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Minneapolis, MN 55401

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May 1, 2019

—Via Electronic Filing—

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

RE: COMPLIANCE FILING
COMMUNITY SOLAR GARDENS PROGRAM
DOCKET NO. E002/M-13-867

Dear Mr. Wolf:

Northern States Power Company, doing business as Xcel Energy, submits to the Minnesota Public Utilities Commission the enclosed compliance filing in compliance with the Minnesota Public Utilities Commission's March 22, 2019 ORDER APPROVING XCEL'S UPDATE TO THE 2019 SYSTEM –WIDE VALUE-OF-SOLAR TARIFF RATE WITH MODIFICATIONS. In particular, Order Point 2 which states:

> 2. *The Minnesota Department of Commerce and Xcel shall solicit the opinions of the stakeholders regarding Xcel's proposed alternative method for calculating the VOS's avoided distribution cost, and Xcel shall file a more fully developed proposal no later than May 1, 2019.*

Portions of Attachment C have been marked as "Not Public" pursuant to Minn. Stat. §13.37, subd. 1(b). This information has been marked as Confidential by the developer, thus we have designated the information as being Not Public.

Pursuant to Minn. Stat. §216.17, subd. 3, 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 Nick Paluck at (612) 330-2905 or Nick.Paluck@xcelenergy.com or me at (612) 330-7681 or Lisa.R.Peterson@xcelenergy.com if you have any questions regarding this filing.

Sincerely,

/s/

LISA R. PETERSON
MANAGER, REGULATORY ANALYSIS

Enclosures
c: Service List

STATE OF MINNESOTA
BEFORE THE
MINNESOTA PUBLIC UTILITIES COMMISSION

Katie J. Sieben	Chair
Dan Lipschultz	Commissioner
Valerie Means	Commissioner
Matthew Schuerger	Commissioner
John A. Tuma	Commissioner

IN THE MATTER OF THE PETITION OF NORTHERN STATES POWER COMPANY FOR APPROVAL OF ITS PROPOSED COMMUNITY SOLAR GARDENS PROGRAM	DOCKET NO. E002/M-13-867 **COMPLIANCE FILING**

OVERVIEW

Northern States Power Company, doing business as Xcel Energy, submits this filing to the Minnesota Public Utilities Commission in compliance with the Commission's March 22, 2019 ORDER APPROVING XCEL'S UPDATE TO THE 2019 SYSTEM –WIDE VALUE-OF-SOLAR TARIFF RATE WITH MODIFICATIONS. The filing is made pursuant to Order Point 2, which states:

> *The Minnesota Department of Commerce and Xcel shall solicit the opinions of the stakeholders regarding Xcel's proposed alternative method for calculating the VOS's avoided distribution cost, and Xcel shall file a more fully developed proposal no later than May 1, 2019.*

We appreciate that the Commission has taken up this issue and asked the Company to address it. In this filing we set forth the background information that precedes the Company's current proposal, including the Company's prior communications with stakeholders regarding the volatility observed in the avoided distribution cost component of the Value of Solar methodology. We describe the alternative methodology proposed by the Company to address the observed volatility in this component. We describe our efforts to solicit stakeholder feedback on the methodology and we summarize the feedback received. Finally, we describe why we believe the Company has proposed a reasonable method for calculating this component.

COMPLIANCE FILING

I. BACKGROUND

On April 1, 2014, the Commission approved the Department of Commerce's proposed Value of Solar methodology.[1] The approved methodology sets forth a means of identifying a value to represent system-wide avoided distribution capacity costs based on actual data from each of the last 10 years and peak growth rates based on the Company's estimated future growth over the next 15 years.

A. Observation of the Component Volatility

Prior to the migration of the program from purchase prices under the Applicable Retail Rate to the Value of Solar rate, the Company raised its concerns with volatility of the avoided distribution capacity cost component in the calculation. We stated:[2]

> […T]here is demonstrable volatility in the VOS calculation that we raised as a possibility during the stakeholder input portion of the VOS methodology development but have only been able to recently identify with certainty. The cost per unit growth formula attributes capacity cost to the peak demand growth on the system. The combination of variable customer requirements and weather influences seasonal peak demand and creates volatile growth rates as can be observed in the company's calculations over the last three years.
>
> For example, we can demonstrate that foreseeable and expected range of growth scenarios in annual peak demand could force the levelized avoided distribution capacity component to land anywhere from $0.0000 per KWH to $0.3605+ per KWH. In turn, this variation would then drive a first-year VOS bill credit that could range from 9.95 to 38.90 (when using the 2016 VOS bill credit as the basis for the example) while the actual value of the solar generation to the system remains the same. A weather normalization adjustment alone will not resolve these extreme mathematical results.
>
> This scenario is verified in Attachment G *[ed. note: Attachment G is omitted*] by calculating the 2016 distribution capacity cost value on an 11 year basis where the cost per unit growth is calculated to be $16,792 compared to the negative result based on the methodology's prescribed ten year time frame. That distribution cost per unit growth value ($16,792) compares with the much smaller distribution cost per unit growth values filed of $336 and $928 included in previous Value of Solar calculations in 2014 and 2015, respectively. Figure 2 illustrates how the decrease in peak growth can result in exponentially higher distribution cost per unit growth.

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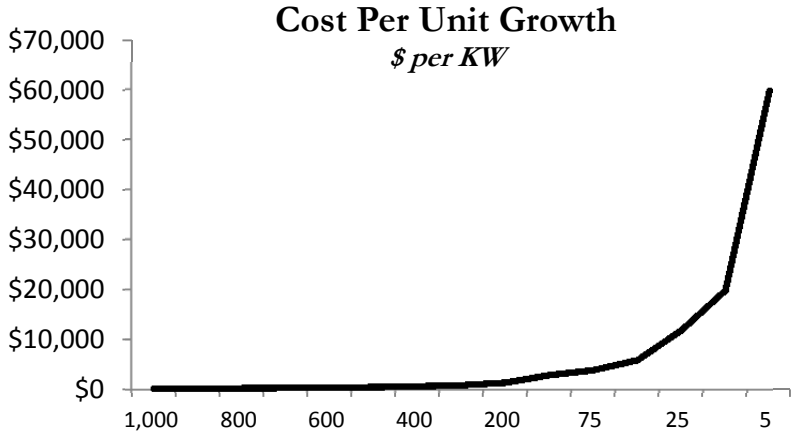
[1] *In the Matter of Establishing a VOS Distributed Solar Value Methodology under Minn. Stat. § 216B.164, subd. 10(3) and (f),* Docket No. E-999/M-14-65.

[2] Comments, April 1, 2016, Docket No. E002/M-13-867.

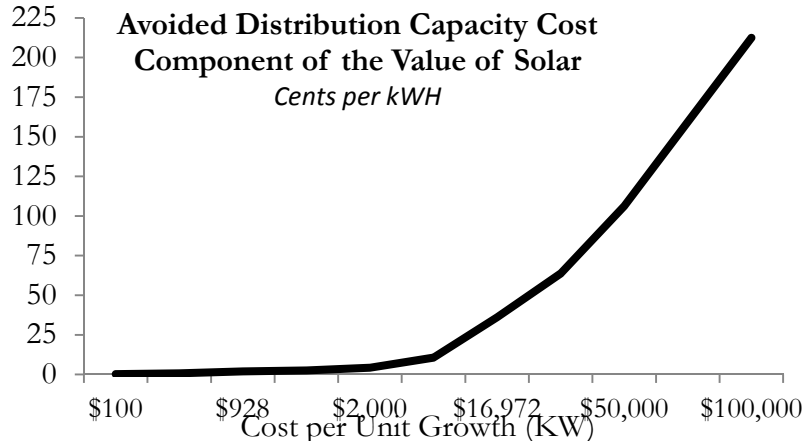
Figure 2.



The second step of the process is to input the distribution cost per unit growth into the Value of Solar model, which then derives the avoided distribution capacity cost. The $16,972 distribution cost per unit growth results in an avoided distribution capacity cost of 36.05 cents per KWH. Figure 3 illustrates the Value of Solar avoided distribution capacity cost that result from a range of distribution cost per unit growth.

At a minimum, the avoided distribution capacity cost should be limited to the actual cost of a KW of capacity and be based on actual avoided costs. At this time, we are uncertain whether we will also experience similar volatility in other VOS components. As shown in the illustration, the methodology as approved has the potential to produce unstable and unsettling results, cause customer confusion, and run counter to the idea that more cost can potentially be avoided in situations where peak demand growth is higher. For these reasons, we believe it is practical to correct for such volatility.

Figure 3.



As indicated above the Company has been concerned about Avoided Distribution Cost Component methodology since the beginning of the Value of Solar stakeholder discussions. At the heart of the Company's concern is the calculation of the Cost per unit growth whereby the current methodology requires utilities to divide the historical capacity-related distribution project costs by the weather normalized peak load growth over the past ten years. More specifically, the Company is concerned in situations where the calculation results in narrowly positive peak demand growth over the ten-year period. This is a valid concern because weather-normalized peak demand varies from year to year and our experience has shown the growth to be negative three of the five years in which the VOS has been calculated. The negative results illustrate the fact that a narrowly positive growth is a plausible result. In fact, in one of those negative growth years, the growth was only narrowly negative (2,997 kW relative to peak demand of 6,161,053 kW). Had the growth instead been positive value of 2,997 kW, the cost per unit growth calculation would have yielded a result $94,857 per kW. Inserting the $94,857 per kW into the table 14 Avoided Distribution Cost of the VOS calculation would have driven an Avoided Distribution cost component of $2.14 per kWh or $2,140 per MWh. This result is not a reasonable, nor is it an accurate reflection of the avoided distribution project costs.

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B. Alternate Methodology Introduced

The Company brought its suggestion on a correction to this component to the Department of Commerce. The Department acknowledged in its VOS compliance review letter that declining peak demand growth had produced a zero value for avoided distribution component.[3] On November 14, 2018, the Company and the Department jointly introduced the alternate methodology to the Solar*Rewards

[3] Department of Commerce, October 24, 2018. Docket No. E002/M-13-867.

Community Workgroup in the context of the development of a locational value component to the Value of Solar.[4] This was the subject of a second stakeholder meeting facilitated by the Department on November 30, 2018.

On December 14, 2018, the Department filed Reply Comments reporting on the status of stakeholder discussions to address avoided distribution costs in the methodology, and again summarized the Company's proposal for an alternate methodology.[5] The Department recommended that the Commission adopt the use of the proposed alternative method for calculating avoided distribution costs modified to use two historical and three forecasted years of capacity spending and capacity additions.

II. PROPOSED ALTERNATE METHODOLOGY

The Company appreciates that now, with actual data to validate prior concerns raised about this component, the Commission has asked the Company to revisit the avoided distribution capacity cost component. The Company's alternative proposal aims to improve the accuracy of the methodology while at the same time simplifying the calculation. It does so by dividing the avoided capacity-related distribution project costs by the avoided project capacity.[6]

The proposed alternative methodology is designed to measure the per kW distribution capital spend for two historic and three forecast years, and results in a positive value for the assumed avoidance of distribution project spend. The Company proposes to measure this value by identifying capital costs for capacity-related distribution projects over 5 years, then dividing those capital costs by the quantity of distribution system capacity increases over 5 years. By focusing on current and future distribution project costs, the calculation is more representative of the current distribution project cost level and distribution system needs.

Without further modification, the methodology produces the maximum level of avoided distribution costs as it assumes that all capacity related distribution are avoided. However, since it is not clear if solar could be deployed in specific places on the distribution system or achieve the critical mass such that the distribution projects could be avoided or deferred by the actual solar installed, the Company proposes a 50% reduction factor to share this risk between solar providers and system customers.

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[4] November 14, 2018 Stakeholder Meeting Minutes, February 19, 2019, Docket No. E002/M-13-867.
[5] Again, these discussions were in the context of considering a location-specific valuation methodology.
[6] We use the terms "deferrable" and "avoidable" interchangeably in the context of this alternate methodology. Both words as used here describe the costs identified for calculating the avoided distribution capacity costs in the VOS methodology.

Without a reduction factor, the Company believes our customers could pay twice for capacity-related distribution projects that are not deferred by the addition of Solar*Rewards Community projects. Therefore this measure appropriately balances the interest of Solar*Reward Community subscribers and our customers who pay for Solar*Reward Community energy.

Had the alternative methodology been approved for the 2019 VOS, the resulting calculation would have been as shown below in Table 1.

Table 1. Alternative Avoided Distribution Capacity Cost per kW

Year	New Dist. Capacity	Capital Cost - Capacity projects	Cost Per kW
	(MW)	($M)	
2016	125.2	$15.932	$127
2017	43.3	$10.270	$237
2018	76.8	$10.280	$134
2019	34.8	$3.945	$113
2020	52.4	$12.765	$244
Total	332.5	$53.192	$160

The data from two years of actual and three years of budgeted capacity-related distribution projects yielded $160 on a cost per kW basis. Applying the 50% deferral factor reduces this figure to $80 per kW. Table 2 details this calculation. Had the Company applied a value of $80 cost per kW into Table 15 of the 2019 VOS, the result would have been a 0.18 cent avoided distribution capacity cost component. This addition would have raised the levelized 2019 VOS from 11.09 to 11.27 cents per kWh.

Table 2. Effective Avoided Distribution Capacity Cost per kW

Distribution Cost per kW	$160
Deferral Reduction Factor	50%
Effective Avoided Distribution Cost per kW	$80

III. STAKEHOLDER OUTREACH AND FEEDBACK

Following the issuance of the Commission's March 22, 2019 Order, the Company provided a detailed summary of the proposed alternate methodology to stakeholders

through the distribution list for the Solar*Rewards Community program.[7] To support stakeholders' efforts to understand and evaluate the alternate proposal, the Company included sample calculations for the previous five years applying the proposed methodology to produce the avoided distribution capacity cost component. The Company sought feedback from stakeholders on the alternate methodology in order to consider any feedback prior to making this compliance filing.

On April 9, the Company sent the following message to stakeholders:

> Solar*Rewards Community Stakeholders:
>
> Xcel Energy and the Department of Commerce seek input from Solar*Rewards Community stakeholders on the proposed alternative methodology to define the system-wide avoided distribution cost component of the Value of Solar. The alternative methodology proposal was first introduced at the November 11, 2018 S*RC Stakeholder Implementation Workgroup monthly meeting (see Attachment A for meeting handout), and was also the topic of a stakeholder meeting hosted by the Department of Commerce on November 30, 2018. In initial discussions this approach was considered for the system-wide and locational avoided distribution capacity cost methodologies. However, the current focus is to define a system-wide approach. The methodology for location-specific avoided distribution capacity costs will be discussed at a later date. Also, the initial proposal included 3 planning years; the Department later recommended the addition of 2 historical years in the analysis.
>
> The current methodology has produced volatile avoided distribution capacity cost results in the last five years of calculations, including negative value results in three of the five years where the next step in the methodology then requires a zero value assignment. The proposed alternative methodology is designed to measure the per kW distribution capital spend for two historic and three forecast years, and results in a positive value for the assumed avoidance of distribution project spend. The proposal for the system-wide avoided distribution capacity cost methodology is as follows:
>
> **Methodology timeframe**: Five year average including two years historical and three years of forecast.
>
> **Costs**: Sum of capital costs for all capacity-related distribution projects for all years in methodology timeframe.
>
> **kW**: Sum of capacity increase installed on distribution system through capacity-related distribution projects for all years in methodology timeframe.

[7] The summary excluded the deferral reduction factor.

System-wide Avoided Distribution Capacity Cost ($/kw) =

Cost: capital costs for capacity-related distribution projects over 5 years

divided by

kW: distribution system capacity increases over 5 years

An example of the proposed alternative methodology calculation is shown in Attachment B to this email using data that was available for 2019, and the results for both methodologies are shown below.

Current Method: Peak Growth Based

VOS Vintage	System Distribution Cost $ per kW	Distribution Component Cents per kWh*
2015	$928	2.28
2016	$0	0.00
2017	$0	0.00
2018	$401	0.82
2019	$0	0.00

Alternative Method: Distribution Project Cost Based

VOS Vintage	System Distribution Cost $ per kW	Distribution Component Cents per kWh*
2015**	$111	0.23
2016**	$104	0.21
2017**	$120	0.25
2018**	$82	0.17
2019**	$165	0.34
2019***	$160	0.33

*The conversion to kWh is based on the 2018 VOS input values.

** Based on 3 years of planning data

*** Based on 2 years of actual and 3 years of planning data

Please respond to this email with your input by April 16. Xcel Energy will consider all responses in its May 1, 2019 filing as directed by the March 22, 2019 MPUC Order.

Thank you,
Xcel Energy

*****

The Company includes the Attachments referenced in the email as Attachments A and B to this filing.

The responses received are summarized at Attachment C. Parties provided virtually no substantive feedback on the Company's proposed alternate methodology. Several developers requested the methodology be applied to provide a 2020 avoided distribution component, and the Company responded that the dataset for 2020 will not be available until later in 2019.

Developers declined to provide feedback on the Company's proposal until the 2020 rates are available and the 2019 Legislative Session has concluded. For example, MnSEIA notes that its perspective on the importance of getting this component "absolutely correct" is contingent upon whether administrative control of the program is transferred to the Department of Commerce. MnSEIA is hopeful of an outcome of the Legislative Session that includes a multiyear "averaging" of the VOS, a methodology that is itself based on a 25 year average and then de-escalated to produce individual year values.

Feedback from stakeholders included a suggestion to average the results of the current methodology from the past five years. Table 3 highlights the results of this suggestion as being significantly negative (-39.15 cents per kWh) due to three of the five years exhibiting negative peak growth rates.

Table 3. Current Avoided Distribution Cost Methodology

Current Method: Peak Growth Based		
VOS Vintage	System Distribution Cost per kW	Distribution Component Cents per kWh
2015	$928	2.28
2016	($770)	(1.58)
2017	($94,857)	(193.98)
2018	$401	0.82
2019	($1,610)	(3.29)
5-Year Average	($19,182)	(39.15)

Fresh Energy requested that the Company provide a discussion of how distribution investments are categorized as "capacity-related". The Company provided a response to this previously in Fresh Energy IR 10 in this matter, included here at Attachment D. The Company stated, in relevant part:

> Individual distribution projects costs are not broken out by type (capacity related or otherwise) in the CCOSS. Overall, distribution project costs by customer type (primary and secondary) are categorized as customer related or capacity related categories via the minimum distribution study for general rate design guidance. In this application, the term capacity is used in a more general rate design context. In the context of the VOS, the term capacity-related serves as a description to determine which project costs are deferrable by solar and this determination must be done on a project-by-project basis.
>
> As per our planning process, distribution planning identifies risks on the system where we need more capacity and proposes distribution capacity projects to solve those risks. The capacity projects that distribution planning initiates are under the Electric and/or Substation Capacity Program budget types in our budget system. We were able to utilize this standard planning and budgeting process for the VOS.
>
> *****

Outside of the VOS calculation, the Company does not have a business need to develop a specific category of deferrable capacity-related distribution projects. The identification of deferrable project costs is generally based on the expertise of the distribution personnel with specialized knowledge of the system. Projects that are excluded from the deferrable capacity-related project list include those that are driven by:

- Asset health,
- Equipment failure,
- Large customer requirements,
- Transmission requirements, and
- Reliability requirements.

We are open to working with the Department of Commerce to identify and provide further information if it is helpful to the Department's review of the Company's calculations.

IV. REASONABLENESS OF PROPOSED METHODOLOGY

The alternative avoided distribution cost proposed by the Company leverages actual

and budgeted distribution project cost and capacity created for the avoided distribution cost per kW input. If solar projects were sited in optimal locations and sized with respect to the distribution capacity needs of the system, these distribution projects would be the best proxy for the avoided cost known to the Company. However, because solar projects will not always be sited in optimal locations or sized sufficiently to create a material impact, the Company believes that the deferral reduction factor is an appropriate tool to share project deferral risk between Solar*Rewards Community Subscribers and Fuel Clause paying customers. Therefore the Company believes its alternative calculation yields a more accurate result and is fair and reasonable to all VOS stakeholders.

CONCLUSION

We appreciate the Commission's interest in examining the Company's alternate proposal to the avoided distribution capacity cost component of the Value of Solar. While stakeholders were unable to provide input directly to the Company, we are hopeful that the Commission's standard Notice of Comment process may elicit some productive input.

Dated: May 1, 2019

Northern States Power Company

Avoided Distribution Component of the VOS

Current and Alternative System and Location Specific Methodology

Distribution Capacity Value - Dollars per KW

	Current Method: Peak Growth Based					Alternative Method: Cost Based				
VOS Vintage	2015	2016	2017	2018	2019	2015	2016	2017	2018	2019
System Distribution Cost per KW	$928	$0	$0	$401	$0	$111	$104	$120	$82	$165
Planning Area Cost per kW										
Minneapolis				$335	$0	$0	$149	$0	$0	$0
Minnetonka				$307	$13,553	$117	$118	$128	$54	$79
Edina				$261	$0	$0	$0	$53	$78	$74
South East				$115	$350	$104	$100	$97	$66	$185
Maple Grove				$156	$455	$414	$32	$69	$61	$0
Newport				$78	$192	$101	$17	$0	$85	$351
St. Paul				$27	$158	$26	$0	$0	$0	$0
North West				$159	$347	$66	$113	$147	$110	$160
White Bear Lake				$131	$465	$117	$257	$116	$107	$155

Distribution Capacity Value - Cents per kWh

	Current Method: Peak Growth Based					Alternative Method: Cost Based				
VOS Vintage	2015	2016	2017	2018	2019	2015	2016	2017	2018	2019
System Cost per kWh	2.28	0.00	0.00	0.82	0.00	0.23	0.21	0.25	0.17	0.34
Planning Area Cost per kWh										
Minneapolis				0.69	0.00	0.00	0.30	0.00	0.00	0.00
Minnetonka				0.63	27.72	0.24	0.24	0.26	0.11	0.16
Edina				0.53	0.00	0.00	0.00	0.11	0.16	0.15
South East				0.24	0.72	0.21	0.20	0.20	0.13	0.38
Maple Grove				0.32	0.93	0.85	0.06	0.14	0.13	0.00
Newport				0.16	0.39	0.21	0.03	0.00	0.17	0.72
St. Paul				0.06	0.32	0.05	0.00	0.00	0.00	0.00
North West				0.33	0.71	0.13	0.23	0.30	0.23	0.33
White Bear Lake				0.27	0.95	0.24	0.53	0.24	0.22	0.32

VOS Distribution Capacity Cost per kW - Minnetonka Area

A. Estimate the percentage of distribution cost that is deferrable per the VOS methodology

		Planning Area MN Electric Distribution Costs *Nominal* (a)	Percent Capacity Related (a / b)	Planning Area Capacity Related Project Costs *Nominal* (b)	2019 Inflation Adjustment Inflation Rate 2.25% (c)	Planning Area Capacity Related Project Cost *Adjusted for Inflation* (c * b) = (d)
1	2020	$0		$0	97.8%	$0
2	2019	$0	#DIV/0!	$0	100.0%	$0
3	2018	$2,499,221	82.6%	$2,064,203	102.3%	$2,110,648
4	2017	$7,448,045	40.7%	$3,030,685	104.6%	$3,168,600
5	2016	$11,765,484	64.2%	$7,550,839	106.9%	$8,072,074
6	2015	$9,296,046	7.3%	$674,232	109.3%	$736,992
7	2014	$4,261,234	-0.3%	($10,919)	111.8%	($12,204)
8	2013	$8,178,480	0.7%	$57,079	114.3%	$65,231
9	2012	$6,717,030	0.0%	$1,639	116.9%	$1,915
10	2011	$5,069,252	24.5%	$1,244,169	119.5%	$1,486,572
	2010-19 Total					$15,629,828

B. Identify Peak Demand Forecast/Historical 10-yr growth rate

		Planning Area Peak Data Minnetonka	Planning Area KW Growth 2020 vs. 2011	Planning Area Average Annual Growth Rate
1	2020	433,237	1,153	0.03%
2	2019	430,625		
3	2018	424,906		
4	2017	455,233		
5	2016	408,341		
6	2015	377,038		
7	2014	416,977		
8	2013	411,747		
9	2012	424,891		
10	2011	432,084		

C. Calulate Cost per kW Growth 2010-19

Distribution Cost	$15,629,828	(g)	From A
10yrs of kW Growth	1,153	(h)	From B
Cost per kW	$13,553	(i) = (g) / (h)	
Cost per kW (Inserted into Table 15)	$13,553	(j) = (i) unless (i) < 0, then 0	

VOS Distribution Capacity Cost per kW

(A) System actual cost per KWH (sum of planning areas)

Year	New Dist. Capacity	Capital Cost - Capacity projects
	(MW)	($M)
2018	76.800	$10.280
2019	34.800	$3.945
2020	52.400	$12.765
Total	164.000	$26.990
Cost per kW		$165

(B) Planning area actual cost per KW based on Anticipated Capital Capacitiy Related Investments

141 Minneapolis	#DIV/0!	144 SouthEast	$185	151 St. Paul	#DIV/0!
142 Minnetonka	$79	147 Maple Grove	#DIV/0!	154 NorthWest	$160
143 Edina	$74	150 Newport	$351	156 White Bear Lake	$155

141 Minneapolis

Year	New Dist. Capacity	Capital Cost - Capacity projects
	(MW)	($M)
2018	0.000	$0.119
2019	0.000	$0.000
2020	0.000	$0.850
Total	0.000	$0.969
Cost per kW		#DIV/0!

142 Minnetonka

Year	New Dist. Capacity	Capital Cost - Capacity projects
	(MW)	($M)
2018	26.000	$2.064
2019	0.000	$0.000
2020	0.000	$0.000
Total	26.000	$2.064
Cost per kW		$79

143 Edina

Year	New Dist. Capacity	Capital Cost - Capacity projects
	(MW)	($M)
2018	14.300	$1.279
2019	0.000	$0.000
2020	11.900	$0.650
Total	26.2	$1.929
Cost per kW		$74

144 SouthEast

Year	New Dist. Capacity	Capital Cost - Capacity projects
	(MW)	($M)
2018	21.600	$2.298
2019	0.000	$0.200
2020	14.000	$4.100
Total	35.6	$6.598
Cost per kW		$185

147 Maple Grove

Year	New Dist. Capacity	Capital Cost - Capacity projects
	(MW)	($M)
2018	0.000	$0.024
2019	0.000	$0.000
2020	0.000	$0.000
Total	0.0	$0.024
Cost per kW		#DIV/0!

150 Newport

Year	New Dist. Capacity	Capital Cost - Capacity projects
	(MW)	($M)
2018	14.900	$1.131
2019	0.000	$0.200
2020	0.000	$3.900
Total	14.9	$5.231
Cost per kW		$351

151 St. Paul

Year	New Dist. Capacity	Capital Cost - Capacity projects
	(MW)	($M)
2018	0.000	$0.200
2019	0.000	$0.000
2020	0.000	$0.250
Total	0.0	$0.450
Cost per kW		#DIV/0!

154 NorthWest

Year	New Dist. Capacity	Capital Cost - Capacity projects
	(MW)	($M)
2018	0.000	$3.015
2019	34.800	$3.545
2020	12.600	$1.015
Total	47.4	$7.575
Cost per kW		$160

156 White Bear Lake

Year	New Dist. Capacity	Capital Cost - Capacity projects
	(MW)	($M)
2018	0.000	$0.150
2019	0.000	$0.000
2020	13.900	$2.000
Total	13.9	$2.150
Cost per kW		$155

VOS Distribution Capacity Cost per kW

(A) System actual cost per KWH (sum of planning areas)

Year	New Distribution Capacity	Capital Cost - Capacity Related Projects
	(MW)	($M)
2016	125.200	$15.936
2017	43.300	$10.270
2018	76.800	$10.280
2019	34.800	$3.945
2020	52.400	$12.765
Total	332.500	$53.197
Cost per kW		$159.99

(B) Planning area actual cost per KW based on Anticipated Capital Capacitiy Related Investments

141 Minneapolis	#DIV/0!	144 SouthEast	$185	151 St. Paul	#DIV/0!
142 Minnetonka	$79	147 Maple Grove	#DIV/0!	154 NorthWest	$160
143 Edina	$74	150 Newport	$351	156 White Bear Lake	$155

141 Minneapolis

Year	New Dist. Capacity	Capital Cost - Capacity projects
	(MW)	($M)
2018	0.000	$0.119
2019	0.000	$0.000
2020	0.000	$0.850
Total	0.000	$0.969
Cost per kW		#DIV/0!

142 Minnetonka

Year	New Dist. Capacity	Capital Cost - Capacity projects
	(MW)	($M)
2018	26.000	$2.064
2019	0.000	$0.000
2020	0.000	$0.000
Total	26.000	$2.064
Cost per kW		$79

143 Edina

Year	New Dist. Capacity	Capital Cost - Capacity projects
	(MW)	($M)
2018	14.300	$1.279
2019	0.000	$0.000
2020	11.900	$0.650
Total	26.2	$1.929
Cost per kW		$74

144 SouthEast

Year	New Dist. Capacity	Capital Cost - Capacity projects
	(MW)	($M)
2018	21.600	$2.298
2019	0.000	$0.200
2020	14.000	$4.100
Total	35.6	$6.598
Cost per kW		$185

147 Maple Grove

Year	New Dist. Capacity	Capital Cost - Capacity projects
	(MW)	($M)
2018	0.000	$0.024
2019	0.000	$0.000
2020	0.000	$0.000
Total	0.0	$0.024
Cost per kW		#DIV/0!

150 Newport

Year	New Dist. Capacity	Capital Cost - Capacity projects
	(MW)	($M)
2018	14.900	$1.131
2019	0.000	$0.200
2020	0.000	$3.900
Total	14.9	$5.231
Cost per kW		$351

151 St. Paul

Year	New Dist. Capacity	Capital Cost - Capacity projects
	(MW)	($M)
2018	0.000	$0.200
2019	0.000	$0.000
2020	0.000	$0.250
Total	0.0	$0.450
Cost per kW		#DIV/0!

154 NorthWest

Year	New Dist. Capacity	Capital Cost - Capacity projects
	(MW)	($M)
2018	0.000	$3.015
2019	34.800	$3.545
2020	12.600	$1.015
Total	47.4	$7.575
Cost per kW		$160

156 White Bear Lake

Year	New Dist. Capacity	Capital Cost - Capacity projects
	(MW)	($M)
2018	0.000	$0.150
2019	0.000	$0.000
2020	13.900	$2.000
Total	13.9	$2.150
Cost per kW		$155

Organization	Requestor	Response to Request for Comments	Rcvd Date	Response	Response Date
Sunshare	David Amster-Olszewski	Hi Amber, Could you help me understand something. What was the system-wide avoided distribution cost component for the 2019 VOS, and what is the predicted system-wide avoided distribution cost component for the 2020 VOS? It's hard to look at the below request without putting some actual number to it. What is the impact to each of those year's VOS with the current system-wide avoided distribution cost component methodology and what is the impact to each of those year's VOS with the new methodology you propose below? Thank you, David	5-Apr	Hi David, The 2019 avoided distribution cost component is included in the email I sent (I highlighted the number in the email below for easy reference). The 2020 value is not available at this time, however we provide five years of avoided distribution cost history (2015 through 2019, and also in the email below) to provide context for stakeholders on this subject. Thanks! Amber	8-Apr
Novel Energy	Cliff Kaehler	What would the calculations be for 2020? Thanks Cliff	6-Apr	Hi Cliff, The 2020 value is not available at this time; however, we provide five years of avoided distribution cost history (i.e., 2015 through 2019 - included in the email below) to provide context for stakeholders on this subject. Thanks! Amber	8-Apr
Novel Energy	Cliff Kaehler	**[PROTECTED DATA BEGINS** **PROTECTED DATA ENDS]**	8-Apr	Hello, To date we have received several requests to provide the 2020 value for the proposed avoided distribution capacity credit. In order to keep all parties informed, we thought it would be appropriate to send our response to all parties on our Solar*Rewards Community stakeholders list. The 2020 value for the proposed avoided distribution capacity cost methodology is not known at this time, as the source dataset will not be available until the Company's budget is approved this summer. The Company has provided five years of avoided distribution cost history (2015 through 2019) for context on the proposed methodology. The Company will provide the 2020 avoided distribution capacity cost results at the July 31 stakeholder meeting to discuss the 2020 VOS, as well as in our September filing for the 2020 VOS. Thank you, Amber	9-Apr
Sunshare	David Amster-Olszewski	Hi Amber, I think it would be good for the group to at least coalesce around what the 2020 distributed cost component would be, in order to provide meaningful feedback to your query. Because that's in effect what's proposed to be changed. My understanding is that this figure could be calculated at this time, correct? I want to make sure as we consider our feedback we at least have agreement on how that rate would change at least one year forward. Thank you, David	8-Apr	Hello, To date we have received several requests to provide the 2020 value for the proposed avoided distribution capacity credit. In order to keep all parties informed, we thought it would be appropriate to send our response to all parties on our Solar*Rewards Community stakeholders list. The 2020 value for the proposed avoided distribution capacity cost methodology is not known at this time, as the source dataset will not be available until the Company's budget is approved this summer. The Company has provided five years of avoided distribution cost history (2015 through 2019) for context on the proposed methodology. The Company will provide the 2020 avoided distribution capacity cost results at the July 31 stakeholder meeting to discuss the 2020 VOS, as well as in our September filing for the 2020 VOS. Thank you, Amber	9-Apr
Novel Energy	Cliff Kaehler	Our response is the following: We can't really give any input without knowing the 2020 estimated VOS rate. After the stakeholder meeting where that is discussed, we will be prepared to talk through the different options. It's just tough to give an answer without all the necessary information. Hope your week is going well! Thanks Cliff	11-Apr	N/A	N/A
Fresh Energy	Allen Gleckner	Hi Amber – in your May 1 filing, we'd request that Xcel include an explanation of how it determines that distribution investments, both historical and forecasted, are categorized as "capacity-related", including any methodology to make that determination, as well as the amount and classification for investments in the historical and forecast period that are determined to be not capacity-related. It would be helpful to include this as an itemized spreadsheet in an appendix.	16-Apr	Thank you for your response!	16-Apr
Stoel Rives	Sara Bergan	Amber, Thank you for the opportunity to provide input on the Company's proposed alternative method for calculating the VOS avoided distribution cost value. The ability to provide effective feedback, however, is limited by the fact that the 2020 values under the current methodology are still unknown. If the Company is able to provide these numbers after the budget is approved this summer as indicated in your email below, we believe it would be much more efficient to wait until those figures are available and evaluate appropriate modifications at that time when we can all be focused on the same baseline information. Having this discussion now before Xcel is able to project values for 2020 and while the legislature is embroiled in various potentially consequential program changes, seems potentially hasty and premature. It might be different if the delay was much more substantial but in just a few months, the legislative session will have ended and it sounds like Xcel will be able to deliver more accurate 2020 values. If forced to suggest alternatives without the benefit of the 2020 values, the CSG Developer Group would suggest that the avoided distribution capacity cost value simply be averaged over a wide set of years to address the volatility. The group is curious to know, for example, what the average value would be from program inception through and inclusive of the current 2020 values. Likewise the group would be interested in exploring what averaging the VOS rate as a whole over a rolling multi-year period might do to rate stability. Although these and other changes may be worth exploring, it is very hard to recommend constructive changes without focusing on the most applicable set of numbers. Sent on behalf of the CSG Developer Group, Sara Bergan |Attorney STOEL RIVES LLP Direct: (612) 373-8819	16-Apr	N/A	

Organization	Requestor	Response to Request for Comments	Rcvd Date	Response	Response Date
MNSEIA	David Shaffer	The Minnesota Solar Energy Industries Association (MnSEIA) submits the following comments regarding Xcel's April 5th email request soliciting stakeholder feedback on its propose alteration to the Value of Solar (VOS) methodology. In short, MnSEIA opposes Xcel's new methodology. Further details are included below. I. NOW IS NOT THE TIME TO MAKE THIS CHANGE AND THIS PROCEEDING SHOULD BE TEMPORARILY STAYED. At the outset MnSEIA would like to state that there seem to be different ways to calculate this value and that currently we view all options as viable. A change may be necessary at some point, but we are not yet convinced that Xcel's approach comes close at approximating the actual benefit distributed solar brings to Xcel's distribution capacity. There is not yet enough information to help make this decision on how we should change the distribution capacity component. a. The Legislature Is Considering Substantial Changes That May Moot This Issue Entirely, Or Alter MnSEIA's Opinion Of What An Acceptable Distribution Capacity Component Would Be. While MnSEIA appreciates that Xcel is seeking to submit a May 1, 2019 filing to the Commission, pursuant to the March 22, 2019 Order, MnSEIA seeks to convey to Xcel - and hopes Xcel reiterates this to the Commission - that now is an awkward time to discuss this item. While MnSEIA has broad opinions at this time, they are liable to change with the outcome of the legislative session. Currently there are several underlying bills that are bundled into bigger omnibus bills that would really impact our opinions on the need for a change to the distribution capacity component and what the change would look like. Specifically, in the Senate Energy Omnibus bill there is a provision to eliminate the Community Solar Garden program's reliance on the Value of Solar altogether. It would result in a 25MW program cap with a Request for Performance model to determine the actual price to be paid CSG subscribers for the energy and capacity sold to the utility. If this bill were to come to fruition, then this issue is altogether mooted. Similarly on the House side, there is a positive Community Solar Gardens bill that would, among other things, require a three year averaging of the VOS and would put the administration of the VOS methodology in the hands of the Department. If these provisions were to pass, MnSEIA may have a different opinion on how important it is to get this actual variable, which is one of many in the VOS methodology value stack, absolutely correct. More importantly, with a 3 year average in place MnSEIA would even question whether a transition away from the current distribution capacity methodology is even warranted, as the volatility of this component would be substantially reduced through the averaging process. MnSEIA would thus suggest that Xcel file in its May 1, 2019 filing an acknowledgement that the need for transitioning from the current distribution capacity methodology, and how should be done, is heavily dependent on the outcome of this legislative session. Furthermore, we request that any comment period or decision rendered on this topic, should be made only after the legislative session, and any subsequent special sessions, have concluded. b. MnSEIA Believes There Is A Current Lack Of Information Available To Determine Whether There Is A Problem With This VOS Component And To What Extent It Should Be Changed, But That This Information Will Be Available This Summer. At the outset MnSEIA would like to highlight that Xcel has been unwilling or unable to produce an estimate for the 2020 distribution capacity component. This piece of information i important to really address whether a problem exists and to what extent. Xcel seems to suggest that it wants to move away from the current approach to avoid volatility, but the industry is the stakeholder group most impacted by the current approach's volatility since our businesses depend on this rate. But while we are not entirely happy with the current model, it is better than the approach Xcel is devising with the information available. Even a simple 5 year average would be better than Xcel's current proposal. That is to say, if you average the current methodology's distribution component, which was 2.28 Cents per kWh in 2015, 0 Cents per kWh in 2016 and 2017, 0.82 Cents per kWh in 2018 and again 0 Cents per kWh in 2019, then the average value of the price per distribution component is .62 Cents per kWh. However, if Xcel's approach was applied, then the average over the same five years for this component would be .31 cents per kWh. It would be half as much on average. While the Cents per kWh is important and we have spoken to it above, MnSEIA is not advocating for an approach that yields the most money. We do respect a desire for less volatility, if it were to yield similar values. If, for instance, the 2020 Distribution Component came in again at 0 Cents per kWh, then it would lower the average from .62 cents per kWh to .52, which is starting to get closer to the Xcel average. It would also further illustrate that there are boom and bust years to this program because of this particular component. In our November our filed comments included the following statement about this issue: Concurrent with the Commission's consideration of the 2019 VOS is a conversation around the avoided distribution capacity value component and locational value for future gardens. The current 2019 VOS has an effective distribution capacity value of $0. This is a big part of the reason the 2019 VOS dropped 13% in a single year. And it is a strange result, given that Xcel itself has spent $199 million on capacity-related upgrades to its Minnesota distribution system over the past ten years.8 (In other words, Xcel averages almost $20 million per year on capacity related distribution upgrades, but is awarding zero avoided costs savings to 2019-vintage VOS projects.). At the same time, the VOS methodology gives zero value to the $42 million in distribution upgrades that CSG Developers have purchased for the utility (through June 2018), and zero value to the $8.2 million in distribution engineering studies that CSG developers have paid to date – despite the value that both will provide to the distribution system over the next 25 years.1 So our initial understanding of any change to this distribution capacity component is that the methodology would better recognize the value distributed solar brings to Xcel's distribution system. Without the 2020 number it is hard to know whether 1) we are just uncomfortable with an approach that gets closer to that real number, 2) whether Xcel's valuation is reasonable but requires some minor modifications, or 3) whether Xcel's approach actually further devalues a distribution capacity credit that we feel is already woefully inadequate, requiring either a new way to get at this valuation or the retention of the current methodology. Xcel has stated that it intends to release the results for the 2020 distribution capacity component at the July 31, 2019 SRC meeting and to discuss it in their 2020 VOS filing in September. MnSEIA would like to stay Xcel's recommendation to the Commission on this point, or at least stay the comment period, until this number is made available. II. XCEL'S METHODOLOGY IS FLAWED FOR REASONS WE HAVE ALREADY ARTICULATED IN THE NOVEMBER STAKEHOLDER MEETING. At the November stakeholder meeting where MnSEIA, other developer members, Xcel and the Department of Commerce met to discuss how to improve Xcel's distribution capacity component. At that time, Xcel was proposing a 5-year look forward approach to calculating the distribution capacity component as opposed to a partial look forward and look back, as it is doing today. MnSEIA and our members argued that a 25-year look forward makes significantly more sense, as the VOS is used for 25 year contracts. We argued this same point in relation to the current methodology in our November commentary. If Xcel intends to upgrade its distribution system and the addition of a new CSG might delay that upgrade during the CSG's life-span, a garden that is online during the time should receive credit for the cost deferral. MnSEIA and our members further argued that some valuation should be placed on the upgrade costs that developers are paying to improve Xcel's substations and equipment. The counter argument, which we've heard in this meeting and elsewhere, is that the upgrades are only needed because a CSG is being added to the grid. The crux of the argument is that the upgrades would otherwise not be made. Certainly this is true at times - but it is not true in all cases. Take for instance when Xcel will have to upgrade an old transformer that is close to where the CSG is to be added. If the developer were to add a new transformer to interconnect their garden, then Xcel would save money on a piece of equipment it knows it will need to upgrade shortly. This is a clear cost savings for the utility and its ratepayers, but it is not included in the current VOS methodology nor is it included in the proposed methodology. Presumably upgrades like this have occurred somewhat frequently with over 500MW of interconnected gardens. We do have additional challenges with Xcel's distribution capacity component, but because our initial challenges with Xcel's methodology were not further considered, we intend to share those only during a formal PUC comment period. -- David Shaffer Executive Director MNSEIA	16-Apr	N/A	

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☐ **Public Document – Trade Secret Data Excised**
☒ **Public Document**

Xcel Energy
Docket No.: E002/M-13-867
Response To: Fresh Energy Information Request No. 10
Requestor: Allen Gleckner
Date Received: October 12, 2017

Question:

Re: VOS Compliance Filing, Attachment B – Distribution Capacity Cost:

Regarding the "location-specific" distribution capacity cost calculations

a) Please describe how Xcel developed the nine distribution planning areas, including how this process complies with the Value of Solar Methodology's direction that "The distribution cost VOS should be calculated for each distribution planning area, defined as the minimum area in which capacity needs cannot be met by transferring loads internally from one circuit to another."[1]

b) Please explain how Xcel determined the percentage of planning area investment that is "capacity-related". Is this method consistent with the class cost of serve study provided in the most recent rate case?

c) For the "system-wide" distribution capacity cost component, the historical 10-year peak demand growth rate (in kw) is calculated for the years 2007-2016. For the distribution capacity cost component for the nine planning areas, the historical 10-year peak demand growth rate (in kw) is calculated for the years 2010-2019, where 2018 and 2019 are estimates. Please explain why Xcel is using different date ranges for determining historical 10-year peak growth.

[1] At 36.

Response:

a) The Value of Solar calculations were based on the distribution planning areas which are generally defined geographically and have been in place for 20+ years. The distribution planning areas align with our service center areas for the most part but there are some variances. Service center areas are defined geographically and have engineering, design, construction and other resources assigned to them. The distribution planning areas are defined by substation and some substation feeders will cross over more than one service center area. Given that most of our territory can transfer load from one circuit to another, defining distribution planning areas as the minimum area in which capacity needs cannot be met by transferring loads would not result in additional planning areas. In addition, costs more granular than the areas provided are not available.

b) As can be found by referring to the live copy of Attachment B – 2018 Distribution Capacity Values that was submitted with our October 2nd filing in this docket, the percentages referenced in the question are calculated by dividing the Capacity Related Project Cost (column F) by Total Distribution project costs (column D). This formula is represented generally at the top of the percentage calculation column. To find the cell inputs for each specific percentage, its formula can be found by clicking on the Excel cell containing the percentage.

   Individual distribution projects costs are not broken out by type (capacity related or otherwise) in the CCOSS. Overall, distribution project costs by customer type (primary and secondary) are categorized as customer related or capacity related categories via the minimum distribution study for general rate design guidance. In this application, the term capacity is used in a more general rate design context. In the context of the VOS, the term capacity-related serves as a description to determine which project costs are deferrable by solar and this determination must be done on a project-by-project basis.

   As per our planning process, distribution planning identifies risks on the system where we need more capacity and proposes distribution capacity projects to solve those risks. The capacity projects that distribution planning initiates are under the Electric and/or Substation Capacity Program budget types in our budget system. We were able to utilize this standard planning and budgeting process for the VOS.

c) The Company interpreted the Department's methodology as requiring different date ranges for the two methodologies. On page 34 of the Department's

methodology for system wide avoided costs, it refers to using actual data from each of the last 10 years. Then, on page 37 of the Department's methodology for location specific avoided costs, it refers to using budgetary engineering cost estimates for the planning horizon. Our planning horizon is three years. The Company communicated the guidance employed in calculating the system-wide and location-specific distribution values in the Company's cover letter of the 2018 VOS submission. Below is the excerpt from our cover letter of the 2018 VOS submission.

Selected text from the Company's 2018 VOS cover letter:

Attachment B contains the calculation of the avoided distribution capacity, including location-specific avoided costs per ordering point 4 of the Commission's September 6, 2016 Order in this docket. The company employs historical cost and peak demand data for the system-wide method and uses a combination of historical and forecast cost and peak demand data to comply with the location-specific method as indicated by the methodology. To create the location-specific avoided distribution cost the Company employed the following references from the VOS Methodology.

From page 36 of the Department's VOS Methodology[2]:

System-wide Avoided Costs
"Cost per unit growth ($ per KW) is calculated by taking all of the total deferrable cost for each year adjusting for inflation, and dividing by the KW increase in peak annual load over the 10 years"

Location-Specific Avoided Costs
"When calculating the location-specific costs, the calculation should follow the same method of the system-wide avoided cost method, but use local technical and cost data.

- "The distribution cost VOS should be calculated for each distribution planning area…"
- "Anticipated capital costs should be evaluated based on capacity related investments only (as above) using budgetary engineering cost estimates…"

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[2] Docket No. E999/M-14-65; IN THE MATTER OF ESTABLISHING A DISTRIBUTED SOLAR VALUE METHODOLOGY UNDER MINN. STAT.§ 216B.164, SUBD. 10 (E) AND (F); Minnesota Value of Solar: Methodology (Department); April 2, 2014.

Preparer: Meghan Tisdell/Nick Paluck
Title: Senior Engineer/Rate Consultant
Department: System Planning Minnesota/Regulatory Analysis
Telephone: 763.493.1850/612.330.2905
Date: October 23, 2017

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.

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. E002/M-13-867

Dated this 1st day of May 2019

/s/

Jim Erickson
Regulatory Administrator

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