



June 1, 2016

—Via Electronic Filing—

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

RE: ANNUAL REPORT

SOLAR ENERGY STANDARD DOCKET NO. E999/M-16-342

Dear Mr. Wolf:

Enclosed for filing is the 2015 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 May 20, 2016 and the Orders referenced therein.

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 <a href="mailto:amber.r.hedlund@xcelenergy.com">amber.r.hedlund@xcelenergy.com</a> or (612) 337-2268 or me at <a href="mailto:amy.s.fredgregill@xcelenergy.com">amy.s.fredgregill@xcelenergy.com</a> or (612) 215-5367 if you have any questions regarding this filing

Sincerely,

/s/

AMY S. FREDREGILL RESOURCE PLANNING AND STRATEGY MANAGER

Enclosure c: Service List

# STATE OF MINNESOTA BEFORE THE MINNESOTA PUBLIC UTILITIES COMMISSION

Beverly Jones Heydinger Chair
Nancy Lange Commissioner
Dan Lipschultz Commissioner
Matthew Schuerger Commissioner
John Tuma Commissioner

IN THE MATTER OF UTILITIES' 2015 ANNUAL REPORTS ON PROGRESS IN ACHIEVING THE SOLAR ENERGY STANDARD DOCKET NO. E999/M-16-342

ANNUAL REPORT

## **OVERVIEW**

Northern States Power Company, doing business as Xcel Energy submits to the Minnesota Public Utilities Commission this Solar Energy Standard (SES) Annual Report in compliance with the Commission Orders issued in Docket No. E999/CI-13-542 on April 25, 2014, and Docket Nos. E999/CI-13-542 and E999/M-14-321 on October 23, 2014.

The 2013 legislation requires that each public utility file a report with the Commission reporting its progress on achieving the SES.<sup>1</sup> In summary, we are on track to meet our 2020 SES requirements, including the 10 percent carve out for systems less than 20 kW, with a total of 262.25 MW of large-scale solar under contract. We discuss these results in more detail in our Annual Report below.

## BACKGROUND

During the 2013 legislative session, the statute establishing Minnesota's Renewable Energy Standard (RES)<sup>2</sup> was amended to add a SES. In addition to the RES requirement of generating or procuring 30 percent of total Minnesota retail electric sales from renewable energy by 2020, the SES requires that Xcel Energy must also

1

<sup>&</sup>lt;sup>1</sup> The Commission clarified content requirements of utilities' annual reports in its April 25, 2014 Order in Docket No. E999/CI-13-542, and further clarified the requirements in its October 23, 2014 Order in Docket Nos. E999/CI-13-542 and E999/M-14-321 after reviewing utilities' reports for calendar year 2013.

<sup>&</sup>lt;sup>2</sup> Minn. Stat. § 216B.1691

generate or procure 1.5 percent of total Minnesota retail electric sales from solar energy by the end of 2020. Of the 1.5 percent, at least 10 percent must be met by solar energy generated by or procured from solar photovoltaic (PV) devices with a nameplate capacity of 20 kW or less.<sup>3</sup>

The SES includes a provision<sup>4</sup> for excluding certain retail electric sales to customers that are an iron mining extraction and processing facility, or a paper mill, wood products manufacturer, sawmill, or oriented strand board manufacturer. Said customers may not have included in the rates charged to them by the public utility any costs of satisfying the solar standard. On January 29, 2016 in Docket No. E999/CI-13-542 the Commission approved the Company's proposal for processing customer applications requesting exclusion from the costs incurred to meet the SES. The process for determining how to calculate these costs has not been developed for all utilities. However, the Company is currently preparing a Cost Exclusion proposal to file in Docket No. E999/CI-13-542.

#### ANNUAL REPORT

Below we provide the information for calendar year 2015 as detailed in the above-referenced Orders.

## A. Information Required by the April 25, 2014 Order

1. Annual Minnesota retail sales for the previous calendar year

Our annual Minnesota retail sales for 2015 were 30,300,578 MWh.

2. Annual excluded customer sales for the previous calendar year

The Company received its first customer application requesting exclusion in April 2016. Therefore, no customer sales were excluded from the total Minnesota annual retail sales in 2015.

3. A list of customers requesting exclusion from the requirements of the SES, the North American Industry Classification System (NAICS) code associated with their manufacturing activity, and their annual kW usage

<sup>&</sup>lt;sup>3</sup> Minn. Stat. § 216B.1691, subd. 2f (a).

<sup>&</sup>lt;sup>4</sup> Minn. Stat. § 216B.1691, subd. 2f (d).

In Docket No. E999/CI-13-542, the Company proposed to include in our annual SES Report the list of customers that applied for exclusion, each customer's Trade Secret exclusion application, and our decision on each customer's request for exclusion for those applications received by March 1.<sup>5</sup> The Commission approved our proposal on January 29, 2016.

As of March 1, 2016, no customers had requested exclusion from the requirements of the SES.

4. The total Minnesota retail sales for customers excluded from the SES requirement

No Minnesota retail sales for customers were excluded from the SES requirement in 2015. As noted above, the SES Cost Exclusions process has not been developed for all utilities, but the Company is preparing a Cost Exclusion proposal to file in Docket No. E999/CI-13-542.

5. Annual solar generation on the utilities' system for the previous calendar year (including the total number of units registered in M-RETS to that utility and S-RECs generated in the past year from those units)

The Company currently has 32 solar generating facilities in the state of Minnesota registered in the Midwest Renewable Energy Tracking System (M-RETS).<sup>6</sup> In 2015 these facilities created 16,670 solar Renewable Energy Certificates (REC), of which 4,766 are from 13 facilities that came online after August 1, 2013 and are SES compliant.

6. Estimated amount of solar generation (expressed as capacity) a utility would be required to obtain in 2020

In its April 25, 2014 Order in Docket No. E999/CI-13-542, the Commission determined that RECs used for compliance with the 2020 requirements of the SES could be accrued beginning in August 2013 and would have a four-year shelf life commencing in January 2020. Based on this accrual, we estimate that the 262.25 MW of large-scale solar anticipated to be online by the end of 2016 with additional small-and medium-scale solar projects, including Solar\*Rewards and Solar\*Rewards

<sup>&</sup>lt;sup>5</sup> Docket No. E999/CI-13-542, COMPLIANCE FILING (January 2, 2015); revised on September 1, 2015 in the Company's COMPLIANCE FILING SUPPLEMENT.

<sup>&</sup>lt;sup>6</sup> Small PV systems report their solar RECs by having the generation of many systems bundled into a 1 MW generating facility. These one MW bundles are counted as one generating facility for the purpose of reporting in M-RETS, but may represent many individual PV systems.

Community projects installed through 2020, will provide sufficient accrued solar RECs to be in compliance through 2020 and beyond.

7. Estimated solar energy requirements to meet the SES in 2020

Based on our most recent forecast, we estimate that our 2020 SES requirement will be approximately 462,000 solar RECs.

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

Since the passage of the SES, the Company has developed a growing portfolio of solar options for individuals and businesses which, when combined, will expand access to solar benefits to more customers while achieving compliance in 2020.

The Company expects to have 262.25 MW of large-scale solar under Power Purchase Agreement (PPA) contract and approved by the Commission by the end of 2016, which we anticipate will generate approximately 526,000 solar RECs annually. This includes 162.25 MW of large-scale solar from two PPAs approved by the Commission as part of a Solar Portfolio from an RFP process. The third PPA for the 24.75 MW MN Solar I facility that had been part of the Solar Portfolio the Commission approved, we now understand will not proceed as explained in our May 20, 2016 Letter in Docket No. E002/M-14-162. The Company's total 262.25 MW also includes the 100 MW Aurora Distributed Solar PPA, which was approved through the Competitive Acquisition Process proceeding in Docket No. E002/CN-12-1240.8 The Aurora project is expected to achieve commercial operation in 2016.

We describe the small solar programs below in Table 1.

<sup>&</sup>lt;sup>7</sup> The executed PPAs were filed with the Commission on April 23, 2015 in Docket No. E002/M-14-162.

<sup>&</sup>lt;sup>8</sup> The executed PPA was filed with the Commission on February 17, 2015 in Docket Nos. E002/CN-12-1240 and E002/M-14-788.

Table 1: Xcel Energy Small-Scale Solar Options for Customers

Program	Program Summary	REC Treatment	Participants
Solar*	Solar*Rewards offers incentives and	The solar RECs generated	8/1/13 – 12/31/15:
Rewards®	rebates for installation of PV solar	under the current	396* systems
	panels sized 20 kW or less.	Solar*Rewards program	5,890* kW installed
	Production incentives are paid	belong to the Company for	,
	(\$0.08 per kWh) to customers when	the first 10 years of each	(*) Includes SES eligible
	the system produces more energy	installation.	projects from the previous
	than needed and the energy is added	For SES compliance we	Conservation Improvement Program (CIP) and
	to the grid. The program is funded	also include solar RECs	Minnesota Bonus funded
	through the Renewable	established through the first	programs.
	Development Fund (RDF) at \$5	generation program <sup>9</sup> .	
	million for a period of four years.	These RECs belong to the	<u>1/1/15 – 12/31/15:</u>
	For more information, see Docket	Company for the first 20	236 systems
	No. E002/M-13-1015.	years of each installation.	2,481 kW installed
Made in	MiM is a solar PV cash-back	The solar RECs generated	<u>8/1/13 – 12/31/15</u> :
Minnesota	incentive program for consumers	under the MiM program	448* systems
(MiM)	who install solar PV using solar	belong to the Company for	5,526* kW installed
	modules and collectors certified as	the first 10 years of each	
	manufactured in Minnesota sized at	installation.	$\frac{1/1/15 - 12/31/15}{2000}$
	40 kW or less. Production based		298* systems
	incentives range from \$0.13 to		3,631* kW installed
	\$0.30/kWh for 10 years of		*Includes the
	production, depending on the		Solar*Rewards Community
	customer type and equipment manufacturer. The program has an		garden listed below.
	annual budget of \$15 million for 10		
	years, funded primarily through the		
	RDF, with a small portion		
	contributed through the CIP.		
Solar*	Community Solar Gardens are	Each garden operator has	<u>8/1/13 – 12/31/15</u> :
Rewards	shared PV arrays that interconnect	the option to retain the	1* garden
Community	with the grid. Solar developers	solar RECs from garden	36* kW DC installed
ĺ	apply for interconnection with the	generation or to sell them	
	grid and offer subscriptions to our	to the Company. <sup>10</sup>	<u>1/1/15 – 12/31/15:</u>
	customers. Through the	, ,	1* garden
	Solar*Rewards Community		36* kW DC installed
	program, the Company provides		
	garden subscribers a bill credit for		(*) Included in MiM project
	their portion of the system's		numbers listed above.
	production.		
	For more information, see Docket		
	No. E002/M-13-867.		

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<sup>&</sup>lt;sup>9</sup> The first generation of the Solar\*Rewards program was an incentive program administered through our CIP from 2010 – 2014. See Analysis and Decision of the Minnesota Department of Commerce, Division of Energy Resources Regarding Xcel Energy's Request for Program Modification of its 2013-2018 Triennial and its Solar Energy Incentive Program Proposal, Docket Nos. E,G002/CIP-12-447 and E002/M-13-1015.

<sup>&</sup>lt;sup>10</sup> The only completed project for Solar\*Rewards Community is also a Made in Minnesota project; therefore, the solar RECs are accounted for as part of Made in Minnesota.

9. Progress toward compliance with the 10 percent carve-out for systems under 20 kW

A total of 871 Solar\*Rewards and Made in Minnesota systems were installed between August 1, 2013 and December 31, 2015.<sup>11</sup> The forecasted required amount of solar RECs needed to comply with the 10 percent carve-out in 2020 is 46,200. In 2015, and in total, 2,214 eligible solar RECs from systems less than 20 kW were banked, achieving 4.8 percent of the carve-out.

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

In summary, all projects will be located in Minnesota.

- 11. A breakdown of solar RECs generated in the previous calendar year under each of the following categories:
  - a. Facilities receiving a Value of Solar rate;
  - b. Community Solar Gardens;
  - c. Facilities under a Net metering tariff;
  - d. Utility-owned solar projects;
  - e. Solar facilities that have entered into a PPA with the utility;
  - f. Facilities receiving an incentive, such as Solar\*Rewards or Made in Minnesota.

See Table 2 below for the number of solar RECs generated after August 1, 2013 (thus eligible for SES compliance) and accrued in 2015 for each of the specified categories.

Table 2: Solar RECs Generated after August 1, 2013

		SES-Eligible Solar	SES-Eligible Solar
		RECs Accrued in 2015	RECs Accrued Total
a.	Facilities receiving a Value of Solar rate	N/A	N/A
b.	Community Solar Gardens <sup>12</sup>	0	0
c.	Facilities under a net metering tariff <sup>13</sup>	0	0
d.	Utility-owned solar projects	N/A	N/A
e.	Solar facilities that have entered into a PPA with	N/A	N/A
	the utility		
f.	Facilities receiving an incentive, such as	4,766	4,766
	Solar*Rewards or Made in Minnesota (and		
	including RDF projects)		

<sup>&</sup>lt;sup>11</sup> This number includes both first and second generation Solar\*Rewards systems.

6

<sup>&</sup>lt;sup>12</sup> One community solar garden did go into service in 2015; however, this project is receiving Made in Minnesota funding and will fall into category (f) when the solar RECS are registered with M-RETS.

<sup>&</sup>lt;sup>13</sup> This does not include Solar\*Rewards customers under the Net metering tariff. These customers are already included in part f. of Table 2 (Facilities receiving an incentive, such as Solar\*Rewards or Made in Minnesota (and including RDF projects).

Ordering point 4.K of the Commission's April 25, 2014 Order also requested information on the purchases and sales of solar RECs to meet the SES. The Company did not purchase any solar RECs outside of the programs we have described above, or sell any solar RECs in 2015.

## B. Information Required by the October 23, 2014 Order

The Commission's October 23, 2014 Order in Docket Nos. E999/CI-13-542 and E999/M-14-321 required the information provided below for the 2014 SES Reports. We have, however, updated this information for 2015 and provide it below.

2a. Report should include excluded sales only from customers that have requested and been approved by utilities for exclusion from the Solar Energy Standards requirements

As indicated above, no customer sales were excluded from the total annual retail sales in 2015.

2b. Provide additional information supporting the utility's assumed capacity factor

Table 3 below provides the requested information supporting the Company's assumed capacity factor for the three solar installations with which we have executed PPAs, as well as ranges for small solar and solar gardens installations.

**Table 3: SES Projects** 

SES Projects	Nameplate (MW)	Status	Capacity Factor (1)	Capacity Accreditation (2)
Aurora Distributed Solar	100 MW	COD 2016Q4	22%	70%
North Star Solar	100 MW	COD 2016Q4	23%	52%
Marshall Solar	62.25 MW	COD 2016Q4	22%	52%
Community Solar Garden installations	various	various	16-19%	52%
Small Solar (<40 kW)	various	various	14-15%	52%

- (1) Capacity Factor represents the potential output (kWh) over the operating time period. Capacity factors listed above represent data modeled in Strategist; future reports will be updated to reflect actual generation history. Strategist data sources include project specific data as proposed in RFPs and industry ranges.
- (2) Capacity Accreditation represents an estimate of reliable resource capability during periods of system peak demand. Accredited capacity data listed above represents the Strategist Model planning values; future reports will be updated to reflect actual operating results. Future capacity accreditation through MISO is granted following the submittal of historic generation for the solar resources; capacity credit is determined by MISO using calculation methods for intermittent generation sources.

2c. Provide more detailed information on the utility's ongoing efforts to obtain solar energy on its system

Many efforts are in place. See the discussion above about the Solar\*Rewards program, the Made in Minnesota program, the Solar\*Rewards Community program, and our successful efforts to execute PPAs for large-scale solar projects. In addition, see Docket No. E002/M-12-1278 for information about solar installations funded through Cycle 4 of the RDF, and the Company's January 29, 2016 Resource Plan Supplement in Docket No. E002/RP-15-21 for information about the solar resource additions proposed in the Company's Current Preferred Plan.

2d. Information on the effective load carrying capability and MISO capacity accreditation for existing or planned solar facilities

See the capacity factors and capacity accreditation presented in Table 3 above, as well as the information described in Note 2 to Table 3.

2e. Additional discussion on any challenges utilities face in registering small solar facilities

Registering small solar facilities for approval to generate RECs in M-RETS requires documentation in M-RETS, the Schedule A, for each site regardless of size. Schedule As designate the responsible party for REC ownership, list the name and address of the registered facility along with meter ID and must be signed by both parties to ensure no double counting occurs and that the correct entity retains the RECs. As a potential improvement to the registration process, there has been some discussion with Commission Staff about the possibility of allowing approved green pricing programs for Investor Owned Utilities, such as Solar\*Rewards, to register small solar facility programs through a pre-approval process from the Commission to M-RETS. The Company would support this solution for registering small solar. We look forward to continuing the discussion with Commission Staff and other interested parties to focus on providing options for customers and facilitating registration of small solar facilities.

2f. A discussion of how utilities weigh the uncertainty of the solar investment tax credit benefit to awaiting the potential for technology improvements which may reduce the costs of adding solar resources.

Legislation was enacted in December 2015 that extended the availability of the 30 percent Investment Tax Credit (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 2018 at the earliest, as further 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. We will observe the continued improvements in solar panel efficiencies and manufacturing, project siting and overall load and project economics as we consider future investments.

## ADDITIONAL INFORMATION

The Commission also requests that utilities and stakeholders provide input on how best to improve future SES reports. 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.

## **CONCLUSION**

Xcel Energy requests that the Commission accept our 2015 Annual Report demonstrating our progress in achieving the SES, which we have based on the best currently available information. We intend to continue to implement plans to obtain solar resources that will meet our solar energy requirements.

Dated: June 1, 2016

Northern States Power Company

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<sup>&</sup>lt;sup>14</sup> Docket No. E002/RP-15-21

## **CERTIFICATE OF SERVICE**

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

- <u>xx</u> 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-16-342

Dated this 1st day of June 2016

/s/

Jim Erickson Regulatory Administrator

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