



414 Nicollet Mall
Minneapolis, MN 55401

**PUBLIC DOCUMENT –
NOT PUBLIC (OR PRIVILEGED) DATA HAS BEEN EXCISED**

June 1, 2017

—Via Electronic Filing—

Daniel P. Wolf
Executive Secretary
Minnesota Public Utilities Commission
121 7th Place East, Suite 350
St. Paul, MN 55101

RE: ANNUAL REPORT
SOLAR ENERGY STANDARD
DOCKET NO. E999/M-17-283

Dear Mr. Wolf:

Enclosed for filing is the 2016 Annual Report on Progress in Achieving the Solar Energy Standard of Northern States Power Company, doing business as Xcel Energy, submitted in compliance with the NOTICE OF REPORTING REQUIREMENT AND COMMENT PERIOD issued on April 14, 2017 in this Docket and the Orders referenced therein.

Our report this year uses the requested templates and includes the trade secret customer exclusion applications that have been deemed approved for exclusion by the Company. We note that our report also requests Commission action on our compliance calculations. Specifically, we request the Commission allow solar garden subscriptions of 20 kW or less to be counted toward the small solar carve out requirement, or modify the statutory obligation. This request is detailed in Section 2 of the attached report.

Please note that we have marked as “Non-Public” certain information identifying the names or locations of customers who have been exempted from the costs associated with complying with the Solar Energy Standard. This is considered to be private data pursuant to Minn. Stat. §13.02, Subd. 9, and is non-public pursuant to Minn. Stat. § 13.37, Subd.2.

We have also marked as “Non-Public” capacity factor information relating to specific Purchase Power Agreements (PPAs). The terms of the Commission approved PPAs require that this information be non-public. Further, this is considered to be “nonpublic data” pursuant to Minn. Stat. §13.02, Subd.9, and is also “Trade Secret” information pursuant to Minn. Stat. §13.37, subd. 1(b) as 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.

We have electronically filed this document with the Minnesota Public Utilities Commission, and copies have been served on the parties on the attached service list. Please contact Amber Hedlund at amber.r.hedlund@xcelenergy.com or (612) 337-2268 or me at bria.e.shea@xcelenergy.com or (612) 330-6064 if you have any questions regarding this filing

Sincerely,

/s/

BRIA E. SHEA
DIRECTOR, REGULATORY & STRATEGIC ANALYSIS

Enclosures
c: Service List

Solar Energy Standard Annual Report

Due: June 1, 2017

Reporting period: January 1, 2016 – December 31, 2016

Statute/Rule reference: [216B.1691 Subd. 2f\(g\)](#).
 (g) Beginning July 1, 2014, and each July 1 through 2020, each public utility shall file a report with the commission reporting its progress in achieving the solar energy standard established under this subdivision.
 Order, issued April 25 in Docket No. E-999/CI-13-542
 Order, issued October 23, 2014 in Docket No. E-999/M-14-321
 Order, issued November 28, 2016 in Docket No. E-999/M-16-342

Comments: Please answer questions below and eFile as a PDF

Report Year	2016
Date Submitted	6/1/2017
Filing Utility Information	
Company ID#	U12000
Company Name	Xcel Energy
Street Address Line 1	414 Nicollet Mall
Street Address Line 2	
City	Minneapolis
State	MN
Zip Code	55401
Contact Information	
Contact Name	Amber Hedlund
Contact Title	Regulatory Case Specialist
Contact Telephone	612.337.2268
Contact Email	Regulatory.records@xcelenergy.com
Comments/Notes	
Please note request for Commission action in Section 2 of this report.	

1. Summary of ongoing efforts to obtain solar energy (including a brief summary of the anticipated mix of project sizes for SES compliance)

Docket No. E999/CI-13-542, Commission Order (April 25, 2014), Order Point 4.H

More detailed information on each utility's ongoing efforts to obtain solar energy on their systems.

Docket Nos. E999/CI-13-542, E999/M-14-321, Commission Order (October 23, 2014), Order Point 2.c

For purposes of this Section 1, Solar Energy Standard (SES) compliance means the requirement set forth in Minn. Stat. § 216B.1691, Subd. 2f, whereby Xcel Energy, by the end of 2020, needs to generate or procure sufficient electricity generated by solar energy so that at least 1.5 percent of the Company's total retail electric sales to retail customers in Minnesota is generated by solar energy. The other requirement in Subd. 2f regarding systems of 20 kW or less is not addressed in the Company's response to Section 1 of this report, but instead is addressed in its response to Section 2 below.

The Company has developed a large portfolio of programs in order to provide residential and commercial customers with renewable options to meet their needs. Since the passage of the SES under the 2013 Energy Omnibus Bill, we have also grown our utility portfolio of solar resources to expand access to solar benefits to all customers while achieving compliance in 2020. The expected cumulative impact of the programs and efforts detailed below are graphically displayed in the attached excel file (Tab 5 – Additional Graphs).

Solar*Rewards (Second Generation) – For PV installations of 20 kW or less

Our Solar*Rewards program offers customers installing solar photovoltaic (PV) systems sized 20 kW or less an incentive based on the system's energy production. As approved by the Commission, the program offers a production incentive of \$0.08/kWh for 10 years from the beginning of production under a Solar*Rewards contract. The Legislature authorized this program to be available for five years at an annual budget of \$5 million to be paid from the Renewable Development Fund (RDF) beginning in August 2014. More details about the results of the program are available in our Solar*Rewards Annual Report¹. The RECs generated under the Solar*Rewards program belong to the Company for the first 10 years of each installation².

Solar*Rewards (First Generation) – For PV installations of < 40 kW

Our SES compliance also includes RECs established under our first generation program (2010 – 2014). This program was part of the Company's Conservation Improvement Plan (CIP) portfolio and provided one-time incentives for projects sized less than 40 kW. The program was discontinued when the Solar*Rewards program was redeveloped in 2013 because of the passage of Minn. Stat. § 116C.7792. The program was closed for incoming applications in August 2014, but contracts relating to these installations still remain in place for their contract term and previously awarded applications continued to be installed after August 2014.

¹ Annual Reports are filed on or around June 1 of every year beginning in 2015 in Docket No. E002/M-13-1015.

² Docket No. E002/M-13-1015, Solar*Rewards, Deputy Commissioner Decision, February 24, 2014.

Solar*Rewards Community – For PV installations up to 1 MW

The Company launched its community solar garden program, called Solar*Rewards Community, in December 2014³. Solar gardens are shared PV arrays up to one MW that interconnect with the distribution grid. Customers who subscribe to a solar garden receive a bill credit for their portion of the system's production. There is no statutory budget for the Solar*Rewards Community program.

Made in Minnesota – For PV installations of < 40 kW

Established by legislation in 2013, the Made in Minnesota program provides incentives to systems manufactured in Minnesota that are up to 40 kW, with the majority being over 20 kW. The program launched in 2014 and is administered by the Department of Commerce. The program has an annual budget of \$15 million per year for 10 years, funded primarily through the RDF, with a small portion funded through CIP. Currently, the program offers incentives to customers of the Company and other qualified utilities, ranging from \$0.10 to \$0.22/kWh for 10 years of production, depending on the customer type and equipment manufacturer. The RECs generated under this program by Company customers belong to the Company for 10 years from installation.

Universal Scale Solar

Since the passage of the SES legislation, the Company has developed a portfolio of three universal scale solar projects. The Company has 162.25 MW of large-scale solar generation from two projects under Power Purchase Agreement (PPA) contracts. These projects began operating in late 2016. We anticipate these will generate approximately 313,000 solar RECs annually. These resources were approved by the Commission as part of a Solar Portfolio from a Request for Proposals process⁴. The Company portfolio also includes the 100 MW Aurora Solar PPA which was approved through the Company's Competitive Acquisition Process proceeding⁵. This project is made up of multiple distributed generation solar sites, estimated to generate 201,000 solar RECs annually. Phase 1 of this project has achieved commercial operation, and subsequent phases will reach commercial operation through 2017.

Renewable Development Fund

Recipients of RDF grant funds that install energy production assign and transfer all RECs from the facility's generation of energy using renewable fuel to the Company for the life of the facility.

2. Progress towards the 10% carve out for systems less than 20 kW, including whether they plan to meet it through customer sited generation or SREC purchases.⁶

Docket No. E999/CI-13-542, Commission Order (April 25, 2014), Order Point 4.I

³ See Docket No. E002/M-13-867.

⁴ See Dockets No. E002/M-14-162, In the Matter of Xcel Energy's Petition for Approval of a Solar Portfolio to Meet Initial Solar Energy Standard.

⁵ See Docket No. E002/CN-12/1240, In the Matter of the Petition of Northern States Power Company d/b/a Xcel Energy for Approval of Competitive Resource Acquisition Proposal and Certificate of Need.

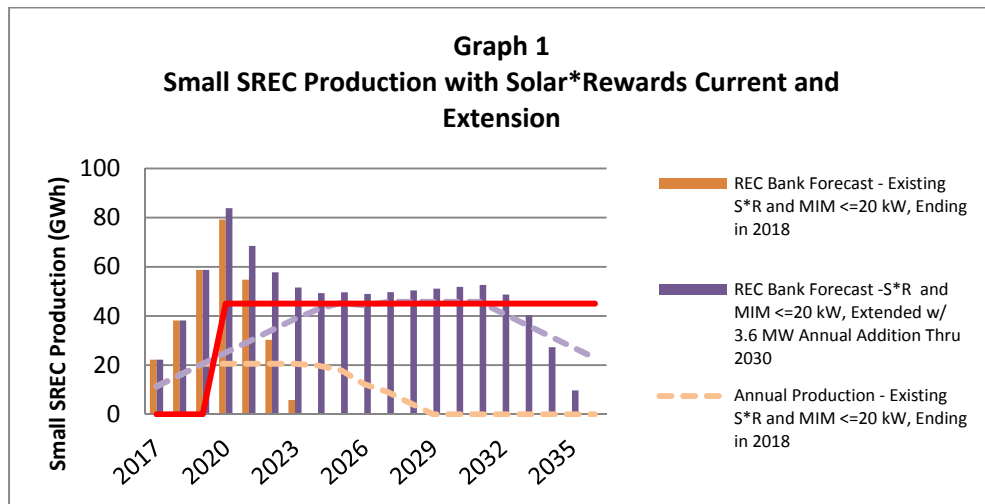
⁶ Minn. Stat. § 216B.1691, Subd. 2f(a) states: "At least ten percent of the 1.5 percent goal must be met by solar energy generated by or procured from solar photovoltaic devices with a nameplate capacity of 20 kilowatts or less." Accordingly, 20 kilowatt projects qualify for the small solar carve out.

The Company interprets the small solar carve out of the SES to mean that beginning in 2020 and thereafter, the Company will meet 1.5 percent of our Minnesota electric retail sales through generation from solar resources that commenced operations after August 1, 2013, and that at least 10 percent of that 1.5% should be generated from resources 20 kW or less.

The Company believes the requirement will be met through 2021 through customer-sited distributed generation primarily from our Solar*Rewards program. However, achieving compliance by 2020 with the small solar carve out has come at some expense as the Company will have committed to spend approximately \$25 million under the current, 2014-2018 Solar*Rewards program, which along with the Made in Minnesota⁷ systems that are 20 kW or less, will only achieve two years of compliance. We currently expect that compliance will likely fall short for the small solar carve out beginning in 2022 unless one or more of the following take place:

1. We significantly expand the scope and lifetime of the Solar*Rewards program, and ensure more awarded projects are completed; or
2. The Commission allows solar garden subscriptions of 20 kW or less to be counted toward this requirement or modifies the requirement in recognition of the costs and extent of subscriptions in the solar gardens program.

Graph 1 below represents our current projection using current programs (Made in Minnesota systems 20 kW or less and Solar*Rewards as it exists today) in addition to an extended and expanded Solar*Rewards program to achieve compliance with the 10 percent small solar carve out, and the need for perpetual resource additions to sustain compliance. If Solar*Rewards does not continue after the current sunset date of 2018⁸ (Minn. Stat. §116C.7792), it is likely the Company will not meet the small solar carve out requirement beginning in 2022. The Made in Minnesota program contributes very little to the Company’s compliance goal



⁷ Made in Minnesota has an annual budget of \$15 million. The Department administers this program, so we are unable to track the amount applied to small solar facilities of 20 kW or less.

⁸ This report reflects a 10-year extension and expansion of the Solar*Rewards program. The legislative bill was pending final approval at the time of report completion.

Extending and expanding the scope of the Solar*Rewards program is an integral part of meeting and maintaining compliance with the small solar carve out requirement but there are significant barriers to achieving this. As noted in our Solar*Rewards Annual Report⁹ the amount of installations that are 20 kW or less in our service territory has decreased over time, likely due to alternative renewable choice options available to customers today. Also, in order to obtain the amount of RECs required for the SES small solar carve out beyond 2021, the Solar*Rewards program would have to double the amount of projects installed per year, which is unlikely given the current Made in Minnesota program policies that allow solar projects to receive higher incentives for energy produced, exceed 120% of annual usage, and then sell excess generation back at the retail rate. This option is more lucrative for many customers, leading to a smaller number of Solar*Rewards projects and fewer than expected Made in Minnesota projects that qualify for the small-system carve out. Another limitation with the use of Solar*Rewards is that under this program RECs are only assigned to the Company for the 10-year term of the contract instead of the 25-year expected production from the PV systems.¹⁰

We note that in Colorado in 2016 with only slightly higher PV production rates, we saw large numbers of residential solar systems being installed with no incentives or REC incentives of less than one cent per kWh. Therefore, one could conclude that it is customer preference rather than incentives or economics that is driving the trend away from personal on-site solar systems in Minnesota.

We have also contemplated REC purchases as a venue for compliance with the small solar carve out. However, according to prior Commission Order¹¹, we must use the Midwest Renewable Energy Tracking System (M-RETS) to certify our retired RECs. This creates an issue as it relates to the small solar carve out as systems are currently bundled by M-RETS into groupings totaling one MW in name-plate capacity. M-RETS would need to group small systems together, and have specific groupings consisting of only those systems under which we do not currently directly receive the RECs. Also, there would need to be a common owner of those systems so that we could make a purchase. This does not line up with how the small system RECs are currently registered in M-RETS. Accordingly, we do not see an opportunity to purchase small system RECs at this time unless the M-RETS registration and sale process is changed or Xcel Energy is allowed to establish its own REC registration and sale program.

In light of these forecasted compliance issues, the Company requests a determination as to whether our qualifying solar gardens subscriptions could be applied toward the small solar carve out. The Company has not previously requested action on this issue from the Commission; however, the Commission's July 27, 2016, Order in Docket No. E015/M-15-825 (*In the Matter of a Petition by Minnesota Power for Approval of a Community Solar Garden Program*), did not allow Minnesota Power to apply subscriptions of 20 kW or less to this requirement. The

⁹ Docket No. E0002/M-13-1015, Solar*Rewards, Annual Report filed May 31, 2017.

¹⁰ Docket No. E002/M-13-1015, Solar*Rewards, Deputy Commissioner Decision, February 24, 2014.

¹¹ Docket No. E999/CI-13-542, Solar Energy Standard Pursuant to 2013 Amendments to Minnesota Statutes, Section 216B.1691, ORDER CLARIFYING SOLAR ENERGY STANDARD REQUIREMENT AND SETTING ANNUAL REPORTING REQUIREMENTS, Order Point 6, (April 25, 2014).

Commission did note, on page 9 of that Order, that the Commission may delay or modify the obligation if doing so is in the public interest.

Thus, the Company respectfully requests the Commission allow Xcel Energy's solar garden subscriptions of 20 kW or less to be applied to the small solar carve out requirement. In the alternative, if the Commission believes a delay or modification of the obligation is necessary as suggested in the Minnesota Power docket, then we respectfully request the Commission grant a delay or modification of the statutory obligation since we believe this action would be in the public interest. This would be in the public interest for the following reasons:

1. The solar garden subscriptions of 20 kW or less meet the spirit of the small solar carve out legislation which is to promote residential and small commercial customer participation in the production of distributed solar generation.
2. The Solar*Rewards Community program has been undertaken at significant expense to our customers, and additional expense would be necessary to meet the small solar carve out if we are unable to use the solar garden subscriptions toward our requirement.
3. Significant funds have been spent to bring other small solar on to the system through the Solar*Rewards and Made in Minnesota programs.

If subscriptions under this program, subject to the standard 25-year contract, and sized at 20 kW or less could be counted towards compliance with the small solar carve out, then we would be in a substantially better position towards obtaining future compliance obligations. If we make a conservative assumption that the Solar*Rewards Community program will have 450 MW of name plate capacity, and that 10% of the subscriptions are sized 20 kW and smaller, this would produce about 60,000 small solar RECs annually to the Company. About 45,000 small solar RECS would be required annually to comply with the small solar carve out. The Company, on a per year basis, would have a surplus of about 15,000 small solar RECs.

It is for these reasons we request the Commission to allow the RECS generated under Xcel Energy customers' Solar*Rewards Community subscriptions of 20 kW or less to be applied to the small solar carve out requirement, or in the alternative to delay or modify the statutory obligation for the public interest reasons explained above.

3. Discussion on challenges in registering small solar facilities in M-RETS

Docket Nos. E999/CI-13-542, E999/M-14-321, Commission Order (October 23, 2014), Order Point 2.e

As discussed above, M-RETS does not have a process that works for small solar RECs at this time. Gaining approval to register small solar facilities in M-RETS so they are eligible for REC creation requires two forms of documentation. First, name-plate capacity verification is required to determine the amount of potential generation per group; and second, M-RETS requires a signed Schedule A form by each individual premise owner. The Schedule A form designates the Company as the responsible party for REC ownership, and lists the name, address, size, and meter information of the facility. Group ID's are registered as one unit in M-RETS and may contain over 100+ individual systems within the group. Schedule A forms are required for each individual system and are uploaded to the website which is an extremely manual process. As we

gain more small solar on our system, the process becomes burdensome, especially given the small sizes of these units. As noted above, there is no effective way to purchase small solar RECs. We are working with the M-RETS product development team to try to determine ways to improve the registration process and to develop additional options for project aggregation.

4. **Brief summary of the state(s) in which the solar generation is located or anticipated to be located.**

Docket No. E999/CI-13-542, Commission Order (April 25, 2014), Order Point 4.J

In its April 25, 2014 Order in Docket No. E999/CI-13-542, the Commission allows out-of-state generated RECs to be used for compliance with the Minnesota SES, provided that two conditions are met:

- A. The RECs are registered in M-RETS; and
- B. The RECs comply with the shelf-life provisions set forth in that order.

At this time the Company does not have plans to purchase or obtain out-of-state RECs to comply with the SES, but may look into this further as matters progress. As discussed above, there are also barriers to purchasing small solar RECs.

5. **Discussion of how utilities plan to use the current solar investment tax credit benefits to lower solar costs, and if not, why they believe that waiting may reduce the costs of adding solar resources. Include details on the risks of higher compliance costs to customers if solar prices were not to fall and the ITC expires, and the uncertainty of Midwest SREC market prices and availability if procurement was necessary for compliance with the Standard.**

Docket Nos. E999/CI-13-542, E999/M-14-321, Commission Order (October 23, 2014), Order Point 2.f

Legislation was enacted in December 2015 that extended the availability of the 30% Investment Tax Credit (ITC) – primarily related to solar projects – to 2022. The Consolidated Appropriations Act of 2016 also provided step downs in tax incentives in various years depending on the type of project and the date construction commences and/or the project is placed into commercial operation.

Given projected SES compliance, the Company does not propose additional large-scale solar until 2019 at the earliest, as discussed in our current Resource Plan. Due to our early action to add renewables to our portfolio, we are in a strong SES compliance position as discussed in Section 1 above. However, we expect to fall short beginning in 2022 for the SES compliance for the small solar carve out addressed in Section 2 above.

With regard to the potential for future costs, solar equipment prices are currently predicted to decrease and the future of the ITC and SREC market pricing are uncertain. However, while this is speculation and no one knows the future of the solar market, it is the best information we have at this time. Accordingly, due to our current SES compliance and the expected price decline, we believe it is in the best interest of our customers to continue to watch the market at this time.

6. Discussion on the utilities' efforts to reach, by 2030, the energy goal that ten percent of the retail electric sales in Minnesota be generated by solar energy.

Docket Nos. E999/CI-13-542, E999/M-16-342, Commission Order (November 28, 2016)

We note that the 2030 10% goal is an energy goal of the state of Minnesota. We understand this question to be requesting our efforts to reach our proportional share of the State's energy goal. As shown in Graph 3 in the attached excel file (Tab 5 – Additional Graphs), the Company forecasts that we will meet the 2030 goal for years 2030 – 2033. This is largely due to the banking of solar RECs up to that point. Starting in 2034 we expect to fall short of the goal if no additional solar is in-service. We expect to review this further in a future resource plan.

7. Any additional comments or materials the utility may wish to include.

The Commission requests that utilities and stakeholders provide input on how best to improve future SES reports. (Docket Nos. E999/CI-13-542, E999/M-14-321, Commission Order (October 23, 2014), Order Point 3)

At this time, we believe the information required in the SES Annual Report provides sufficient detail for the Commission to monitor utilities' progress toward meeting the SES. As we gain more experience with solar technology and have more solar interconnected on our system, there may be additional information that the Commission would find useful. We will continue to consider additional information for future reports. One small suggested modification is to more clearly delineate what types of issues should be discussed in Sections 1 and 2 of this report, and confirmation on whether the current report has properly addressed the issues.

We look forward to the Commission addressing our request in Section 2 above on allowing solar garden subscriptions of 20 kW or less to be counted toward the small solar carve out requirement, or modifying the requirement in recognition of the costs and extent of subscriptions in the solar gardens program.



APPLICATION
MINNESOTA

Application for Exclusion from Incremental Costs Associated with the Minnesota Solar Energy Standard

This form should be considered CONFIDENTIAL after the customer fills in the requested information.

This application should be used by any company seeking exclusion from costs associated with the Minnesota Solar Energy Standard. If approved, Xcel Energy will not include in the electric rates charged to specific facilities of the applicant any incremental costs associated with satisfying the Solar Energy Standard under Minnesota state law, Minn. Stat. § 216B.1691, Subd. 2f.

The following types of facilities may apply for exclusion if the primary business purpose of the facility is: iron mining extraction and processing (including a scam mining facility as defined in Minn. R. 6130.0100, subpart 16), paper mill, wood products manufacturer, sawmill and oriented strand board manufacturer.

Please note, any customer who participates in a solar program which incurs Solar Energy Standard costs is ineligible for Solar Energy Standard cost exclusion. Similarly, any customer who is excluded from Solar Energy Standard costs is ineligible for participation in a solar program with Solar Energy Standard costs. In particular, Solar Energy Standard cost-excluded customers are not allowed to participate in our Solar*Rewards® or Solar*Rewards Community® programs, nor in the Department of Commerce's Made in Minnesota program.

Identify below or on an attached document, all street addresses and applicable NAICS codes of each facility where your company is receiving electric service from Xcel Energy in Minnesota for which you seek exclusion. Also, please specify the associated premises and account numbers, as shown on your bill. Specify the electric service address not the billing address. Only those premise and account numbers identified in this application will be considered by us for purposes of applying the requested exclusion.

Please note that the following NAICS codes are preapproved as being applicable to facilities seeking exclusion.

NAICS Code	Category
212210	Iron Ore Mining
321113	Sawmills
321114	Wood Preservation
321211	Hardwood Veneer and Plywood Manufacturing
321212	Softwood Veneer and Plywood Manufacturing
321213	Engineered Wood Member (Except Truss) Mfg.
321214	Truss Manufacturing
321219	Reconstituted Wood Product Mfg.
321911	Wood Window and Door Mfg.
321912	Cut Stock, Resawing Lumber and Planning
321918	Other Millwork (Incl. Flooring)
321920	Wood Container and Pallet Mfg.
321991	Manufactured Home (Mobile Home) Mfg.

NAICS Code	Category
321992	Prefabricated Wood Building Mfg.
321999	All Other Misc. Wood Product Mfg.
322110	Pulp Mills
322121	Paper (Except Newsprint) Mills
322122	Newsprint Mills
322130	Paperboard Mills
322211	Corrugated and Solid Fiber Box Mfg.
322212	Folding Paperboard Box Mfg.
322219	Other Paperboard Container Mfg.
322220	Paper Bag and Coated and Treated Paper Mfg.
322230	Stationery Product Mfg.
322291	Sanitary Paper Product Mfg.
322299	All Other Converted Paper Product Mfg.

TRADE SECRET BEGINS

Facility Street Address, City, State, ZIP Code	Applicable Premises and Account Number(s)	NAICS Code for the Primary Business Purpose of the Facility

TRADE SECRET ENDS

**PUBLIC DOCUMENT -
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APPLICATION FOR EXCLUSION FROM INCREMENTAL COSTS
ASSOCIATED WITH THE MINNESOTA SOLAR ENERGY STANDARD

MINNESOTA

This form should be considered CONFIDENTIAL after the customer fills in the requested information.

In the area below, please provide an explanation as to why each facility should be excluded. If the NAICS code you provide above is not in the preapproved list, please explain in detail why this NAICS code should entitle the facility to be excluded. If necessary, please use an attachment.

Xcel Energy notes (7/28/16): per NAICS code above, this customer is under an approved code that qualifies for this exclusion. No explanation necessary from customer.

Please mail or email the completed form with any applicable attachments to the mailing address or email address provided below:

Xcel Energy
825 Rice St. 2nd Floor/SESE
St. Paul, MN 55117

mnsese@xcelenergy.com

If appropriate, Xcel Energy may follow up with requests for additional information, and will contact the customer after determining if the application is approved or denied. We will submit the completed customer form annually on June 1 as part of the annual Solar Energy Standard report.

I hereby verify the above information and the information in any attachment, is correct to the best of my information and belief, and I am authorized by the company named below to submit this application. Xcel Energy will file submitted forms once per year, marked as confidential, on or about June 1 of each year as part of the annual Solar Energy Standards report, and the forms it files with the commission will be those it receives by March 1.

TRADE SECRET BEGINS

TRADE SECRET ENDS



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Northern States Power Company-Minnesota, an Xcel Energy Company. | 16-03-443 | 03/16



Application for Exclusion from Incremental Costs Associated with the Minnesota Solar Energy Standard

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The following types of facilities may apply for exclusion if the primary business purpose of the facility is: iron mining extraction and processing (including a scam mining facility as defined in Minn. R. 6130.0100, subpart 16), paper mill, wood products manufacturer, sawmill and oriented strand board manufacturer.

Please note, any customer who participates in a solar program which incurs Solar Energy Standard costs is ineligible for Solar Energy Standard cost exclusion. Similarly, any customer who is excluded from Solar Energy Standard costs is ineligible for participation in a solar program with Solar Energy Standard costs. In particular, Solar Energy Standard cost-excluded customers are not allowed to participate in our Solar*Rewards® or Solar*Rewards Community® programs, nor in the Department of Commerce's Made in Minnesota program.

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321114	Wood Preservation	322110	Pulp Mills
321211	Hardwood Veneer and Plywood Manufacturing	322121	Paper (Except Newsprint) Mills
321212	Softwood Veneer and Plywood Manufacturing	322122	Newsprint Mills
321213	Engineered Wood Member (Except Truss) Mfg.	322130	Paperboard Mills
321214	Truss Manufacturing	322211	Corrugated and Solid Fiber Box Mfg.
321219	Reconstituted Wood Product Mfg.	322212	Folding Paperboard Box Mfg.
321911	Wood Window and Door Mfg.	322219	Other Paperboard Container Mfg.
321912	Cut Stock, Resawing Lumber and Planning	322220	Paper Bag and Coated and Treated Paper Mfg.
321918	Other Millwork (Incl. Flooring)	322230	Stationery Product Mfg.
321920	Wood Container and Pallet Mfg.	322291	Sanitary Paper Product Mfg.
321991	Manufactured Home (Mobile Home) Mfg.	322299	All Other Converted Paper Product Mfg.

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APPLICATION

APPLICATION FOR EXCLUSION FROM INCREMENTAL COSTS
ASSOCIATED WITH THE MINNESOTA SOLAR ENERGY STANDARD

MINNESOTA

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TRADE SECRET BEGINS

[Empty dashed box for explanation]

TRADE SECRET ENDS

Please mail or email the completed form with any applicable attachments to the mailing address or email address provided below:

Xcel Energy
825 Rice St. 2nd Floor/SESE
St. Paul, MN 55117

mnsese@xcelenergy.com

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TRADE SECRET BEGINS

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-

TRADE SECRET ENDS



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CERTIFICATE OF SERVICE

I, Carl Cronin, hereby certify that I have this day served copies of the foregoing document on the attached list of persons.

xx by depositing a true and correct copy thereof, properly enveloped with postage paid in the United States mail at Minneapolis, Minnesota

xx electronic filing

Docket No. E999/M-17-283

Dated this 1st day of June 2017

/s/

Carl Cronin
Regulatory Administrator

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Minnesota Public Utilities Commission

INFORMATION DOCKET E999/M-17-283

Reporting Period:

January 1, 2016 - December 31, 2016

Solar Energy Standard Annual Report

Utility:

Northern States Power Company

Report Year:	2016	Date Submitted:	June 1, 2017
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Filing Utility Information		Contact Information	
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Company Name	Northern States Power Company	Contact Title	Case Specialist
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City	Minneapolis		
State	MN		
Zip Code	55401		

Instructions
 Due: June 1, 2017
 Reporting Period: preceding calendar year
 Complete the following worksheets and e-file in **Excel (XLS or XLSX)** format:

- Worksheet 1, Utility Info
- Worksheet 2, Retail and Excluded Sales
- Worksheet 3, Solar Generation
- Worksheet 4, Capacity Factors
- Worksheet 5, Additional graphs the utility may choose to provide

Also complete and efile the Solar Energy Standard Report PDF supplement
 To e-file, login, or register, at: <https://www.edockets.state.mn.us/EFiling/home.jsp>
 For directions on how to e-file, see: <http://www.commerce.state.mn.us/eDocFile/eFilingHelp.html>
 For questions about the worksheets, send an email to: hanna.terwilliger@state.mn.us
 For questions about e-filing, contact Karen Santori at 651-539-1530 or at karen.santori@state.mn.us .

**PUBLIC DOCUMENT -
NOT PUBLIC (OR PRIVILEGED) DATA HAS BEEN EXCISED**

Minnesota Public Utilities Commission			
INFORMATION DOCKET	E999/M-17-283	Reporting Period:	January 1, 2016 - December 31, 2016
Solar Energy Standard Annual Report		Utility:	Northern States Power Company
Report Year:	2016	Date Submitted:	June 1, 2017

Annual Minnesota retail sales for the reporting year	
<small>Docket No. E999/Ci-13-542, Commission Order (April 25, 2014), Order Points 4.A & 4.B</small>	
1. Annual MN retail sales for the reporting year	30,289,190
2. Annual Excluded customer sales for the reporting year	0
3. Annual Minnesota retail sales less exclusions	30,289,190

Customer requesting exclusion from the SES that have been approved by the utility			
<small>Docket Nos. E999/Ci-13-542, E999/M-14-321, Commission Order (October 23, 2014), Order Point 2.a</small>			
Customer Name	Premise	NAICS	Annual kWh Usage
[TRADE SECRET BEGINS			
		322211	N/A - Exclusion begins 6/1/2017
		322211	N/A - Exclusion begins 6/1/2017
		322211	N/A - Exclusion begins 6/1/2017
		322121	N/A - Exclusion begins 6/1/2017
		322211	N/A - Exclusion begins 6/1/2017
		322211	N/A - Exclusion begins 6/1/2017
TRADE SECRET ENDS]			
Total MN Sales for Excluded Customers			0

(Docket No. E999/Ci-13-542, Commission Order (April 25, 2014), Order Point 4.C)

(Docket No. E999/Ci-13-542, Commission Order (April 25, 2014), Order Point 4.D)

Minnesota Public Utilities Commission

INFORMATION DOCKET E999/M-17-283

Reporting Period:

January 1, 2016 - December 31, 2016

Solar Energy Standard Annual Report

Utility:

Northern States Power Company

Report Year:

2016

Date Submitted:

June 1, 2017

Solar generation on the utilities' system during the reporting period

Docket No. E999/CI-13-542, Commission Order (April 25, 2014), Order Point 4.E

	Number of Facilities on Utility System	Capacity (MW)	Number registered in M-RETS ¹	Capacity registered in M-RETS ¹ (MW)	SRECs Generated ¹
Less than 20kW ²	1,705	12.675	11	6.06	3,985
Greater than 20kW	298	15.403	17	168.15	23,778

Estimated amount of solar generation a utility would be required to obtain in 2020

Docket No. E999/CI-13-542, Commission Order (April 25, 2014), Order Points 4.F & 4.G

	Capacity (MW)	SRECs (MWh)
Entire 1.5% Standard ³	236	453,967
Small Scale Carve-Out (10% of 1.5% 20 kw or under) ³	32	45,397
2030 Goal of 10% ³	1,570	3,026,443

Breakdown of S-RECS generated

Docket No. E999/CI-13-542, Commission Order (April 25, 2014), Order Point 5

	Balance at Beginning of Reporting Year	Accrued in Reporting Year	Used in Reporting Year	Year End Balance
1. Utility-owned solar projects	0	0	0	0
2. Solar Facilities that have entered into a PPA with the utility	0	18,911	0	18,911
3. Community Solar Gardens (ARR)				
a. Receiving an incentive (any type)	0	1	0	1
b. Not receiving an incentive	0	244	0	244
4. Community Solar Gardens (VOS)				
a. Receiving an incentive (any type)	0	0	0	0
b. Not receiving an incentive	0	0	0	0
5. Facilities receiving a VOS rate (not included above)	0	0	0	0

6. Facilities under a net metering tariff				
a. Receiving an incentive (any type)	4,766	8,607	0	13,373
b. Not receiving an incentive	0	0	0	0
7. Facilities receiving an incentive (not included above)	0	0	0	0
8. Facilities that do not fall into any other category	0	0	0	0
Total	4,766	27,763	0	32,529

Purchases and sales of S-RECS to meet the SES		
Docket No. E999/CI-13-542, Commission Order (April 25, 2014), Order Point 4.K		
	SRECs Purchased	SRECs Sold
SES (>20kW)	0	0
Small Scale Carve Out (<20kW ²)	0	0
Total	0	0

¹ We understand this to be requesting the capacity and number of units registered for systems installed on or after 8/1/13 and are SES compliant in M-RETS

² We understand this to mean equal to 20 kW or less

³ Capacity calculation assumptions: 22% capacity factor for utility scale, 16% capacity factor for small solar resources.

**PUBLIC DOCUMENT -
NOT PUBLIC (OR PRIVILEGED) DATA HAS BEEN EXCISED**

Minnesota Public Utilities Commission			
INFORMATION DOCKET E999/M-17-283	Reporting Period:		January 1, 2016 - December 31, 2016
Solar Energy Standard Annual Report	Utility:		Northern States Power Company
Report Year:	2016	Date Submitted:	June 1, 2017

Additional information supporting assumed capacity factor, effective load carrying capability, and MISO capacity accreditation for existing or planned solar facilities¹

Docket Nos. E999/CI-13-542, E999/M-14-321, Commission Order (October 23, 2014), Order Points 2.b & 2.d

Solar Project	Nameplate (MW)	Capacity Factor	Capacity Accreditation	Project Status
Aurora Distributed Solar ^{2,3}	100	[TRADE SECRET BEGINS		planned
North Star Solar ³	100			existing
Marshall Solar ³	62.25			existing
			TRADE SECRET ENDS]	
Community Solar Garden installations ^{3, 4, 5}	various	16-19%	50%	planned
Small Solar - RDF Projects	various	16-19%	50%	planned
Small Solar (<40 kw)	various	14-15%	BTMG ⁶	planned

Information on Assumed Capacity Factor

Capacity Factor represents the potential output (kWh) over the operating time period. The expected capacity factors for the NSPM utility scale solar projects are between

[TRADE SECRET BEGINS **TRADE SECRET ENDS]**, consistent with information provided by project developers in the 2013 and 2014 Request for Proposal processes. 2017 will be the first production year for these projects; capacity factor forecasts will be updated as appropriate with actual data.

Information on effective load carrying capability and MISO Capacity Accreditation

Capacity Accreditation represents an estimate of reliable resource capability during periods of system peak demand.

MISO has added Solar Accreditation practices to the Business Practice Manual for the 2017/18 Planning Year. For Year 1, solar resource accreditation will be 50% of nameplate rating; subsequent years the accreditation will be calculated based on historic operation data.

MISO BPM 11 - 4.2.3.1 Intermittent Generation and Dispatchable Intermittent Resources that are not powered by wind (example: run of river or solar) must supply MISO with the most recent consecutive three years of hourly net output (in MW) for hours ending 15, 16, and 17 EST from June, July and August. For new resources, or resources on qualified extended outage where data does not exist for some or all of the previous 36 historical months, a minimum of 30 consecutive days' worth of historical data during June, July or August for the hours ending 15, 16, and 17 EST must be provided prior to participating in the PRA.

1. The Company presumes that effective load carrying capability is addressed through the reporting of MISO's accreditation.
2. The initial phases of Aurora Distributed Solar have been completed. Remaining phases will begin operation summer of 2017.
3. Capacity accreditation for Aurora Distributed Solar represents contractual agreement value. Capacity accreditation for other resources represent MISO first year of operation value.
4. Community Solar Garden installations are registered with MISO following COD.
5. Community Solar Garden and Solar Rewards installations continue to be added.
6. Behind the meter generation
7. These projects are all at least partially in-service.

The forecasts, data, and graphs related to SREC forecasts have been updated for this filing. Prior SES compliance filings had utilized SREC forecasts developed prior to program development and project completions. These forecasts included assumptions regarding escalated growth of Solar*Rewards as well as the application of SRECs only for SES compliance. A substantial revision to the forecast includes limiting Solar*Rewards to the resources needed to satisfy the small solar carve-out (0.15% of MN retails sales).

