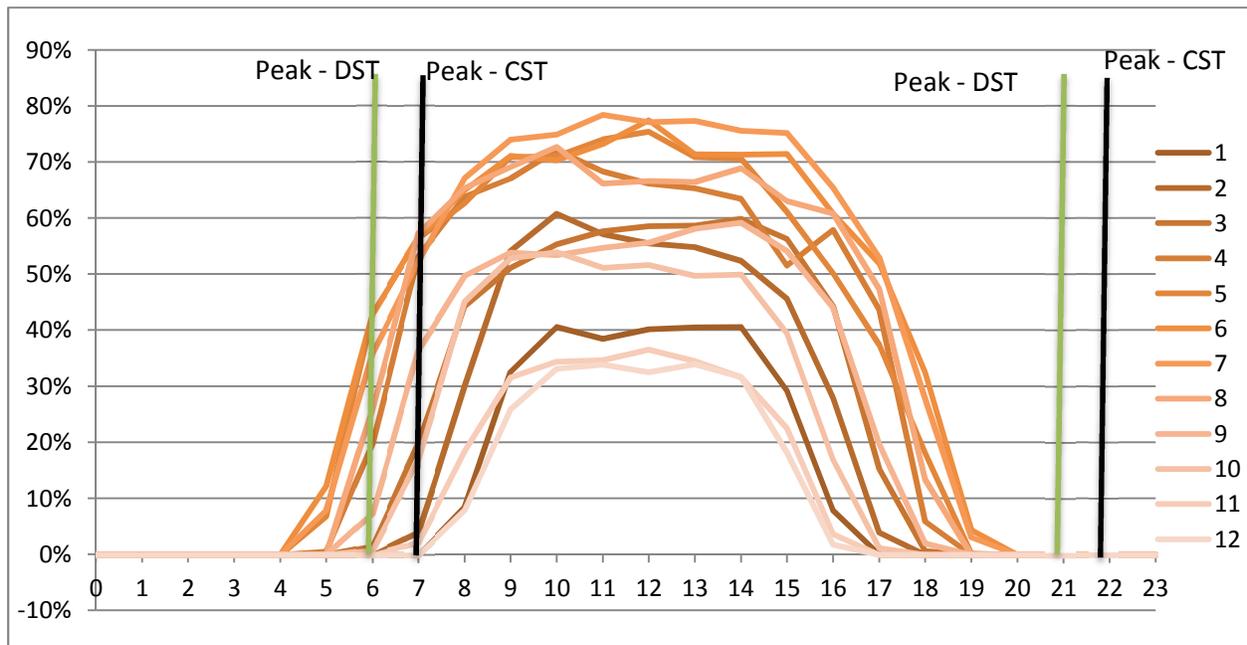


Appendix I - Emissions Displacement Analysis

1 Summary

This analysis estimates the emissions displaced by Geronimo’s proposed 100 MW AC Distributed Solar Energy Proposal. The generation from the new solar facilities will result in a net reduction in thermal generation, thus a reduction in the emissions generated by the thermal electrical generators in the region. Emissions from thermal generation impose an additional cost on the environment and the general public, known as an externality cost. This analysis uses the Commission’s environmental cost values to estimate the savings achieved by displacing emitting resources with Geronimo’s Project. Within Xcel Energy’s Minnesota service territory, the Midwest Independent Transmission System Operator, Inc. (“MISO”) controls the generation mix on at any given time through price signals and other controls. Solar generation is coincident with MISO’s peak hours. Figure 1 provides peak hours along with the expected capacity factors from Geronimo’s project. The installation of the Geronimo’s solar facilities will change the generation mix MISO uses to serve demand during peak hours by reducing the amount of thermal electrical generation and, thus, emissions generated from these sources.

Figure 1: Solar Generation Curve by Month and MISO Peak Hours



To estimate the amount of energy shaving that will likely occur and the resultant reduction in emissions from the Project, Geronimo evaluated the 2012 generation mix in the MISO Minnesota Zone, reviewed data from the U.S. Environmental Protection Agency (“EPA”) regarding the emissions specific to Minnesota’s energy mix, and compared the solar generation for each month with the generation from thermal plants that could be offset as a result of the project. Geronimo evaluated the MISO model to determine which facilities may be turned on and off and subtracted their generation from the generation of the new solar facilities. Geronimo

was then able to scale the emission data to determine the effect the Project could have when inserted into Minnesota’s generation mix.

Geronimo examined the recent results from the Commission’s pricing analysis in Docket No. E999/CI-00-1636 and E999/CI-07-1199 for current pricing on the different emissions sources including SOx, NOx, PM10, CO, and CO2. Using this pricing, Geronimo estimated the environmental cost savings that could result from the solar proposal. This analysis provided an overall cost savings ranging between \$4.99/MWh and \$17.81/MWh.

2 Emission Estimation

2.1 METHODOLOGY

Emissions resulting from electric generation are a function of the pool of generating plants that are being used to generate the electricity, and the demand dispatch of those plants. To estimate emission displacement from the Project, Geronimo used two data sources to approximate these factors: EPA data on Minnesota emissions and Ventyx data on Minnesota generation sources. When combined, these two data sources provide realistic data on generation and emission patterns in the region that will be affected by the Project.

The EPA’s National Emission Inventory (“NEI”) provides actual emission values on a state level. Geronimo reviewed the NEI 2008 data set-- the most recent available data on emissions for the State of Minnesota. Geronimo then paired this data set with 2008 generation as modeled by Ventyx for the MISO Minnesota Transmission Zone (Ventyx 2013) to determine a per MW value for each of the reported pollutants in the NEI (U.S. Environmental Protection Agency 2013). Table 1 summarizes the NEI data for electrical generation in Minnesota.

Table 1: NEI Data for Electrical Generation in Minnesota, 2008

	Pollutant (Tons)							
	CO	NOX	PM10-FIL	PM10-PRI	PM25-FIL	PM25-PRI	SO2	VOC
Biomass	1847.87	1457.65	532.93	552.70	458.43	478.20	401.57	109.35
Coal	6209.45	61184.06	7945.17	8201.26	2945.19	3201.28	77143.46	582.67
Natural Gas	1425.46	684.40	88.32	109.01	8.30	28.99	80.25	30.93
Oil	32.00	293.23	32.23	39.80	23.98	31.55	602.49	3.81
Other	226.80	179.95	0.30	15.87	14.73	14.81	24.55	21.89
Total	9741.59	63799.29	8598.95	8918.63	3450.63	3754.82	78252.32	748.65

By using the NEI, Geronimo is able to capture relative efficiencies as well as pollution variations associated with plant ramping that are unique to the power plants in the Minnesota area and the

way MISO dispatches those plants. Geronimo is also able to capture the variation in emissions associated with different levels of electrical production. Plants burning below their normal output or ramping up and down typically generate more emissions than those burning at a stable rate. The 2008 NEI is limited in that it does not provide quantities of CO₂ generated by facilities. To supplement the NEI data, Geronimo used data from the EIA on CO₂ emissions using average heat rates for steam electric generators in 2011 (U.S. Energy Information Administration 2013). Table 2 provides the estimations used by the EIA. Recent studies by the National Renewable Energy Laboratory (National Renewable Energy Labrotory 2012) found that integration of renewables, while being intermittent resources, do not increase the amount of emissions generated from plant ramping, so Geronimo did not include this in the analysis.

Table 2: EIA CO₂ Emissions Estimates

Fuel	Lbs of CO ₂ per Million Btu	Heat Rate (Million Btu per kWh)	Lbs CO ₂ per kWh
Coal			
Bituminous	205.300	0.010128	2.03
Sub-bituminous	212.700	0.010128	2.10
Lignite	215.400	0.010128	2.13
Natural gas	117.080	0.010414	1.12
Distillate Oil (No. 2)	161.386	0.010414	1.55
Residual Oil (No. 6)	173.906	0.010414	1.67

Geronimo then used the per MW emission number to scale to the 2012 generation patterns. Geronimo rescaled the data to 2012 patterns so as to accommodate for the slight changes in generation since 2008. In particular, the increase in wind energy has shifted MISO to rely on gas generation more than other generation sources to accommodate for wind variability. Because of the granularity of the rescaling, Geronimo limited its analysis of this data to monthly MISO on-peak (7am to 10pm) operations

A PVsyst model developed by Westwood Professional Services was used to estimate the generation profile on a monthly basis for the proposed Project. PVsyst is an internationally recognized modeling tool for solar photovoltaic generation design. The results of the PVsyst modeling were applied to the monthly generation data, targeting the most expensive electrical generation source, petroleum, first and natural gas second because of its ability to ramp easily. Coal and biomass were assumed to be dispatched last because they cannot be easily ramped up and down. The revised emissions data was then subtracted from the initial scaled data to provide total tons of each emission reduced by Geronimo’s solar project.

2.2 RESULTS

Table 3 details the emissions estimates for 2012 generation mix. This generation is the result of the recalculation of the 2008 output by source and emission level.

Table 3: 2012 Emissions Estimates by Month

Fuel	Year-Month	Sum Net Generation (MWh)	CO ₂ (tons)	CO (tons)	NOX (tons)	PM10-FIL (tons)	PM10-PRI (tons)	PM25-FIL (tons)	PM25-PRI (tons)	SO ₂ (tons)	VOC (tons)
Coal	2012-01	1529408.84	1784661.37	214.38	2112.34	274.30	283.14	101.68	110.52	2663.33	20.12

Fuel	Year-Month	Sum Net Generation (MWh)	CO2 (tons)	CO (tons)	NOX (tons)	PM10-FIL (tons)	PM10-PRI (tons)	PM25-FIL (tons)	PM25-PRI (tons)	SO2 (tons)	VOC (tons)
	2012-02	1467573.07	1718754.87	205.71	2026.94	263.21	271.70	97.57	106.05	2555.65	19.30
	2012-03	1222731.6	1463257.71	171.39	1688.78	219.30	226.37	81.29	88.36	2129.28	16.08
	2012-04	1135514.89	1351948.60	159.17	1568.32	203.66	210.22	75.49	82.06	1977.40	14.94
	2012-05	956655.73	1177325.23	134.09	1321.29	171.58	177.11	63.60	69.13	1665.93	12.58
	2012-06	1240170.35	1474134.84	173.84	1712.86	222.43	229.60	82.45	89.62	2159.65	16.31
	2012-07	1614627.15	1898954.15	226.32	2230.04	289.59	298.92	107.35	116.68	2811.73	21.24
	2012-08	1737413.17	2025168.04	243.53	2399.63	311.61	321.65	115.51	125.55	3025.55	22.85
	2012-09	1334301.99	1551740.60	187.03	1842.87	239.31	247.02	88.71	96.42	2323.57	17.55
	2012-10	1563681.12	1799819.07	219.18	2159.68	280.45	289.49	103.96	113.00	2723.01	20.57
	2012-11	1459931.62	1686248.12	204.64	2016.39	261.84	270.28	97.06	105.50	2542.34	19.20
2012-12	1604531.59	1860577.52	224.91	2216.10	287.78	297.05	106.68	115.95	2794.15	21.10	
Gas	2012-01	153175.02	66146.58	77.72	37.32	4.82	5.94	0.45	1.58	4.38	1.69
	2012-02	257926.02	111422.27	130.88	62.84	8.11	10.01	0.76	2.66	7.37	2.84
	2012-03	279399.83	118121.49	141.77	68.07	8.78	10.84	0.83	2.88	7.98	3.08
	2012-04	369343.11	159495.75	187.41	89.98	11.61	14.33	1.09	3.81	10.55	4.07
	2012-05	475072.47	225010.05	241.06	115.74	14.94	18.43	1.40	4.90	13.57	5.23
	2012-06	581009.52	289578.46	294.82	141.55	18.27	22.55	1.72	6.00	16.60	6.40
	2012-07	968511.03	507672.41	491.45	235.96	30.45	37.58	2.86	9.99	27.67	10.66
	2012-08	552867.44	264955.38	280.54	134.69	17.38	21.45	1.63	5.70	15.79	6.09
	2012-09	202622.03	93233.41	102.82	49.36	6.37	7.86	0.60	2.09	5.79	2.23
	2012-10	162024.4	73146.33	82.22	39.47	5.09	6.29	0.48	1.67	4.63	1.78
	2012-11	271751.8	123939.92	137.89	66.21	8.54	10.54	0.80	2.80	7.76	2.99
	2012-12	380759.91	166444.60	193.21	92.76	11.97	14.77	1.12	3.93	10.88	4.19
Oil	2012-01	68.49	39.57	0.24	0.19	0.07	0.07	0.06	0.06	0.05	0.01
	2012-02	32.37	18.70	0.11	0.09	0.03	0.03	0.03	0.03	0.02	0.01
	2012-03	254.59	147.10	0.89	0.70	0.26	0.27	0.22	0.23	0.19	0.05
	2012-04	74.3	42.93	0.26	0.21	0.08	0.08	0.06	0.07	0.06	0.02
	2012-05	67.56	39.04	0.24	0.19	0.07	0.07	0.06	0.06	0.05	0.01
	2012-06	686.53	396.67	2.41	1.90	0.69	0.72	0.60	0.62	0.52	0.14
	2012-07	4673.33	2700.20	16.40	12.94	4.73	4.91	4.07	4.24	3.56	0.97
	2012-08	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	2012-09	238.81	137.98	0.84	0.66	0.24	0.25	0.21	0.22	0.18	0.05
	2012-10	186.09	107.52	0.65	0.52	0.19	0.20	0.16	0.17	0.14	0.04
	2012-11	711.13	410.88	2.50	1.97	0.72	0.75	0.62	0.65	0.54	0.15
	2012-12	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Biomass	2012-01	34469.8	72056.45	120.98	95.44	34.89	36.19	30.01	31.31	26.29	7.16
	2012-02	34881.06	70540.65	122.43	96.58	35.31	36.62	30.37	31.68	26.61	7.24
	2012-03	37788.73	75143.89	132.63	104.63	38.25	39.67	32.90	34.32	28.82	7.85
	2012-04	34389.98	67971.68	120.70	95.22	34.81	36.10	29.95	31.24	26.23	7.14
	2012-05	22995.48	49710.63	80.71	63.67	23.28	24.14	20.02	20.89	17.54	4.78
	2012-06	36557.41	67042.60	128.31	101.22	37.01	38.38	31.83	33.21	27.88	7.59
	2012-07	37989.68	82204.84	133.34	105.18	38.46	39.88	33.08	34.51	28.98	7.89
	2012-08	39322.26	79634.16	138.02	108.87	39.80	41.28	34.24	35.72	29.99	8.17
	2012-09	30662.03	58051.55	107.62	84.89	31.04	32.19	26.70	27.85	23.39	6.37
	2012-10	38388.99	70439.83	134.74	106.29	38.86	40.30	33.43	34.87	29.28	7.97
	2012-11	32639.78	60425.86	114.56	90.37	33.04	34.27	28.42	29.65	24.90	6.78
	2012-12	33217.25	72040.57	116.59	91.97	33.62	34.87	28.92	30.17	25.34	6.90

Geronimo applied the estimated output to the energy estimates and found that the oil-based generation sources were completely supplanted and that a portion of the gas-based peaking sources were also supplanted with the new solar facility. The replacement of generation results in the reduction of emissions as provided in Table 4.

Table 4: Calculation of Emission Reductions from New Solar (2012 Levels)

	Pollutants (Tons)								
	CO2	CO	NOX	PM10-FIL	PM10-PRI	PM25-FIL	PM25-PRI	SO2	VOC
Totals Pre Solar	22,123,862.01	9,827,605,214.85	3,517.50	23,448.64	3,213.00	3,142.39	1,175.73	1,357.15	29,424.32
Totals Post Solar	22,029,729.01	9,827,605,098.88	3,454.24	23,435.90	3,198.66	3,135.77	1,167.52	1,346.67	29,420.88
DELTA	(94,133.00)	(115.98)	(63.26)	(12.74)	(14.33)	(6.62)	(8.21)	(10.48)	(3.44)

The installation of the Project produces notable reductions in generation levels for all pollutants measured in the NEI.

3 Cost Savings Estimation

3.1 METHODOLOGY

The Commission has per statute quantified the costs of carbon and other emissions. These values are provided by the Commission in dockets E999/CI-00-1636 for all pollutants and Docket No. E999/CI-07-1199 for CO₂. Docket No. E999/CI-00-1636 provides a calculation of the externality costs associated with different emissions in different regions of Minnesota. Geronimo applied the costs calculated for the Metropolitan Fringe since that is the location of a majority of the resources that would be affected by the addition of the Project. Geronimo applied the carbon costs calculated in Docket No. E999/CI-07-1199 because they represent the market rate for carbon emissions reduction and will most closely approximate any control technology that would be required as a result of the pending EPA rules on greenhouse gasses. All of these savings were aggregated and divided by the annual project output in PVsyst to generate a per MWh savings.

3.2 RESULTS

Table 5 provides the results of the cost calculation.

Table 5: Cost Savings Associated with Geronimo's Solar Project

Emission	Tons	Cost/Ton		Total Cost
CO2	(94,133.00)	\$ 34.00	High	\$ (3,200,522.08)
		\$ 21.50	Mid	\$ (2,023,859.55)
		\$ 9.00	Low	\$ (847,197.02)
CO	(115.98)	\$ 1.86	High	\$ (215.71)
		\$ 1.46	Mid	\$ (169.32)
		\$ 1.06	Low	\$ (122.93)
NOX	(63.26)	\$ 370.00	High	\$ (23,406.18)
		\$ 282.50	Mid	\$ (17,870.93)

Emission	Tons	Cost/Ton		Total Cost
		\$ 195.00	Low	\$ (12,335.69)
PM10	(27.08)	\$ 4,012.00	High	\$ (108,632.65)
		\$ 3,387.00	Mid	\$ (91,709.57)
		\$ 2,762.00	Low	\$ (74,786.48)
Total			High	\$ (3,332,776.62)
			Mid	\$ (2,133,609.37)
			Low	\$ (934,442.13)
\$/MWH			High	\$ (17.81)
			Mid	\$ (11.40)
			Low	\$ (4.99)

Geronimo estimates that by offsetting risks associated with carbon pricing and reducing externalities from other generation sources, the Project will save Minnesota ratepayers between \$4.99 and \$17.88 per MWh generated by the Project.

4 Conclusion

Based on our analysis, the Geronimo Distributed Solar Proposal will result in a reduction in environmental costs of between \$4.99 and \$17.88 per MWh of solar generation. This result is significant, as it can be used as a direct reduction of the cost of solar generation when the Commission is considering, pursuant to Minnesota Statutes, section 216B.243, subdivision 3a, whether alternatives to the Project are less expensive.

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- Ventyx. *Velocity Suite*. May 1, 2013.

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Form of Solar Energy PPA proposed by Geronimo Energy as adopted and modified from Xcel Energy, Inc.'s solicitation of bids for Solar Power Plants. The form of Solar PPA sets forth customary terms and conditions for the sale and purchase of solar accreditable capacity, energy and renewable energy credits and is subject to the negotiation of final terms by the parties and regulatory approval.

PROPOSED

SOLAR ENERGY PURCHASE AGREEMENT

BETWEEN

**NORTHERN STATES POWER COMPANY,
A MINNESOTA CORPORATION
("COMPANY")**

AND

_____, **LLC**
("SELLER")

- [date] -

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SOLAR ENERGY PURCHASE AGREEMENT
BETWEEN
_____, **LLC**
AND
NORTHERN STATES POWER COMPANY

This Solar Energy Purchase Agreement (this "PPA") is made this ____ day of _____, 20__, by and between (i) _____ ("Seller"), a _____ limited liability company with a principal place of business at _____, and (ii) Northern States Power Company ("Company"), a Minnesota corporation with headquarters in Minneapolis, Minnesota. Seller and Company are hereinafter referred to individually as a "Party" and collectively as the "Parties".

WHEREAS Seller desires to develop, design, construct, own and operate a solar electric generating facility with an expected total name plate capacity of approximately _____ MW AC, and which is further defined below as the "Facility"; and

WHEREAS Seller intends to locate the Facility at _____, and to interconnect the Facility with the Interconnection Provider's System *[at the ____ side of the generator step-up transformer at the _____ substation]*; and

WHEREAS Seller desires to sell and deliver to Company at the Point of Delivery the Solar Energy produced by the Facility and associated Renewable Energy Credits, and Company desires to buy the same from Seller; and

NOW, THEREFORE, in consideration of the mutual covenants herein contained, the sufficiency and adequacy of which are hereby acknowledged, the Parties agree to the following:

Article 1 – Definitions and Rules of Interpretation{tc "Article 1 – Definitions and Rules of Interpretation" \f C \l 1}

1.1 Rules of Construction{tc "1.1 Rules of Construction" \f C \l 2}. The capitalized terms listed in this Article shall have the meanings set forth herein whenever the terms appear in this PPA, whether in the singular or the plural or in the present or past tense. Other terms used in this PPA but not listed in this Article shall have meanings as commonly used in the English language and, where applicable, in Good Utility Practice. Words not otherwise defined herein that have well known and generally accepted technical or trade meanings are used herein in accordance with such recognized meanings. In addition, the following rules of interpretation shall apply:

- (A) The masculine shall include the feminine and neuter.

(B) References to "Articles," "Sections," or "Exhibits" shall be to articles, sections, or exhibits of this PPA.

(C) The Exhibits attached hereto are incorporated in and are intended to be a part of this PPA; provided, that in the event of a conflict between the terms of any Exhibit and the terms of this PPA, the terms of this PPA shall take precedence.

(D) This PPA was negotiated and prepared by both Parties with the advice and participation of counsel. The Parties have agreed to the wording of this PPA and none of the provisions hereof shall be construed against one Party on the ground that such Party is the author of this PPA or any part hereof.

(E) The Parties shall act reasonably and in accordance with the principles of good faith and fair dealing in the performance of this PPA. Unless expressly provided otherwise in this PPA, (a) where the PPA requires the consent, approval, or similar action by a Party, such consent or approval shall not be unreasonably withheld, conditioned or delayed, and (b) wherever the PPA gives a Party a right to determine, require, specify or take similar action with respect to a matter, such determination, requirement, specification or similar action shall be reasonable.

(F) Use of the words "include" or "including" or similar words shall be interpreted as "including but not limited to" or "including, without limitation."

(G) Use of the words "tax" or "taxes" shall be interpreted to include taxes, fees, surcharges, and the like.

1.2 Interpretation with Interconnection Agreement {tc "1.2 Interpretation with Interconnection Agreement" \f C \l 2}. Each Party conducts its operations (i) in a manner intended to comply with FERC Order No. 2004, Standards of Conduct for Transmission Providers, requiring the separation of its transmission and merchant functions. Moreover, the Parties acknowledge that Company's transmission function offers transmission service on its system in a manner intended to comply with FERC policies and requirements relating to the provision of open-access transmission service. The Parties recognize that Seller will enter into a separate Interconnection Agreement with the Interconnection Provider.

(A) The Parties acknowledge and agree that the Interconnection Agreement shall be a separate and free-standing contract and that the terms of this PPA are not binding upon the Interconnection Provider.

(B) Notwithstanding any other provision in this PPA, nothing in the Interconnection Agreement shall alter or modify Seller's or Company's rights, duties and obligations under this PPA. This PPA shall not be construed to create any rights between Seller and the Interconnection Provider.

(C) Seller expressly recognizes that, for purposes of this PPA, the Interconnection Provider shall be deemed to be a separate entity and separate contracting party whether or not the Interconnection Agreement is entered into with Company or an Affiliate of Company.

1.3 Interpretation of Arrangements for Electric Supply to the Facility{tc "1.3 Interpretation of Arrangements for Electric Supply to the Facility" \f C \l 2}. This PPA does not provide for the supply of retail power to the Facility, for purposes of turbine unit start-up or shut-down, or for any other purpose ("House Power"). Seller shall contract with the local utility in whose retail service territory the Facility is located ("Local Provider") for the supply of House Power.

(A) Seller's arrangements for the supply of House Power to the Facility shall be separate and free-standing arrangements. The terms of this PPA are not binding upon the Local Provider. For purposes of this PPA, the Local Provider shall be deemed to be a separate entity and separate contracting party, whether or not the Local Provider is Company or an Affiliate of Company.

(B) Notwithstanding any other provision in this PPA, nothing in Seller's arrangements for the supply of House Power to the Facility shall alter or modify Seller's or Company's rights, duties and obligations under this PPA. This PPA shall not be construed to create any rights between Seller and the Local Provider.

(C) Subject to Seller's right to self-generate and consume energy concurrently generated by the Facility, Seller shall obtain House Power exclusively from the Local Provider. Seller shall not obtain House Power back through the Interconnection Facilities, and waives any regulatory or other legal right to the contrary.

1.4 Definitions{tc "1.4 Definitions" \f C \l 2}. The following terms shall have the meanings set forth herein:

"Abandonment" means (i) the relinquishment of all possession and control of the Facility by Seller, other than a transfer permitted under this PPA, or (ii) if prior to the Commercial Operation Date, complete cessation of the design, construction, testing and inspection of the Facility for ninety (90) consecutive Days by Seller and/or Seller's contractors, but only if such relinquishment or cessation is not caused by or attributable to an Event of Default of, or request by, Company, or an event of Force Majeure.

"AC" means alternating electric current.

"Accreditable Capacity" means the amount of net generating capability associated with the Facility for which capacity credit may be obtained under applicable MISO rules.

"Affiliate" of any named person or entity means any other person or entity that controls, is under the control of, or is under common control with, the named entity.

The term “control” (including the terms “controls”, “under the control of” and “under common control with”) means the possession, directly or indirectly, of the power to direct or cause the direction of the management of the policies of a person or entity, whether through ownership interest, by contract or otherwise.

“Applicable Law” means all applicable laws, statutes, treaties, codes, ordinances, regulations, certificates, orders, licenses and permits of any Governmental Authority, now in effect or hereafter enacted, amendments to any of the foregoing, interpretations of any of the foregoing by a Governmental Authority having jurisdiction, and all applicable judicial, administrative, arbitration and regulatory decrees, judgments, injunctions, writs, orders, awards or like actions (including those relating to human health, safety, the natural environment or otherwise).

“Business Day” means any calendar day that is not a Saturday, a Sunday, or a NERC recognized holiday.

“Code” means the U.S. Internal Revenue Code of 1986, including applicable rules and regulations promulgated thereunder, as amended from time to time.

“Commercial Operation” means the period beginning on the Commercial Operation Date and continuing through the Term of this PPA.

“Commercial Operation Date” or “COD” for the Facility means the date of Seller’s COD Notice with respect thereto under Section 4.8 below, subject confirmation by Company in accordance with Section 4.8.

“Commercial Operation Milestone” means the Construction Milestone for the Commercial Operation Date. The Commercial Operation Milestone is specified in Exhibit A as _____.

“Commercial Operation Year” means any consecutive twelve (12) month period during the Term of this PPA, commencing with the Commercial Operation Date or any of its anniversaries.

“Committed Solar Energy” shall have the value shown on Exhibit I.

“Conditions” shall have the meaning set forth in Section 4.8.

“Construction Milestone(s)” means the date(s) set forth in Exhibit A by which Seller agrees to achieve the corresponding result(s) specified for such date(s), including the Commercial Operation Milestone.

“Contract Capacity” shall have the meaning set forth in Section 7.2.

“Day” means a calendar day.

“DC” means direct electric current.

"Delay Damages" shall have the meaning set forth in Section 12.4.

"Electric Interconnection Point" means the physical point at which electrical interconnection is made between the Facility and the Interconnection Provider's System. *[Typically, the Electric Interconnection Point for a dedicated facility is also the Point of Delivery and is located at the connection of the transmission conductor to Seller's dead end structure at the existing point of injection into the existing transmission system.]*

"Electric Metering Device(s)" means all metering and data processing equipment used to measure, record, or transmit data relating to the Solar Energy output from the Facility. Electric Metering Devices include the metering current transformers ("CTs") and the metering voltage transformers ("VTs"). *(Seller may be responsible for ownership of Electric Metering Devices for generating units not directly interconnected to the Company system.)*

"Eligible Energy Resource" means any resource that qualifies as a renewable energy resource eligible to be certified to receive, claim, own or use Renewable Energy Credits pursuant to the protocols and procedures developed and approved by the MPUC in the REC Registration Program.

"Emergency" means an emergency condition as defined under the Interconnection Agreement.

"Environmental Contamination" means the introduction or presence of Hazardous Materials at such levels, quantities or location, or of such form or character, as to constitute a violation of federal, state or local laws or regulations, and present a material risk under federal, state or local laws and regulations that the Site will not be available or usable for the purposes contemplated by this PPA.

"Event of Default" shall have the meaning set forth in Article 12.

"Expected Solar Irradiation" for any 12-month period means the annual average solar irradiation values for *[nearest site located in the National Solar Radiation Data Base 1990 – 2005 Update]* in the National Solar Radiation Data Base 1990-2005 Update. The Expected Solar Irradiation (global horizontal) is __ kWh/m²/yr, the Expected Solar Irradiation (direct normal) is __ kWh/m²/yr, and the Expected Solar Irradiation (global diffuse) is __ kWh/m²/yr.

"Facility" means Seller's solar electric generating facility and Seller's Interconnection Facilities, as identified and described in Article 3 and Exhibit B to this PPA, including all of the following, the purpose of which is to produce electricity and deliver such electricity to the Electric Interconnection Point: Seller's equipment, buildings, all of the generation facilities, including generators, turbines, step-up transformers, output breakers, facilities necessary to connect to the Electric Interconnection Point, protective and associated equipment, improvements, and other

tangible assets, contract rights, easements, rights of way, surface use agreements and other interests or rights in real estate reasonably necessary for the construction, operation, and maintenance of the electric generating facility that produces the Solar Energy subject to this PPA.

“Facility Financing” means the obligations of Seller to any lender and/or equity investor pursuant to the Financing Documents, including principal of, premium and interest on indebtedness, fees, expenses or penalties, amounts due upon acceleration, prepayment or restructuring, swap or interest rate hedging breakage costs and any claims or interest due with respect to any of the foregoing and any amount of cash and tax attributes allocated to Facility Financing Party.

“Facility Financing Party” means, collectively, any lender(s) providing any Facility Financing and any successor(s) or assigns thereto.

“Facility Financing Party Consent” shall have the meaning set forth in Section 19.2.

“FERC” means the Federal Energy Regulatory Commission or any successor agency.

“Financing Documents” means the loan and credit agreements, notes, bonds, indentures, security agreements, lease financing agreements, equity contribution agreements, mortgages, deeds of trust, interest rate exchanges, swap agreements and other documents relating to the development, bridge, construction and/or permanent debt and/or equity financing for the Facility, including any credit enhancement, credit support, working capital financing, or refinancing documents, and any and all amendments, modifications, or supplements to the foregoing that may be entered into from time to time at the discretion of Seller in connection with development, construction, ownership, leasing, operation or maintenance of the Facility.

“Force Majeure” shall have the meaning set forth in Article 14.

“Forced Outage” means any condition at the Facility that requires more than 10% of Total Facility Capacity to be immediately and completely shut down from service, another outage state, or a reserve shutdown state. This type of outage results from immediate mechanical/electrical/hydraulic control system trips and operator-initiated trips in response to Facility conditions and/or alarms.

“Good Utility Practice(s)” means the practices, methods, and acts (including the practices, methods, and acts engaged in or approved by a significant portion of the solar electric power generation industry, MRO and/or NERC) that, at a particular time, in the exercise of reasonable judgment in light of the facts known or that should reasonably have been known at the time a decision was made, would have been expected to accomplish the desired result in a manner consistent with law, regulation, permits, codes, standards, equipment manufacturer’s recommendations,

reliability, safety, environmental protection, economy, and expedition. With respect to the Facility, Good Utility Practice(s) includes taking reasonable steps to ensure that:

(A) equipment, materials, resources, and supplies, including spare parts inventories, are available to meet the Facility's needs;

(B) sufficient operating personnel are available at all times and are adequately experienced and trained and licensed as necessary to operate the Facility properly, efficiently, and in coordination with Company and are capable of responding to reasonably foreseeable Emergency conditions whether caused by events on or off the Site;

(C) preventive, routine, and non-routine maintenance and repairs are performed on a basis that ensures reliable, long-term and safe operation, and are performed by knowledgeable, trained, and experienced personnel utilizing proper equipment and tools;

(D) appropriate monitoring and testing are performed to ensure equipment is functioning as designed;

(E) equipment is not operated in a reckless manner, in violation of manufacturer's guidelines or in a manner unsafe to workers, the general public, or the interconnected system or contrary to environmental laws, permits or regulations or without regard to defined limitations such as, flood conditions, safety inspection requirements, operating voltage, current, volt-ampere reactive (VAr) loading, frequency, rotational speed, polarity, synchronization, and/or control system limits;

(F) equipment and components meet or exceed the standard of durability that is generally used for electric generation operations in the region and will function properly over the full range of ambient temperature and weather conditions reasonably expected to occur at the Site and under both normal and Emergency conditions; and

(G) equipment, components, and processes are appropriately permitted with any local, state, or federal Governmental Authority and are operated and maintained in accordance with applicable permit and regulatory requirements.

"Governmental Authority" means any federal, state, local or municipal governmental body; any governmental, quasi-governmental, regulatory or administrative agency, commission, body or other authority exercising or entitled to exercise any administrative, executive, judicial, legislative, policy, regulatory or taxing authority or power; or any court or governmental tribunal.

"Hazardous Materials" means any substance, material, gas, or particulate matter that is regulated by any local governmental authority, any applicable State, or the United States of America, as an environmental pollutant or dangerous to public health, public welfare, or the natural environment including, without limitation, protection

of non-human forms of life, land, water, groundwater, and air, including any material or substance that is (i) defined as “toxic,” “polluting,” “hazardous waste,” “hazardous material,” “hazardous substance,” “extremely hazardous waste,” “solid waste” or “restricted hazardous waste” under any provision of local, state, or federal law; (ii) petroleum, including any fraction, derivative or additive; (iii) asbestos; (iv) polychlorinated biphenyls; (v) radioactive material; (vi) designated as a “hazardous substance” pursuant to the Clean Water Act, 33 U.S.C. §1251 *et seq.* (33 U.S.C. §1251); (vii) defined as a “hazardous waste” pursuant to the Resource Conservation and Recovery Act, 42 U.S.C. §6901 *et seq.* (42 U.S.C. §6901); (viii) defined as a “hazardous substance” pursuant to the Comprehensive Environmental Response, Compensation, and Liability Act, 42 U.S.C. §9601 *et seq.* (42 U.S.C. §9601); (ix) defined as a “chemical substance” under the Toxic Substances Control Act, 15 U.S.C. §2601 *et seq.* (15 U.S.C. §2601); or (x) defined as a pesticide under the Federal Insecticide, Fungicide, and Rodenticide Act, 7 U.S.C. §136 *et seq.* (7 U.S.C. §136).

“Interconnection Agreement” means the separate agreement between Seller and the Interconnection Provider for interconnection of the Facility to the Interconnection Provider’s System, as such agreement may be amended from time to time.

“Interconnection Facilities” means Interconnection Provider’s Interconnection Facilities and Seller’s Interconnection Facilities.

“Interconnection Provider” means collectively (i) the entity that is responsible under the Interconnection Agreement for providing the transmission lines, Interconnection Provider’s Interconnection Facilities and other equipment and facilities with which Facility Interconnect at the Interconnection Point.

“Interconnection Provider’s Interconnection Facilities” means the facilities necessary to connect Interconnection Provider’s existing electric system to the Electric Interconnection Point, including breakers, bus work, bus relays, and associated equipment installed by the Interconnection Provider for the direct purpose of interconnecting the Facility, along with any easements, rights of way, surface use agreements and other interests or rights in real estate reasonably necessary for the construction, operation and maintenance of such facilities. Arrangements for the installation and operation of the Interconnection Provider’s Interconnection Facilities shall be governed by the Interconnection Agreement.

“Interconnection Provider’s System” means the contiguously interconnected electric transmission and sub-transmission facilities, including Interconnection Provider’s Interconnection Facilities, over which the Interconnection Provider has rights (by ownership or contract) to provide bulk transmission of capacity and energy from the Electric Interconnection Point.

“kW” means kilowatt.

"kWh" means kilowatt hour.

"MISO" means the Midwest Independent System Operator, Inc., a nonprofit Delaware corporation, or successor organization.

"MISO Tariff" means the MISO Open Access System Transmission, Energy and Operating Reserves Market Tariff, as amended from time to time.

"MW" means megawatt or one thousand kW.

"MWh" means megawatt hours.

"MPUC" means the Minnesota Public Utilities Commission or any successor agency.

"NERC" means the North American Electric Reliability Council or any successor organization.

"Operating Committee" means one representative each from Company and Seller pursuant to Section 10.3.

"Operating Procedures" means those procedures developed pursuant to Section 10.4, if any.

"Operating Records" means all agreements associated with the Facility, operating logs, blueprints for construction, operating manuals, all warranties on equipment, and all documents, whether in printed or electronic format, that the Seller uses or maintains for the operation of the Facility.

"Point of Delivery" means the electric system point at which Seller makes available to Company and delivers to Company the Solar Energy being provided by Seller to Company under this PPA. The Point of Delivery shall be specified in Exhibit B to this PPA. *[Typically, the Point of Delivery for a dedicated facility is also the Electric Interconnection Point and is located at the connection of the transmission conductor to the Seller's dead end structure at the point of injection into the existing transmission system.]*

"PPA" means this Solar Energy Purchase Agreement between Seller and Company, including the Exhibits attached hereto.

"REC Registration Program" means any State, regional, or federal program established to register Eligible Energy Resources and create and certify REC's arising from energy generated from such Resource, including any rights associated with any renewable energy information or tracking system that exists or may be established by Applicable Law with regard to monitoring, registering, tracking, certifying, or trading such credits.

“Renewable Energy Credit” or “RECs” means any contractual right to the full set of non-energy attributes, including any and all credits, benefits, emissions reductions, offsets, and allowances, howsoever entitled, directly attributable to a specific amount of capacity and/or electric energy generated from an Eligible Energy Resource, including any and all environmental air quality credits, benefits, emissions reductions, off-sets, allowances, or other benefits as may be created or under any existing or future statutory or regulatory scheme (federal, state, or local) by virtue of or due to the Facility’s actual energy production or the Facility’s energy production capability because of the Facility’s environmental or renewable characteristics or attributes, including any Renewable Energy Credits or similar rights arising out of or eligible for consideration in the REC Registration Program. For the avoidance of doubt, RECs exclude (i) any local, state or federal depreciation deductions or other tax credits providing a tax benefit to Seller based on ownership of, or energy production from, any portion of the Facility, including the investment tax credit that may be available to Seller with respect to the Facility under Applicable Laws, and (ii) depreciation and other tax benefits arising from ownership or operation of the Facility unrelated to its status as a generator of renewable or environmentally clean energy.

“Replacement Power Costs” means the costs incurred by Company, after the Commercial Operation Date, that are necessary to replace the Renewable Energy that Seller was required to provide under this PPA, but failed to so provide, less the sum of any payments from Company to Seller, under this PPA, that were eliminated as a result of such failure; *provided, however*, that the net amount shall never be less than zero in any hour and if the calculation for any hour results in a number less than zero, the number for such hour shall be deemed to be zero. Replacement Power Costs shall be determined in accordance with the following formula:

Replacement Power Costs = A + B – C, where

“A” is the weighted average product of the MWh for which Replacement Power Costs are owed and the price for energy at the Transmission Authority’s LMP for such applicable period where such weighted average is computed based upon the Potential Energy that the Facility would be expected to produce during such applicable period;

“B” is the product of the number of MWh of energy for which Replacement Power Costs are owed and the actual cost of registered RECs for that number of MWh; and

“C” is the product of the number of MWh for which Replacement Power Costs are owed and the Renewable Energy Payment Rate.

“Security Fund” means the letter of credit, guaranty and/or other collateral that Seller is required to establish and maintain, pursuant to Section 11.1, as security for Seller’s performance under this PPA.

“Seller’s Interconnection Facilities” means the equipment between the high side disconnect of the step-up transformer and the Electric Interconnection Point, including all related relaying protection and physical structures as well as all transmission facilities required to access the Interconnection Provider’s System at the Electric Interconnection Point, along with any easements, rights of way, surface use agreements and other interests or rights in real estate reasonably necessary for the construction, operation and maintenance of such facilities. On the low side of the step-up transformer it includes Seller’s metering, relays, and load control equipment as provided for in the Interconnection Agreement. This equipment is located within the Facility and is conceptually depicted in Exhibit B to this PPA.

“Site” means the parcel of real property on which the Facility will be constructed and located, including any easements, rights of way, surface use agreements and other interests or rights in real estate reasonably necessary for the construction, operation and maintenance of the Facility. The Site is more specifically described in Section 3.2 and Exhibit B to this PPA.

“Solar Energy” means the electric energy generated from the Facility and delivered to the Point of Delivery as measured by the Electric Metering Devices installed pursuant to Section 5.2. Solar Energy shall be of a power quality of 60 cycle, three-phase alternating current that is compliant with the Interconnection Agreement.

“Solar Energy Payment Rate” means the rate as shown in Exhibit I.

“Solar Units” means the equipment necessary for the Facility to collect sunlight at the Site and convert it into electricity or thermal energy. Solar Units includes photovoltaic arrays, mirrors, lenses, and tracking devices.

“System Control Center” or “SCC” means Company’s merchant representative(s) responsible for dispatch of generating units, including the Facility.

“Term” means the period of time during which this PPA shall remain in full force and effect, and which is further defined in Article 2.

“Test Energy” means that energy which is produced by the Facility, delivered to Company at the Point of Delivery, and purchased by Company, pursuant to Section 4.10, in order to perform testing of the Facility prior to Commercial Operation.

“Ultimate Parent Entity” of Seller shall have the meaning set forth under Section 7A of the Clayton Act, 15 U.S.C. 18a, aka the Hart-Scott-Rodino Antitrust Improvements Act of 1976.

Article 2 - Term and Termination{tc "Article 2 - Term and Termination" \f C \l 1}

This PPA shall become effective as of the date of its execution, and shall remain in full force and effect until the *[term defined in proposal]* anniversary of COD, subject to

early termination or any extension provisions set forth herein. Applicable provisions of this PPA shall continue in effect after termination, including early termination, to the extent necessary to enforce or complete the duties, obligations or responsibilities of the Parties arising prior to termination and, as applicable, to provide for: final billings and adjustments related to the period prior to termination, repayment of any money due and owing to either Party pursuant to this PPA, repayment of principal and interest associated with security funds, and the indemnifications specified in this PPA. *[Early termination and extension options may be established per terms of the RFP and individual bids.]*

Article 3 - Facility Description{tc "Article 3 - Facility Description" \f C \l 1}

3.1 Summary Description{tc "3.1 Summary Description" \f C \l 2}. Seller shall construct, own, operate, and maintain the Facility, which shall consist of *[describe technology, e.g. solar panels, solar concentrators, solar thermal steam generator/turbine]* and associated equipment having an aggregate nameplate capacity of approximately ____ MW AC. Exhibit B to this PPA, provides a detailed description of the Facility, including identification of the major equipment and components that will make up the Facility.

3.2 Location{tc "3.2 Location" \f C \l 2}. The Facility shall be located on the Site and shall be identified as Seller's "_____" [Solar Generation] Facility. The address of the Facility is _____. A scaled map that identifies the Site, the location of the Facility at the Site, the location of the Electric Interconnection Point and the location of the important ancillary facilities and Interconnection Facilities, is included in Exhibit B to this PPA.

3.3 General Design of the Facility{tc "3.3 General Design of the Facility" \f C \l 2}. Seller shall construct the Facility according to Good Utility Practice(s) and the Interconnection Agreement. During Commercial Operation, Seller shall maintain the Facility according to Good Utility Practice(s). In addition, the Facility shall at all times:

(A) have the required panel space and 125VDC battery supplied voltage to accommodate Company's metering, generator telemetering equipment and communications equipment;

(B) use communication circuits from the Facility to Company's SCC for the purpose of telemetering, supervisory control/data acquisition, and voice communications as required by Company;

(C) have suitable solar radiation meters of types necessary to fully characterize the solar resource and estimate the quantity of Solar Energy subject to Curtailment Energy Payment Rates pursuant to 8.2(A)(1).

[(D) other technology-specific requirements based upon bid.]

Article 4 - Commercial Operation{tc "Article 4 – Commercial Operation" \f C \l 1}

4.1 Commercial Operation{tc "4.1 Commercial Operation" \f C \l 2}. Subject to extension as specifically provided for herein, the Facility shall achieve the Commercial Operation Date, and shall be fully capable of reliably producing and delivering the Solar Energy to be provided under this PPA to Company at the Point of Delivery, no later than the Commercial Operation Milestone; provided, that Seller shall not be obligated to establish a Commercial Operation Date under this PPA that is earlier than the Commercial Operation Milestone, and Company shall not be obligated to establish a Commercial Operation Date under this PPA that is earlier than [three months prior to the Commercial Operation Milestone].

4.2 Construction Milestones{tc "4.2 Construction Milestones" \f C \l 2}. In order to achieve the Commercial Operation Date by the Commercial Operation Milestone, Seller agrees to meet the Construction Milestones set forth in Exhibit A to this PPA.

4.3 Site Report{tc "4.3 Site Report" \f C \l 2}. Seller shall conduct a Phase I environmental investigation of the Site and shall provide Company, within sixty (60) Days following satisfaction (or waiver, if applicable) of all conditions precedent set forth in Article 6, with a copy of the report summarizing such investigation, together with any data or information generated pursuant to such investigation. Seller shall provide to Company, with such report, confirmation from an environmental engineer that the Site has been inspected for Environmental Contamination and that the Site is capable of supporting the development, construction and operation of the Facility.

4.4 Facility Contracts{tc "4.4 Facility Contracts" \f C \l 2}. Seller shall provide to Company, within the time frames specified by the Construction Milestones, redacted copies of the following major contracts which govern the design and construction of the Facility, and the ability of Seller to deliver Solar Energy to Company at the Point(s) of Delivery: contracts for the manufacture, delivery and installation of the generating and step-up transformer; engineering, procurement and construction ("EPC"), or other general contractor, agreements; applicable operating agreements; applicable electric transmission agreement and/or interconnection agreements. Upon reasonable notice and request by Company, Seller shall provide Company with other Facility construction contracts and major engineering drawings. Seller shall also provide Company with reasonable evidence that it has the capability to finance construction of the Facility. Information that is commercially sensitive, confidential or proprietary may be redacted from the documents provided to Company pursuant to this paragraph. Seller shall provide sufficient information for Company to be reasonably assured that Seller has contracted with financially responsible vendors as part of the Facility construction process.

4.5 Progress Reports{tc "4.5 Progress Reports" \f C \l 2}. Commencing upon the execution of this PPA, Seller shall submit to Company, on the first Day of each calendar month until the Commercial Operation Date is achieved, progress reports in a

form reasonably satisfactory to the Parties. These progress reports shall notify Company of the current status of each Construction Milestone.

4.6 Company's Rights During Construction. Company shall have the right to monitor the construction, start-up and testing of the Facility, and Seller shall comply with all reasonable requests of Company with respect to the monitoring of these events. Seller shall cooperate in such physical inspections of the Facility as may be reasonably requested by Company during and after completion of construction. All persons visiting the Facility on behalf of Company shall comply with all of Seller's applicable safety and health rules and requirements. Company's technical review and inspection of the Facility shall not be construed as endorsing the design thereof nor as any warranty of safety, durability, or reliability of the Facility.

4.7 Permits. Seller shall use commercially reasonable efforts to obtain, and shall pay for, all applicable environmental and other permits, licenses and approvals from any Governmental Authority required under applicable law for construction, ownership, operation and maintenance of the Facility ("Applicable Permits"). Company shall have the right to inspect and obtain copies of all Applicable Permits held by Seller. Seller will notify Company of any known scheduled inspections by any Governmental Authority relating to any Applicable Permit.

4.8 Conditions to Commercial Operation. Seller shall notify Company in writing when the Facility has achieved the Commercial Operation Date. This notification is contingent upon verification by Company, including Seller providing evidence reasonably acceptable to Company of the satisfaction or occurrence of all of the conditions set forth in this Section ("Conditions"). Review and approval of such Conditions may occur on an ongoing and incremental basis, pending resolution of any dispute, as such Conditions are satisfied. The Conditions are:

(A) Seller has successfully completed that testing of the Facility which is required by the Financing Documents, the Facility's governmental permits, Seller's operating agreements, Seller's engineering, procurement and construction ("EPC") agreement, and manufacturers' warranties for the commencement of Commercial Operation;

(B) an officer of Seller, familiar with the Facility has certified the designed maximum output of the entire Facility as ___ [bid] MW AC;

(C) the Facility has achieved initial synchronization with the Interconnection Provider's System, and has demonstrated the reliability of its communications systems and communications with Company's SCC;

(D) an independent professional engineer's certification has been obtained by Seller stating that the Facility has been completed in all material respects

(excepting punch list items that do not materially and adversely affect the ability of the Facility to operate as intended hereunder) in accordance with this PPA;

(E) Seller has received written confirmation from the Interconnection Provider that (i) Seller is in compliance with the Interconnection Agreement, (ii) the interconnection of the Facility to the Interconnection Provider's System has been completed in accordance with the Interconnection Agreement, (iii) the Facility has operated at the Facility's full output capacity or at a generation level acceptable to the Interconnection Provider, without experiencing any abnormal or unsafe operating conditions on any interconnected system, and (iv) any other testing of the Facility and/or Seller's Interconnection Facilities required by the Interconnection Agreement has been completed satisfactorily;

(F) Seller has made all arrangements and executed all agreements required to deliver the Solar Energy from the Facility to the Point of Delivery in accordance with the provisions of this PPA;

(G) all arrangements for the supply of required electric services to the Facility have been completed by Seller separate from this PPA, are in effect, and are available for the supply of such electric services to the Facility;

(H) the security arrangements meeting the requirements of Article 11 have been established;

(I) certificates of insurance evidencing the coverages required by Article 16 have been obtained and submitted to Company;

(J) Seller has submitted to Company a certificate of an officer of Seller familiar with the Facility after due inquiry stating that all permits, consents, licenses, approvals, and authorizations required to be obtained by Seller from any Governmental Authority to construct and/or operate the Facility in compliance with applicable law and this PPA have been obtained and are in full force and effect, and that Seller is in compliance with the terms and conditions of this PPA in all material respects; and

(K) Seller has made all necessary governmental filings and/or applications for the REC's accreditation with _____ and any other applicable agency.

4.9 Test Energy{tc "4.9 Test Energy" \f C \l 2}. Seller shall coordinate the production and delivery of Test Energy with Company, with such prior notice as Company may reasonably request. Company shall cooperate with Seller to facilitate Seller's testing of the Facility necessary to satisfy the Conditions set forth in Section 4.8, and shall accept delivery of all Test Energy produced by the Facility which has been installed and interconnected in accordance with the Interconnection Agreement, and shall purchase all such Test Energy delivered to the Point of Delivery at a payment rate of \$_____/MWh.

Article 5 – Delivery and Metering**5.1 Delivery Arrangements**

(A) Seller shall be responsible for all interconnection, DC to AC electric losses, transmission and ancillary service arrangements and costs required to deliver, on a firm transmission service basis, the Solar Energy and Test Energy from the Facility to Company at the Point of Delivery at the required voltage. Seller shall (i) diligently negotiate an Interconnection Agreement with the Interconnection Provider, (ii) execute and deliver the Interconnection Provider's standard form of Interconnection Agreement, with such changes as are necessary to accommodate the characteristics of the Facility, and (iii) post and maintain any and all security for payment and performance, if, when and for so long as required under the Interconnection Agreement.

(B) Company shall be responsible for all electric losses, transmission and ancillary service arrangements and costs required to receive the Solar Energy and Test Energy at the Point of Delivery and deliver such energy to points beyond the Point of Delivery. Subject to Section 8.2, Company may elect, at Company's sole option, whether to obtain and utilize firm transmission service or non-firm transmission service for the delivery of Solar Energy from the Point of Delivery.

5.2 Availability Reporting Seller shall be responsible for providing accurate and timely updates on the current availability of the Facility to Company's SCC.

5.3 Electric Metering Devices

(A) All Electric Metering Devices used to measure the Solar Energy made available to Company by Seller under this PPA and to monitor and coordinate operation of the Facility shall be owned, installed, and maintained by [Company]. If Electric Metering Devices are not installed at the Point of Delivery, meters or meter readings will be adjusted to reflect losses from the Electric Metering Devices to the Point of Delivery. All Electric Metering Devices used to provide data for the computation of payments shall be sealed and only Company shall break the seal when such Electric Metering Devices are to be inspected and tested or adjusted in accordance with this Article. Company shall specify the number, type, and location of such Electric Metering Devices.

(B) Company, at its own expense, shall inspect and test all Electric Metering Devices upon installation and at least annually thereafter. Company shall provide Seller with reasonable advance notice of, and permit a representative of Seller to witness and verify, such inspections and tests, provided, however, that Seller shall not unreasonably interfere with or disrupt the activities of Company and shall comply with all of Company's safety standards. Upon request by Seller, Company shall perform additional inspections or tests of any Electric Metering Device and shall permit a qualified representative of Seller to inspect or witness the testing of any Electric Metering Device, provided, however, that Seller shall not unreasonably interfere with or disrupt the activities of Company and shall comply with all of Company's safety

standards. The actual expense of any such requested additional inspection of testing shall be borne by Seller, unless upon such inspection or testing an Electric Metering Device is found to register inaccurately by more than the allowable limits established in this Article, in which event the expense of the requested additional inspection or testing shall be borne by Company. If requested by Seller in writing, Company shall provide copies of any inspection or testing reports to Seller.

(C) Seller may elect to install and maintain, at its own expense, backup metering devices ("Back-Up Metering") in addition to those installed and maintained by Company, which installation and maintenance shall be performed in a manner acceptable to Company. Seller, at its own expense, shall inspect and test Seller's Back-Up Metering upon installation and at least annually thereafter. Seller shall provide Company with reasonable advance notice of, and permit a representative of Company to witness and verify, such inspections and tests, provided, however, that Company shall not unreasonably interfere with or disrupt the activities of Seller and shall comply with all of Seller's safety standards. Upon request by Company, Seller shall perform additional inspections or tests of Seller's Back-Up Metering and shall permit a qualified representative of Company to inspect or witness the testing of Seller's Back-Up Metering, provided, however, that Company shall not unreasonably interfere with or disrupt the activities of Seller and shall comply with all of Seller's safety standards. The actual expense of any such requested additional inspection or testing shall be borne by Company, unless, upon such inspection or testing, Seller's Back-Up Metering is found to register inaccurately by more than the allowable limits established in this Article, in which event the expense of the requested additional inspection or testing shall be borne by Seller. If requested by Company in writing, Seller shall provide copies of any inspection or testing reports to Company.

(D) If any Electric Metering Devices, or Seller's Back-Up Metering, are found to be defective or inaccurate outside the bounds of the selected device's manufacturer's performance standards, they shall be adjusted, repaired, replaced, and/or recalibrated as near as practicable to a condition of zero error by the Party owning such defective or inaccurate device and at that Party's expense.

5.4 Adjustment for Inaccurate Meters {tc "5.4 Adjustment for Inaccurate Meters" \f C \l 2}. If an Electric Metering Device, or Seller's Back-Up Metering, fails to register, or if the measurement made by an Electric Metering Device, or Seller's Back-Up Metering, is found upon testing to be inaccurate by more than one percent (1.0%), an adjustment shall be made correcting all measurements by the inaccurate or defective Electric Metering Device, or Seller's Back-Up Metering, for both the amount of the inaccuracy and the period of the inaccuracy, in the following manner:

(A) In the event that the Electric Metering Device is found to be defective or inaccurate, the Parties shall use Seller's Back-up Metering, if installed, to determine the amount of such inaccuracy, provided, however, that Seller's Back-Up Metering has been tested and maintained in accordance with the provisions of this Article. If Seller's Back-Up Metering is installed on the low side of Seller's step-up

transformer, the Seller's Back-Up metering data shall be adjusted for losses. In the event that Seller did not install Back-Up Metering, or Seller's Back-Up Metering is also found to be inaccurate by more than one percent (1.0%), the Parties shall estimate the amount of the necessary adjustment on the basis of deliveries of Solar Energy from the Facility and to the Point of Delivery during periods of similar operating conditions when the Electric Metering Device was registering accurately. The adjustment shall be made for the period during which inaccurate measurements were made.

(B) In the event that the Parties cannot agree on the actual period during which the inaccurate measurements were made, the period during which the measurements are to be adjusted shall be the shorter of (i) the last one-half of the period from the last previous test of the Electric Metering Device to the test that found the Electric Metering Device to be defective or inaccurate, or (ii) the one hundred eighty (180) Days immediately preceding the test that found the Electric Metering Device to be defective or inaccurate.

(C) To the extent that the adjustment period covers a period of deliveries for which payment has already been made by Company, Company shall use the corrected measurements as determined in accordance with this Article to recompute the amount due for the period of the inaccuracy and shall subtract the previous payments by Company for this period from such re-computed amount. If the difference is a positive number, the difference shall be paid by Company to Seller; if the difference is a negative number, that difference shall be paid by Seller to Company, or at the discretion of Company, may take the form of an offset to payments due Seller by Company. Payment of such difference by the owing Party shall be made not later than thirty (30) Days after the owing Party receives notice of the amount due, unless Company elects payment via an offset.

Article 6 - Company Conditions Precedent{TC "Article 6 – COMPANY CONDITIONS PRECEDENT" \f C \L 1}

6.1. MPUC Approval.{tc "6.1 MPUC Approval" \f C \l 2}

(A) No later than thirty (30) Days after execution of this PPA, Company may request an affirmative determination from the MPUC that Company's execution of this PPA is consistent with Company's Resource Plan, approved by the MPUC (generally, "MPUC Approval"). Company shall use commercially reasonable efforts to obtain MPUC Approval, and Seller shall cooperate reasonably with Company's efforts to seek MPUC Approval, if Company seeks MPUC Approval. If Company fails to apply for MPUC Approval within thirty (30) Days following the date of this PPA, Company shall be deemed to have waived its rights under this Section 6.1.

(B) In the event that Company applies for MPUC Approval timely under paragraph (A) of this Section, Company shall have the right to terminate this PPA, without any further financial or other obligation to Seller as a result of such termination, by notice to Seller at any time within six (6) months following the date of this PPA, as a consequence of the failure of Company, despite Company's commercially reasonable

efforts, to obtain MPUC Approval without conditions unsatisfactory to Company. Absent such notice of termination by Company on or before the referenced date, Company shall be deemed to have waived its rights under this Section 6.1, and this PPA shall remain in full force and effect thereafter.

6.2. Accounting Matters {tc "6.2 Accounting Matters" \f C \l 2}. Company must confirm (in consultation with its auditors) that this PPA will not be considered a capital lease under Statement of Financial Accounting Standards No. 13, or require consolidation of Seller's financial information with Company's financial statements pursuant to FASB Interpretation FIN-46. Company shall have the right to terminate this PPA, without any further financial or other obligation to Seller as a result of such termination, by notice to Seller at any time within ninety (90) Days following the date of this PPA, based upon failure by Company to have the foregoing matters confirmed to its satisfaction.

6.3. Board Approval {tc "6.3 Board Approval" \f C \l 2}. This PPA is subject to review and approval by Company's Board of Directors. Promptly after the date of this PPA, Company shall submit this PPA to its Board of Directors for consideration at its next regularly scheduled board meeting. In the event that the Company Board of Directors fails to affirmatively approve this PPA at such meeting and Company has not otherwise waived this condition in writing, Company shall have the right to terminate this PPA, without any further financial or other obligation to Seller as a result of such termination, by notice to Seller at any time within ten (10) Days following such board meeting.

6.4. [Seller's conditions precedent] {tc "6.4 [Seller's conditions precedent]" \f C \l 2}

Article 7 – Sale and Purchase of Solar Energy {tc "Article 7 – Sale and Purchase of Solar Energy" \f C \l 1}

7.1 Sale and Purchase {tc "7.1 Sale and Purchase" \f C \l 2}. Beginning on the Commercial Operation Date, Seller shall generate from the Facility, deliver to the Point of Delivery, and sell to Company, at the applicable price set forth in Section 8.1, all Solar Energy generated by the Facility. For the avoidance of doubt, except as otherwise expressly provided for herein, this PPA shall not be construed to constitute a 'take or pay' contract and Company shall have no obligation to pay for any energy that has not actually been generated by the Facility, measured by the Electric Metering Device(s), and delivered to Company at the Point of Delivery.

7.2 Contract Capacity {tc "7.2 Contract Capacity" \f C \l 2}. The Contract Capacity provided and sold by Seller and purchased by NSP hereunder shall be all of the Accreditable Capacity of the Facility

7.3 Title and Risk of Loss {tc "7.3 Title and Risk of Loss" \f C \l 2}. As between the Parties, Seller shall be deemed to be in control of the Solar Energy and

Test Energy output from the Facility up to and until delivery and receipt at the Point of Delivery and Company shall be deemed to be in control of such energy from and after delivery and receipt at the Point of Delivery. Title and risk of loss related to the Solar Energy and Test Energy shall transfer from Seller to Company at the Point of Delivery.

7.4 Company's Right to Curtail Energy {tc "7.4 Company's Right to Curtail Energy" \f C \l 2}. Company shall have the right, with notice to Seller, by telephonic communication from the SCC, to curtail the delivery of Solar Energy to Company from the Facility and to the Point of Delivery for any reason, and Seller shall immediately comply with such notification. Company may provide such notification for any reason and in its sole discretion.

Article 8 - Payment Calculations {tc "Article 8 - Payment Calculations" \f C \l 1}

8.1 Energy Payment Rate {tc "8.1 Energy Payment Rate" \f C \l 2}. Commencing on the Commercial Operation Date of the Facility, Company shall pay Seller for Contract Capacity and shall pay Seller for Solar Energy delivered to Company by Seller in each Commercial Operation Year, net of any energy self-generated and concurrently consumed by the Facility, and net of losses prior to the Point of Delivery, for up to one hundred fifteen percent (115%) of the Committed Solar Energy, at a price equal to the applicable Solar Energy Payment Rate. For all Solar Energy delivered by Seller to Company at the Point of Delivery in a Commercial Operation Year in excess of one hundred fifteen percent (115%) of the Committed Solar Energy, Company shall pay Seller at a price equal to _____ of the Solar Energy Payment Rate. For avoidance of doubt, and except as specifically provided for under Section 8.2 below, Company shall not be obligated to make any payment to Seller under this Article 8 for any Solar Energy which, regardless of reason or event of Force Majeure affecting either Party,

- (A) does not qualify as Solar Energy,
- (B) is not measured by the Electric Metering Device(s) installed pursuant to Section 5.2, as such measurement may be adjusted pursuant to Section 5.3, or
- (C) is not delivered to Company at the Point of Delivery.

8.2 Curtailment Energy Payment Rate {tc "8.2 Curtailment Energy Payment Rate" \f C \l 2}.

(A) If (i) delivery of Solar Energy is curtailed by Company pursuant to Section 7.3, or (ii) Company elects to utilize non-firm transmission service(s) to deliver Solar Energy from the Point of Delivery to Company load, and deliveries of Solar Energy to Company are curtailed as a result of the curtailment of such non-firm transmission service(s) by the Interconnection Provider, then

(1) the Parties shall determine the quantity of Solar Energy that would have been produced by the Facility and delivered to the Point of Delivery had its generation not been so curtailed ("Curtailed Energy") and

(2) Company shall pay to Seller for such Curtailed Energy all amounts that Seller would have received from Company under this PPA had production not been so curtailed.

[Add formula]

(B) Notwithstanding anything in this Article 8 to the contrary, and for avoidance of doubt, no payment shall be due Seller under paragraph (A) above for curtailments of delivery of Solar Energy resulting from

(1) an Emergency,

(2) any notification from Company's SCC, pursuant to Section 7.3, requiring Seller to curtail deliveries of Solar Energy if Seller has failed to maintain in full force and effect any permit, consent, license, approval, or authorization from any Governmental Authority required by law to construct and/or operate the Facility.

Article 9 - Billing and Payment

9.1 Billing Invoices.

(A) The billing period under this PPA shall be the calendar month. No later than fifteen (15) Business Days after the end of each month, Company shall provide to Seller, by first-class mail, a statement showing the payment amount due Seller by Company for the power provided by Seller and purchased by Company, under this PPA, during the previous calendar month billing period. The statement will show metered energy from the Facility, all billing parameters, rates and factors, and any other data reasonably pertinent to the calculation of monthly payments due to Seller.

(B) After receiving the statement of payments due Seller provided by Company pursuant to paragraph 9.1(A), Seller shall provide to Company, by first-class mail, an invoice for the amount due Seller by Company, under this PPA, for the billing period covered by the statement. Seller's invoice shall be in such form as Company may reasonably request from time to time. If Seller disputes any amount in the statement provided by Company, Seller shall include with Seller's invoice an explanation of the items in dispute, as well as all supporting documentation upon which Seller relies to dispute the Company statement. Billing disputes shall be resolved in accordance with Section 9.5.

9.2 Metered Billing Data. All billing data based on metered deliveries to Company shall be collected by the Electric Metering Device(s) in accordance with Article 5.

9.3 Reactive Power Service Compensation{tc "9.3 Reactive Power Service Compensation" \f C \l 2}. The Parties recognize that, although Seller's obligation to provide reactive power service from the Facility to Interconnection Provider's System and any compensation Seller receives for such reactive power service are to be set forth in the Interconnection Agreement, the compensation that Seller receives from Company under this PPA includes full compensation for the fixed and variable costs associated with providing such reactive power service. Therefore, Seller shall credit Company monthly, as a separate line item reduction to Seller's invoice, for any compensation that Seller receives, apart from that provided under this PPA, for the provision of reactive power service from the Facility during the Term of this PPA. Such credit shall differentiate, if possible, between compensation provided for the fixed costs and the variable costs of providing reactive power service.

9.4 Payments{tc "9.4 Payments" \f C \l 2}. Unless otherwise specified herein, payments due under this PPA shall be due and payable by check or by electronic funds transfer, as designated by the owed Party, on or before the fifteenth (15th) Business Day following receipt of the billing invoice. Remittances received by mail will be considered to have been paid when due if the postmark indicates the payment was mailed on or before the fifteenth (15th) Business Day following receipt of the billing invoice. If the amount due is not paid on or before the due date, a late payment charge shall be applied to the unpaid balance and shall be added to the next billing statement. Such late payment charge shall be calculated based on an annual interest rate equal to one hundred twenty-five percent (125%) of the LIBOR three-month rate published on the date of the invoice in *The Wall Street Journal* (or, if *The Wall Street Journal* is not published on that Day, the next succeeding date of publication). If the due date occurs on a Day that is not a Business Day, the late payment charge shall begin to accrue on the next succeeding Business Day.

9.5 Billing Disputes{tc "9.5 Billing Disputes" \f C \l 2}.

(A) Either Party may dispute invoiced amounts, but shall pay to the other Party at least the undisputed portion of invoiced amounts on or before the invoice due date. To resolve any billing dispute, the Parties shall use the procedures set forth in Section 13.10. When the billing dispute is resolved, the Party owing shall pay the amount owed within five (5) Business Days of the date of such resolution, with late payment interest charges calculated on the amount owed in accordance with the provisions of Section 9.4.

(B) In the event that (i) the creditworthiness of one Party (the "Affected Party") becomes impaired to such extent that the other Party (the "Claimant") has objective, commercially reasonable grounds to believe that the Affected Party's continued ability to perform this PPA as and when due is in material doubt, and (ii) there exist one or more bona fide billing or other disputes under this PPA, in connection with which the Claimant alleges in good faith that the Affected Party owes the Claimant more than \$1,000,000 in the aggregate (net of undisputed amounts owed by the Claimant to the Affected Party), the Affected Party shall, within thirty (30) Days following

request therefor by the Claimant, deposit the net amount in dispute into a separate escrow account at a mutually acceptable Issuer (the "Escrow Account") pursuant to a mutually acceptable Escrow Agreement consistent with this Section. The Escrow Account shall be owned by the Affected Party but the Claimant shall hold a first and exclusive perfected security interest therein to secure the obligation of the Affected Party to pay the amount(s) in dispute if and to the extent that the dispute(s) are eventually resolved in favor of the Claimant. If, as and when the related disputes are resolved, amounts owed to the Claimant (if any) shall be paid out of the Escrow Account and the balance shall be released to the Affected Party. Funds held in any Escrow Account may be deposited in a money-market fund, short-term treasury obligations, investment-grade commercial paper and other liquid investment-grade investments with maturities of three months or less, with all investment income thereon to be taxable to, and to accrue for the benefit of, the Affected Party. All fees and expenses of the Issuer holding any Escrow Account shall be paid by the Claimant.

9.6 Netting. {tc "9.6 Netting" \f C \l 2}

(A) Company at any time may offset against any and all amounts that may be due and owed to Seller under this PPA, any and all liquidated amounts, including damages and other payments, that are owed by Seller to Company pursuant to this PPA or are past due under other accounts or agreements Seller has with Company for other goods or services. Undisputed and non-offset portions of amounts invoiced under this PPA shall be paid on or before the due date or shall be subject to the late payment interest charges set forth in Section 9.4. { TC \l "2"}

(B) Seller and Company shall net their obligations to each other under this PPA, then such amounts will be aggregated and Seller and Company will discharge their obligations to pay through netting of payments. If the amounts owed by Company or Seller to the other are equal, neither shall be required to make payment under this PPA.

Article 10 - Operations and Maintenance{tc "Article 10 - Operations and Maintenance" \f C \l 1}

10.1 Maintenance Schedule.{tc "10.1 Maintenance Schedule" \f C \l 2} Maintenance schedule requirements for the Facility shall be communicated to Company in advance.

10.2 Facility Operation{tc "10.2 Facility Operation" \f C \l 2}. Seller shall staff, control, and operate the Facility consistent at all times with Good Utility Practice(s) and any Operating Procedures developed pursuant to Section 10.4. Personnel capable of starting, operating, and stopping the Facility shall be continuously available, either at the Facility, or capable of remotely starting, operating, and stopping the Facility within ten (10) minutes and capable of being at the Facility with no more than thirty (30) minutes notice. In all cases personnel capable of starting, operating and stopping the Facility shall be continuously reachable by phone or pager.

10.3 Outage and Performance Reporting {fc "10.3 Outage and Performance Reporting" \f C \l 2}.

(A) Seller shall comply with all current Company and NERC generating unit outage reporting requirements, as they may be revised from time to time, and as they apply to the Facility.

(B) When Forced Outages occur, Seller shall notify Company's SCC of the existence, nature, and expected duration of the Forced Outage as soon as practical, but in no event later than one (1) hour after the Forced Outage occurs. Seller shall immediately inform Company's SCC of changes in the expected duration of the Forced Outage unless relieved of this obligation by Company's SCC for the duration of each Forced Outage.

(C) Commencing upon COD and continuing through the Term, Seller shall electronically provide the energy production from the Facility in two (2) minute intervals, 24x365 ("Production Data") to Company and allow Company to disclose such Production Data publicly.

10.4 Operating Committee and Operating Procedures {fc "10.4 Operating Committee and Operating Procedures" \f C \l 2}.

(A) Company and Seller shall each appoint one representative and one alternate representative to act in matters relating to the Parties' performance obligations under this PPA and to develop operating arrangements for the generation, delivery and receipt of Solar Energy hereunder. Such representatives shall constitute the Operating Committee, and shall be specified as Exhibit C. The Parties shall notify each other in writing of such appointments and any changes thereto. The Operating Committee shall have no authority to modify the terms or conditions of this PPA.

(B) Prior to the Commercial Operation Date, the Operating Committee may develop mutually agreeable written Operating Procedures which shall include methods of day-to-day communications; metering, telemetering, telecommunications, and data acquisition procedures; key personnel list for applicable Company and Seller operating centers; operations and maintenance scheduling and reporting; Solar Energy reports; unit operations log; and such other matters as may be mutually agreed upon by the Parties.

10.5 Access to Facility {fc "10.5 Access to Facility" \f C \l 2}. Appropriate representatives of Company shall at all reasonable times, including weekends and nights, and with reasonable prior notice, have access to the Facility to read meters and to perform all inspections, maintenance, service, and operational reviews as may be appropriate to facilitate the performance of this PPA. While at the Facility, such representatives shall observe such reasonable safety precautions as may be required by Seller and shall conduct themselves in a manner that will not interfere with the operation of the Facility.

10.6 Environmental Credits{tc "10.6 Environmental Credits" \f C \l 2}. The Parties acknowledge that existing legislation creates and future legislation or regulation may create value in the ownership, use or allocation of RECs. To the full extent allowed by law, Company shall own or be entitled to claim all RECs to the extent such credits may exist or accrue during the Term, or as they may accrue following the Term by virtue of Solar Energy generated during the Term (including RECs generated in connection with Test Energy). To the extent necessary, Seller shall assign to Company all rights, title and authority for Company to register, own, hold and manage such credits in Company's own name and to Company's account, including any rights associated with any renewable energy information or tracking system that may be established with regard to monitoring, tracking, certifying, or trading such credits. Upon the request of Company from time to time, at no cost to Company, (i) Seller shall deliver or cause to be delivered to Company such attestations / certifications of all Solar Energy Credits, and (ii) Seller shall provide full cooperation in connection with Company's registration and certification of Solar Energy Credits.

10.7 Capacity Accreditation{tc "10.7 Capacity Accreditation" \f C \l 2}. The Contract Capacity shall be Accreditable Capacity. Seller shall register the Facility as a Generation Resource and perform the necessary calculations in compliance with MISO requirements for capacity accreditation of the Facility. All MISO required testing shall be conducted at Seller's expense in accordance with MISO guidelines.

Article 11 - Security for Performance{tc "Article 11 - Security for Performance" \f C \l 1}

11.1 Security Fund{tc "11.1 Security Fund" \f C \l 2}.

(A) Seller shall establish, fund, and maintain a Security Fund, pursuant to the provisions of this Article 11, which shall be available to pay any amount due Company pursuant to this PPA, and to provide Company security that Seller will construct the Facility to meet the Construction Milestones. The Security Fund shall also provide security to Company to cover damages, including Replacement Energy Costs, should the Facility fail to achieve the Commercial Operation Date or otherwise not operate in accordance with this PPA. Seller shall establish the Security Fund at a level of [\$150/kW of nameplate capacity] no later than thirty (30) Days following satisfaction (or if applicable, waiver by Company) of the conditions precedent set forth in Article 6 above, and shall maintain the Security Fund at such required level throughout the remainder of the Term. Seller shall replenish the Security Fund to such required level within fifteen (15) Business Days after any draw on the Security Fund by Company.

(B) In addition to any other remedy available to it, Company may, before or after termination of this PPA, draw from the Security Fund such amounts as are necessary to recover amounts owing to Company pursuant to this PPA, including any damages due to Company and any amounts for which Company is entitled to indemnification under this PPA. Company may, in its sole discretion, draw all or any

part of such amounts due to it from any form of security to the extent available pursuant to this Section 11.1, and from all such forms, and in any sequence Company may select. Any failure to draw upon the Security Fund or other security for any damages or other amounts due to Company shall not prejudice Company's rights to recover such damages or amounts in any other manner.

(C) The Security Fund shall be maintained at Seller's expense, shall be originated by or deposited in a financial institution or company ("Issuer") acceptable to Company, and prior to COD shall be in the form of one or more of the following instruments:

(1) An irrevocable standby letter of credit or a performance bond, in the form and substance of Exhibit F and acceptable to Company, from an Issuer with an unsecured bond rating (unenhanced by third-party support) equivalent to A- or better as determined by both Standard & Poor's and Moody's (or if either one or both are not available, equivalent ratings from alternate rating sources acceptable to Company). In addition, if such unsecured bond rating of the Issuer is exactly equivalent to A-, the Issuer must not be on credit watch or have a negative outlook by a rating agency. Security provided in this form shall be consistent with this PPA and include a provision for at least thirty (30) Days advance notice to Company of any expiration or earlier termination of the security so as to allow Company sufficient time to exercise its rights under said security if Seller fails to extend or replace the security. The form of such security must meet Company's requirements to ensure that claims or draw-downs can be made unilaterally by Company in accordance with the terms of this PPA. Such security must be issued for a minimum term of three hundred and sixty (360) Days. Seller shall cause the renewal or extension of the security for additional consecutive terms of three hundred and sixty (360) Days or more (or, if shorter, the remainder of the Term) no later than thirty (30) Days prior to each expiration date of the security. If the security is not renewed or extended as required herein, Company shall have the right to draw immediately upon the security and to place the amounts so drawn, at Seller's cost and with Seller's funds, in an interest bearing escrow account in accordance with sub-paragraph (2) below, until and unless Seller provides a substitute form of such security meeting the requirements of this Article 11. Security in the form of an irrevocable standby letter of credit shall be governed by the Uniform Customs and Practice for Documentary Credits (1993 Revision), International Chamber of Commerce Brochure No. 500 (the "UCP"), except to the extent that the terms hereof are inconsistent with the provisions of the UCP, including Articles 13(b) and 17 of the UCP, in which case the terms of the Letter of Credit shall govern. The following provisions shall be included in any letter of credit provided as or as part of the Security Fund:

"With respect to Article 13(b) of the UCP, the Issuing Bank shall have a reasonable amount of time, not to exceed three (3) banking Days following the date of its receipt of documents from the beneficiary, to examine the documents and determine whether to

take up or refuse the documents and to inform the beneficiary accordingly.

In the event of an Act of God, riot, civil commotion, insurrection, war or any other cause beyond our control that interrupts our business and causes the place for presentation of this Letter of Credit to be closed for business on the last Day for presentation, the expiry date of this Letter of Credit will be automatically extended without amendment to a date thirty (30) calendar Days after the place for presentation reopens for business.”

(2) United States currency, deposited with an Issuer, in which Company holds a first and exclusive perfected security interest, either: (i) in an account under which Company is designated as beneficiary with sole authority to draft from the account or otherwise access the security; or (ii) held by Issuer as escrow agent with instructions to pay claims made by Company pursuant to this PPA, such instructions to be in a form satisfactory to Company. Security provided in this form shall include a requirement for immediate notice to Company from Issuer and Seller in the event that the sums held as security in the account or trust do not at any time meet the required level for the Security Fund as set forth in this Section 11.1. Funds held in the account may be deposited in a money-market fund, short-term treasury obligations, investment-grade commercial paper and other liquid investment-grade investments with maturities of three months or less, with all investment income thereon to be taxable to, and to accrue for the benefit of, Seller. After the Commercial Operation Date is achieved, annual account sweeps for recovery of interest earned by the Security Fund shall be allowed by Seller. At such times as the balance in the escrow account exceeds the amount of Seller’s obligation to provide security hereunder, Company shall remit to Seller on demand any excess in the escrow account above Seller’s obligations.

Following COD, the Security Fund also may consist of a guaranty substantially in the form of Exhibit H, from an Issuer with a senior unsecured credit rating (unenhanced by third-party support) equivalent to BBB+ or better as determined by both Standard & Poor’s and Moody’s (or if either one or both are not available, equivalent ratings from alternate rating sources acceptable to Company). In addition, if such senior unsecured credit rating of the Issuer is exactly equivalent to BBB+, the Issuer must not be on credit watch or have a negative outlook by a rating agency. Company may reevaluate from time to time the value of any guaranty posted by Seller for possible downgrade or for other negative circumstances. If the credit rating of the Issuer is downgraded or Company otherwise has commercially reasonable grounds to believe that there has been a material adverse change in the creditworthiness of the Issuer, then Seller shall be required to convert the guarantee provided by such Issuer to a Security Fund instrument meeting the criteria set forth in either sub-paragraph (1) or sub-paragraph (2) above no later than thirty (30) Days after receiving notice from Company that such conversion is required pursuant to this paragraph.

Seller may change the form of the Security Fund at any time and from time to time upon reasonable prior notice to Company, but the Security Fund must at all times be consistent with the foregoing.

(D) Promptly (i) following the end of the Term and the completion of all of Seller's obligations under this PPA, or (ii) upon Company's exercise of its right to terminate this PPA pursuant to Article 6, Company shall release the balance of the Security Fund (including any accumulated interest, if applicable) to Seller.

(E) Seller shall reimburse Company for the incremental direct expenses (including the reasonable fees and expenses of counsel) incurred by Company in connection with the preparation, negotiation, execution and/or release of any security instruments, and other related documents, used by Seller to establish and maintain the Security Fund pursuant to Seller's obligations under this Section 11.1.

Article 12 - Default and Remedies

12.1 Events of Default of Seller

(A) Any of the following shall constitute an Event of Default of Seller upon its occurrence and no cure period shall be applicable:

- (1) Seller's dissolution or liquidation;
- (2) Seller's assignment of this PPA or any of its rights hereunder for the benefit of creditors (except for an assignment to the Facility Financing Party as security under the Financing Documents as permitted by this PPA);
- (3) Seller's filing of a petition in voluntary bankruptcy or insolvency or for reorganization or arrangement under the bankruptcy laws of the United States or under any insolvency act of any state, or Seller voluntarily taking advantage of any such law or act by answer or otherwise;
- (4) The sale by Seller to a third party, or diversion by Seller for any use, of energy committed to Company by Seller other than in mitigation of damages for any breach by Company of this PPA; and/or
- (5) Seller's actual fraud, waste, tampering with Company-owned facilities or other material intentional misrepresentation or misconduct in connection with this PPA or the operation of the Facility.

(B) Any of the following shall constitute an Event of Default of Seller upon its occurrence but shall be subject to cure within sixty (60) Days after the date of written notice from Company to Seller and the Facility Financing Party:

(1) Seller's failure to meet any of the Construction Milestone(s), except the Commercial Operation Milestone;

(2) Seller's failure to establish and maintain the funding of the Security Fund in accordance with Article 11;

(3) Seller's Abandonment of construction or operation of the Facility;

(4) Seller's failure to make any payment due to Company under or in connection with this PPA;

(5) Seller's default under the Option Agreement, not cured within any cure period therefor provided therein; and/or

(6) Seller's failure to comply with any other material obligation under this PPA, which would result in a material adverse impact on Company.

(C) Seller's failure to meet the Commercial Operation Milestone shall constitute an Event of Default of Seller upon its occurrence but shall be subject to cure within forty-five (45) Days after the date of written notice from Company to Seller and the Facility Financing Party as provided for in Section 13.1; provided, however, that Seller shall have an additional forty-five (45) Day period to achieve the Commercial Operation Date, provided that, on or before the expiration of the initial forty-five (45) Day period, an independent engineer, mutually agreed to by the Parties, retained by Company and paid for by Seller, provides a written opinion to Company stating that Seller's plan for achieving the Commercial Operation Date is reasonably achievable within such additional forty-five (45) Day cure period. This provision would allow for a total cure period of ninety (90) Days if all conditions of this paragraph are met. Subject to the limitation on damages set forth in Section 12.6, Delay Damages under Section 12.4(A) shall continue accruing until the Commercial Operation Date is achieved, or this PPA is terminated.

(D) Any of the following shall constitute an Event of Default of Seller upon its occurrence but shall be subject to cure within ninety (90) Days after the date of written notice from Company to Seller and the Facility Financing Party:

(1) Seller's assignment of this PPA, or any change of control of Seller, or Seller's sale or transfer of its interest, or any part thereof, in the Facility, except as permitted in accordance with Article 19;

(2) Any representation or warranty made by Seller in this PPA shall prove to have been false or misleading in any material respect when made or ceases to remain true during the Term if such cessation would reasonably be expected to result in a material adverse impact on Company; and/or

(3) The filing of an involuntary case in bankruptcy or any proceeding under any other insolvency law against Seller as debtor or its parent or any other Affiliate that could materially impact Seller's ability to perform its obligations hereunder; provided, however, that Seller does not obtain a stay or dismissal of the filing within the cure period.

(E) Seller's failure to deliver at least eighty-five percent (85%) of the Committed Solar Energy from the Facility in any rolling twelve-month period ("Period₁") beginning on or after the first anniversary of COD, shall constitute an Event of Default of Seller upon its occurrence, *provided that*

(1) to the extent such failure is attributable to actual solar irradiation being below the Expected Solar Irradiation for the relevant period as agreed to by the Parties, curtailment by Company under Section 7.4 or an event of Force Majeure, the contribution of such lack of solar resource, curtailment or event of Force Majeure shall be imputed into the calculation of Committed Solar Energy for the purposes of, and only for the purposes of, establishing an Event of Default of Seller under this Section 12.1(E), and

(2) this Event of Default shall be curable and deemed cured if (i) within thirty (30) Days following the end of Period₁, Seller cures the reason(s) for such default (or, if such cure cannot reasonably be effected within 30 Days, Seller commences to cure such default within 30 days and then diligently pursues such cure to completion as soon as practicable thereafter), and (ii) as a result of such efforts, during the twelve-month period subsequent to Period₁, the production of Solar Energy by the Facility (adjusted as provided in paragraph (1)) equals or exceeds ninety-five percent (95%) of the Committed Solar Energy for such period.

Seller shall be permitted to add and/or replace Solar Units on the Site if and to the extent reasonably required to cure Seller's default under this Section 12.1(E). Seller shall keep Company apprised at least monthly of Seller's cure efforts under this Section 12.1(E), if any.

12.2 Facility Financing Party's Right to Cure Default of Seller "12.2 Facility Financing Party's Right to Cure Default of Seller" \f C \l 2}. Seller shall provide Company with a notice identifying the Facility Financing Party and providing appropriate contact information for the Facility Financing Party. Following receipt of such notice, Company shall provide notice of any Event of Default of Seller to the Facility Financing Party, and Company will accept a cure to an Event of Default of Seller performed by the Facility Financing Party, so long as the cure is accomplished within the applicable cure period set forth in this PPA.

12.3 Events of Default of Company {tc "12.3 Events of Default of Company" \f C \ 2}.

(A) Any of the following shall constitute an Event of Default of Company upon its occurrence and no cure period shall be applicable:

(1) Company's dissolution or liquidation provided that division of Company into multiple entities shall not constitute dissolution or liquidation;

(2) Company's assignment of this PPA or any of its rights hereunder for the benefit of creditors; and/or

(3) Company's filing of a voluntary petition in bankruptcy or insolvency or for reorganization or arrangement under the bankruptcy laws of the United States or under any insolvency act of any State, or Company voluntarily taking advantage of any such law or act by answer or otherwise.

(B) Any of the following shall constitute an Event of Default of Company upon its occurrence but shall be subject to cure within thirty (30) Days after the date of written notice from Seller to Company:

(1) Company's failure to make any payment due hereunder (subject to Company's rights with respect to disputed payments under Section 9.3 and net of outstanding damages and any other rights of offset that Company may have pursuant to this PPA); and/or

(2) Company's failure to comply with any other material obligation under this PPA, which would result in a material adverse impact on Seller.

(C) Any of the following shall constitute an Event of Default of Company upon its occurrence but shall be subject to cure within sixty (60) Days after the date of written notice from Seller to Company:

(1) The filing of an involuntary case in bankruptcy or any proceeding under any other insolvency law against Company that could materially impact Company's ability to perform its obligations hereunder; provided, however, that Company does not obtain a stay or dismissal of the filing within the cure period;

(2) Company's assignment of this PPA, except as permitted in accordance with Article 19; and/or

(3) Any representation or warranty made by Company in this PPA shall prove to have been false or misleading in any material respect when made or ceases to remain true during the Term if such cessation would reasonably be expected to result in a material adverse impact on Seller.

12.4 Damages Prior to Termination (c) "12.4 Damages Prior to Termination" of C \ 2}. Upon the occurrence of an Event of Default, and subject in each case to the limitation on damages set forth in Section 12.6, the non-defaulting Party shall have the right to collect damages accruing prior to the termination of this PPA from the defaulting Party as set forth below, and the payment of any such damages accruing prior to the cure of an Event of Default shall constitute a part of the cure.

(A) *Delay Damages.*

(1) If Seller fails to meet any Construction Milestone set forth in Exhibit A, subject to extension for Force Majeure or Delay Conditions attributable to Company under Section 14.4, Seller shall pay damages to Company on account of such delay ("Delay Damages") in the amounts specified below:

<u>Delay</u>	<u>Delay Damages</u>
Failure to meet any Construction Milestone set forth in <u>Exhibit A</u> , except for Commercial Operation Milestone	\$15 per MW of design maximum output per Day
Failure to meet the Commercial Operation Milestone set forth in <u>Exhibit A</u>	\$200 per MW of design maximum output per Day

(2) All Delay Damages shall begin to accrue on the Day after the applicable missed Construction Milestone and shall continue to accrue until the result specified for such Construction Milestone is achieved. Delay Damages shall be payable in lieu of actual damages accrued for the period during which Delay Damages are assessed. All Delay Damages shall be cumulative.

(3) Notwithstanding the foregoing, if Seller meets the Commercial Operation Milestone, all Delay Damages paid by Seller to Company based upon a failure to meet one or more earlier Construction Milestones, less any expense amounts incurred by Company pursuant to Section 12.7, shall be refunded to Seller, without interest, with payments due Seller for the first monthly billing period following the Commercial Operation Date.

(4) The Parties specifically recognize that Company's damages associated with any delays in achieving Construction Milestones will be significant but that it will be difficult to quantify those damages. Delay Damages shall be deemed to constitute liquidated damages and do not constitute a penalty.

(B) *Actual Damages.* For all Events of Default (including failure to achieve the Commercial Operation Milestone, but excluding Seller's failure to meet other Construction Milestones, for which Company shall be entitled to collect Delay

Damages pursuant to Section 12.4(A), subject to Section 14.4), the non-defaulting Party shall be entitled to receive from the defaulting Party all of the damages incurred by the non-defaulting Party in connection with such Event of Default; provided, that if an Event of Default has occurred and has continued uncured for a period of three hundred sixty-five (365) Days, the non-defaulting Party shall be required to either waive its right to collect further damages on account of such Event of Default or elect to terminate this PPA as provided for in Section 12.5. If Seller is the defaulting Party, the Parties agree that the damages recoverable by Company hereunder on account of an Event of Default of Seller shall include Replacement Energy Costs.

12.5 Termination {tc "12.5 Termination" \f C \l 2}. Upon the occurrence of an Event of Default which has not been cured within the applicable cure period, the non-defaulting Party shall have the right to declare a date, which shall be between fifteen (15) and thirty (30) Days after the notice thereof, upon which this PPA shall terminate. Neither Party shall have the right to terminate this PPA except as provided for upon the occurrence of an Event of Default as described above or as otherwise may be explicitly provided for in this PPA. Upon the termination of this PPA under this Section 12.5, the non-defaulting Party shall be entitled to receive from the defaulting Party, subject to the limitation on damages set forth in Section 12.6, all of the damages incurred by the non-defaulting Party in connection with such termination including, if Seller is the defaulting Party, the value of all future Replacement Energy Costs for the then remaining Term.

12.6 Limitation on Damages {tc "12.6 Limitation on Damages" \f C \l 2}. Except as otherwise provided in this Section 12.6 below, (i) Seller's aggregate financial liability to Company for Delay Damages, pursuant to Section 12.4(A), shall not exceed [\$150/kW design maximum output], and (ii) Seller's aggregate financial liability to Company for Replacement Energy Costs and other damages, excluding Delay Damages, shall not exceed [\$150/kW x design maximum output]. If at any time during the Term, Company incurs damages in excess of the limitations set forth above which Seller does not agree to pay when billed by Company in accordance with Section 12.11, Company shall have the right to declare a termination of this PPA under Section 12.5. The limitations on damages set forth in this paragraph shall not apply to damages arising out of any of the following events:

(A) actual fraud, waste, tampering with Company-owned facilities or other material intentional misrepresentation or misconduct sanctioned by, or at the direction of, Seller in connection with this PPA or the operation of the Facility;

(B) the sale by Seller to a third party, or diversion by Seller for any use, of Contract Capacity or Contract Energy committed to Company under this PPA;

(C) Seller's failure to apply any insurance proceeds to reconstruction of the Facility following a casualty;

(D) any claim for indemnification under Article 17;

(E) any Environmental Contamination caused by Seller; or

(F) the filing of an involuntary bankruptcy petition against Seller (other than by Company), which petition is not dismissed within sixty (60) Days of its filing, or the filing of a voluntary petition in bankruptcy by Seller.

12.7 Operation by Company Following Event of Default of Seller{tc "12.7 Operation by Company Following Event of Default of Seller" \f C \l 2}.

(A) Prior to any termination of this PPA due to an Event of Default of Seller, Company shall have the right, but not the obligation, to possess, assume control of, and operate the Facility as agent for Seller (in accordance with Seller's rights, obligations, and interest under this PPA) during the period provided for herein. Seller shall not grant any person, other than the Facility Financing Party, a right to possess, assume control of, and operate the Facility that is equal to or superior to Company's right under this Section 12.7.

(B) Company shall give Seller and the Facility Financing Party ten (10) Days notice in advance of the contemplated exercise of Company's rights under this Section 12.7. Upon such notice, Seller shall collect and have available at a convenient, central location at the Facility all documents, contracts, books, manuals, reports, and records required to construct, operate, and maintain the Facility in accordance with Good Utility Practice. Upon such notice, Company, its employees, contractors, or designated third parties shall have the unrestricted right to enter the Site and the Facility for the purpose of constructing and/or operating the Facility. Seller hereby irrevocably appoints Company as Seller's attorney-in-fact for the exclusive purpose of executing such documents and taking such other actions as Company may reasonably deem necessary or appropriate to exercise Company's step-in rights under this Section 12.7.

(C) Company shall be entitled to immediately draw upon the Security Fund to cover any expenses incurred by Company in exercising its rights under this Section 12.7.

(D) During any period that Company is in possession of and constructing and/or operating the Facility pursuant to this Section 12.7, Company shall perform and comply with all of the obligations of Seller under this PPA and shall use the proceeds from the sale of electricity generated by the Facility to first, reimburse Company for any and all expenses reasonably incurred by Company (including a return on capital at Company's authorized return on equity most recently determined by the MPUC) in taking possession of and operating the Facility, and to second, remit any remaining proceeds to Seller.

(E) During any period that Company is in possession of and operating the Facility, Seller shall retain legal title to and ownership of the Facility and Company shall assume possession, operation, and control solely as agent for Seller.

(1) In the event that Company is in possession and control of the Facility for an interim period, Seller may resume operation and Company shall relinquish its right to operate when Seller demonstrates to Company's reasonable satisfaction that it will remove those grounds that originally gave rise to Company's right to operate the Facility, as provided above, in that Seller (i) will resume operation of the Facility in accordance with the provisions of this PPA, and (ii) has cured any Events of Default of Seller which allowed Company to exercise its rights under this Section 12.7 (or, if the Event of Default is of such a nature that it cannot be cured by Seller without possession of the Facility, reasonable assurance that Seller will cure such Event of Default promptly following resumption of possession).

(2) In the event that Company is in possession and control of the Facility for an interim period, the Facility Financing Party, or any nominee or transferee thereof, may foreclose and take possession of and operate the Facility and Company shall relinquish its right to operate when the Facility Financing Party or any nominee or transferee thereof, requests such relinquishment.

(F) Company's exercise of its rights hereunder to possess and operate the Facility shall not be deemed an assumption by Company of any liability attributable to Seller. If at any time after exercising its rights to take possession of and operate the Facility Company elects to return such possession and operation to Seller, Company shall provide Seller with at least fifteen (15) Days advance notice of the date Company intends to return such possession and operation, and upon receipt of such notice Seller shall take all measures necessary to resume possession and operation of the Facility on such date.

(G) In the event Company assumes operation of the Facility under this Section 12.7, Company shall operate the Facility in conformance with Good Utility Practice.

12.8 Specific Performance{tc "12.8 Specific Performance" \f C \l 2}. In addition to the other remedies specified in this Article 12, in the event that any Event of Default of Seller is not cured within the applicable cure period set forth herein, Company may elect to treat this PPA as being in full force and effect and Company shall have the right to specific performance. If the breach by Seller arises from a failure by third party operating the Facility pursuant to an operating agreement entered into with Seller, and Seller fails or refuses to enforce its rights under the operating agreement which would result in the cure, or partial cure, of the Event of Default, Company's right to specific performance shall include the right to obtain an order compelling Seller to enforce its rights under the operating agreement.

12.9 Remedies Cumulative{tc "12.9 Remedies Cumulative" \f C \l 2}. Subject to the exclusivity of Delay Damages provided in Section 12.4(A) and the limitations on damages set forth in Section 12.6, each right or remedy of the Parties

provided for in this PPA shall be cumulative of and shall be in addition to every other right or remedy provided for in this PPA, and the exercise, or the beginning of the exercise, by a Party of any one or more or the rights or remedies provided for herein shall not preclude the simultaneous or later exercise by such Party of any or all other rights or remedies provided for herein.

12.10 Waiver and Exclusion of Other Damages{tc "12.10 Waiver and Exclusion of Other Damages" \f C \l 2}. The Parties confirm that the express remedies and measures of damages provided in this PPA satisfy the essential purposes hereof. If no remedy or measure of damages is expressly herein provided, the obligor's liability shall be limited to direct, actual damages only. Neither Party shall be liable to the other Party for consequential, incidental, punitive, exemplary or indirect damages, lost profits or other business interruption damages by statute, in tort or contract (except to the extent expressly provided herein); provided, that if either Party is held liable to a third party for such damages and the Party held liable for such damages is entitled to indemnification therefor from the other Party hereto, the indemnifying Party shall be liable for, and obligated to reimburse the indemnified Party for, such damages. To the extent any damages required to be paid hereunder are liquidated, the Parties acknowledge that the damages are difficult or impossible to determine, that otherwise obtaining an adequate remedy is inconvenient, and that the liquidated damages constitute a reasonable approximation of the harm or loss.

12.11 Payment of Amounts Due to Company{tc "12.11 Payment of Amounts Due to Company" \f C \l 2}. Without limiting any other provisions of this Article 12 and at any time before or after termination of this PPA, Company may send Seller an invoice for such damages (including Delay Damages) or other amounts as are due to Company at such time from Seller under this PPA and such invoice shall be payable in the manner, and in accordance with the applicable provisions, set forth in Article 9, including the provision for late payment charges. Company may withdraw funds from the Security Fund as needed to provide payment for such invoice if the invoice is not paid by Seller on or before the tenth (10th) Business Day following the invoice due date.

12.12 Duty to Mitigate{tc "12.12 Duty to Mitigate" \f C \l 2}. Each Party agrees that it has a duty to mitigate damages and covenants that it will use commercially reasonable efforts to minimize any damages it may incur as a result of the other Party's performance or non-performance of the PPA.

Article 13 - Contract Administration and Notices{tc "Article 13 - Contract Administration and Notices" \f C \l 1}

13.1 Notices in Writing{tc "13.1 Notices in Writing" \f C \l 2}. Notices required by this PPA shall be addressed to the other Party, including the other Party's representative on the Operating Committee, at the addresses noted in Exhibit C as either Party updates them from time to time by written notice to the other Party. Any notice, request, consent, or other communication required or authorized under this PPA to be given by one Party to the other Party shall be in writing. It shall either be hand

delivered or mailed, postage prepaid, to the representative of said other Party. If mailed, the notice, request, consent or other communication shall be simultaneously sent by facsimile or other electronic means. Any such notice, request, consent, or other communication shall be deemed to have been received by the close of the Business Day on which it was hand delivered or transmitted electronically (unless hand delivered or transmitted after such close in which case it shall be deemed received at the close of the next Business Day). Real-time or routine communications concerning Facility operations shall be exempt from this Section.

13.2 Representative for Notices{tc "13.2 Representative for Notices" \f C \l 2}. Each Party shall maintain a designated representative to receive notices. Such representative may, at the option of each Party, be the same person as that Party's representative or alternate representative on the Operating Committee, or a different person. Either Party may, by written notice to the other Party, change the representative or the address to which such notices and communications are to be sent.

13.3 Authority of Representatives{tc "13.3 Authority of Representatives" \f C \l 2}. The Parties' representatives designated above shall have authority to act for its respective principals in all technical matters relating to performance of this PPA and to attempt to resolve disputes or potential disputes. However, they, in their capacity as representatives, shall not have the authority to amend or modify any provision of this PPA.

13.4 Operating Records{tc "13.4 Operating Records" \f C \l 2}. Seller and Company shall each keep complete and accurate records and all other data required by each of them for the purposes of proper administration of this PPA, including such records as may be required by state or federal regulatory authorities and WECC in the prescribed format.

13.5 Operating Log{tc "13.5 Operating Log" \f C \l 2}. Seller shall maintain an accurate and up-to-date operating log, in electronic format, at the Facility with records of solar irradiation and energy production for each clock hour; changes in operating status; Forced Outages for the purposes of proper administration of this PPA, including such records as may be required by state or federal regulatory authorities and WECC in the prescribed format.

13.6 Provision of Real Time Data. {tc "13.6 Provision of Real Time Data" \f C \l 2} Upon request from Company, Seller shall provide real-time electronic access to Company of all solar irradiance and meteorological data collected at the Facility and corresponding unit availability data as well.

13.7 Billing and Payment Records{tc "13.7 Billing and Payment Records" \f C \l 2}. To facilitate payment and verification, Seller and Company shall keep all books and records necessary for billing and payments in accordance with the provisions of Article 9 and grant the other Party reasonable access to those records. All records of

Seller pertaining to the operation of the Facility shall be maintained at the Site or in an office of Seller in the Denver metropolitan area..

13.8 Examination of Records{tc "13.8 Examination of Records" \f C \l 2}. PSCO may audit and examine the Seller's financial, operating procedures, equipment manuals, Operating Records and data kept by the Seller relating to transactions under and administration of this PPA, at any time during the period the records are required to be maintained, from time to time upon request and during normal business hours. By way of example only, Seller shall provide to Company upon request such financial information as PSCO and its auditors may need for analysis and compliance by PSCO's parent with any applicable Financial Accounting Standards, including FIN No. 46 related to variable interest entities.

13.9 Exhibits{tc "13.9 Exhibits" \f C \l 2}. Either Party may change the information for their notice addresses in Exhibit C at any time without the approval of the other Party. Exhibit A, Exhibit B, Exhibit E, and Exhibit F may be changed at any time with the mutual consent of both Parties. Exhibit G may be changed as provided therein. Exhibit D may be changed in accordance with Section 16.2(B).

13.10 Dispute Resolution{tc "13.10 Dispute Resolution" \f C \l 2}.

(A) In the event of any dispute arising under this PPA (a "Dispute"), within ten (10) Days following the delivered date of a written request by either Party (a "Dispute Notice"), (i) each Party shall appoint a representative (individually, a "Party Representative", together, the "Parties' Representatives"), and (ii) the Parties' Representatives shall meet, negotiate and attempt in good faith to resolve the Dispute quickly, informally and inexpensively. In the event the Parties' Representatives cannot resolve the Dispute within thirty (30) Days after commencement of negotiations, within ten (10) Days following any request by either Party at any time thereafter, each Party Representative (I) shall independently prepare a written summary of the Dispute describing the issues and claims, (II) shall exchange its summary with the summary of the Dispute prepared by the other Party Representative, and (III) shall submit a copy of both summaries to a senior officer of the Party Representative's Party with authority to irrevocably bind the Party to a resolution of the Dispute. Within ten (10) Business Days after receipt of the Dispute summaries, the senior officers for both Parties shall negotiate in good faith to resolve the Dispute. If the Parties are unable to resolve the Dispute within fourteen (14) Days following receipt of the Dispute summaries by the senior officers, either Party may seek available legal remedies.

(B) Notwithstanding any provision in this PPA to the contrary, if no Dispute Notice has been issued within twenty-four (24) months following the occurrence of all events and the existence of all circumstances giving rise to the Dispute (regardless of the knowledge or potential knowledge of either Party of such events and circumstances), the Dispute and all claims related thereto shall be deemed waived and the aggrieved Party shall thereafter be barred from proceeding thereon.

(C) Seller and Company each hereby knowingly, voluntarily and intentionally waive any rights they may have to a trial by jury in respect of any litigation based hereon, or arising out of, under, or in connection with, this PPA or any course of conduct, course of dealing, statements (whether oral or written) or actions of Seller and Company related hereto and expressly agree to have any disputes arising under or in connection with this PPA be adjudicated by a judge of the court having jurisdiction without a jury.

Article 14 - Force Majeure{tc "Article 14 - Force Majeure" \f C \l 1}

14.1 Definition of Force Majeure{tc "14.1 Definition of Force Majeure" \f C \l 2}.

(A) "Force Majeure" means an event or circumstance that prevents a Party from performing its obligations under this PPA, which event or circumstance (i) was not anticipated as of the date of this PPA, (ii) is not within the control of or the result of the fault or negligence of the Party claiming its occurrence, and (iii) which by exercise of due diligence and foresight could not reasonably have been avoided. Force Majeure shall include (a) acts of God; (b) sudden actions of the elements, such as floods, earthquakes, hurricanes or tornadoes, lightning, ice storms, high winds of sufficient strength or duration to materially damage a facility or significantly impair its operation for a period of time longer than normally encountered in similar businesses under comparable circumstances; (c) serial manufacturing and/or design defects in the Wind Turbines or other major components comprising the Facility only in the vent and to the extent that such occurrence is established to constitute a serial defect under Seller's Wind Turbine supply agreement or Construction Contract; (d) long-term material changes in renewable energy flows across the Facility caused by climactic change (e) fire, sabotage, vandalism beyond that which could reasonably be prevented by Seller; terrorism; war; riots; fire; explosion; blockades; insurrection; (f) action or inactions by any Governmental Authority taken after the date hereof (including the adoption or change in any Applicable Laws imposed by such Governmental Authority), but only if such requirements, actions, or failures to act, prevent or delay performances; and (g) inability, despite due diligence, to obtain any licenses, permits, or approval required by any Governmental Authority; *provided, however*, that Force Majeure shall not include: (1) inability, or excess cost, to produce any equipment necessary to perform the obligations of this PPA; (2) acts or omissions of a third party (not under contract to Seller), unless such acts or omissions are themselves excused by reason of Force Majeure; (3) mechanical or equipment breakdown or inability to operate, attributable to circumstances occurring within design criteria and normal operating tolerances of similar equipment designed to be located in the local vicinity; (4) changes in market conditions; or (5) any labor strikes, showdowns or work stoppage, or other labor disruptions.

(B) Notwithstanding the foregoing, the term Force Majeure does not include (i) inability by Seller to procure Solar Units or any component parts therefor, for any reason (the risk of which is assumed by Seller), (ii) any other acts or omissions of

any third party, including any vendor, materialman, customer, or supplier of Seller, unless such acts or omissions are themselves excused by reason of Force Majeure; (ii) any full or partial curtailment in the electric output of the Facility that is caused by or arises from a mechanical or equipment breakdown or other mishaps, events or conditions attributable to normal wear and tear or flaws, unless caused by one of the following: acts of God; sudden actions of the elements, including floods, hurricanes, or tornadoes; sabotage; terrorism; war; riots; and emergency orders issued by a Governmental Authority, (iv) failure to abide by Good Utility Practices, (v) changes in market conditions that affect the cost of supplies, or that affect demand or price for power and/or REC's; (vi) any labor strikes, slow downs or stoppages, or other labor disruptions against Seller or Seller's contractors or subcontractors; or (vii) weather events or sudden actions of the natural elements within twenty (20) year normal weather patterns.

14.2 Applicability of Force Majeure {tc "14.2 Applicability of Force Majeure" \f C \ 2}.

(A) Neither Party shall be responsible or liable for any delay or failure in its performance under this PPA, nor shall any delay, failure, or other occurrence or event become an Event of Default, to the extent such delay, failure, occurrence or event is substantially caused by Force Majeure, provided that:

(1) the non-performing Party gives the other Party prompt written notice describing the particulars of the occurrence of the Force Majeure;

(2) the suspension of performance is of no greater scope and of no longer duration than is required by the Force Majeure;

(3) the non-performing Party proceeds with reasonable diligence to remedy its inability to perform and provides weekly progress reports to the other Party describing actions taken to end the Force Majeure; and

(4) when the non-performing Party is able to resume performance of its obligations under this PPA, that Party shall give the other Party written notice to that effect.

(B) Except as otherwise expressly provided for in this PPA, the existence of a condition or event of Force Majeure shall not relieve the Parties of their obligations under this PPA (including payment obligations) to the extent that performance of such obligations is not precluded by the condition or event of Force Majeure.

14.3 Limitations on Effect of Force Majeure {tc "14.3 Limitations on Effect of Force Majeure" \f C \ 2}. In no event will any delay or failure of performance caused by Force Majeure extend this PPA beyond its stated Term. In the event that any delay or failure of performance caused by Force Majeure affecting Seller continues for an

uninterrupted period of ninety (90) Days from its inception (with respect to Force Majeure occurring prior to COD) or three hundred sixty-five (365) Days from its inception (with respect to Force Majeure occurring after COD), the Party not claiming Force Majeure may, at any time following the end of such period, terminate this PPA upon written notice to the affected Party, without further obligation by either Party except as to costs and balances incurred prior to the effective date of such termination.

14.4 Delays Attributable to Company{tc "14.4 Delays Attributable to Company" \f C \l 2}. Seller shall be excused from a failure to meet any specified Construction Milestone where Seller can establish that such a failure is principally attributable to any delay or failure by Company in obtaining any consents or approvals from Governmental Authorities or third parties required for Company to perform its obligations under this PPA, whether or not caused by any conditions or events of Force Majeure ("Delay Conditions"). In the event of such a failure, the Construction Milestone that is not met due to the Delay Condition(s), and any affected Construction Milestones that follow, shall be extended for a period of time equal to the period of time between (i) the Construction Milestone that is not met due to the Delay Condition(s) and (ii) the Day that Company has corrected the Delay Condition(s).

Article 15 – Representations, Warranties and Covenants{tc "Article 15 – Representations, Warranties and Covenants" \f C \l 1}

15.1 Seller's Representations, Warranties and Covenants{tc "15.1 Seller's Representations, Warranties and Covenants" \f C \l 2}. Seller hereby represents and warrants as follows:

(A) Seller is a [corporation, limited liability company, etc.] duly organized, validly existing and in good standing under the laws of the State of Minnesota. Seller is qualified to do business in each other jurisdiction where the failure to so qualify would have a material adverse effect on the business or financial condition of Seller; and Seller has all requisite power and authority to conduct its business, to own its properties, and to execute, deliver, and perform its obligations under this PPA.

(B) The execution, delivery, and performance of its obligations under this PPA by Seller have been duly authorized by all necessary corporate action, and do not and will not:

(1) require any consent or approval by any governing body of Seller, other than that which has been obtained and is in full force and effect (evidence of which shall be delivered to Company upon its request);

(2) violate any Applicable Law, or violate any provision in any formation documents of Seller, the violation of which could have a material adverse effect on the ability of Seller to perform its obligations under this PPA;

(3) result in a breach or constitute a default under Seller's formation documents or bylaws, or under any agreement relating to the management or affairs of Seller or any indenture or loan or credit agreement, or any other agreement, lease, or instrument to which Seller is a party or by which Seller or its properties or assets may be bound or affected, the breach or default of which could reasonably be expected to have a material adverse effect on the ability of Seller to perform its obligations under this PPA; or

(4) result in, or require the creation or imposition of any mortgage, deed of trust, pledge, lien, security interest, or other charge or encumbrance of any nature (other than as may be contemplated by this PPA) upon or with respect to any of the assets or properties of Seller now owned or hereafter acquired, the creation or imposition of which could reasonably be expected to have a material adverse effect on the ability of Seller to perform its obligations under this PPA.

(C) This PPA is a valid and binding obligation of Seller.

(D) The execution and performance of this PPA will not conflict with or constitute a breach or default under any contract or agreement of any kind to which Seller is a party or any judgment, order, statute, or regulation that is applicable to Seller or the Facility.

(E) To the best knowledge of Seller, and except for those permits, consents, approvals, licenses and authorizations identified in Exhibit E, which Seller anticipates will be obtained by Seller in the ordinary course of business, all permits, consents, approvals, licenses, authorizations, or other action required by any Governmental Authority to authorize Seller's execution, delivery and performance of this PPA have been duly obtained and are in full force and effect.

(F) Seller shall comply with all Applicable Laws in effect or that may be enacted during the Term.

(G) Seller shall disclose to Company, the extent of, and as soon as it is known to Seller, any violation of any Applicable Laws arising out of the construction or operation of the Facility, or the presence of Environmental Contamination at the Facility or on the Site, alleged to exist by any Governmental Authority having jurisdiction over the Site, or the existence of any past or present enforcement, legal, or regulatory action or proceeding relating to such alleged violation or alleged presence of Environmental Contamination.

(H) To the full extent authorized by FERC regulations and the FERC standards of conduct, Seller hereby authorizes Company to contact and obtain information concerning the Facility and Interconnection Facilities directly from the Interconnection Provider and to the extent necessary Seller shall provide written notice to the Interconnection Provider confirming such authorization.

(I) As of the COD for the Facility, the Facility shall constitute an Eligible Energy Resource.

15.2 Company's Representations, Warranties and Covenants "15.2 Company's Representations, Warranties and Covenants" \f C \l 2}. Company hereby represents and warrants as follows:

(A) Company is a corporation duly organized, validly existing and in good standing under the laws of the State of Minnesota and is qualified in each other jurisdiction where the failure to so qualify would have a material adverse effect upon the business or financial condition of Company. Company has all requisite power and authority to conduct its business, to own its properties, and to execute, deliver, and perform its obligations under this PPA.

(B) The execution, delivery, and performance of its obligations under this PPA by Company have been duly authorized by all necessary corporate action, and do not and will not:

(1) require any consent or approval of Company's shareholders;

(2) violate any Applicable Law, or violate any provision in any corporate documents of Company, the violation of which could have a material adverse effect on the ability of Company to perform its obligations under this PPA;

(3) result in a breach or constitute a default under Company's corporate charter or bylaws, or under any agreement relating to the management or affairs of Company, or any indenture or loan or credit agreement, or any other agreement, lease, or instrument to which Company is a party or by which Company or its properties or assets may be bound or affected, the breach or default of which could reasonably be expected to have a material adverse effect on the ability of Company to perform its obligations under this PPA; or

(4) result in, or require the creation or imposition of, any mortgage, deed of trust, pledge, lien, security interest, or other charge or encumbrance of any nature (other than as may be contemplated by this PPA) upon or with respect to any of the assets or properties of Company now owned or hereafter acquired, the creation or imposition of which could reasonably be expected to have a material adverse effect on the ability of Company to perform its obligations under this PPA.

(C) This PPA is a valid and binding obligation of Company, subject to the contingencies identified in Article 6.

(D) The execution and performance of this PPA will not conflict with or constitute a breach or default under any contract or agreement of any kind to which

Company is a party or any judgment, order, statute, or regulation that is applicable to Company.

(E) To the best knowledge of Company, and except for the MPUC approval(s) identified in Section 6.1, all approvals, authorizations, consents, or other action required by any Governmental Authority to authorize Company's execution, delivery and performance of this PPA, have been duly obtained and are in full force and effect.

Article 16 - Insurance{tc "Article 16 - Insurance" \f C \l 1}

16.1 Evidence of Insurance{tc "16.1 Evidence of Insurance" \f C \l 2}. Seller shall, on or before June 1 of each Commercial Operation Year and pursuant to the corresponding Construction Milestone, provide Company with two copies of insurance certificates acceptable to Company evidencing that insurance coverages for the Facility are in compliance with the specifications for insurance coverage set forth in Exhibit D to this PPA. Such certificates shall (a) name Company as an additional insured (except worker's compensation); (b) provide that Company shall receive thirty (30) Days prior written notice of non-renewal, cancellation of, or significant modification to any of the corresponding policies (except that such notice shall be ten (10) Days for non-payment of premiums); (c) provide a waiver of any rights of subrogation against Company, its Affiliates and their officers, directors, agents, subcontractors, and employees; and (d) indicate that the Commercial General Liability policy has been endorsed as described above. All policies shall be written with insurers that Company, in its reasonable discretion, deems acceptable. All policies shall be written on an occurrence basis, except as provided in Section 16.2. All policies shall contain an endorsement that Seller's policy shall be primary in all instances regardless of like coverages, if any, carried by Company. Seller's liability under this PPA is not limited to the amount of insurance coverage required herein.

16.2 Term and Modification of Insurance{tc "16.2 Term and Modification of Insurance" \f C \l 2}.

(A) All insurance required under this PPA shall cover occurrences during the Term and for a period of two (2) years after the Term. In the event that any insurance as required herein is commercially available only on a "claims-made" basis, such insurance shall provide for a retroactive date not later than the date of this PPA and such insurance shall be maintained by Seller, with a retroactive date not later than the retroactive date required above, for a minimum of five (5) years after the Term.

(B) Company shall have the right, at times deemed appropriate to Company during the Term, to request Seller to modify the insurance minimum limits specified in Exhibit D in order to maintain reasonable coverage amounts. Seller shall make all commercially reasonable efforts to comply with any such request.

(C) If any insurance required to be maintained by Seller hereunder ceases to be reasonably available and commercially feasible in the commercial

insurance market, Seller shall provide written notice to Company, accompanied by a certificate from an independent insurance advisor of recognized national standing, certifying that such insurance is not reasonably available and commercially feasible in the commercial insurance market for electric generating plants of similar type, geographic location and capacity. Upon receipt of such notice, Seller shall attempt to obtain other insurance that would provide comparable protection against the risk to be insured.

16.3 Application of Proceeds{tc "16.3 Application of Proceeds" \f C \l 2}. Seller shall apply any insurance proceeds to reconstruction of the Facility following a casualty.

Article 17 - Indemnity{tc "Article 17 - Indemnity" \f C \l 1}

17.1 Each Party (the "Indemnifying Party") agrees to indemnify, defend and hold harmless the other Party (the "Indemnified Party") from and against all third party claims, demands, losses, liabilities, penalties, and expenses (including reasonable attorneys' fees) for personal injury or death to persons and damage to the Indemnified Party's real property and tangible personal property or facilities or the property of any other person or entity to the extent arising out of, resulting from, or caused by an Event of Default under this PPA, violation of any Applicable Laws, or by the negligent or tortious acts, errors, or omissions of the Indemnifying Party, its Affiliates, its directors, officers, employees, or agents. The indemnification of third party claims provided under this Section 17(A) is not limited by the limitation on damages set forth in Section 12.6. Nothing in this Section shall enlarge or relieve Seller or Company of any liability to the other for any breach of this PPA. This indemnification obligation shall apply notwithstanding any negligent or intentional acts, errors or omissions of the Indemnified Party, but the Indemnifying Party's liability to pay damages to the Indemnified Party shall be reduced in proportion to the percentage by which the Indemnified Party's negligent or intentional acts, errors or omissions caused the damages. Neither Party shall be indemnified for its damages resulting from its sole negligence, intentional acts or willful misconduct. These indemnity provisions shall not be construed to relieve any insurer of its obligation to pay claims consistent with the provisions of a valid insurance policy.

17.2 Promptly after receipt by a Party of any claim or notice of the commencement of any action, administrative, or legal proceeding, or investigation as to which the indemnity provided for in this Article may apply, the Indemnified Party shall notify the Indemnifying Party in writing of such fact. The Indemnifying Party shall assume the defense thereof with counsel designated by such Party and satisfactory to the Indemnified Party, provided, however, that if the defendants in any such action include both the Indemnified Party and the Indemnifying Party and the Indemnified Party shall have reasonably concluded that there may be legal defenses available to it which are different from or additional to, or inconsistent with, those available to the Indemnifying Party, the Indemnified Party shall have the right to select and be

represented by separate counsel, at the Indemnifying Party's expense, unless a liability insurer is willing to pay such costs.

17.3 If the Indemnifying Party fails to assume the defense of a claim meriting indemnification, the Indemnified Party may at the expense of the Indemnifying Party contest, settle, or pay such claim, provided that settlement or full payment of any such claim may be made only following consent of the Indemnifying Party or, absent such consent, written opinion of the Indemnified Party's counsel that such claim is meritorious or warrants settlement.

17.4 Except as otherwise provided in this Article, in the event that a Party is obligated to indemnify and hold the other Party and its successors and assigns harmless under this Article 17, the amount owing to the Indemnified Party will be the amount of the Indemnified Party's actual loss net of any insurance proceeds received by the Indemnified Party following an effort by the Indemnified Party to obtain such insurance proceeds.

Article 18 - Legal and Regulatory Compliance{tc "Article 18 - Legal and Regulatory Compliance" \f C \l 1}

18.1 Each Party shall at all times comply with all applicable laws, ordinances, rules, and regulations applicable to it, except for any non-compliance which, individually or in the aggregate, could not reasonably be expected to have a material effect on the business or financial condition of the Party or its ability to fulfill its commitments hereunder. As applicable, each Party shall give all required notices, shall procure and maintain all necessary governmental permits, licenses, and inspections necessary for performance of this PPA, and shall pay its respective charges and fees in connection therewith. Upon permanent cessation of generation of Solar Energy from the Facility, Seller shall decommission the Facility, remove the Facility and remediate the Site as, if and when required by law

18.2 Each Party shall deliver or cause to be delivered to the other Party certificates of its officers, accountants, engineers or agents as to matters as may be reasonably requested, and shall make available personnel and records relating to the Facility to the extent that the requesting Party requires the same in order to fulfill any regulatory reporting requirements, or to assist the requesting Party in litigation, including administrative proceedings before utility regulatory commissions.

Article 19 - Assignment and Other Transfer Restrictions{tc "Article 19 – Assignment and Other Transfer Restrictions" \f C \l 1}

19.1 No Assignment Without Consent{tc "19.1 No Assignment Without Consent" \f C \l 2}. Except as permitted in this Article 19, neither Party shall assign this PPA or any portion thereof, without the prior written consent of the other Party, which consent shall not be unreasonably withheld or delayed; provided (i) at least thirty (30) Days prior notice of any such assignment shall be given to the other Party; (ii) any

assignee shall expressly assume the assignor's obligations hereunder, (iii) no assignment shall relieve the assignor of its obligations hereunder in the event the assignee fails to perform, except as otherwise provided in Section 19.1(B) below; (iii) no assignment shall impair any security given by Seller hereunder; and (iv) before the PPA is assigned by Seller, the assignee must first obtain such approvals as may be required by all applicable regulatory bodies.

(A) Seller's consent shall not be required for Company to assign this PPA to an Affiliate of Company.

(B) In the event that a permitted assignee of Company has or attains an investment grade unsecured bond rating, Seller shall release Company from its obligations under this PPA if Company requests to be so released by notice to Seller.

(C) Company's consent shall not be required for Seller to assign this PPA for collateral purposes to a Facility Financing Party. Seller shall notify Company of any such assignment to the Facility Financing Party no later than thirty (30) Days after the assignment.

19.2 Accommodation of Facility Financing Party. {tc "19.2 Accommodation of Facility Financing Party" \f C \l 2} To facilitate Seller's obtaining of financing to construct and operate the Facility, Company shall provide such consents to collateral assignment, certifications, representations, information or other documents as may be reasonably requested by Seller or the Facility Financing Party in connection with the financing of the Facility (generally, a "Facility Financing Party Consent"). The Facility Financing Party Consent shall include the provisions set forth on Exhibit J and such other terms as the Facility Financing Party may reasonably request that do not adversely affect any of Company's rights, benefits, risks and/or obligations under this PPA. Seller shall reimburse, or shall cause the Facility Financing Party to reimburse, Company for the incremental direct expenses (including the reasonable fees and expenses of counsel) incurred by Company in the preparation, negotiation, execution and/or delivery of any documents requested by Seller or the Facility Financing Party, and provided by Company, pursuant to this Section 19.2.

19.3 Change of Control{tc "19.3Change of Control" \f C \l 2}.

(A) Any direct or indirect change of control of Seller, whether voluntary or by operation of law, shall require the prior written consent of Company, which shall not be unreasonably withheld. No consent of Company shall be required, however, to any change of control resulting from (i) transactions among Affiliates of Seller, or (ii) any exercise by the Facility Financing Party of its rights and remedies under the Financing Documents.

(B) (1) For purposes of this PPA, a "Pending Facility Transaction" means (i) any change of control of Seller, (ii) the issuance by Seller or any of its Affiliates of a request for proposals or the response by Seller or any of its Affiliates to a request for proposal) or similar process (e.g., auction) for the purchase or sale of the

Facility or any group(s) of assets or equity interests which includes the Facility, (iii) the commencement by Seller or any of its Affiliates of substantive negotiations with any third party with respect to the sale of the Facility or any group(s) of assets or equity interests which includes the Facility, and/or (iv) the execution by Seller or any of its Affiliates of any letter of intent, memorandum of understanding or similar document, whether or not legally binding, which contemplates the sale of the Facility or any group(s) of assets or equity interests which includes the Facility. A "Pending Facility Transaction" does not include, however, (I) a change of control involving the Ultimate Parent Entity of Seller, or (II) any transaction in connection with which [*insert name of Seller's immediate Parent*] or Seller offered and Company declined its RoFO rights under the Option Agreement.

(2) Seller shall give to Company at least ninety (90) days' prior notice of any Pending Facility Transaction (a "PFT Notice") in order to provide Company (if Company so elects) with a reasonable opportunity to discuss and negotiate with Seller the possible sale of the Facility to Company. Any PFT Notice shall include a fair summary of Seller's plans with respect to the Facility in connection with the proposed Pending Facility Transaction, to the extent then known by Seller. Seller shall have no obligation to sell nor shall Company have any obligation to purchase the Facility, following any PFT Notice. If Seller and Company do not reach written agreement with respect to the sale and purchase of the Facility within 90 days following a PFT Notice, Seller and its Affiliates shall be free for a period of nine (9) months thereafter, subject only to the requirements of the Option Agreement, to sell the Facility and/or any group(s) of assets or equity interests which includes the Facility, to any third party on any terms and conditions selected by Seller or its Affiliates in its sole discretion. If Seller and its Affiliates have not closed the proposed Pending Facility Transaction within such nine-month period, this Section 19.3(B) shall again apply to any proposed Pending Facility Transaction.

(3) Seller acknowledges that the damages potentially sustainable by Company for any breach of this Section 19.3(B) would be substantial but difficult to calculate with certainty. Accordingly, in the event of any breach by Seller of this Section 19.3(B), in lieu of actual damages, Seller shall pay to Company within thirty (30) days following invoice therefor liquidated damages in the amount of twenty dollars (\$20.00) per kW of aggregate nameplate capacity of the Facility.

19.4 Notice of Facility Financing Party Action {tc "19.4 Notice of Facility Financing Party Action" \f C \l 2}. Within ten (10) Days following Seller's receipt of each written notice from the Facility Financing Party of default, or Facility Financing Party's intent to exercise any remedies, under the Financing Documents, Seller shall deliver a copy of such notice to Company.

19.5 Transfer Without Consent is Null and Void {tc "19.5 Transfer Without Consent is Null and Void" \f C \l 2}. Any change of control or sale, transfer, or assignment of any interest in the Facility or in this PPA made without fulfilling the requirements of this PPA shall be null and void and shall constitute an Event of Default pursuant to Article 12.

19.6 Subcontracting{tc "19.6 Subcontracting" \f C \l 2}. Seller may subcontract its duties or obligations under this PPA without the prior written consent of Company, provided, that no such subcontract shall relieve Seller of any of its duties or obligations hereunder.

Article 20 - Miscellaneous{tc "Article 20 - Miscellaneous" \f C \l 1}

20.1 Waiver{tc "20.1 Waiver" \f C \l 2}. Subject to the provisions of Section 13.10(B), the failure of either Party to enforce or insist upon compliance with or strict performance of any of the terms or conditions of this PPA, or to take advantage of any of its rights thereunder, shall not constitute a waiver or relinquishment of any such terms, conditions, or rights, but the same shall be and remain at all times in full force and effect.

20.2 Taxes{tc "20.2 Taxes" \f C \l 2}.

(A) [Except as provided for in paragraph 20.2(B),] Seller shall be solely responsible for (i) any and all present or future taxes and other impositions of Governmental Authorities relating to the construction, ownership or leasing, operation or maintenance of the Facility, or any components or appurtenances thereof, including all taxes, fees, allowances, trading credits and other offsets and impositions for wastes and emissions (including carbon-based compounds, oxides of nitrogen and sulphur, mercury and other Hazardous Materials) produced by the Facility and (ii) all *ad valorem* taxes relating to the Facility. Seller's prices under Article 8 are inclusive of such taxes, allowances and credits during the Term.

(B) The Parties shall cooperate to minimize tax exposure; however, neither Party shall be obligated to incur any financial burden to reduce taxes for which the other Party is responsible hereunder. All electric energy delivered by Seller to Company hereunder shall be sales for resale, with Company reselling such electric energy. Company shall obtain and provide Seller with any certificates required by any Governmental Authority, or otherwise reasonably requested by Seller to evidence that the deliveries of electric energy hereunder are sales for resale.

20.3 Fines and Penalties{tc "20.3 Fines and Penalties" \f C \l 2}.

(A) Seller shall pay when due all fees, fines, penalties or costs incurred by Seller or its agents, employees or contractors for noncompliance by Seller, its employees, or subcontractors with any provision of this PPA, or any contractual obligation, permit or requirements of law except for such fines, penalties and costs that are being actively contested in good faith and with due diligence by Seller and for which adequate financial reserves have been set aside to pay such fines, penalties or costs in the event of an adverse determination.

(B) If fees, fines, penalties, or costs are claimed or assessed against Company by any Governmental Authority due to noncompliance by Seller with this

PPA, any requirements of law, any permit or contractual obligation, or, if the work of Seller or any of its contractors or subcontractors is delayed or stopped by order of any Governmental Authority due to Seller's noncompliance with any requirements of law, permit, or contractual obligation, Seller shall indemnify and hold Company harmless against any and all losses, liabilities, damages, and claims suffered or incurred by Company, including claims for indemnity or contribution made by third parties against Company, except to the extent Company recovers any such losses, liabilities or damages through other provisions of this PPA.

20.4 Rate Changes. {tc "20.4 Rate Changes" \f C \l 2}

(A) The terms and conditions and the rates for service specified in this PPA shall remain in effect for the term of the transaction described herein. Absent the Parties' written agreement, this PPA shall not be subject to change by application of either Party pursuant to Section 205 or 206 of the Federal Power Act.

(B) Absent the agreement of all Parties to the proposed change, the standard of review for changes to this PPA whether proposed by a Party, a non-party, or the Federal Energy Regulatory Commission acting *sua sponte* shall be the "public interest" standard of review set forth in United Gas Pipe Line v. Mobile Gas Service Corp., 350 U.S. 332 (1956) and Federal Power Commission v. Sierra Pacific Power Co., 350 U.S. 348 (1956) (aka the "Mobile-Sierra doctrine").

20.5 Disclaimer of Third Party Beneficiary Rights{tc "20.5 Disclaimer of Third Party Beneficiary Rights" \f C \l 2}. In executing this PPA, Company does not, nor should it be construed to, extend its credit or financial support for the benefit of any third parties lending money to or having other transactions with Seller. Nothing in this PPA shall be construed to create any duty to, or standard of care with reference to, or any liability to, any person not a party to this PPA.

20.6 Relationship of the Parties{tc "20.6 Relationship of the Parties" \f C \l 2}.

(A) This PPA shall not be interpreted to create an association, joint venture, or partnership between the Parties nor to impose any partnership obligation or liability upon either Party. Except as specifically provided for in Section 12.7, neither Party shall have any right, power, or authority to enter into any agreement or undertaking for, or act on behalf of, or to act as an agent or representative of, the other Party.

(B) Seller shall be solely liable for the payment of all wages, taxes, and other costs related to the employment of persons to perform such services, including all federal, state, and local income, social security, payroll, and employment taxes and statutorily mandated workers' compensation coverage. None of the persons employed by Seller shall be considered employees of Company for any purpose; nor shall Seller represent to any person that he or she is or shall become a Company employee.

20.7 Equal Employment Opportunity Compliance Certification{tc "20.7 Equal Employment Opportunity Compliance Certification" \f C \l 2}. Seller acknowledges that as a government contractor Company is subject to various federal laws, executive orders, and regulations regarding equal employment opportunity and affirmative action. These laws may also be applicable to Seller as a subcontractor to Company. All applicable equal opportunity and affirmative action clauses shall be deemed to be incorporated herein as required by federal laws, executive orders, and regulations, including 41 C.F.R. §60-1.4(a)(1-7).

20.8 Survival of Obligations{tc "20.8 Survival of Obligations" \f C \l 2}. Cancellation, expiration, or earlier termination of this PPA shall not relieve the Parties of obligations that by their nature should survive such cancellation, expiration, or termination, prior to the term of the applicable Statute of Limitations, including warranties, remedies, or indemnities which obligation shall survive for the period of the applicable statute(s) of limitation.

20.9 Severability{tc "20.9 Severability" \f C \l 2}. In the event any of the terms, covenants, or conditions of this PPA, its Exhibits, or the application of any such terms, covenants, or conditions, shall be held invalid, illegal, or unenforceable by any court or administrative body having jurisdiction, all other terms, covenants, and conditions of the PPA and their application not adversely affected thereby shall remain in force and effect; provided, however, that Company and Seller shall negotiate in good faith to attempt to implement an equitable adjustment in the provisions of this PPA with a view toward effecting the purposes of this PPA by replacing the provision that is held invalid, illegal, or unenforceable with a valid provision the economic effect of which comes as close as possible to that of the provision that has been found to be invalid, illegal or unenforceable.

20.10 Complete Agreement; Amendments{tc "20.10 Complete Agreement; Amendments" \f C \l 2}. The terms and provisions contained in this PPA constitute the entire agreement between Company and Seller with respect to the Facility and shall supersede all previous communications, representations, or agreements, either verbal or written, between Company and Seller with respect to the sale of Solar Energy from the Facility. This PPA may be amended, changed, modified, or altered, provided that such amendment, change, modification, or alteration shall be in writing and signed by both Parties hereto, and provided further, that the Exhibits attached hereto may be changed according to the provisions of Section 13.9.

20.11 Binding Effect{tc "20.11 Binding Effect" \f C \l 2}. This PPA, as it may be amended from time to time pursuant to this Article, shall be binding upon and inure to the benefit of the Parties hereto and their respective successors-in-interest, legal representatives, and assigns permitted hereunder.

20.12 Headings{tc "20.12 Headings" \f C \l 2}. Captions and headings used in this PPA are for ease of reference only and do not constitute a part of this PPA.

20.13 Counterparts{tc "20.13 Counterparts" \f C \l 2}. This PPA may be executed in any number of counterparts, and each executed counterpart shall have the same force and effect as an original instrument.

20.14 Governing Law{tc "20.14 Governing Law" \f C \l 2}. The interpretation and performance of this PPA and each of its provisions shall be governed and construed in accordance with the laws of the State of Minnesota. The Parties hereby submit to the exclusive jurisdiction of the courts of the State of Minnesota, and venue is hereby stipulated as Minneapolis, Minnesota.

20.15 Press Releases and Media Contact. {tc "20.15 Press Releases and Media Contact" \f C \l 2} Upon the request of either Party, the Parties shall develop a mutually agreed joint press release to be issued describing the location, size, type and timing of the Facility, the long-term nature of this PPA, and other relevant factual information about the relationship. In the event during the Term, either Party is contacted by the media concerning this PPA or the Facility, the contacted Party shall inform the other Party of the existence of the inquiry, any questions asked, and the substance of any information provided to the media.

[remainder of this page intentionally left blank]

IN WITNESS WHEREOF, the Parties have executed this PPA.

Seller:

_____, LLC

By: _____
_____, its [Manager]

Company:

**Northern States Power Company
a Minnesota corporation**

By: _____

By: _____
[name and title]

EXHIBIT A
(to PPA)

CONSTRUCTION MILESTONES

[Bid Specific -- this example is for a photovoltaic plant and may be significantly different for each individual project]

<u>Construction Milestone</u>	<u>Results Seller Must Achieve</u>
<i>[See Section 11.1]</i>	Seller shall establish the Security Fund in accordance with Section 11.1.
month/day/year	Seller shall have achieved closing on financing for the Facility or provided Company with proof of financial capability to construct the Facility.
month/day/year	Seller shall provide Company with evidence of complying with that insurance coverage required prior to the Commercial Operation Date.
month/day/year	Start-up testing of the Facility commences.
month/day/year	The Facility shall achieve Commercial Operation (Commercial Operation Milestone)

EXHIBIT B
(to PPA)
FACILITY DESCRIPTION AND SITE MAPS

Bid Specific

EXHIBIT C
(to PPA)

NOTICE ADDRESSES

Company	Seller
<p>Notices: Thomas A. Imbler, President Commercial Operations Northern States Power Company 1800 Larimer Street, Suite 1000 Denver, CO 80202 Phone: (303) 571-7414 Fax: (303) 571-7021</p> <p>Dana Echter Manager, Renewable Purchases Northern States Power Company 1800 Larimer Street, Suite 1000 Denver, CO 80202 Phone: (303) 571-7714 Fax: (303) 571-7002</p>	<p>Notices: Blake E. Nixon, President Geronimo Wind Energy, LLC 7650 Edinborough Way, Suite 725 Edina, MN 55435 Phone: (952) 988-9000 Fax: (952) 988-9001</p>
<p>Operating Committee Representative: Dana Echter Manager, Renewable Purchases Northern States Power Company 1800 Larimer Street, Suite 1000 Denver, CO 80202 Phone: (303) 571-7714 Fax: (303) 571-7002</p> <p>Alternate: Andy Sulkko Purchased Power Analyst Northern States Power Company 1800 Larimer Street, Suite 1000 Denver, CO 80202 Phone: (303) 571-6529 Fax: (303) 571-7002</p>	<p>Operating Committee Representative: Blake E. Nixon, President Geronimo Wind Energy, LLC 7650 Edinborough Way, Suite 725 Edina, MN 55435 Phone: (952) 988-9000 Fax: (952) 988-9001</p> <p>Alternate: <hr/> Geronimo Wind Energy, LLC 7650 Edinborough Way, Suite 725 Edina, MN 55435 Phone: (952) 988-9000 Fax: (952) 988-9001</p>

EXHIBIT D
(to PPA)

INSURANCE COVERAGE

Note: With projects under 5 MW in size, the complexity, potential exposure and risk of exposure may be considered by Company in establishing specific insurance requirements for the project.

Type of Insurance

Minimum Limits of Coverage

Commercial General Liability (CGL) \$11,000,000 combined single limit each occurrence and commercial umbrella aggregate, where applicable. If CGL insurance contains a general aggregate limit, it shall apply separately to the Facility.

CGL insurance shall be written on ISO occurrence form CG 00 01 01 96 (or a substitute form providing equivalent coverage) and shall cover liability arising from premises, operations, independent contractors, products/completed operations, contracts, property damage, personal injury and advertising injury, and liability assumed under an insured contract (including the tort liability of another assumed in a business contract), all with limits as specified above. CGL insurance shall include ISO endorsement CG 24 17 (or an equivalent endorsement) which modifies the definition of "Insured contract" to eliminate the exclusion of easement or license agreements in connection with construction or demolition operations on or within 50 feet of a railroad. There shall be no endorsement or modification of the CGL insurance limiting the scope of coverage for liability arising from explosion, collapse, or underground property damage.

Company shall be included as an insured under the CGL policy, using ISO additional insured endorsement CG 20 10 (or a substitute providing equivalent coverage), and under the commercial umbrella insurance. The commercial umbrella insurance shall provide coverage over the top of the CGL insurance, the Business Automobile Liability insurance, and the Employers Liability insurance.

The CGL and commercial umbrella insurance to be obtained by [or on behalf of] Seller shall be endorsed as follows:

Such insurance as afforded by this policy for the benefit of Company shall be primary as respects any claims, losses, damages, expenses, or liabilities arising out of this PPA, and insured hereunder, and any insurance carried by Company shall be excess of and noncontributing with insurance afforded by this policy.

Business Automobile Liability \$1,000,000 combined single limit (each accident), including all Owned, Non-Owned, Hired and Leased Autos

Business Automobile Liability insurance shall be written on ISO form CA 00 01, CA 00 05, CA 00 12, CA 00 20, or a substitute form providing equivalent liability coverage. If necessary, the policy shall be endorsed to provide contractual liability coverage equivalent to that provided in the 1990 and later editions of CA 00 01.

Workers Compensation

Statutory Requirements. Seller may comply with these requirements through the use of a qualified self-insurance plan.

EXHIBIT D**(continued)**

<u>Type of Insurance</u>	<u>Minimum Limits of Coverage</u>
Employers Liability	\$1,000,000 each accident for bodily injury by accident, or \$1,000,000 each employee for bodily injury by disease.
Builder's Risk	Replacement value of the Facility.

Builder's Risk insurance, or an installation floater, shall include coverage for earthquake and flood, collapse, faulty workmanship, materials and design, testing of machinery or equipment, freezing or changes in temperature, debris removal, and partial occupancy.

Environmental Impairment Liability \$5,000,000 each occurrence.

All-Risk Property insurance covering physical loss or damage to the Facility Full replacement value of the Facility. A deductible may be carried which deductible shall be the absolute responsibility of Seller.

All-Risk Property insurance shall include: (i) coverage for fire, flood, wind and storm, tornado and earthquake with respect to facilities similar in construction, location and occupancy to the Facility, with sublimits of no less than \$10,000,000 each for flood and earthquake; and (ii) Boiler and Machinery insurance covering all objects customarily subject to such insurance, including boilers and turbines, in an amount equal to their full replacement value.

Business Interruption insurance Amount required to cover Seller's continuing or increased expenses, resulting from full interruption, for a period of twelve (12) calendar months

Business Interruption insurance shall cover loss of revenues and/or the increased expense to resume operations attributable to the Facility by reason of total or partial suspension or delay of, or interruption in, the operation of the Facility as a result of an insured peril covered under Property insurance as set forth above, to the extent available on commercially reasonable terms as determined by Company, subject to a reasonable deductible which shall be the responsibility of Seller. Notwithstanding any other provision of this PPA, Seller shall not be required to have Business Interruption insurance until the Commercial Operation Date.

* * * * *

EXHIBIT E
(to PPA)

**SELLER'S REQUIRED GOVERNMENTAL AUTHORITY PERMITS, CONSENTS,
APPROVALS, LICENSES AND AUTHORIZATIONS TO BE OBTAINED**

Bid Specific

- EXHIBIT F -
(to PPA)

FORM OF LETTER OF CREDIT{ TC \L "1"}

[LETTERHEAD OF ISSUING BANK]

IRREVOCABLE STANDBY LETTER OF CREDIT
NO: _____

DATE OF ISSUANCE: _____

INITIAL EXPIRATION DATE: [MUST BE AT LEAST
ONE YEAR AFTER DATE OF ISSUANCE]

BENEFICIARY:

APPLICANT:

NORTHERN STATES POWER COMPANY
ATTN: _____
1800 LARIMER STREET, SUITE 1000
DENVER, CO 80202

[INSERT NAME OF SELLER UNDER THE PPA]

AS THE ISSUING BANK ("ISSUER"), WE, [NAME OF ISSUING BANK], HEREBY ESTABLISH THIS IRREVOCABLE STANDBY LETTER OF CREDIT NO. _____ IN FAVOR OF THE ABOVE-NAMED BENEFICIARY ("BENEFICIARY") FOR THE ACCOUNT OF THE ABOVE-NAMED APPLICANT ("APPLICANT") IN THE AMOUNT OF USD \$ _____ (_____ U.S. DOLLARS).

BENEFICIARY MAY DRAW ALL OR ANY PORTION OF THIS LETTER OF CREDIT AT ANY TIME AND FROM TIME TO TIME AND ISSUER WILL MAKE FUNDS IMMEDIATELY AVAILABLE TO BENEFICIARY UPON PRESENTATION OF BENEFICIARY'S DRAFT(S) AT SIGHT IN SUBSTANTIALLY THE FORM ATTACHED HERETO AS EXHIBIT "A" ("SIGHT DRAFT"), DRAWN ON ISSUER AND ACCOMPANIED BY THIS LETTER OF CREDIT. ALL SIGHT DRAFT(S) MUST BE SIGNED ON BEHALF OF BENEFICIARY AND SIGNATOR MUST INDICATE HIS OR HER TITLE OR OTHER OFFICIAL CAPACITY. NO OTHER DOCUMENTS WILL BE REQUIRED TO BE PRESENTED. THIS ISSUER WILL EFFECT PAYMENT UNDER THIS LETTER OF CREDIT WITHIN 24 HOURS AFTER PRESENTMENT OF THE SIGHT DRAFT(S). PAYMENT SHALL BE MADE IN U.S. DOLLARS WITH ISSUER'S OWN FUNDS IN IMMEDIATELY AVAILABLE FUNDS.

ISSUER WILL HONOR ANY SIGHT DRAFT(S) PRESENTED IN SUBSTANTIAL COMPLIANCE WITH THE TERMS OF THIS LETTER OF CREDIT AT THE ISSUER'S LETTERHEAD OFFICE, THE OFFICE LOCATED AT _____ OR ANY OTHER FULL SERVICE OFFICE OF THE ISSUER ON OR BEFORE THE ABOVE STATED EXPIRATION DATE, AS SUCH EXPIRATION DATE MAY BE EXTENDED HEREUNDER. PARTIAL AND MULTIPLE DRAWS AND

PRESENTATIONS ARE PERMITTED ON ANY NUMBER OF OCCASIONS. FOLLOWING ANY PARTIAL DRAW, ISSUER WILL ENDORSE THIS LETTER OF CREDIT AND RETURN THE ORIGINAL TO BENEFICIARY.

ISSUER ACKNOWLEDGES THAT THIS LETTER OF CREDIT IS ISSUED PURSUANT TO THE PROVISIONS OF THAT CERTAIN SOLAR ENERGY PURCHASE AGREEMENT BETWEEN THE BENEFICIARY AND THE APPLICANT DATED AS OF _____, 20__ (AS THE SAME MAY HAVE BEEN OR MAY BE AMENDED FROM TIME TO TIME, THE "PPA"). NOTWITHSTANDING ANY REFERENCE IN THIS LETTER OF CREDIT TO THE PPA OR ANY OTHER DOCUMENTS, INSTRUMENTS OR AGREEMENTS, OR REFERENCES IN THE PPA OR ANY OTHER DOCUMENTS, INSTRUMENTS OR AGREEMENTS TO THIS LETTER OF CREDIT, THIS LETTER OF CREDIT CONTAINS THE ENTIRE AGREEMENT BETWEEN BENEFICIARY AND ISSUER RELATING TO THE OBLIGATIONS OF ISSUER HEREUNDER.

THIS LETTER OF CREDIT WILL BE AUTOMATICALLY EXTENDED EACH YEAR WITHOUT AMENDMENT FOR A PERIOD OF ONE YEAR FROM THE EXPIRATION DATE HEREOF, AS EXTENDED, UNLESS AT LEAST THIRTY (30) DAYS PRIOR TO THE EXPIRATION DATE, ISSUER NOTIFIES BENEFICIARY BY REGISTERED MAIL THAT IT ELECTS NOT TO EXTEND THIS LETTER OF CREDIT FOR SUCH ADDITIONAL PERIOD. NOTICE OF NON-EXTENSION WILL BE GIVEN BY ISSUER TO BENEFICIARY AT BENEFICIARY'S ADDRESS SET FORTH HEREIN OR AT SUCH OTHER ADDRESS AS BENEFICIARY MAY DESIGNATE TO ISSUER IN WRITING AT ISSUER'S LETTERHEAD ADDRESS.

THIS LETTER OF CREDIT IS FREELY TRANSFERABLE IN WHOLE OR IN PART, AND THE NUMBER OF TRANSFERS IS UNLIMITED. ISSUER AGREES THAT IT WILL EFFECT ANY TRANSFERS IMMEDIATELY UPON PRESENTATION TO ISSUER OF THIS LETTER OF CREDIT AND A COMPLETED WRITTEN TRANSFER REQUEST SUBSTANTIALLY IN THE FORM ATTACHED HERETO AS EXHIBIT "B." SUCH TRANSFER WILL BE EFFECTED AT NO COST TO BENEFICIARY. ANY TRANSFER FEES ASSESSED BY ISSUER WILL BE PAYABLE SOLELY BY APPLICANT, AND THE PAYMENT OF ANY TRANSFER FEES WILL NOT BE A CONDITION TO THE VALIDITY OR EFFECTIVENESS OF THE TRANSFER OR THIS LETTER OF CREDIT.

ISSUER WAIVES ANY RIGHTS IT MAY HAVE, AT LAW OR OTHERWISE, TO SUBROGATE TO ANY CLAIMS BENEFICIARY MAY HAVE AGAINST APPLICANT OR APPLICANT MAY HAVE AGAINST BENEFICIARY.

THIS STANDBY LETTER OF CREDIT IS SUBJECT TO THE UNIFORM CUSTOMS AND PRACTICE FOR DOCUMENTARY CREDITS (2007 REVISION), INTERNATIONAL CHAMBER OF COMMERCE PUBLICATION NO. 600 (THE "UCP"), EXCEPT TO THE EXTENT THAT THE TERMS HEREOF ARE INCONSISTENT WITH THE PROVISIONS OF THE UCP, INCLUDING BUT NOT LIMITED TO ARTICLES 13(B) AND 17 OF THE UCP, IN WHICH CASE THE TERMS OF THIS LETTER OF

EXHIBIT "A"
(TO LETTER OF CREDIT)

SIGHT DRAFT

\$ _____

At sight, pay to the order of [Name of Beneficiary to be inserted], the amount of USD
\$ _____ (_____ and 00/100ths U.S. Dollars).

Drawn under [Name of Issuer to be inserted] Standby Letter of Credit No.
_____.

Dated: _____, 20__

[Name of Beneficiary to be inserted]

By: _____
It's Authorized Representative and [Title or
Other Official Capacity to be inserted]

To: [Name and Address of Issuer to be inserted]

EXHIBIT "B"
(TO LETTER OF CREDIT)

FORM OF TRANSFER REQUEST

IRREVOCABLE STANDBY LETTER OF CREDIT NO: _____

CURRENT BENEFICIARY:

APPLICANT:

TO: [NAME OF ISSUING BANK]

The undersigned, as the current "Beneficiary" of the above referenced Letter of Credit, hereby requests that you reissue the Letter of Credit in favor of the transferee named below [INSERT TRANSFEREE NAME AND ADDRESS BELOW]:

From and after the date this transfer request is delivered to the Issuer, the transferee shall be the "Beneficiary" under the Letter of Credit for all purposes and shall be entitled to exercise and enjoy all of the rights, privileges and benefits thereof.

DATED: _____

[NAME OF BENEFICIARY]

By: _____

Name: _____

Title: _____

[NOTARY ACKNOWLEDGMENT]

[TO BE SIGNED BY AN AUTHORIZED REPRESENTATIVE OF THE BENEFICIARY AND INDICATING THEIR TITLE OR OTHER OFFICIAL CAPACITY, AND ACKNOWLEDGED BY A NOTARY PUBLIC.]

EXHIBIT G
(to PPA)

FORM OF GUARANTY

This Guaranty is executed and delivered as of this _____ day of _____, 20__ by _____, a _____ [corporation] ("Guarantor"), in favor of **Northern States Power Company**, a Minnesota corporation ("Company"), in connection with the performance by _____, a _____ [limited liability company] ("Seller") of a Solar Energy Purchase Agreement dated _____, 20__ between Seller and Company (the "PPA").

- RECITALS -

A. Seller is planning to construct, own, and operate a solar-powered electric generation facility having installed capacity of approximately ____ MW to be located in _____ County, Minnesota (the "Facility").

B. Seller and Company have entered into the PPA for the purchase and sale of capacity and electrical energy from the Facility on the terms and conditions set forth therein.

Seller is controlled by Guarantor. Guarantor expects to derive substantial benefits from the performance of the PPA by Seller and Company. To induce Company to enter into the PPA and consummate the purchase and sale of electrical energy contemplated by the PPA, Guarantor has agreed to guarantee the obligations of Seller as provided in this Guaranty.

NOW, THEREFORE, in consideration of the foregoing, Guarantor agrees as follows:

- AGREEMENT -

1. Guaranty. Subject to the provisions of this Guaranty, Guarantor hereby absolutely, irrevocably, unconditionally, and fully guarantees to Company the due, prompt, and complete observance, performance, and discharge of each and every payment obligation of Seller under the PPA, whether incurred before or after the date of delivery of this Guaranty (the "Obligations"). This is a guaranty of payment, not of collection, and as such, Company shall not be required to institute, pursue, or exhaust any remedies against Seller before instituting suit, obtaining judgment, and executing thereon against Guarantor under this Guaranty.

2. Maximum Liability. Notwithstanding anything herein to the contrary, Guarantor's maximum liability under this Guaranty shall be limited to (\$US _____), plus costs of collection with respect to any valid claim(s) made by Company hereunder that are incurred in the enforcement or protection of the rights of Company.

3. Rights of Company. Guarantor hereby grants to Company, in Company's discretion and without the need to notify or obtain any consent from Guarantor, and without termination, impairment, or any other effect upon Guarantor's duties hereunder, the power and authority from time to time:

(a) to renew, compromise, extend, accelerate, or otherwise change, substitute, supersede, or terminate the terms of performance of any of the Obligations, in each case in accordance with the PPA;

(b) to grant any indulgences, forbearances, and waivers, on one or more occasions, for any length of time, with respect to Seller's performance of any of the Obligations; and

(c) to accept collateral, further guaranties, and/or other security for the Obligations, and, if so accepted, then to impair, exhaust, exchange, enforce, waive, or release any such security.

4. Performance. If any of the Obligations are not performed according to the tenor thereof, and any applicable notice and cure period provided by the PPA has expired ("Default"), Guarantor shall immediately upon receipt of written demand by Company (a) perform or cause Seller to perform the Obligation in Default, and (b) pay, reimburse, and indemnify Company against any liabilities, damages, and related costs (including attorneys' fees) incurred by Company as a result thereof, all in such manner and at such times as Company may reasonably direct.

5. Satisfaction. Satisfaction by Guarantor of any duty hereunder incident to a particular Default or the occurrence of any other Default shall not discharge Guarantor except with respect to the Default satisfied, it being the intent of Guarantor that this Guaranty be continuing until such time as all of the Obligations have irrevocably been discharged in full, at which time this Guaranty shall automatically terminate. If at any time the performance of any Obligation by Seller or Guarantor is rescinded or voided under the federal Bankruptcy Code or otherwise, then Guarantor's duties hereunder shall continue and be deemed to have been automatically reinstated, restored, and continued with respect to that Obligation, as though the performance of that Obligation had never occurred, regardless of whether this Guaranty otherwise had terminated or would have been terminated following or as a result of that performance.

6. Notice of Acceptance. Guarantor waives and acknowledges notice of acceptance of this Guaranty by Company.

7. Waivers by Guarantor. Guarantor hereby waives and agrees not to assert or take advantage of:

(a) all set-offs, counterclaims, and, subject to Section 4 above, all presentments, demands for performance, notices of non-performance, protests, and notices of every kind that may be required by any statutes or rules of law;

(b) any right to require Company to proceed against Seller or any other person, or to require Company first to exhaust any remedies against Seller or any other person, before proceeding against Guarantor hereunder;

(c) any defense based upon an election of remedies by Company;

(d) any duty of Company to protect or not impair any security for the Obligations;

(e) the benefit of any laws limiting the liability of a surety;

(f) any duty of Company to disclose to Guarantor any facts concerning Seller, the PPA or the Project, or any other circumstances, that would or allegedly would increase the risk to Guarantor under this Guaranty, whether now known or hereafter learned by Company, it being understood that Guarantor is capable of and assumes the responsibility for being and remaining informed as to all such facts and circumstances; and

(g) until all Obligations in Default have been fully paid and/or performed, any rights of subrogation, contribution, reimbursement, indemnification, or other rights of payment or recovery for any payment or performance by it hereunder. For the avoidance of doubt, if any amount is paid to Guarantor in violation of this provision, such amount shall be held by Guarantor for the benefit of, and promptly paid to, Company.

8. Cumulative Remedies. The rights and remedies of Company hereunder shall be cumulative and not alternative to any other rights, powers, and remedies that Company may have at law, in equity, or under the PPA. The obligations of Guarantor hereunder are independent of those of Seller and shall survive unaffected by the bankruptcy of Seller. Company need not join Seller in any action against Guarantor to preserve its rights set forth herein.

9. Representations and Warranties. Guarantor represents and warrants to Company as follows:

(a) Guarantor is a corporation, duly organized, validly existing, and in good standing under the laws of the state of its incorporation. Seller is a direct or indirect wholly-owned subsidiary of Guarantor. Guarantor has all necessary corporate power and authority to execute and deliver this Guaranty and to perform its obligations hereunder.

(b) The execution, delivery and performance of this Guaranty has been duly and validly authorized by all corporate proceedings of Guarantor and is not in

violation of any law, judgment of court or government agency . This Guaranty has been duly and validly executed and delivered by Guarantor and constitutes a legal, valid and binding obligation of Guarantor, enforceable against Guarantor in accordance with its terms.

10. Collection Costs. Guarantor hereby agrees to pay to Company, upon demand, and in addition to the maximum liability set forth in Section 3 hereof, all reasonable attorneys' fees and other expenses which Company may expend or incur in enforcing the Obligations against Seller and/or enforcing this Guaranty against Guarantor, whether or not suit is filed, including, without limitation, all attorneys' fees, and other expenses incurred by Company in connection with any insolvency, bankruptcy, reorganization, arrangement, or other similar proceedings involving Seller that in any way affect the exercise by Company of its rights and remedies hereunder.

11. Severability. Should any one or more provisions of this Guaranty be determined to be illegal or unenforceable, all other provisions nevertheless shall be effective.

12. Waiver or Amendment. No provision of this Guaranty or right of Company hereunder can be waived, nor can Guarantor be released from Guarantor's duties hereunder, except by a writing duly executed by Company. This Guaranty may not be modified, amended, revised, revoked, terminated, changed, or varied in any way whatsoever except by the express terms of a writing duly executed by Company.

13. Successors and Assigns. This Guaranty shall inure to the benefit of and bind the successors and assigns of Company and Guarantor.

14. Governing Law. This Guaranty shall be governed by and construed in accordance with the law of the State of _____ without regard to the principles of conflicts of law thereof.

15. Notices. All notices, requests, claims, demands, and other communications hereunder shall be in writing and shall be given (and shall be deemed to have been duly given upon receipt) by delivery in the manner contemplated by the PPA, addressed as follows:

(a) if to Company as provided in the PPA

(b) if to Guarantor: _____

Attn:
Phone: (____) _____
Fax: (____) _____

EXHIBIT H (to PPA)

FACILITY FINANCING PARTY CONSENT PROVISIONS

In the event Seller collaterally assigns its rights hereunder to the Facility Financing Party as security, any related Facility Financing Party Consent will contain provisions substantially as follows:

1. Seller and Company will neither modify nor terminate the PPA other than as provided therein, without the prior written consent of the Facility Financing Party.
2. The Facility Financing Party shall have the right, but not the obligation, to do any act required to be performed by Seller under the PPA, and any such act performed by the Facility Financing Party shall be as effective to prevent or cure an Event of Default as if done by Seller itself.
3. If Company becomes entitled to terminate the PPA due to an uncured Event of Default by Seller, Company shall not terminate the PPA unless it has first given notice of such uncured Event of Default to the Facility Financing Party and has given the Facility Financing Party the same cure period afforded to Seller under Section 12.1 of the PPA, plus an additional thirty (30) Days beyond Seller's cure period to cure such Event of Default; *provided, however*, that if the Facility Financing Party requires possession of the Facility in order to cure the Event of Default, and if the Facility Financing Party diligently seeks possession, the Facility Financing Party's additional 30-Day cure period shall not begin until foreclosure is completed, a receiver is appointed or possession is otherwise obtained by or on behalf of the Facility Financing Party.
4. The lien of the Subordinated Mortgage shall be subordinate to the lien of the Financing Documents, subject to the terms of the Facility Financing Party Consent.
5. Neither the Facility Financing Party nor any other participant in the Facility Debt shall be obligated to perform or be liable for any obligation of Seller under the PPA until and unless any of them assumes possession of the Facility through the exercise of the Facility Financing Party's rights and remedies.
6. Any party taking possession of the Facility through the exercise of the Facility Financing Party's rights and remedies shall remain subject to the terms of the PPA and shall assume all of Seller's obligations under the PPA, both prospective and accrued, including the obligation to cure any then-existing defaults capable of cure by performance or the payment of money damages. In the event that the Facility Financing Party or its successor assumes the PPA in accordance with this paragraph 6, Company shall continue the PPA with the Facility Financing Party or its successor, as the case may be, substituted wholly in the place of Seller.
7. Within ninety (90) Days of any termination of the PPA in connection with any bankruptcy or insolvency Event of Default of Seller, the Facility Financing Party (or its successor) and Company shall enter into a new power purchase agreement on the same terms and conditions as the PPA and for the period that would have been remaining under the PPA but for such termination.

EXHIBIT I
(to PPA)

COMMITTED SOLAR ENERGY AND SOLAR ENERGY PAYMENT RATE
For Contract Capacity and Solar Energy
(by Commercial Operation Year)