

**STATE OF MINNESOTA
PUBLIC UTILITIES COMMISSION**

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In the Matter of the Petition for approval of Northern States Power Company, dba Xcel Energy, for approval of its Community Solar Garden Program

November 27, 2018

MINNESOTA SOLAR ENERGY INDUSTRIES ASSOCIATION'S COMMENTS ON XCEL ENERGY'S 2019 VALUE OF SOLAR CALCULATION

Docket No. E-002/M-13-867

**COMMENTS OF THE MINNESOTA SOLAR ENERGY
INDUSTRIES ASSOCIATION**

The Minnesota Solar Energy Industries Association (MnSEIA) offers the following comments concerning Xcel Energy's (Xcel) Community Solar Garden (CSG) 2019 Value of Solar (VOS) filing for Minnesota Public Utilities Commission (PUC or the "Commission") Docket No. 13-867 and the Department of Commerce's recent pre-approval thereof.

A. Xcel Energy's Application Of The 2019 VOS Is Flawed.

On its face, Xcel Energy's 2019 VOS methodology required Commission approval *in advance* of a compliance filing that includes the changes. Last year, when Xcel used a new (rural) data set for the inputs into the 2018 avoided environmental costs methodology, the Commission scrutinized an ultimately overruled that methodology change in the final 2018 VOS rate. This year again Xcel has modified the rate without Commission approval by changing from the approved 25-year production model to a new 25-year production assumption based on a mere 12 months of actual CSG production data. This change to the methodology devalues the rate and should require explicit prior Commission approval, like the environmental cost data, weather

normalization and location-specific values the Commission scrutinized prior to approving the 2018 VOS rate.¹

Aside from failing to attain Commission approval prior to implementing it, the issue with adding actual fleet data to the VOS calculation is that we (the collective “we”) do not have enough data yet to warrant displacing the 25-year production model. The current data set for Community solar is lacking on several fronts. First is temporal. The fleet data Xcel is providing only uses 2017, because that is the sum total of their available data. If that year was sunnier than average, then the production levels will be higher than average as well. Using a single year of data in lieu of a 25-year productivity estimate to base 25-year Community Solar contracts is unwise and likely unpredictable, because it is not a robust enough figure.² The current production estimate likely incorporates up years and down years, and averages out at a lower productivity rate than the production levels in 2017.

A single-year of data also does not include other factors that might exist in a predictive model. For instance, as wildfires increase and moisture levels rise in the air from climate change, modules installed today may not produce as well.³ These are climatic effects we may see within a 25-year span, but certainly did not see much of in 2017. These effects may play into the divergence between the 2017 data and the predictive model.

Furthermore, the current modeled production numbers may include possible outages from degradation, faulty software, and other events more likely to occur as the modules age. Using the first year of data to make an assumption for the next 25-years is like driving a new car off the lot and assuming it will drive as well for the next 25-year years. It simply will not do that. Module

¹ See ORDER APPROVING VALUE-OF-SOLAR RATE FOR XCEL’S SOLAR-GARDEN PROGRAM, CLARIFYING PROGRAM PARAMETERS, AND REQUIRING FURTHER FILINGS, MINNESOTA PUBLIC UTILITIES COMMISSION, Docket No. E-002/M-13-867 Doc Id. 20169-124627-01 at 23 (herein after *VOS Order*).

² See The National Solar Radiation Database, Dr. Manajit Sengupta, National Renewable Energy Laboratory (available at: <https://nsrdb.nrel.gov/>) (showing that there are dedicated organizations designed to better flesh out forecast data than a single year of fleet production).

³ See Solarponics: <https://www.solarponics.com/solar-electric/wildfires-and-solar-panels/> (stating: In hazy conditions from wildfire smoke, which we are experiencing in Paso Robles, one of our monitored solar energy sites is producing 685.708kWh/day. The week prior, clear and sunny conditions, that same system was producing an average of 838.168/day. That’s a 19% net loss of energy production, or \$30/day. Keep in mind that the system that we monitored is very large. The average home solar system size is 7kW in size, equating to a \$1.60 kWh net loss/day under the same conditions.).

production changes over time and needs to be accounted for if one is to adequately value solar.⁴ The industry norm is to use predictive data models and Xcel has not provided sufficient justification for deviating from that norm.⁵

The next issue with the current fleet data is that it is incomplete. According to Commerce's filing, Xcel is devaluing the 2019 VOS because there are 39 projects online. Xcel also recalculated it using 89 projects to find a similar number. But what if those projects are producing better than average, and when the current queue is deployed the average production level decreases? This is certainly possible, as each garden is its own entity and there are still 172 projects in design and construction alone.⁶ Different developers might have different modules with different levels of efficiency. Some developers use trackers, while others use fixed tilt. We will not know the actual productivity levels of the solar fleet until more of it is deployed, and we certainly cannot ascertain anything particularly useful from 39 (or even 89) projects monitored for a year.

MnSEIA is not against using actual data at some point in the future. But we simply do not have enough reliable information to warrant a transition at this point. There are too many considerations to cast aside a predictive model because of a single year of data.

Our biggest frustration with the addition of the actual data is not with the data itself, but really with process.⁷ The current procedure is Xcel files its VOS in September or October, depending on the year, and then the Department checks Xcel's VOS for sufficient compliance with the existing methodology. Then the PUC grants a final approval, typically without stakeholder engagement. The process, as designed, should not result in yearly disputes. But it has. This is because Xcel has repeatedly changed how it calculates certain variables in the VOS

⁴ See Photovoltaic Degredation Rates – An Analytical Review, Dirk C. Jordan and Sarah R. Kurtz, National Renewable Energy Laboratory at 6 (available at: <https://www.nrel.gov/docs/fy12osti/51664.pdf>) (illustrating a decrease of .5% - .08%/year in production levels).

⁵ See The National Solar Radiation Database, Dr. Manajit Sengupta, National Renewable Energy Laboratory (available at: <https://nsrdb.nrel.gov/>) (showing that there are dedicated organizations designed to better flesh out forecast data than a single year of fleet production).

⁶ MONTHLY COMPLIANCE REPORT, XCEL ENERGY, Docket No. E002/M-13-867, Doc. Id. 201810-146889-01 at 2 Table 2: Active Applications: Progress Summary (Oct. 9, 2018).

⁷ We would also here flag a concern with the approved VOS methodology which (per Xcel) appears to result in a lower VOS rate when the actual installed CSG capacity is higher than initially modeled – which is paradoxical given that higher solar capacities (including more afternoon production via single-axis trackers) would presumably provide increased value to the distribution system.

from year to year, usually lowering the rate. This typically results in the industry and other stakeholders requesting comment periods, inserting ourselves into a compliance process designed to be completed by the end of each year, and hoping to alert the Commission to these changes before it is too late. In short, it is not a fun process, and there are appropriate avenues for changing VOS inputs that can be handled well before the last quarter of the year. If Xcel wants to change how it handles an input for the VOS, it should be noticed and commented upon prior to publishing it in the upcoming year's VOS filing, and Xcel should have the burden to prove that such changes from industry norms and prior precedent are prudent and necessary.

In this instance however, Xcel has unilaterally decided that it would transition to this new data source and there was no opportunity to vet this change, until now. It is a fairly drastic change in terms of what it means for the VOS going forward – leading to a broad decline across multiple VOS component values. This modification to the VOS could not have been approved by Commerce, as it required Commission approval first.

For the foregoing reasons, if the Commission should direct Xcel to continue using the 2014-2018 25-year predicative model for the fleet data in 2019, and until such time as Xcel formally applies for approval to change its VOS calculation methodology.

B. A More Robust Locational Value is Necessary and Should Be Amended to the 2019 VOS if approved in 2019.

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.⁹

⁸ See 2019 VOS – Attachment B, sum of cells H14-H23.

⁹ Xcel Response to MnSEIA Information Request #11 on November 1, 2018; Xcel Response to MnSEIA Information Request #13 on November 1, 2018 (will be filed concurrently with these comments).

During the November 14 SR*C Working Group meeting, Xcel released a draft proposal for altering the distribution capacity component in future years. Xcel estimates it would increase the 2019 VOS by ¢.34/kWh.¹⁰

With this other distribution capacity track running in parallel, there is a possibility that the developers in the work group, Xcel Energy and the Department will develop a suitable replacement for the current VOS distribution capacity component. When Commission approved, MnSEIA's hope is that this VOS component could be retroactively applied to the 2019 VOS. The approval of the 2019 VOS should either be stayed or amended if and when this component falls into place to appropriately value the distribution capacity benefits associated with solar.

There are practical benefits of this. The 13% drop from the 2018 to 2019 VOS has resulted in an influx of developers submitting applications in hopes of having their projects deemed complete prior to the 2019 VOS rate taking effect. This likely means that developers will not be submitting applications early on in the 2019 VOS's implementation or even under a continued 2018 VOS rate. So in many ways there are several months to get a viable 2019 VOS rate with locational component that is Commission approved.

One of our concerns, however, is that altering the distribution capacity value is not entirely what the Commission envisioned when it ordered a relook at location-specific avoided costs. As part of its September 6, 2016 Order the Commission "will also require Xcel, beginning with the 2018 value-of-solar rate, to use location-specific avoided costs in calculating avoided distribution capacity."¹¹ This value was to be used instead of system-wide number and was intended to create a market where the utility could send price signals to developers to encourage CSG deployment in high need areas.¹² Xcel's newest plan still does not look at each distribution planning area, as defined in the Minnesota Value of Solar Methodology. MnSEIA would hope that the distribution

¹⁰ This draft proposal appears to be based on the expected avoided-distribution-capacity costs over the next 3 years. But MnSEIA would expect that any final proposal to include a full 25-year value for this VOS rate component.

¹¹ See VOS Order, *supra* note 1 at 14.

¹² *Id.* at 14 (stating "The Commission will also require Xcel, beginning with the 2018 value-of-solar rate, to use location-specific avoided costs in calculating avoided distribution capacity. Part of the benefit of distributed generation derives from its location on the grid; by being located near load, it reduces local peak demand and defers the need for distribution-system upgrades. The approved methodology allows a utility to calculate its value-of-solar rate using either location-specific or system-wide avoided distribution-capacity costs. In its filings to date, Xcel has used system-wide avoided distribution-capacity costs to calculate the value-of-solar rate. To fully reflect the value of distributed solar generation, however, Xcel will be required to begin including location-specific avoided costs in its 2018 value-of-solar calculations.").

capacity value is the first step of many towards ensuring that solar is appropriately valued based on its location, but we would not want the approval of the 2019 VOS or a modification to it, to be unduly hampered by a well thought-out stakeholder process. So perhaps a two-step approval process for this component is warranted to ensure an easy transition for the industry and the customers it serves, while preserving a rigorous discussion around calculating location-specific values.

So in short, MnSEIA is in favor of relooking at the distribution capacity value and locational values in general, and requests that either the 2018 VOS is extended until the methodology is changed, or if the 2019 VOS is approved and a locational value is adopted this year, then we request that the locational value be added to the 2019 VOS retroactively. However, we also want to ensure that altering this variable, if the Commission does go that direction, is not the end of the discussion around location-specific CSG deployment and we hope that process is rigorous and meets the Commission intent as outlined in the September 6, 2016 Order.

C. The Commission Should Set All Future VOS Filings For September 1 Of Each Year.

Last year, the Commission decided to move the 2019 VOS filing from October 1, 2018 to September 1, 2018. This was a very beneficial change. First, it gave the Department, the industry and other stakeholders more time to digest the new rate and file information requests. While the 2019 VOS hearing may be held in early 2019, it still will be earlier than it would have otherwise have been if the filing deadline was October 1.

The other benefit is that because the 2019 rate went down, it heavily incentivized developers to submit their applications early to ensure they receive the 2018 VOS rate. In 2017 when this issue arose, developers that submitted were not sure whether they would receive the 2017 rate or the 2018 rate, because the timelines were so tight that their applications may not be deemed complete before the end of the year. Having the extra month of time ensures that developers can qualify for the rate that they are seeking and alleviates disputes at the Commission over whether Xcel appropriately handled their application and provides more certainty to make CSG business plans.

As far as negatives goes, last year the Commission and Xcel expressed some concern about whether the rate would be adequately calculated with a lost month and whether Xcel staff would be capable of doing it. Those concerns appear to have been assuaged. At the September SR*C meeting, MnSEIA asked Xcel staff about how difficult it was to calculate the VOS a month early to which the Xcel rate analyst articulated that it was a little more onerous on his time, but not problematic for the rate itself.¹³

¹³ See STAKEHOLDER MEETING MINUTES, XCEL ENERGY, Docket No. E002/M-13-867, Doc. Id. 201811-147840-01 at 6 (Nov. 16, 2018) (stating “Question: Did the extra month

So with a handful of positives and no real negatives, MnSEIA would like to respectfully request that the Commission consider requiring Xcel's annual VOS filings to be filed September 1 of each year, instead of October 1.

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(September from October) cause any concern to Xcel Energy or the numbers? Answer: No, outside of moving our timeframe up there was no concern regarding the timing of our filing.”).

- Not Public Document – Not For Public Disclosure**
- Public Document – Not Public Data Has Been Excised**
- Public Document**

Xcel Energy

Docket No.: E002/M-13-867

Response To: MnSEIA Information Request No. 11

Requestors: David Shaffer

Date Received: October 22, 2018

Question:

Please provide the total aggregate interconnection costs (i.e., for substation and distribution system upgrades) that have been paid to Xcel Energy by CSG applicants and developers to date and an average interconnection costs paid on a per-project basis.

Response:

Table 1 below describes the total aggregate costs for substation and system upgrades for projects in the Solar*Rewards Community Program paid by CSG developers. We calculate our costs on a project basis and perform this calculation at the time developers are charged actual cost. This occurs after the project is interconnected to our network. Large projects may straddle more than one calendar year. This means that when we calculate the costs for a given project, the calculated costs typically include costs from prior calendar years. Similarly, if a bill for a given project under construction is not issued in a given calendar year then our tracked and reported costs will not reflect these costs until we issue a bill.

The cost for distributed energy resources, including CSGs, are based on the detailed design and the subsequent installation work as noted in our Electric Rate Book, Section 10 Tariff. We can report on the costs for community solar garden projects as shown in bills sent in a calendar year. We further note the Company has a 120-day process in which to bill generation customers; as such, bills began to process in 2017.

**Table 1: Solar*Rewards Community
Billed Interconnection Costs per Year**

Year	Total Interconnection Cost	Number of Sites
2017	\$ 16,080,107	54
2018 (Year-to-date June)	\$ 26,010,831	55
Total	\$ 42,090,938	109

The average interconnection cost on a per-project basis (by site including those co-located) based on the information above is \$386,155. These billed costs may not represent the full scope of integration costs for these projects. These are the costs to complete the upgrades to our system required to accommodate supply from new distributed generation. As a general matter, such upgrades are not necessary to serve customer load absent new distributed generation.

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 Date: November 1, 2018