

**PUBLIC DOCUMENT
NOT PUBLIC DATA EXCISED**

May 31, 2019

—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-19-276

Dear Mr. Wolf:

Enclosed for filing is the 2018 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 Commission's April 25, 2014 Order in Docket No. E999/CI-13-542.

Please note that we have marked as "Non-Public" certain information identifying customer names, locations, energy usage or bill credits. 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: May 31, 2019

Reporting period: January 1, 2018 – December 31, 2018

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
 Order, issued October 20, 2017 in Docket No. E-999/M-17-283
 Order, issued September 21, 2018 in Docket No. E-999/M-18-205

Comments: Please answer questions below and eFile as a PDF

Report Year	2018
Date Submitted	5/31/2019
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Comments/Notes	

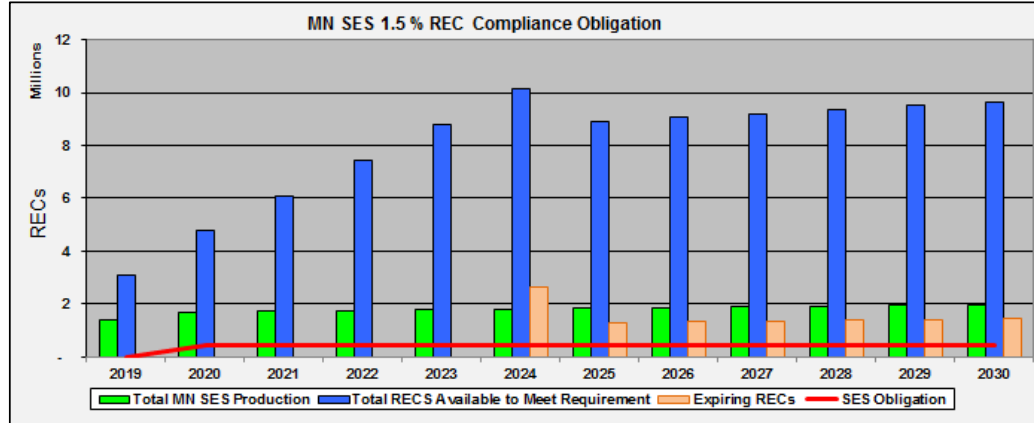
1. Summary of ongoing efforts to obtain solar energy, including a brief summary of the anticipated mix of project sizes for SES compliance.

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

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 40 kW (AC) 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 to provide renewable options to residential and commercial customers. 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 below in Graph 1, and in the attached Excel file (Tab 5– Additional Graphs). The Company expects to accumulate and exceed the amount of Solar RECs (SREC) required to satisfy the MN SES compliance requirements beginning in 2020 and continue well beyond 2030.

Graph 1*



*The Integrated Resource Plan (IRP) will be filed on July 1, 2019. The Renewables Appendix of the IRP filing will provide updated SES compliance graphs and resource related information.

A. Solar*Rewards (Second Generation) – For PV installations of 40 kW_{DC} or less

Our Solar*Rewards program offers customers installing solar photovoltaic (PV) systems sized 40 kW_{DC} or less an incentive based on the system’s energy production. The program offers differing production incentives depending on the project for a 10-year period under a Solar*Rewards contract. The legislature under Minn. Stat. § 116C.77792 has authorized this program to be available for eight consecutive years at an annual budget of \$5 million for the first four years, \$15 million in the fifth year, \$10 million in the sixth and seventh years and \$5 million in the eighth year from the renewable development account beginning in August 2014. More details

about the results of the program are available in our Solar*Rewards Annual Report.¹ The RECs generated under the Solar*Rewards program are assigned to the Company for the first 10 years of each installation.²

B. Solar*Rewards (First Generation) – For PV installations of 40 kW_{DC} or less

Our SES compliance also includes RECs established under our first generation program (2010 – 2014). This program was part of the Company’s Conservation Improvement Program and provided one-time incentives for projects sized 40 kW_{DC} or less. The program was discontinued when the second generation 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. Existing contracts remain in place for their contract term. These contracts have assigned the RECs to the Company for the 20-year contract term.

C. Made in Minnesota – For PV installations of 40 kW_{DC} or less

Established by legislation in 2013, the Made in Minnesota program provided incentives to systems manufactured in Minnesota that were up to 40 kW_{DC}, with the majority being over 20 kW_{DC}. The program was launched in 2014 and cancelled by the legislature in 2017 (Minn. Stat. § 216C.417). The program continues to be administered by the Department of Commerce. The RECs generated under this program by Company customers belong to the Company for 10 years from installation.

D. Buy-Back Option

Commission Staff suggested that the Company should continue to receive SRECs from these programs throughout the lifetime of the systems. Staff briefing papers on August 29, 2018 state:

“The easiest way for Xcel to maintain control over the coveted small SRECs would be a tariff option allowing customers to elect to sell their SRECs to the company after the expiration of a Solar*Rewards contract. Xcel could then enroll interested customers in this new tariff offering and use the existing metering infrastructure to continue the uninterrupted transfer of SRECs for SES compliance.”³

Staff’s recommended approach is an option for the Company to consider and we will review the recommendation closer to 2024 when contracts begin expiring. If that is the desired approach, we will file a Petition requesting approval of this program or tariff change closer to that time. For transparency purposes, Graph 3 provided in part 2 below includes a compliance look at an assumed Solar*Rewards SREC buyback program based on an assumed participation level of 75 percent.

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

The Company launched its community solar garden program, called Solar*Rewards Community, in December 2014.⁴ Solar gardens are shared PV arrays up to one MW that interconnect with the distribution grid under a 25-year contract term. Customers who subscribe to a solar garden receive a bill credit for their portion of the system’s production and the Company receives the

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.

³ See Staff’s briefing papers issued August 29, 2018 in Docket Nos. E999/M-13-542 & E999/M-18-205, Pages 3-4.

⁴ See Docket No. E002/M-13-867.

RECs for the term of the contract.⁵ There is no statutory budget or capacity limit for the Solar*Rewards Community program.

F. Universal 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, consisting of the North Star project (100 MW) and the Marshall Solar project (62.25 MW). These projects began operating in late 2016 and early 2017. These resources were approved by the Commission as part of a Solar Portfolio from a Request for Proposals process.⁶ However, the Company has allotted as much as 25 percent of the expected output of the North Star facility to the Renewable*Connect program. The Company portfolio also includes the 100 MW Aurora Solar PPA which was approved through the Company's Competitive Acquisition Process proceeding⁷. This project is made up of multiple distributed generation solar sites. All phases of this project were in commercial operation by summer 2017. These projects will generate more than 400,000 SRECs annually.

G. Renewable Development Fund (RDF)

The 1994 Legislature mandated the creation of the RDF for the purpose of developing renewable sources of electricity, including solar. Recipients of RDF grant funds that install renewable energy generators are required to assign and transfer all RECs created from the facility's renewable energy production for the life of that facility. The Company currently has a total of 31 installed and operating solar RDF facilities, for a total of 9.962 MW of capacity. An additional 13 facilities are planned or under construction and will add an additional 3.522 MW of capacity. Legislation passed in 2017 made significant changes to the RDF statute (Minn. Stat. § 116C.779). These changes include the creation of the Renewable Development Account as a special account within the Minnesota treasury. Additional changes include the purposes for how funds may be expended and how projects are selected. Therefore it is not known at this time if any new RDF facilities will be installed which affect the SES.

⁵ Prior to 2017, Garden Operators had the choice as to whether or not to receive the RECs directly. Currently, all community solar gardens have chosen to provide them to the Company.

⁶ 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.

⁷ 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.

**Table 1: RDF/RDA Solar Facilities
Through December 31, 2018***

Facility Size	Number	Capacity (MW)
Commissioned Facilities		
≤40 kW	14	0.187
>40 kW	17	9.755
Total Commissioned Facilities	31	9.962
Planned Facilities		
≤40 kW	3	0.120
>40 kW	10	3.402
Total Planned Facilities	13	3.522
TOTAL RDF FACILITIES	44	13.483

*Please note, the data provided in the "Table 1: RDF/RDA Solar Facilities through December 31, 2017" of our October 22, 2018 compliance filing incorrectly included a 2 MW wind project in the commissioned facilities totals. We have removed the wind project from Table 1 above.

2. **Progress towards the 10% carve-out for systems 40 kW_{ac} or less, including the method by which the utility will meet the carve-out. Docket No. E999/CI-13-542, Commission Order (April 25, 2014), Order Point 4.1**

A subset of programs from Section 1 above, can be used towards our 10 percent small solar carve out. Table 2 describes these impacts. These are further detailed in this section.

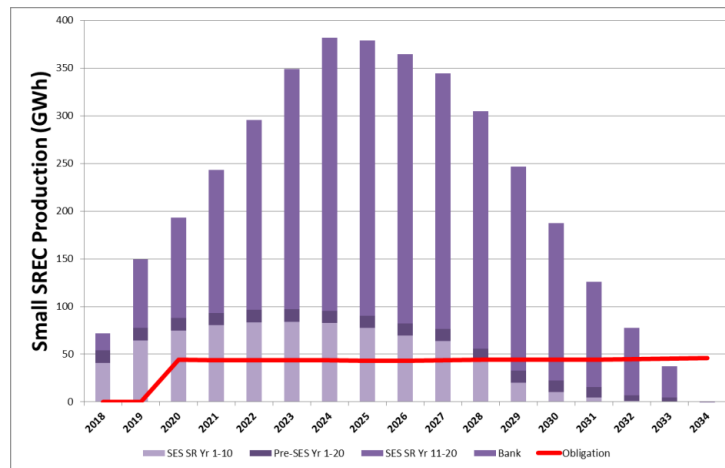
Table 2: Small Solar Carve Out – Programs

Program Name	Size (DC)*	Years Available
Solar*Rewards (First Generation)	≤40 kW	2010 – August 2014
Solar*Rewards (Second Generation)	≤ 20 kW ≤ 40 kW	August 2014 – May 2018 June 2018 – 2021
Made in Minnesota	≤40 kW	2014 – 2017

*Energy produced in DC goes through an inverter to get converted to AC. In this process there is energy loss, meaning that DC output results in a lower AC output.

Graph 2 below represents our current projection for REC compliance with the 10 percent small solar carve out. This chart shows the Company may be in compliance with the small solar carve out through 2032. However, this representation uses program assumptions and thus has embedded risk that the actual results could be significantly different than the forecast. The Company cannot predict what the market installation rate will be for small solar rooftop.

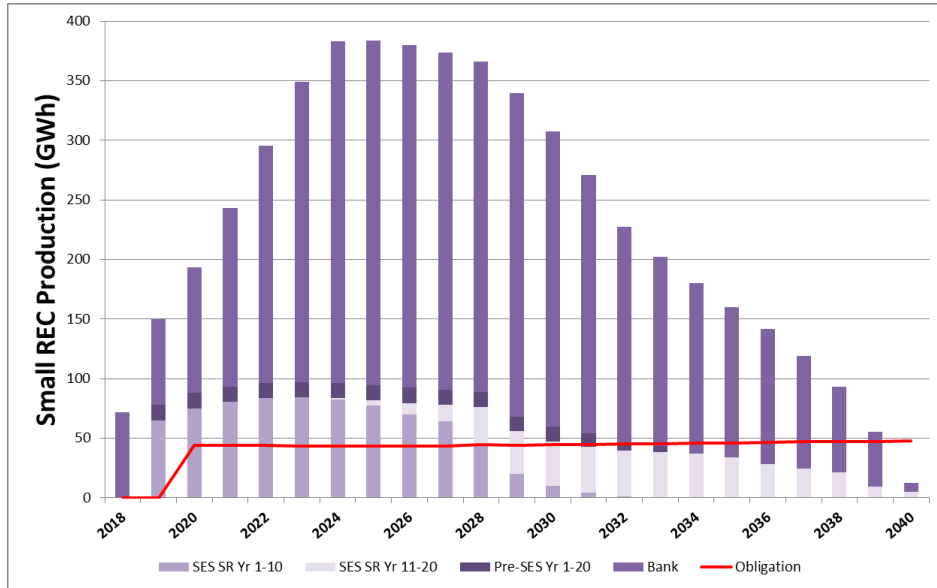
Graph 2
Small SREC Production with Solar*Rewards
Program Extension through 2021



The chart above assumes 100 percent of funds are awarded and that of these there will be an installation rate of 75 percent for the Solar*Rewards program. The Solar*Rewards program awarded 100 percent of the 2018 funding. If actual solar installations are lower than forecasted levels, the Company may not be able to meet the small solar carve-out requirements through 2032 as projected in the chart above.

Graph 3 below provides a projection for small solar carve out compliance with the addition of an assumed future buy-back option. The additional RECs would extend compliance with the small solar carve out until approximately 2039. The Company cannot predict customer participation in a future program; however, an assumption of 75 percent participation is made for this projection.

Graph 3
Small SREC Production with Solar*Rewards
Program Extension with Buy-Back Option



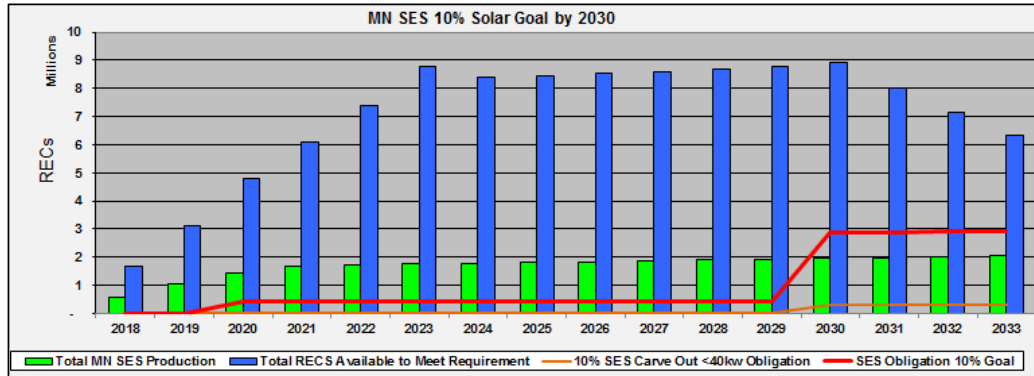
Also, the above analysis is based on the understanding that the nameplate capacity for purposes of this statute is measured in alternating current (AC). This is consistent with the definition of capacity in Minn. Stat. § 216B.164, Subd. 2a.(c)., as well as how capacity is used or interpreted under the following statutes: Minn. Stat. §§ 216B.1611, Subd.2(a), and Subd.3a(a)(1); 216B.1613; 216B.164, and Subd. 4c; 216B.1641 (b).

3. 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)

The 10 percent by 2030 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 4 below and in the attached Excel file (Tab 5 – Additional Graphs), the Company forecasts that we will meet the 10 percent by 2030 goal. The compliance fulfillment in those years will significantly be derived from the heavy use of our SREC bank that will have been accumulated up to that point. We expect to review the need of additional solar resources in a future resource plan.

Graph 4



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

SES Cost Exclusion

No new SES exclusion applications were approved by the March 1, 2019, deadline for this report, and no applications are pending. We provide the production information and solar costs excluded for the two customers at six premises that became eligible for exclusion on June 1, 2017 in the attached Excel file (Tab 2 – Retail and Excluded). Per the exclusion process approved by the Commission in Docket No. E002/M-17-425, we issued bill credits in March 2019 to customers approved for exclusion for SES-eligible costs incurred between January 1 and December 31, 2018. See Tab 2 of the attached Excel file (Retail and Excluded) for the excluded customer sales and refund amount issued to each excluded premise.

Cost Recovery of 2018 SES Exclusion Amount

To recover the 2018 SES excluded costs from non-exempt customers, [PROTECTED DATA BEGINS PROTECTED DATA ENDS] was included in the May 2019 monthly fuel clause rate (Docket No. E002/AA-19-296; [PROTECTED DATA BEGINS PROTECTED DATA ENDS] was included in the CIP Rider tracker filed in Docket No. E002/M-19-258 on April 1, 2019; and [PROTECTED DATA BEGINS PROTECTED DATA ENDS] will be added to the RDF tracker to be filed with the Commission by October 1, 2019.

Future SES Cost Exclusion

In its January 16, 2018 Order in Docket No. E002/M-17-425, the Commission found that only those costs associated with SRECs that are retired for the purpose of meeting the requirements of Minn. Stat. § 216B.1691, subd. 2f, can be excluded from rates charged to exempt customers. We anticipate that all SRECs being generated at this time will be retired in order to meet the SES. At some point in the future, however, we may begin generating more SRECs than are needed for SES compliance. In a future annual report, we will discuss refinements to our SES cost exclusion methodology that will account for the fact that not all SRECs generated in a given year will be needed for SES compliance.

CERTIFICATE OF SERVICE

I, Paget Pengelly, 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-19-276

Dated this 31st day of May 2019

/s/

Paget Pengelly
Regulatory Administrator

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Minnesota Public Utilities Commission			
INFORMATION DOCKET E999/M-19-276		Reporting Period: January 1, 2018 - December 31, 2018	
Solar Energy Standard Annual Report		Utility: Xcel Energy	
Report Year:	2018	Date Submitted:	May 31, 2019

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Zip Code	55401		

Instructions
Due: June 1, 2019
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.

Protected Data Shaded

PUBLIC DOCUMENT			
NOT PUBLIC DATA HAS BEEN EXCISED			
Minnesota Public Utilities Commission			
INFORMATION DOCKET	E999/M-19-276	Reporting Period	January 1, 2018 - December 31, 2018
Solar Energy Standard Annual Report		Utility:	Xcel Energy
Report Year:	2018	Date Submitted:	May 31, 2019

Annual Minnesota retail sales for the reporting year	
Docket No. E999/CI-13-542, Commission Order (April 25, 2014), Order Points 4.A & 4.B	
1. Annual MN retail sales for the reporting year	30,442,386 MWH
2. Annual Excluded customer sales for the reporting year	[PROTECTED DATA BEGINS]
3. Annual Minnesota retail sales less exclusions	
PROTECTED DATA ENDS]	

Customer requesting exclusion from the SES that have been approved by the utility						
Docket Nos. E999/CI-13-542, E999/M-14-321, Commission Order (October 23, 2014), Order Point 2.a						
Customer Name	Docket Granting Exclusion	Premise Number	Premise	NAICS	2018 kWh Usage	Refund (\$s)
Previously approved excluded customers:						
[PROTECTED DATA BEGINS]						
Total MN Sales for Excluded Customers						
PROTECTED DATA ENDS]						
Customer Name	Docket	Premise Number	Premise	NAICS	2018 kWh Usage	Refund (\$s)
New customers requesting exclusion:						
N/A - No additional customers have requested exclusion at this time.						

Minnesota Public Utilities Commission			
INFORMATION DOCKET E999/M-19-276	Reporting Period:	January 1, 2018 - December 31, 2018	
Solar Energy Standard Annual Report	Utility:	Xcel Energy	
Report Year:	2018	Date Submitted:	May 31, 2019

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	Capacity registered in M-RETS (MW)	SRECs Generated
40kW or less	3,656	43.43	50	25.47	32,599
Greater than 40kW	582	776.52	562	752.42	1,027,277

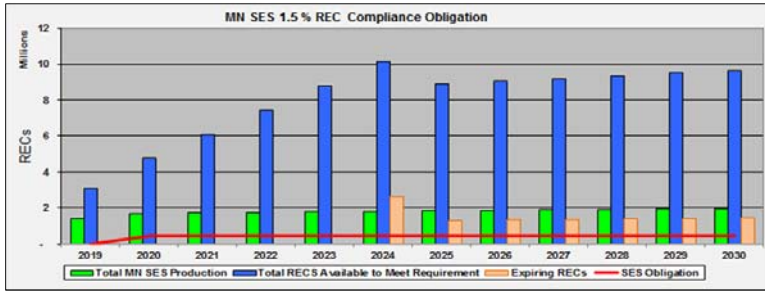
Estimated amount of solar generation a utility would be required to obtain in 2020		
Docket No. E999/CI-13-542, Commission Order (April 25, 2014), Order Points 4.F & 4.G		
	Capacity (MW)	SRECs (MWh)
Entire 1.5% Standard	237	438,856
Small Scale Carve-Out (10% of 1.5%)	33	43,886
2030 Goal of 10%	1,694	2,943,808

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 ¹	Accrued in Reporting Year	Used in Reporting Year	Year End Balance
1. Utility-owned solar projects				
2. Solar Facilities that have entered into a PPA with the utility	440,418	452,534		892,952
3. Community Solar Gardens				
a. ARR	146,813	569,263		716,076
b. VOS				
c. Other compensation method				
6. Facilities receiving a VOS rate (not included above)				
7. Facilities under a net metering tariff				
a. Receiving an incentive (any type)	30,271	32,053		62,324
b. Not receiving an incentive				
8. Facilities receiving an incentive (not included above)				
9. Facilities that do not fall into any other category	4,399	6,026		10,425
Total	621,901	1,059,876	0	1,681,777

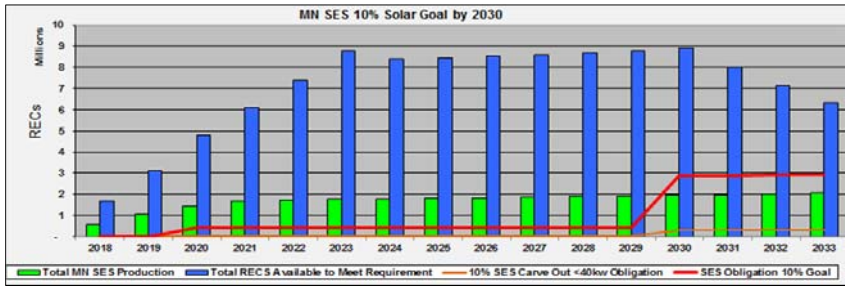
Purchases and sales of S-RECS to meet the SES		
Docket No. E999/CI-13-542, Commission Order (April 25, 2014), Order Point 4.K		
	SRECS Purchased	SRECS Sold
SES (>40W)	0	0
Small Scale Carve Out (<=40kW)	0	0
Total	0	0

1. Beginning of year REC balance includes current solar RECs held in NSP's REC bank. Beginning REC balance may differ from previous year's ending REC balance to accommodate for adjustments made to REC classification, REC allocations, or registration details of qualified solar resources.

1.5% by 2020

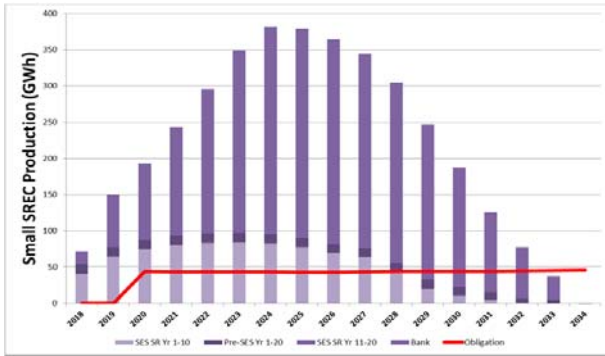


10% by 2030



Carve Out

SREC Fulfillment and Bank w Add Pre-SES (2013), No RECs from Yrs 11-20



SREC Fulfillment and Bank w Add Pre-SES (2013), Add RECs from Yrs 11-20

