

 **Relevant Documents**

	Date
MN Solar Energy Industry Association (MNSEIA) Comments	February 19, 2019
Vote Solar Comments	February 19, 2019
Sundial Energy Comments	February 19, 2019
City of Minneapolis, Target Corporation, Et al. (Commercial Customer Cohort or CCC) Comments	February 19, 2019
Department of Commerce Letter	March 13, 2019
Xcel Reply Comments	March 19, 2019
Department of Commerce Supplement Comments in Response to Xcel Reply Comments	August 16, 2019
Vote Solar Supplemental Comments	September 23, 2019
Commercial Customer Cohort Supplemental Comments	September 23, 2019
MNSEIA Supplemental Comments	September 23, 2019
Department of Commerce Supplemental Comments in Response to Commission Notice.	September 23, 2019
Xcel Supplemental Comments	September 23, 2019

I. Statement of the Issues

Should the Commission approve, modify or reject Xcel's proposed solar PV Demand Credit Rate methodology and Xcel's proposed updated credit rate?

Should the Commission direct Xcel, in its next rate case, to propose a pilot project for its commercial demand-metered customers with behind the meter solar installations, as recommended by the Department?

Should the Commission require Xcel to develop another option to its proposed solar PV credit valuation methodology?

II. Background

On November 14, 2011, Northern States Power Company d/b/a Xcel Energy (Xcel or the Company) filed a Stipulation and Settlement Agreement between the Company and several parties to its then pending rate case in docket E002/GR-10-971. Among the terms of the agreement, Xcel agreed to study the load profile of larger solar facilities to determine the applicability of a solar facility's unique load characteristics to the standby and supplemental rate tariff.

On May 14, 2012, the Commission issued its Findings of Fact, Conclusions, and Order in Xcel's rate case. The Commission adopted the Stipulation and Settlement Agreement, and directed Xcel to "file with the Commission and supply to the Department of Commerce the results of the study of the load profiles of Large Solar Facilities."¹

On August 24, 2012, Xcel filed a Solar Load Profile Study, which it re-filed on September 14 to include previously redacted information after customers consented to the public release of their solar load profile data. According to Xcel, the study suggested that solar PV systems contributed to capacity requirements during system peak periods, though the contributions were variable. In addition, Xcel noted that the Standby Service tariff did not explicitly recognize this contribution.²

On May 1, 2013, Xcel filed a preliminary Effective Load Carrying Capacity (ELCC) study. The Company subsequently held a stakeholder meeting to review and discuss the draft study, including its methodologies and assumptions.³

¹ *In the Matter of the Application of Northern States Power Company d/b/a Xcel Energy for Authority to Increase Rates for Electric Service in Minnesota*, Docket No. E-002/GR-10-971, Findings of Fact, Conclusions and Order, p. 35, Ordering Point 16.

² Docket No. E002/GR-10-971, Xcel Energy, Compliance Filing - Solar Load Profile Study, p. 1.

³ *In the Matter of a Rate for Large Solar Photovoltaic Installations*, Docket No. E002/CI-13-315, Solar Effective Load Carrying Capability (ELCC) Study.

On May 13, 2013, the Commission accepted Xcel's Solar Load Profile Study as fulfilling Xcel's obligation under paragraph 16 of the Commission's May 14, 2012 order. As a result of the study of the load profile of large solar facilities conducted by Xcel, the Commission concluded that solar PV facilities contribute to capacity requirements during peak periods, and that Xcel's existing standby tariff did not incorporate that contribution.⁴

The May 13, 2013 order also set an interim solar photovoltaic capacity credit of \$5.15 per kW per month for Xcel's standby service rider. In addition, the Order also required Xcel to take a number of steps, including the following:⁵

- File preliminary results of its Effective Load Carrying Capacity study, including as much supporting data as possible;
- File a large customer solar PV rate proposal that appropriately reflects the value of solar resources on Xcel's system, and re-evaluate the interim standby service tariff capacity credit.
- Work with stakeholders to explore and develop the solar rate proposal. The proposal should address concerns raised by interested parties and stakeholders, including responses to the Company's Solar Load Profile Study and the ELCC study, as well as any legislation enacted by the Legislature.

On January 27, 2014, in Docket No. E017/M-13-609, the Commission required Xcel, Otter Tail Power Company, Interstate Power and Light, and Minnesota Power to confer with the Minnesota Department of Commerce – Division of Energy Resources (the Department) on the need and potential scope for a generic proceeding to address standby rates.⁶

On May 19, 2014, in Docket No. E002/M-13-315, the Commission approved a final Standby Service capacity credit of \$5.15 per kW per month for solar photovoltaic customers with these customers having the option of a June 1, 2014 start date for the grace period.⁷

On November 19, 2015, in Docket E999/CI-15-115, the Commission ordered all rate-regulated utilities to file updated standby service tariffs no later than May 19, 2016.⁸

⁴ *Id.*, Order Setting Interim Rate and Establishing New Solar Rate Docket, p. 3.

⁵ *Id.*, pp. 3-4.

⁶ *In the Matter of Otter Tail Power Company's Request to Amend its Standby Service Tariff*, Docket No. E017/M-13-609, Order Approving Tariff Amendments Governing Standby Service Charges for Net-Metered and Qualifying Facilities, p. 4, Ordering ¶ 6.

⁷ *In the Matter of a Rate for Large Solar Photovoltaic Installations*, Docket No. E002/M-13-315, Order Setting Final Solar Photovoltaic Standby Service Capacity Credit, Requiring Updates and Requiring Compliance Filing, p. 7.

⁸ *In the Matter of a Commission Inquiry into Standby Service Tariffs*, Docket E999/CI-15-115, Order Requiring Tariffs, p. 4, Ordering ¶ 1.

On May 19, 2016, Xcel filed its updated standby service rider and a new and separate service for solar-generation customers – the Solar PV Capacity Credit Rider. In its filing, Xcel also proposed a process and timeframe for establishing a methodology for a permanent PV credit rider. Xcel explained that once the proposed Solar PV Capacity Credit Rider is approved, customers with on-site solar will receive a capacity credit for on-peak solar capacity under the rider.⁹

In its October 3, 2017 *Order Approving Three Tariffs with Conditions and Requiring Xcel to File a Proposal for its Solar PV Capacity Credit*, the Commission approved standby service tariffs for Otter Tail Power Company, Dakota Electric Association, and Minnesota Power, but the Commission did not immediately act on Xcel’s proposal, and instead directed Xcel to take the following actions, among other requirements, toward developing a Solar PV Capacity Credit:¹⁰

18. Xcel shall work with other interested stakeholders and parties in this docket on development of a Solar PV Capacity Credit Rider and, in so doing, seek to reach an agreement on what the value of the Solar PV Capacity Credit Rider will be in the interim, prior to establishment of a methodology.

19. Xcel shall work with the parties to reach agreement on a proposed process and timeframe for establishing a methodology to be used in developing the solar PV capacity rider.

20. Within 30 days of the Order, Xcel shall file a report with the Commission with any agreements or partial agreements reached by the parties on the PV Solar Capacity Credit, and explain or identify any areas of disagreement or impasse remaining and basis therefore.

On November 2, 2017, Xcel submitted a compliance filing in response to order points 18, 19 and 20. Xcel included its proposal for a solar PV Demand Credit Rider based on an agreement negotiated with the Department and the Minnesota Solar Energy Industries Association (MNSEIA).¹¹

On March 20, 2018, Xcel filed the proposed agreement and PV Demand Credit Rider and a red-lined version of both sets of proposed tariffs. The proposed agreement addressed the level of the credit, customer eligibility, and the process and timeline for developing a new rate as follows:¹²

⁹ Docket No. E999/CI-15-115 & E002/CI-13-315, Xcel Energy Petition: Standby Service Tariffs, Solar Photovoltaic Rate for Large Installations, May, 19, 2016, pp. 1-2.

¹⁰ *Id.*, *Order Approving Three Tariffs with Conditions and Requiring Xcel to File a Proposal for its Solar PV Capacity Credit Rider*, p. 15.

¹¹ *Id.*, Xcel Compliance Filing, November 2, 2017.

¹² *Id.*, Xcel Update Standby Service Tariffs, pp. 4-5.

- The level of the credit in the PV Rider assumes a starting value of \$4.52/kW credit and 11 months as the average non-grace period months in the conversion formula for the kWh based solar credit, resulting in a credit value of 7.139 cents per kWh;
- Current customers under the Standby Service Rider who qualify under the PV Rider at a given location will no longer be on the Standby Service Rider and will be enrolled in the PV Rider. New customers who qualify for the PV Rider at a given location may also enroll in the PV Rider under this rate provided that they do so before the date of an order issued by the Commission authorizing a change to this rate. This subsequently revised rate in an updated PV Demand Credit Rider is referred to as the Revised PV Rider Rate;
- The PV Rider credit rate of 7.139 cents per kWh will be available to customers properly enrolled at the rate as described above for a given location for six years from the date of the Commission order approving the PV Rider. Any customer enrolling in the Revised PV Rider will receive the credit as set forth in the Revised PV Rider Rate tariff;
- Require Xcel Energy, following discussions with the Department of Commerce, MNSEIA and other interested parties, to file a proposed methodology for determining the appropriate solar capacity or demand credit. The methodology should consider reasonable ways to incorporate cost of service principles in demand charges for behind-the-meter solar customer accounts as well as also address the additional issues surrounding the solar capacity or demand credit rider as raised by parties in this docket. Xcel Energy should file its proposal and discussion of the additional issues by September 19, 2018 as well as rationales for why this study is or is not a better indicator of capacity or demand value than previously derived values. Parties will be allowed 60 days to respond;
- Require Xcel Energy, with input from the Department, MNSEIA and other interested parties, to evaluate to what extent the billing demand quantities of customers with solar generation is affected by their solar production. Xcel Energy will review whether there is a mismatch between the net billing demand of individual customers with solar installations and their net demand on system peak demand days relative to non-solar generation customers and, if so, how to reflect that difference appropriately in demand billing or comparable rate component; and
- Require Xcel Energy to conduct a new ELCC load study in preparation for its resource planning process. In addition, Xcel will compare this credit to current peak controlled demand credits. All study results will be provided to parties by July 1, 2018;

In its April 20, 2018 Order Approving Solar PV Demand Credit Rider with Modifications and Standby Service Rider, the Commission adopted Xcel's proposed Solar PV Demand Credit Rider, and the terms and conditions of the March 20, 2018 Agreement regarding the proposed rider. As explained in the agreement, the interim closed rate set in this proceeding established the start of a six-year term for the new solar PV Demand Credit Rider. If the Commission establishes a new methodology within the six-year period, and the new methodology is approved by the Commission, a new rate, either higher or lower than the interim rate, will commence.

Customers already on the interim rate will have the option to stay on the initial closed rate for the remainder of the six-year term, or to take service under the new rate once approved.¹³

The Commission also extended the date Xcel was required to share the results of the studies required to be undertaken, from July 1, 2018 (as stated in the Agreement filed March 20, 2018) to August 18, 2018 and the date on which Xcel was to file a proposed methodology for determining the appropriate PV demand credit from September 19, 2018 to October 19, 2018.¹⁴

Finally, in its April 20, 2018 Order, the Commission directed Xcel to evaluate the revisions to its Standby Service Rider, including the formation of a separate PV Demand Credit Rider, and report its evaluation to the Commission by December 1, 2020.¹⁵

On August 17, 2018, Xcel filed the results of its solar ELCC and PV Billed Demand Study. Xcel found that the small scale solar ELCC was 45 percent based on 2017 data and 55 percent based on 2016 data. The PV Billed Demand study found that customers with installed PV had average monthly billing demand charges reductions of 6.3% for year 2016 and 7.8% for year 2017.¹⁶

Xcel filed its proposal for a solar PV Demand Credit Rider and updated solar credit rate on October 19, 2018. Xcel's proposed methodology for determining the demand credit is based on a capacity value stack approach that includes the various cost components. Xcel described the value stack approach as an avoided cost approach that quantifies applicable avoided generation capacity costs and line losses, and also recognizes transmission costs.¹⁷

On February 19, 2019, Vote Solar, Sundial Energy, the Commercial Customer Cohort (CCC), MNSEIA and the Department all filed Comments in response to Xcel's proposed solar PV Demand Credit Rider. All parties expressed concern that Xcel's proposal would not accurately reflect the value demand metered Commercial & Industrial (C&I) customers with onsite solar PV generation provide to Xcel's system, and all parties also appeared to suggest that Xcel's value stack approach was not an appropriate methodology for determining the mismatch between net billing demand for these solar customers and their net demand on system peak days relative to non-solar customers.

The two parties who were a part of the November 2, 2017 negotiated agreement with Xcel, both suggested Xcel should be required to develop a new methodology for revising the demand credit to address the mismatch in net billing demand. MNSEIA requested the Commission

¹³ *Order Approving Solar PV Demand Credit Rider with Modifications and Standby Service Rider*, April 20, 2018, p. 4.

¹⁴ *Id.*

¹⁵ *Id.*, Ordering ¶ 6, p. 8.

¹⁶ Xcel Compliance Filing, Solar Effective Load Carrying Capability (ELCC) Study & PV Billed Demand Study, Attachment B, August 17, 2018, p. 1 of 5,

¹⁷ Xcel Compliance Filing, ELCC Study & PV Billed Demand Study, August 17, 2018.

require Xcel to restudy the PV Demand Credit Rider methodology and focus on where C&I solar customers are overbilled on their demand charges¹⁸ and the Department recommended the Commission require Xcel to propose a new rate design in its next rate case that includes a coincident peak based generation and transmission demand rate and billing quantities, and a non-coincident based distribution demand rate and billing quantities.¹⁹

The Department of Commerce submitted an “informational” Letter on March 13, 2019, requesting additional time after Xcel files its Reply Comments, for parties to negotiate and “agree to a more narrow range of recommendations and perhaps a common recommendation.”²⁰

On March 19, 2019, Xcel replied to parties’ Comments and stated the counterproposals in this record would exacerbate overpayment from ratepayers, stagnate the effort to achieve a Rider based on a calculable methodology, and provide long term certainty to some customers at the expense of others. Xcel requested the Commission approve its proposed methodology and the resulting rate, because it effectively fulfills the purpose of the Rider, and it does so in a way that is reasonably precise, replicable, and equitable for all customers.²¹

The Department submitted Supplemental Comments on August 16, 2019 in response to Xcel’s Reply Comments and listed potential options for the Commission and modified its Recommendation for the Commission to require Xcel to propose, in its next rate case, a pilot project for its commercial demand-metered customers with behind the meter solar installations, a new rate design that includes a coincident peak based generation and transmission demand rate and billing quantities, and a non-coincident based distribution demand rate and billing quantities.²²

The Commission issued a notice on August 29, 2019 requesting Parties provide supplemental comments on the potential Commission options provided by the Department in their August 16, 2019 Comments, and to clarify final recommendations on Xcel’s proposed Methodology for the PV Demand Credit going forward and the appropriate PV Demand Credit to apply in the interim period, prior to the establishment of a new methodology for the credit.

On September 23, 2019, Xcel, Vote Solar, CCC, MNSEIA and the Department submitted supplemental comments in response to the Commission’s Notice.

¹⁸ MNSEIA Comments, p. 9.

¹⁹ Department of Commerce Comments, February 19, 2019, p. 16.

²⁰ Department of Commerce Letter

²¹ Xcel Reply Comments, p. 17.

²² Department of Commerce Supplemental Comments in Response to Xcel Reply Comments, August 16, 2019, pp. 19-23.

III. Introduction

Parties appear to be in agreement that Xcel's current approach for determining the levels of demand – to which demand rates apply – overbills customers with solar arrays, due to the fact that demand rates overcharge the customer for capacity costs these customer impose on Xcel's system at the time of the peak. There does not appear to be any disagreement that the purpose of the PV Demand Credit Rider is to correct for any mismatch between the net billing demand of customers with on-site solar (based on their net demand on system peak days) relative to non-solar customers with an appropriate adjustment to the solar customer's demand billing component.²³

In this proceeding the Commission is tasked with deciding among options for determining a methodology for revisions of the solar PV Demand Credit for commercial and industrial customers that use solar PV as a customer-generated resource (greater than 40 kW (AC)). The proposed options include the following:

1. Xcel's proposed solar PV Demand Credit rate methodology based on a capacity value stack approach that includes the cost components for PV solar credit valuation;
2. Introducing a new rate design methodology that includes a coincident based generation and transmission demand rate and billing quantities and a non-coincident based distribution demand rate and billing quantities, which the Department proposed Xcel file as a pilot project rate for demand-metered C&I customers with solar PV generation in Xcel's next rate case;
3. The further development of a rate design based on Xcel's alternative methodology, which it set forth in its October 19, 2018 Compliance filing; or
4. The development of a new rate design based on "buy all, sell all" concept.

Only Option 1 above is a fully-formed proposed methodology. If the Commission determines that Xcel's proposed methodology is an appropriate framework for determining an adjustment to C&I customer's demand billing component, it will still need to resolve remaining disputes among the parties over the values of the cost components in Xcel's proposed value stack methodology.

Parties in this proceeding disagree with option 1 above, because they believe a value stack approach does not fix the issue a solar PV Demand Credit is intended to resolve. MNSEIA and the Department, in particular, appear to be in agreement that the value stack approach does not resolve the issue, because demand rates overcharge the customer for capacity costs that the customer imposes on Xcel's system at the time of peak. As described by the Department, the issue is:²⁴

²³ Xcel Reply Comments, pp. 2-3.

²⁴ Department of Commerce Supplemental Comments in Response to Xcel Reply Comments, August 16, 2019., p. 15.

...capacity costs on a utility's system are caused by the need to meet peak demand (known as coincident peak), whereas the level of demand that Xcel uses to bill its demand-billed solar customers is based on each customer's peak (non-coincident peak), which typically happens at a different time than the system peak and thus is higher than the amount of capacity that the customer uses during the system peak. As a result, the level of demand charged to demand-billed solar customers assigns too much responsibility for capacity costs to these customers.

The Department explained that the capacity value stack, or avoided costs, approach proposed by Xcel is only appropriate for determining the value of a solar resource if Xcel were procuring the resource. The Department reasoned that because Xcel is not able to register customer-owned resources that use net metering with MISO, these solar resources do not actually reduce Xcel's need for capacity.²⁵

While commercial customers with solar arrays will provide value to Xcel over time by reducing Xcel's need for capacity and energy, the Department maintained that customers with PV installations should be compensated for the reductions in demand quantities on their electric bills. Accordingly, the Department argued that Xcel's solar PV Demand Credit Rider should have focused on comparing the difference in costs that commercial customers with solar arrays impose on Xcel's system compared to commercial customers without solar arrays and allocated these costs accordingly.²⁶

While Xcel agreed that the purpose of its billing study was to come up with a fair way of allocating costs that commercial customers impose on the system, it argued its proposed methodology addresses this purpose. Xcel explained that its proposed pilot was designed to reflect an appropriate adjustment to the solar customer's demand billing component, and it does so in a manner that is "cost-based, replicable, and in view of customer equity considerations."²⁷

The approach of these briefing papers will be divided between descriptions of: (1) the current PV Demand Credit Rider, (2) Xcel's proposed solar PV Demand Credit rate methodology and updated credit rate; (3) three alternative options in the record; and (4) remaining issues including the appropriate PV Demand Credit to apply in the interim period, prior to the establishment of a new methodology.

IV. Xcel's Current PV Demand Credit Rider.²⁸

As a result of the terms of the settlement agreement reached between MNSEIA and the Department (filed on November 17, 2017) Xcel submitted the current solar PV Demand Credit

²⁵ *Id.*, pp. 14-15.

²⁶ *Id.*, p. 14.

²⁷ Xcel Supplemental Comments, p. 2.

²⁸ Xcel Minnesota Electric Rate Book – MPUC No. 2, Photovoltaic Demand Credit Rider, Rate Code A85

Rider for approval on January 4, 2018. The Commission approved the current solar PV Demand Credit Rider in its *Order Approving Solar PV Demand Credit Rider with Modifications and Standby Service Rider* on April 20, 2018.

The current solar PV Demand Credit Rider is available by request to demand-metered commercial and industrial customers that use solar PV as a customer-sited generation source with a capacity greater than 40 kW (AC). It is not available to customer-sited generation that is the subject of another incentive program such as Solar*Rewards.²⁹

The Customer charge for the PV Demand Credit Rider is \$25.75 per month. The credit consists of a standard (A86) and closed (A85) rate, both of which are currently \$0.07319 per kWh of Peak Period Solar Photovoltaic Generation – based on a \$4.52 per kW credit level. Peak period hours are the six hours between 1:00 p.m. and 7 p.m. for all days.

The closed rate is limited to qualifying customer account locations that: 1) are receiving Standby Service Rider tariff service with the Photovoltaic Solar Credit on the date the Rider was originally approved by the Commission (April 20, 2019), or 2) have enrolled for the Rider before the date the credit rate in this Rider is revised by the Commission. The closed rate will remain fixed until April 20, 2024. After expiration of the closed rate, the applicable standard rate will replace the closed rate.

The standard rate may be revised at any time, subject to Commission approval, and will apply to customer account locations that do not qualify for the closed rate.

The maximum kWh applied to the Rider credit per kWh each billing period is the Peak Period maximum 15-minute Solar Photovoltaic kW output for the billing period times 100 hours for billing periods ending in the months of June, July, August or September and 75 hours for billing periods ending in other months.

The maximum credit for each billing period is the applicable standard or on-peak billed demand charge from the base tariff associated with this Rider. For Peak-Controlled Service and Peak-Controlled Time of Day Service customers, the maximum credit for each billing period is the billed demand charge for Firm Demand.

The settlement agreement required Xcel, following discussions with the Department of Commerce, MNSEIA and other interested parties, to file a proposed methodology for determining the appropriate solar capacity or demand credit. The proposed methodology should consider reasonable ways to incorporate cost of service principles in demand charges for

(Closed) and Rate Code A86, Section No. 5, 5th Revised Sheet No. 125. See Xcel PV Demand Credit Methodology, October 19, 2019, Attachment A.

²⁹ *Id.* Staff notes that, following the example of parties' comments in the record, these customers are also referred to as "Commercial customers with solar ('on-site' or 'customer-sited') generation", "demand-metered customers with behind the meter solar installations," "Solar (or 'PV') customer" or some similar combination in these Briefing Papers.

behind-the-meter solar customer accounts as well as also address the additional issues surrounding the solar capacity or demand credit rider as raised by parties in this docket.³⁰

In addition, the agreement required Xcel to review whether there is a mismatch between the net billing demand of individual customers with solar installations and their net demand on system peak demand days relative to non-solar generation customers and, if so, how to reflect that difference appropriately in demand billing or comparable rate component.³¹

Finally, the Settlement Agreement required Xcel to evaluate the extent the billing demand quantities of customers with solar generation is affected by their solar production and to conduct a new solar effective load carrying capability (ELCC) in preparation for its resource planning process and to compare this credit to current peak controlled demand credits.³²

V. Xcel's Proposed Methodology

Xcel filed the results of its solar ELCC and PV Billed Demand Study on August 17, 2018. A solar ELCC is considered the best practice in the industry for determining the capacity value (percent of nameplate capacity that can be counted toward meeting the peak load and planning reserve) of PV systems.³³

Xcel found that the small scale solar ELCC was 45 percent based on 2017 data and 55 percent based on 2016 data. According to Xcel, the 10 percent range in results between the two years demonstrates the sensitivity of the ELCC to actual hourly load and solar generation, and the coincidence of the two.³⁴

Xcel's billed demand study was designed to determine whether customers with PV installations are able to utilize the solar production to reduce demand charges. Xcel explained that the current PV Demand Rider credit rates are based on the assumption that billed demand charges have not been reduced by the solar output. The study found that customers with installed PV had average monthly billing demand charges reductions of 6.3% for year 2016 and 7.8% for year 2017.³⁵

³⁰ Docket No. E999/CI-15-115, Xcel Update Standby Service Tariffs, March 20, 2018, ¶ 4, p. 4.

³¹ *Id.*, ¶ 5, pp. 4-5.

³² *Id.*, ¶¶ 5-6, pp. 4-5.

³³ *In the Matter of the Application of Northern States Power Company d/b/a Xcel Energy for Authority to Increase Rates for Electric Service in Minnesota*, Docket No. E-002/GR-10-971, Reply Comments of the Department of Commerce, January 18, 2013, p. 4.

³⁴ Xcel PV Demand Credit Methodology, p. 3.

³⁵ Xcel Compliance Filing, Solar Effective Load Carrying Capability (ELCC) Study & PV Billed Demand Study, Attachment B, August 17, 2018, p. 1 of 5,

On October 19, 2018, Xcel submitted its proposed solar PV Demand Credit Rider methodology and updated credit rates to the Commission in compliance with the Agreement between parties filed March 20, 2018, and the Commission's April 20, 2018 Order.

The Company's proposed methodology would determine the standard rate (A86) in its solar PV Demand Credit Rider. If the Commission approves Xcel's proposed methodology and the updated credit rate, the approved credit rate (A86) will apply to all C&I customers that enroll for the rider after the date of the Order approving the methodology and credit rate. The closed rate of \$0.07139 per kWh (A85) will still be available to any C&I customers that was enrolled in the rider before the approval by the Commission of the new methodology and credit rate until April 20, 2024. After this date the standard rate will replace the closed rate for all C&I customers with customer-sited generation source greater than 40 kW (AC).

The proposed methodology quantifies applicable avoided generation capacity costs and line losses, and recognizes transmission costs. The total component costs items were then applied to a system peak capacity contribution factor and adjusted for a billed demand reduction associated with customer PV operation. Xcel's proposed methodology yielded a credit level of \$2.15 per kW as the basis for conversion into the Rider peak period energy credit per kWh. Xcel's proposed methodology is summarized below in Table 1 below.³⁶

Table 1

Xcel's Proposed Capacity Value Stack Methodology - PV Demand Credit per kW			
a	Levelized CT Cost	\$4.62	
b	Embedded Transmission Cost	\$3.47	
c	Total Generation and Transmission	\$8.09	a+b
d	Line Losses	6.65%	
e	Total with Line Losses	\$8.63	c*(1+d)
f	Future Need (2025) Timing Factor	60%	
g	Future Need Adjusted Total	\$5.18	e*f
h	Capacity Contribution	50%	
i	Capacity Contribution Adjusted Total	\$2.59	g*h
j	Reduced Billed Demand Value	\$0.41	
k	Demand Credit per kW	\$2.18	i - j

Row a, levelized CT cost, is based on the current levelized monthly avoided cost of a combustion turbine. Xcel explained the levelized CT cost recognized the significant CT cost drop from the 2013 annual value of \$87.04 per kW to an updated 2019 value of \$54.48.³⁷

³⁶ Xcel PV Demand Credit Methodology, p. 4. In Xcel's Reply Comments, it updated the levelized CT cost from \$4.54 to \$4.62 per kW.

³⁷ *Id.*, p. 6.

Row b, embedded transmission costs, represents costs incurred for transmission facilities placed in service and is not a proxy for incremental avoided transmission cost. Generation and transmission costs are summed together in row c.³⁸

Row f, future need timing factor, is a discount adjustment recognizing that no incremental capacity need is forecasted until the year 2025 and is applied to both the transmission cost and generation peak capacity in row g.³⁹

The 50 percent PV capacity contribution (row h) to system peak requirements is consistent with the 45 percent to 55 percent range in Xcel's small ELCC study. Row i applies this capacity contribution to the future need adjusted total (row g).⁴⁰

Finally, the reduced billed demand value (row j) is based on a 6.4 percent decrease in billed demand charges, which was determined by applying seasonal demand rates to the 2017 average seasonal PV based reductions in peak billed demand quantities that average 5.9 percent for the year. The 5.9 percent quantity reduction is an update based on further analysis of the PV Billed Demand Study, filed on August 17, 2018, which identified a 2017 average billed demand quantity reduction of 7.8 percent.⁴¹

In its April 20, 2018 Order, the Commission adopted Xcel's proposed Solar PV Demand Credit Rider and credit rate that assumed a starting value of \$4.52 per kW credit and 11 months as the average non-grace period months in the conversion formula for the kWh based solar credit, resulting in a credit value of 7.139 cents per kWh.

Using the same conversion formula for the updated Demand Credit rate, Xcel converted the \$2.15 per kW demand credit into an energy credit per kWh of peak period solar PV generation. Table 2 below shows the calculation steps involved in this process.

Table 2

Per kW Conversion to Peak Period kWh			
a	Demand Credit per kW	\$2.15	
b	Applicable Months per Year	11	
c	Annual PV Credit per kW	\$23.65	a * b
d	Total Annual Hours	8760	(365 days * 24 hours)
e	Peak Period Solar PV Capacity Factor	7.95%	15.9 * 50%
f	kWh Generated	696.42	d * e
g	Solar PV Credit per kWh	\$0.03396	c / g

³⁸ *Id.*

³⁹ *Id.*, p. 4.

⁴⁰ *Id.*, p. 6.

⁴¹ *Id.*, pp. 4-5.

VI. Parties' Comments on Xcel's Proposed Methodology

While parties disagreed with Xcel that its proposed methodology was appropriate for correcting the mismatch between the net billing demand of customers with on-site solar relative to non-solar customers, each party did provide suggestions for improvements to Xcel's methodology, if the Commission were to adopt it for determining an appropriate adjustment to the solar customer's demand billing component.

Table 3 below provides a summary of proposed adjustments to the capacity value stack approach for the Commission's consideration.

Table 3

Comparison of Proposed PV Demand Credit					
	Xcel	Vote Solar	CCC	MNSEIA	Department
Levelized CT Cost	\$4.62	\$6.40	\$7.50	\$5.06	\$4.62
Transmission Cost	\$3.47	\$3.47	\$4.09	\$3.47	\$3.47
Distribution Costs	N/A	\$2.35	---	\$2.35	---
Total Gen and Trans	\$8.09	\$12.22	\$11.59	\$10.88	\$8.09
Line Losses	6.65%	6.65%	6.65%	6.65%	6.65%
Total with Line Losses	\$8.63	\$13.03	\$12.36	\$11.60	\$8.63
Future Need	60%	100%	100%	100%	100%
Future Need Adjusted	\$5.18	\$13.03	\$12.36	\$11.60	\$8.63
Capacity Contribution	50%	50%	50%	50%	50%
Capacity Adj Total	\$2.59	\$6.52	\$6.18	\$5.80	\$4.32
Billed Demand	\$0.41	\$0.41	\$0.00	\$0.41	\$0.41
Demand Credit / kW	\$2.18	\$6.11	\$6.18	\$5.39	\$3.91
Solar PV Credit / kWh	\$0.03443	\$0.09651	\$0.10649	\$0.08514	\$0.06176

Although the Commercial Customer Cohort (CCC) estimate for the demand credit did not include an estimate for distribution costs, it did suggest that the distribution costs should be non-zero. However, the CCC did not offer an estimate for this cost component. Therefore, the estimates for the demand credit for CCC should be considered a lower bound that should be updated once an appropriate estimate for distribution costs is made available.

A. Sundial Energy

Sundial Energy also filed Comments in response to Xcel's October 19, 2018 proposed solar PV Demand Credit methodology and questioned whether it was appropriate or accurately calculated. Sundial supported MNSEIA's estimate and requested that the Commission require Xcel to perform a restudy using valid inputs that properly account for the cost of capacity on their grid.⁴²

⁴² Sundial Energy Comments

B. Vote Solar

Vote Solar stated that the methodology proposed by Xcel for determining the PV Demand Credit was generally appropriate, but recommended revisions to certain cost components of the capacity value stack approach.⁴³ Outside of the credit rate, Vote Solar did not take issue with any other terms and conditions of Xcel's proposed solar PV Demand Credit Rider. According to Vote Solar, Xcel's proposed updated credit rate significantly undervalues the benefits C&I customers with on-site solar generation provide to Xcel's system and recommended the Commission adopt a credit of \$6.11 per kW to more accurately reflect the true capacity value.⁴⁴

Specifically, Vote Solar recommended revisions to the levelized CT cost, the addition of embedded distribution costs and the removal of the future need (2025) timing factor. Vote Solar argued that the generation capacity credit should be based on the Company's embedded generation cost (which it identified as \$6.40/kW), similar to the way Xcel treats transmission cost in its proposed credit methodology. Because the credit applies to cost-based demand charges, Vote Solar reasoned the calculation of the generation credit should be directly related to the costs that lead to those demand charges. Similarly, Vote Solar argued that the base value of the credit should include embedded distribution costs that are recovered through demand charges.⁴⁵

Finally, Vote Solar recommended that the "Future Need (2025) Timing Factor" should be removed from the calculation. Vote Solar argued it is not appropriate to discount a retail credit by applying a wholesale market resource planning concept, because the appropriate calculation of a retail demand credit should use the same embedded cost values that are used to calculate the demand charges.⁴⁶

C. The Commercial Customers Cohort (CCC)

In its Comments, the CCC recommended that the Commission either deny Xcel's petition to modify the PV Demand Credit Rider or require the Company to resubmit a proposal with different cost Components in Xcel's capacity value stack approach. Specifically, the CCC argued that the levelized CT cost and embedded transmission cost were too low, the future need timing factor and the reduced billed demand value should be removed, and that distribution capacity costs should be included as a non-zero value in its capacity value stack approach.⁴⁷

The CCC also took issue with several other terms and conditions of Xcel's solar PV Demand Credit rider which will be discussed in Section VIII below.

⁴³ Vote Solar Comments, p. 2.

⁴⁴ *Id.*, p. 4.

⁴⁵ *Id.*, pp. 2-3. See also, MNSEIA IR 2.b. for origin of Vote Solar's

⁴⁶ *Id.*

⁴⁷ The Commercial Customer Cohort Comments, pp. 10-11.

For Generation capacity costs, the CCC recommended the methodology include both combustion turbine (CT) and combined cycle (CC) installed capacity assumptions as acknowledged in the Value of Solar (VOS) methodology in which Xcel assumes a 50/50 CC/CT blend. The CCC proposed using the assumptions from the Brattle report of \$7.50 per kW-month or more reasonable assumptions for generation costs as with the PPA petitions and the 2019 VOS. For similar reasons, the CCC proposed using embedded transmission cost from Xcel's most recent VOS filing - \$4.09 per kW.⁴⁸

The CCC proposed that the future need (2025) timing factor should be removed because the Commission found in Xcel's most recently approved IRP Order that the utility had a need for new renewable resources and that this need included anticipated solar resources. In addition, the CCC claimed it was premature to include the Reduced Billed Demand Value in the methodology at this time, because the sample size used by the Company to develop the proposed value is extremely small and it is likely that most of the systems included in the small sample size were constructed under the old PV credit in the standby tariff.⁴⁹

The CCC also requested that an avoided distribution capacity component be included in the PV Demand Credit Rider as well. According to the CCC, Distributed solar can defer capacity-related distribution costs by reducing peak loads on distribution circuits and substations and avoided distribution capacity costs are a component of the VOS methodology, and therefore should be included in the PV Demand Credit Rider.⁵⁰

Finally, the CCC took issue with Xcel's calculation for converting the per kW demand credit to a per kWh energy credit. According to the CCC, Xcel further diminished the credit in the final conversion steps by introducing a new "b) Applicable Months per Year factor." The CCC claimed that the grace period component of the previous methodology was eliminated in the Negotiated Agreement filed in March 2018 under this docket. The CCC argued that the credit should be based on 12 months because the system can operate 12 months of the year and this is consistent with input d) of 8,760 Total Annual Hours.⁵¹

Staff notes that the current (negotiated interim) rate \$0.07319 per kWh of Peak Period Solar Photovoltaic Generation was converted from a \$4.52 per kW demand credit level using the same Applicable Months per year factor of 11 months.

D. MNSEIA

MNSEIA stressed that PV solar generation benefits the utility and its ratepayers even if it is difficult to calculate the actual value. MNSEIA noted the priority for the development of an alternative way to calculate a compensation method for customers that might result in a permanent methodology. MNSIEA emphasized the importance of "business certainty" in the

⁴⁸ *Id.*, pp. 3-4.

⁴⁹ *Id.*, pp. 4-5.

⁵⁰ *Id.*, pp. 9-10.

⁵¹ *Id.*, p. 6.

development of a permanent methodology. According to MNSEIA, whether solar customers receive a credit for their capacity provided or see a comparable bill savings due to lower demand changes is largely immaterial to these customers.⁵²

However, similar to the Department's concerns, MNSEIA stated that Xcel's proposed methodology using a capacity value stack approach for the calculation of the PV demand credit was not what MNSEIA understood the negotiated agreement to represent. Therefore, MNSEIA recommended that Xcel should be required to restudy the PV Demand Credit Rider methodology and its Reduced Billed Demand Value.⁵³

If the Commission does not require Xcel to restudy the PV Demand Credit Rider methodology, MNSEIA recommended changes to some cost components in Xcel's proposed capacity value stack approach which are described below.

MNSEIA recommended that Xcel use \$5.06 per kW-month as the Levelized CT cost to better align with the average costs associated with both brownfield and greenfield CTs. MNSEIA claimed Xcel's CT costs for a greenfield site are closer to \$5.58 per kW-month as seen in the Dakota Range III wind PPA. MNSEIA's estimate for Levelized CT cost uses an average between Xcel's greenfield and brownfield costs from Xcel's recent Dakota Range filing.⁵⁴

MNSEIA also proposed that Xcel's proposed methodology include a \$2.35 per kW-month credit for Embedded Distribution Cost. MNSEIA explained that solar PV can reduce peak loadings on the primary distribution circuits and substations that serve commercial customers and avoided distribution capacity costs are one component of the Commission's value of solar methodology, and thus should be included in the capacity credit.⁵⁵

In addition, MNSEIA requested that the future need timing factor should be removed to reflect current immediate needs. MNSEIA objected to Xcel's proposed 60% reduction for future capacity needs, because the Commission's decision in Xcel's last IRP (January 2017) found the utility had an immediate need for new renewable resources.⁵⁶

Finally, MNSEIA suggested that Xcel's proposed Billed Demand Value of \$0.41 may be too high, because the value was developed with data from just the 24 pre-existing solar customers under this program. MNSEIA stated there are now many more projects that have applied for or are built out under this program and the 24 projects came online under a very different tariff structure and at a very different time. MNSEIA did not suggest a specific adjustment to this reduction in the credit at this time, but did recommend Xcel should restudy this component in a

⁵² MNSEIA Comments, p. 3.

⁵³ *Id.*, p. 3, 9.

⁵⁴ *Id.*, pp. 5-6.

⁵⁵ *Id.*, p. 6.

⁵⁶ *Id.*, pp. 6-7.

year after the approval of its new rider, with the data from a much larger set of projects. MNSEIA stated the reduction value should remain at \$0.41 until the new study is completed to ensure a conservative application of the credit value.⁵⁷

E. The Department

The Department stated that the purpose behind Xcel's proposed new PV Demand Credit Methodology is to address the fact that capacity charges do not reflect costs caused by customers with solar PV, since these customer's non-coincident peak does not coincide with Xcel's coincident peak. Thus, the Department argued the solution to this issue should not be the use of a proxy to value customer-owned capacity, but instead should attempt to fix the fact that customers are being overbilled for their use of capacity supplied by the utility. Under this situation, the Department recommended a different approach than Xcel's proposed methodology based on a capacity value stack approach.⁵⁸

In the event that the Commission approves a capacity value stack methodology similar to Xcel's proposal, the Department agreed with the CCC that it is reasonable to exclude Xcel's proposed Future Resource Timing Factor from the calculation of the demand credit, because the Commission's resource plan Order determined a "need" for the resources that customer with solar PV generation can presumably be used to meet.⁵⁹

In addition, the Department noted that the Company's billing study did not take into account the size of the solar array relative to the size of the load at the customer site. Consequently, the Department concluded that Xcel's billing study was incomplete. The Department did not, however, recommend a different estimate for the billing demand factor in Xcel's proposed methodology.⁶⁰

F. Xcel Reply Comments

Xcel stated that the capacity value stack approach "is a recognized and readily available format that parties could clearly understand." Xcel disagreed with parties' arguments that Xcel's proposed methodology based on this approach is not a fair and reasonable means of allocating cost that customers impose on its system. Specifically, Xcel maintained that its proposed methodology addresses the issue of overbilling customers with solar for the capacity costs that these customers impose on the system during peak. Xcel explained its proposed solar PV Demand Credit Rider was designed to reflect an appropriate adjustment to the solar customer's demand billing component for any mismatch between the net billing demand of customers with on-site solar and their net demand on system peak days relative to non-solar customers.⁶¹

⁵⁷ *Id.*, pp. 4, 7.

⁵⁸ The Department Comments, pp. 10-11.

⁵⁹ The Department Supplement Comments in Response to Xcel Reply Comments, pp. 15-16.

⁶⁰ *Id.*, p. 7.

⁶¹ Xcel Supplemental Comments, pp. 2-3.

According to Xcel, its proposed methodology improves upon the compromise value underlying the current interim rate approach. Xcel claimed the benefits of its proposed methodology include that it is based on measured values, is replicable for future updates, and provides a reasonable recognition of PV value through the credit without imposing a capacity overpayment on all other customers.⁶²

Further, Xcel disagreed with Parties that it did not address the mismatch between capacity costs derived from coincident peak versus demand billed costs based on non-coincident peak. Xcel noted its PV Billed Demand Study specifically compared PV production by month and time of day, including system peak times.⁶³

In response to the Department's concern that the Company should have removed the effect of a significant variable in the study – the size of the solar array relative to the size of the customer load, Xcel replied that it is not possible to remove this variable, which reflects the wide diversity of PV installations and the relationship between PV capacity and customer load levels. According to Xcel, the study found that it is this diversity that makes it inherently imprecise to base a billing modification on any particular sample of PV customers.⁶⁴

Finally, Xcel cautioned that considering the PV study in isolation will over-emphasize the mismatch related to billing demand quantities, as there is a similar occurrence with non-PV customers. Xcel noted that Non-PV customers also have diversity in the coincidence of their individual peak loads with system peak loads, and many non-PV customers load profiles significantly differing from the system load profile. Xcel advised that rate design necessarily includes some cost averaging on a class level, with some resulting imprecision on an individual customer level.⁶⁵

1. Levelized CT Costs

In response to parties request for using a different cost component for generation costs, or the levelized CT cost, Xcel stated that the CCC's recommendation for using the levelized CT cost from a Brattle Cost of New Entry Study does not reflect the likely avoided costs due to capacity additions for NSP customers. Xcel argued its estimate of a brownfield CT represents the likely avoided cost of capacity and appropriately values that capacity.⁶⁶

Xcel also disagreed with MNSEIA's recommendation to replace the levelized CT costs with an average cost based on both brownfield and greenfield CTs. Xcel, claimed the brownfield CT represents the next likely CT addition and therefore is the best representation of the avoided capacity cost. Xcel explained it would seek to use brownfield sites in order to avoid the transmission and gas delivery costs associated with developing a new site and to limit the

⁶² Xcel Reply Comments, p. 1.

⁶³ Xcel Supplemental Comments, p. 3.

⁶⁴ *Id.*

⁶⁵ *Id.*

⁶⁶ Xcel Reply Comments, pp. 7-8.

environmental impacts of greenfield development. Xcel noted further that the greenfield CT costs included in the Dakota Range III filing included an electric transmission delivery cost of \$100/kW for the cost of new transmission. Xcel claimed that removing the avoided transmission costs, so that avoided transmission is not double counted, results in the avoided generation costs that are similar to its estimated levelized CT cost.⁶⁷

Finally, Xcel disagreed with Vote Solar's recommendation for Xcel to replace levelized CT costs with embedded generation costs allocated to demand charges. Xcel stated that its proposal relies on the most recent estimate of avoided capacity costs and argued the most recent estimate of avoided CT costs is the best estimate for the value of the next increment of capacity.⁶⁸

2. Distribution Costs

In response to parties' suggestion that a component for avoided distribution capacity costs should be included in the PV Demand Credit Rider methodology, Xcel argued that providing a credit to customers for avoided distribution capacity costs is not reasonable nor credible. Xcel explained that a distribution system is required to serve a PV customer whether it is used one hour or all hours of the year. In addition, Xcel noted that when a PV customer exports energy, additional use of the distribution system also occurs. Given the wide variability of PV generation at all times and on all days – including system peak load days, combined with distribution system capacity availability that is required at all times – Xcel maintained that distribution costs savings from customers using DG for self-generation is unlikely or insignificant. Xcel stressed that there should not be a credit to pass along to solar customers, if Xcel and ratepayers do not see any cost savings.⁶⁹

3. Future Need (2025) Timing Factor

Xcel also disagreed with comments requesting the removal of the future need timing factor. Xcel stated that parties misconstrued the IRP Order when they implied the Commission found the Company's system had a near-term need for solar resources. Xcel explained that, in its most recent IRP, the initial Preferred Plan recommended no resource additions, and identified a resource need in 2024. A supplement filed later continued to identify a resource need in 2024 with the additions resulting from the outcome of the proposed retirement of Sherco Units 1 & 2 and the IRP Order acknowledges a system need for intermediate capacity in 2026 following the retirement of Sherco. According to Xcel, it was during the IRP deliberations the Commission recommended resource additions, which included 1000+ MW of wind based on existing market pricing and availability, 400 MW demand response based on a potential study, and solar resources to achieve 650 MW by 2021 based on the high interest in the Community Solar Gardens program.⁷⁰

⁶⁷ *Id.*, pp. 8-9.

⁶⁸ *Id.*, p. 9.

⁶⁹ *Id.*

⁷⁰ *Id.*, pp. 10-11.

4. Reduced Billed Demand Value

Xcel disagreed with the CCC's suggestion to eliminate the "Reduced Bill Demand Value" component of the proposed methodology. Xcel argued that excluding this component from the methodology because there may be a larger data set to study in the future is not reasonable. Therefore, Xcel maintained that the reduced billed demand value should be retained in the methodology, because it is required for an outcome consistent with the purpose of the Rider.⁷¹

5. Applicable Months (per kW demand credit conversion to per kWh energy credit)

In response to the CCC's request that the "Applicable Months per Year" should be eliminated from the calculation converting the per kW demand rate to a per kWh energy rate, Xcel stated that this provision is a defined part of the settlement agreement that applies a determined monthly demand credit to eleven months, resulting in a 11/12 reduction factor as compared to a twelve month application. Xcel argued that this reduction is supported by the expected continuing reduction in PV value as it supplies a greater share of system loads. Xcel argued that it is not appropriate to dismantle the settlement by changing this provision, or to disregard the observed effects of PV supply increases.⁷²

G. Staff Analysis

In its April 20, 2018 Order, the Commission approved an agreement which required Xcel, following discussions with the Department, MNSEIA and other interested parties, to file a proposed methodology for determining the appropriate solar capacity or demand credit. The agreement stated the methodology should consider reasonable ways to incorporate cost of service principles in demand charges for behind-the-meter solar customer accounts as well as address the additional issues surrounding the solar capacity or demand credit rider as raised by parties in this docket.

The agreement also required Xcel, with input from the Department, MNSEIA and other interested parties, to evaluate to what extent the billing demand quantities of customers with solar generation is affected by their solar production. Xcel was required to review whether there is a mismatch between the net billing demand of individual customers with solar installations and their net demand on system peak demand days relative to non-solar generation customers and, if so, how to reflect that difference appropriately in demand billing or comparable rate component.

The facts in this record are that parties appear to agree that C&I customer with customer-sited solar generation are overbilled for capacity that they impose on Xcel's system and Xcel has proposed a methodology that will produce a Demand credit on these customer's bills as an adjustment for this overbilling. While there appears to be some disagreement over whether Xcel's proposed methodology appropriately reflects the difference in "demand billing or

⁷¹ *Id.*, pp. 14-15.

⁷² *Id.*, p. 15.

comparable rate component,” staff believes Xcel’s proposed methodology does “consider reasonable ways to incorporate cost of service principles in demand charges for behind-the-meter solar customer accounts...”

Despite parties’ concern that Xcel’s proposed methodology does not accurately reflect the difference in demand billing, parties have made various adjustments to cost components for the Commission to consider which will impact the size of the credit or adjustment produced by Xcel’s proposed methodology.

In determining whether it should approve Xcel’s proposed methodology based on a capacity value stack approach, the Commission will need to determine if Xcel’s proposal addresses the purpose of the credit; which is to correct for any mismatch between the net billing demand of customers with on-site solar (based on their net demand on system peak days) relative to non-solar customers with an appropriate adjustment to the solar customer’s demand billing component. As such, Staff agrees with MNSEIA’s observation that “...whether solar customers receive a credit for their capacity provided or see a comparable bill savings due to lower demand charges is largely immaterial...”⁷³ The most important question for the Commission to consider in making its determination is whether Xcel’s methodology is a reasonable approach for meeting the purpose of the Rider.

When making its decision, the Commission should consider whether Xcel’s methodology provides an appropriate adjustment for overbilling customers with solar for the capacity costs that these customers impose on the system during peak. Similarly, staff agrees with Xcel that the Commission should be cautious in making its determination on PV demand credit methodology that it does not produce a credit that will impose a capacity overpayment on other customers. Customer equity in ratemaking is a challenge that the Commission has much experience with. For this reason, Staff advises the Commission to look to the guidance of standard rate design principles for help with its decision.

Specifically, the Commission should be aware that rates must be just and reasonable and an important aspect of reasonable rates is their design. While one of the goals for the design of just and reasonable rates is that the rates accurately reflect costs, the Commission should also be aware that rates may not be an exact replica or estimation of these costs. As was accurately described by Xcel, rate design “...necessarily includes some cost averaging on a class level, with some resulting imprecision on an individual customer level.”⁷⁴

Two other important rate design principles the Commission may wish to consider when determining the appropriateness of Xcel’s proposed methodology are ease of understanding and the ease of administration. Xcel’s proposed methodology for determining the solar PV Demand Credit is familiar to customers and the Commission, although parties may have opposing views over the different cost components as can be seen from this record.

⁷³ MNSEIA Comments, p. 3.

⁷⁴ Xcel Supplemental Comments, p. 3.

Determining a capacity credit and applying it to customer bills is also something that Xcel described as not being administratively burdensome.

If the Commission determines Xcel's methodology based on a capacity value stack approach is appropriate for meeting the purposes of the Rider, the Commission may then address the individual cost components and recommended adjustments to the components that were made by the various parties.

If the Commission is not comfortable with a decision to approve Xcel's proposed methodology, there are other options in the record that are discussed in the section below.

VII. Alternative Options

In the Department's Supplement Comments filed in response to Xcel's reply comments, the Department noted that, as an alternative to Xcel's proposed methodology, there were three potential paths forward for the Commission to consider:⁷⁵

1. Require Xcel in its next rate case to propose rate design for the Company's commercial customers with behind the meter solar installations. The pilot rate design project should include a coincident peak based generation and transmission demand rate and billing quantities, and a non-coincident based distribution demand rate and billing quantities. Until the pilot project is approved, either:
2. Require Xcel to further develop its alternative methodology that used a PV capacity contribution from the individual PV customer information in the PV Billed Demand Study.
3. Require Xcel to develop a buy all/sell all (BASA) arrangement that bases Xcel's payment to commercial customers with solar on Xcel's cost of procuring solar energy on the market or some other per kWh price.

The Commission issued a Notice of Supplemental Comment period on August 29 and requested parties clarify final recommendations on these three options. Staff notes that all Parties, other than Xcel, clarified their recommendation for the Commission to approve option 1 above and did not discuss Option 2 or 3.

A. The Department Recommendation for a Pilot Program

The Department recommended that for Xcel's next rate case, the Commission require Xcel to propose a pilot project for its demand-metered commercial and industrial customers with behind the meter solar installations, a new rate design that includes a coincident peak based generation and transmission demand rate and billing quantities, and a non-coincident based distribution demand rate and billing quantities.

⁷⁵ Department of Commerce Supplement Comments in Response to Xcel Reply Comments, pp. 19-20.

Although the Department supported the capacity value approach in earlier solar capacity proceedings when the record indicated that customer-owned solar installations would contribute to Xcel's power supply requirements, the Department eventually abandoned this approach.⁷⁶ The Department concluded that the best approach for ensuring that Xcel properly bills its customers with solar installations is to base customers' demand charges on the customer's coincident peak, not the non-coincident peak.⁷⁷

According to the Department, the purpose behind offering a capacity or demand credit or recognizing that customers with PVs should be billed for demand appropriately has always been to charge customers for costs they caused. The Department argued that the only way to accurately reflect these costs is for Xcel to offer a bundled rate that includes coincident-peak based generation and transmission demand rates and billing quantities, and a non-coincident-peak based distribution demand rate and billing quantities. The Department reasoned that this rate design would ensure that each PV customer's demand charge is based on their contribution to costs on Xcel's system rather than the mixture of avoided cost and embedded costs included in Xcel's proposed methodology.⁷⁸

The Department stressed that its proposal will address how Xcel currently bills demand-metered solar customers based on their maximum (non-coincident peak) demand. While it is true that the measurement of coincident peak will change each year, the Department stated the same is true for the non-coincident peak. The Department explained that similar to Xcel's current approach for measuring each customer's maximum, non-coincident peak for billing purposes for the next year, Xcel should be able to measure each customer's demand at the time of the system (MISO) peak each year, and use that information for billing purposes for the next year. As for Xcel's concern that its proposal may be too volatile, the Department argued that its proposed rate design will be fairer and give solar capacity customers an incentive to ensure that their solar units are functioning well.⁷⁹

The Department also expressed a willingness to support a potential time of use rate (TOU) rate design to address issue of coincident-peak demand pricing. Xcel explained that a time-of-use (TOU) rate design would measure customers' non-coincident-peak loads during typical system peak hours with a narrow on-peak period that may more precisely represent customer cost responsibility. According to Xcel, this TOU approach is used by Public Service Company of Colorado (PSCO) and is limited to only primary voltage customers. However, Xcel argued this approach would not be a reasonable or practical option to implement here and it would require interval metering with enough historical usage to forecast what would be substantial changes in demand billing quantities, in total and by individual customers. Xcel cautioned that Individual

⁷⁶ The Department Comments, p. 11.

⁷⁷ *Id.*, p. 13.

⁷⁸ *Id.*, p. 11.

⁷⁹ Department of Commerce Supplement Comments in Response to Xcel Reply Comments, p. 22.

customers may also experience substantial bill impacts from a sharp change to a narrowly defined on-peak period.⁸⁰

In addition, Xcel cautioned that a narrower TOU billing approach would not differentiate PV customer contributions to system peak loads relative to non-coincident-peak loads from other customers. Xcel explained that an on-peak rate period, even if narrowly defined, would measure customer loads during most days of the month and a single overcast day during the month would overshadow PV capacity contributions on sunnier days, leaving little net benefit to PV-owning customers from a substantially different and more complicated rate design.⁸¹

As to Xcel's concern that using a TOU rate design may not help the fact that the peak demand charge for solar customers will often be set on the days that system peaks do not occur and thus capacity charges would not reflect the lower costs caused by customers with solar PV, the Department claimed this issue may be resolved by eliminating demand charges and building recovery of demand costs into the TOU pricing. The Department suggested Xcel could propose a TOU design that recovers both energy and demand costs in on-peak and off-peak kWh rates, so solar customers that use less power during Xcel's on-peak period would pay less of the higher on-peak rates.⁸²

In its February 19, 2019 Comments, the Department recommended that Xcel switch all demand-billed customers to coincident peak billing in its upcoming rate case; before recommending, in its August 16, 2019 Supplemental Comments, that the Commission require Xcel to develop a pilot project rate in its next rate case. Due to data needs and how large the demand-metered class is (approximately 48,500 customers), the Department recognized the utility of a phased-in approach versus requiring interval metering for all of the demand-metered customers. Therefore, the Department proposed that pilot rate should only cover demand-metered customers with behind the meter solar installations.⁸³

The Department also noted that currently MISO focuses on a single summer coincident peak, and that there have been discussions of a seasonal construct that could consider two or more peaks during the year. If such circumstances arise, the Department suggested the Commission could decide whether a rate change would make sense outside of a rate case.⁸⁴

Finally, the Department proposed that the Pilot contain an evaluation plan with reporting that would consider the following:⁸⁵

⁸⁰ Xcel Reply Comments, p.6.

⁸¹ *Id.*

⁸² Department of Commerce Supplement Comments in Response to Xcel Reply Comments, pp. 21-22.

⁸³ Department of Commerce Supplement Comments in Response to Commission Notice, p. 2.

⁸⁴ *Id.*

⁸⁵ *Id.*, pp. 2-3.

- Whether the rate should be continued as is, modified, or terminated for future rate cases;
- The variability in charges during different years (e.g. due to weather);
- Customer understanding of their demand charges;
- How customer bills compare to present rate structure with PV demand credit;
- The billing impact for different customer types (e.g. school, office, retail, hospitality);
- How the billing impact scales with PV system size (relative to site load);
- Whether pilot participation should be limited based on a minimum PV system size threshold (relative to site load);
- Whether the pilot rate structure should be extended to other demand-metered customers;
- Costs of additional equipment needed to implement such a pilot rate;
- Whether Xcel reasonably recovered its costs from customers;
- Whether coincident peak billing changes customer behavior in regards to:
 - Load shape (e.g. peak load variability, load factor);
 - Maintaining PV equipment; and
 - Maximizing PV output during the peak period (i.e. orientation of the PV array);
 and
- How energy storage would affect these evaluation points.

In Supplemental Comments, Vote Solar, the CCC and MNSEIA all supported the Department's Recommendation as an alternative to Xcel's proposed solar PV Demand Credit based on a capacity value stack approach.

Vote Solar agreed that changing the demand billing methodology to bill generation and transmission demand using coincident peaks and to bill distribution demand using non-coincident peaks would more closely align billing to cost causation. While Vote Solar emphasized that the crediting methodology that it proposed in its initial comments (Xcel's capacity value stack approach with updated cost components) would be a fair resolution of this proceeding, Vote Solar stated in its Supplemental Comments that a fair and equitable conclusion could also be achieved through the adoption of the Department's Recommendation.⁸⁶

In addition, Vote Solar expressed a preference for TOU rates as more closely reflecting system costs and it supported Xcel proposing such a rate design in the context of a rate case where it can be fully considered. Vote Solar also expressed reservations for this recommendation which it stated could be considered and resolved in the rate case. For example, Vote Solar expressed concern for the development of custom rate classes for sub-sets of customers (i.e. solar customers), instead of applying the rate to all demand billed customers.⁸⁷

⁸⁶ Vote Solar Supplemental Comments, p. 2.

⁸⁷ *Id.*

The CCC supported the Department's recommendation to include the PV Demand Credit Rider in Xcel Energy's next rate case, without specifying what methodology Xcel should propose to resolve the issue of customers with on-site solar being overbilled for capacity that they impose on Xcel's system. The CCC stated that including this rate in a general rate case will allow for a more comprehensive analysis, since the PV Demand Credit could be compared with other rates designed to allow commercial customers to recover peak demand charges. The CCC also suggested that Xcel could conduct a billing study that responds in alignment with the Commission's Order.⁸⁸

For a favorable, balanced outcome, the CCC requested that the Commission also direct Xcel to convene a stakeholder process with commercial customers using the following approach:⁸⁹

- Work with historically engaged commercial customers involved in PV Demand Credit rate design discussions to schedule multiple meetings with notice;
- Facilitate the exchange of stakeholder materials in advance of meetings to allow for review time and maximize meeting productivity; and
- Offer access to the Company's underlying calculation data for stakeholder review

MNSEIA agreed with the CCC that the Commission require Xcel to include the PV Demand Credit Rider in Xcel Energy's next rate case to encourage more comprehensive analysis and directing Xcel Energy to convene a stakeholder process with commercial customers.⁹⁰

Xcel stated that, while the Departments proposal is an interesting idea, it will not resolve the PV demand billing issue. Instead, Xcel warned that it would allow for participation growth at the outdated interim credit level rather than through a more accurate methodology that more effectively fulfills the purpose of the Rider.⁹¹

Xcel explained that it has a single demand-metered rate design with a bundled demand rate and an energy rate that already includes significant generation capacity costs, which is important to maintain for preserving equity between all customers. The solar PV Demand Credit Rider has the advantage of compatibility with its existing demand-metered rate design that will provide a simple performance-based rate adjustment for PV customers to address their contribution to system peak loads.⁹²

While Xcel stated it is generally supportive of pilot projects that can test innovative new rate designs or provide attractive and thoughtfully designed customer programs, Xcel was not supportive of the Department's recommendation because it did not see a practical path

⁸⁸ Commercial Customer Cohort Supplemental Comments, p. 2.

⁸⁹ *Id.*

⁹⁰ MNSEIA Supplemental Comments, p. 2.

⁹¹ Xcel Reply Comments, p. 7.

⁹² *Id.*,

forward for this concept. Specifically, Xcel was not supportive of the Department's recommendation for the following reasons:⁹³

1. There is not enough time and therefore, it is not feasible to develop a wholly new proposal with the limited time available prior to the next rate case;
2. The population eligible to participate in such a pilot is small and limited to those customers with qualifying on-site solar arrays greater than 40 kW;
3. A new rate design that includes a coincident peak based generation and transmission demand rate and billing quantities, and a non-coincident based distribution demand rate and billing quantities would lead to a highly volatile rate structure – this after-the-fact coincidental peak measurement basis is unpredictable and has the potential for high variability.
4. Customer acceptance of this structure is unlikely, since they would not know the day and time basis for their billed demand quantity until after their billing month;
5. Although it has some theoretical merit, virtually no utility in the country uses this type of rate design as a result of this practical problem; and finally
6. Xcel has significant concerns with its ability to execute such a program:
 - a. The Company's billing and IT systems are currently not capable of implementing an after-the-fact coincidental peak rate structure and would require significant modification;
 - b. The Company has not performed any scoping analysis to understand the extent of system modifications that would be required to capture, store, and maintain a new source of peak data, to develop logic for all components that touch the customer's key billing determinants, or any business rules that would be required to execute such a program; and
 - c. At minimum, significant enhancements would be required of our CRS system, our bill presentation and print mechanisms, and other back-end technologies.

B. Xcel's Alternative Methodology

In its filing of its PV Demand Credit Methodology on October 19, 2018, Xcel also developed and considered another credit methodology using a PV capacity contribution from the individual PV customer information in the PV Billed Demand Study. As described by Xcel, this alternative approach compared the 2017 maximum PV contribution to the average PV kW contribution during the top 10 system peak days. Xcel explained the capacity contributions are based on a simple average of all 24 customers included in the updated PV demand study, which comprised wide range of the capacity contributions. These PV capacity contributions during the top ten system load days were based on the ten day average, although there was significant variation in the PV contribution within the ten days.⁹⁴

⁹³ Xcel Supplemental Comments, pp. 5-6.

⁹⁴ Xcel PV Demand Credit Methodology, p. 7.

According to Xcel, the resulting capacity contribution was 36 percent for the hour between 5 pm and 6 pm and 50 percent for the hour between 4 pm and 5 pm. The average 36 percent contribution for the hour ending 6 pm represents a range from 17 percent to 61 percent and the average 50 percent contribution for the hour ending 5 pm represents a range from 23 percent to 67 percent. Compared to the average for the top ten days, the PV capacity contribution for the individual 10 days varied from the average by a range of -33 percent to +13 percent for the hour ending 6 pm, and by a range of -10 percent to +7 percent for the hour ending 5 pm.⁹⁵

Xcel described the next step in the alternative methodology applied the capacity contribution to the embedded generation capacity cost of \$6.40 less the \$0.41 per kW value of reduced billed kW demand quantities and this produced the same demand credit value of \$2.15 per kW as the proposed methodology for the hour ending 6 pm, and a demand credit value of \$3.02 per kW for the hour ending 5 pm.⁹⁶

Although this alternative methodology has value in affirming the proposed methodology, Xcel stated its proposed methodology is more appropriate, since the alternative methodology is highly data intensive, which reduces transparency and increases the difficulty of updating. In addition, Xcel stated the alternative methodology is problematic because it contains a very diverse and limited set of specific current customers, which may affect the reliability of its results.⁹⁷

The Department described Xcel's alternative methodology as more appropriate than its capacity value stack approach for the task at hand, but recognized that the alternative approach is data intensive, which reduces transparency and increases the difficulty of updating the value in future years. The Department also acknowledged that the alternative methodology includes a very diverse and limited set of specific current customers that may affect the reliability of its result and the Demand Billed Study indicated that the individual customers studied were overbilled (or under-billed) for their capacity by a wide range.⁹⁸

The Department noted also that the Company's alternative methodology did not take into account the solar generation capacity as a percent of customer site load. Consequently, the Department concluded that Xcel's billing study is incomplete. The Department claimed that Xcel's alternative methodology did not take into account the fact that the average customers with solar impose lower costs on Xcel's transmission needs than an average customer without solar because the customers with solar have lower demand during the MISO coincident peak than the average demand-billed customers. To treat solar customers fairly, the Department argued the alternative methodology should multiply the capacity contribution of 50% (using

⁹⁵ *Id.*, pp. 2-3

⁹⁶ *Id.*, pp. 2-3

⁹⁷ *Id.*, pp. 2-3

⁹⁸ The Department Comments, p. 11.

MISO's initial accreditation value) by both the embedded generation and transmission capacity costs (\$6.40 plus \$3.47 per kW = \$9.87 per kW) for a demand credit of \$4.94 per kW.⁹⁹

While Xcel stated it is not theoretically opposed to further development of its alternative methodology, it remains concerned this option is less transparent, replicable and recognizable than is optimal, due to it being highly data intensive, and that it is difficult to update.¹⁰⁰

C. Buy-All/Sell-All Contract

The Department stated it had discussed with parties whether Xcel should implement a buy-all/sell-all (BASA) agreement. In such an agreement the Company's demand-metered solar customers would pay the same rates as other demand-metered customers for all the energy and demand used at the facility. At the same time, Xcel would pay the customers a specific rate for every kWh produced at the customer's site. The Department suggested the Commission could approve the contract approach in this docket, or the contract could be developed in the context of Xcel's next rate case.¹⁰¹

Xcel stated it also is not opposed to considering the Department's BASA concept and agrees with many of the benefits this approach has to offer. Xcel stated that this approach has the advantage of maintaining an accurate crediting mechanism across the entire range of PV capacity as a percent of total customer load, as well as the PV production incentive in the current Rider. Xcel stated it could come forward with a BASA proposal with its December 1, 2020 compliance filing.¹⁰²

While not opposing the further development of its alternative methodology or the BASA concept, Xcel reiterated that it continues to recommend the Commission adopt its proposed methodology and the resulting rate for the PV Demand Credit Rider.¹⁰³

D. Staff Analysis

Staff notes again that all three alternative options require building a rate design from scratch: 1) Department's proposed pilot (coincident and no-coincident demand charges); 2) Xcel Alternative Demand Credit methodology; 3) BASA contracts. Only Xcel provided general details on what Option 1 above may look like. Staff also cautions Option 1 may not be feasible, given that Xcel's next rate case is expected to be filed in early November. The amount of time to develop a new rate design and file it as a supplement in Xcel's upcoming rate case may not be workable within the Rate Case time frame. Staff suggests that an alternative to requiring Xcel to

⁹⁹ Department of Commerce Supplement Comments in Response to Xcel Reply Comments, pp. 18-19.

¹⁰⁰ Xcel Supplemental Comments, p. 6.

¹⁰¹ Department of Commerce Supplement Comments in Response to Xcel Reply Comments, pp. 22-23.

¹⁰² Xcel Supplemental Comments, p. 7.

¹⁰³ *Id.*

propose a rate design in the upcoming rate case, may be to refer the development of a new rate design pilot to the Office of Administrative Hearings for a contested case proceeding.

Staff notes further that, while Vote Solar, the CCC and MNSEIA are supportive of the Department's recommendation to include the PV Demand Credit Rider in Xcel's next rate case, this support is conditioned on an extension of the expiration date for the closed rate (A85) from April 20, 2024 to April 20, 2027 (discussed below).

In addition, it is not clear to staff which methodology each party prefers for determining the credit, and whether Xcel's proposed methodology using capacity value stack approach would be suitable with appropriate cost components. In other words, if the issue of an appropriate adjustment for customers with solar who have been overbilled for capacity they impose on Xcel's system – whether it is referred to the next rate case or a contested case proceeding – it is unclear whether the question to be determined will be:

1. Evaluate and approve a new rate design that includes a coincident peak based generation and transmission demand rate and billing quantities, and a non-coincident based distribution demand rate and billing quantities, which may be an approach based on:
 - a. TOU rate design; or
 - b. An after-the-fact coincidental peak measurement; or
2. To choose among several rate designs proposed in the record, which may include any, or all, of the rate design proposals discussed thus far.

If the Commission decides to refer this issue to either Xcel's next rate case or a contested case proceeding, it may wish to consider whether or not to place certain parameters around the type of rate design it wishes to see proposed and evaluated for approval.

Similar to the Xcel's proposed methodology, when considering other rate design options, in addition to the accuracy of rates reflection of costs, staff suggests the Commission also consider the ease of administration and understanding when determining whether the proposed rate design is fair and reasonable.

VIII. Other Issues

In Comments parties also brought up several other issues in regard to Xcel's solar PV Demand Credit Rider and made recommendations for changes to the rider.

A. Interim Period

The terms of the Commission approved settlement agreement states:

- The level of the credit in the PV Rider assumes a starting value of \$4.52/kW credit and 11 months as the average non-grace period months in the conversion formula for the kWh based solar credit, resulting in a credit value of 7.139 cents per kWh; and

- The PV Rider credit rate of 7.139 cents per kWh will be available to customers properly enrolled at the rate as described above for a given location for six years from the date of the Commission order approving the PV Rider. Any customer enrolling in the Revised PV Rider will receive the credit as set forth in the Revised PV Rider Rate tariff. The Commission approved the PV Rider on April 20, 2018.

Thus, the Xcel's tariff language for the PV Demand Credit Rider states the following:

AVAILABILITY – GENERAL

Applicable by customer request to demand-metered commercial and industrial customers that use Solar Photovoltaic as a customer-sited generation source with a capacity greater than 40 kW (AC) with a single production meter to serve all or a portion of customer's electric energy requirements. Not available to customer-sited generation that is the subject of another incentive program such as Solar*Rewards.

AVAILABILITY – CLOSED RATE

Availability of the closed rate is limited to qualifying customer account locations that: 1) are receiving Standby Service Rider tariff service with the Photovoltaic Solar Credit on the date this Rider is originally approved by the Commission, or 2) have enrolled for the Rider before the date the credit rate in this Rider is revised by the Commission. The closed rate will remain fixed for a six year period beginning with the original Commission order date approving this Rider, expiring April 20, 2024. After expiration of the closed rate, the applicable standard rate will replace the closed rate.

The standard rate will apply to customer account locations that do not qualify for the closed rate. The standard rate may be revised at any time subject to approval by the Commission.

RATE

Customer Charge per Month	\$25.75
Credit per kWh of Peak Period Solar Photovoltaic Generation (A85 - Closed)	\$0.07139
Credit per kWh of Peak Period Solar Photovoltaic Generation (A86 - Standard)	\$0.07139

The Department, Vote Solar, MNSEIA and the CCC recommended that the Commission maintain Xcel's current PV Demand Credit Rider of \$0.07139 per kWh of peak period solar PV generation and extend the expiration date of the closed rate (A85) from April 20, 2024 to April 20, 2027.

Xcel recommended the Commission adopt its proposed methodology and the updated rate of \$0.03396 per kWh. Xcel did not support further delays in addressing needed changes to the rate level. Xcel did not support further delays in the proceeding for the following reasons:

1. It is unreasonable to do so preemptively – Parties asserted that six years is no longer a sufficient term length, even though they agreed to this schedule more than one year ago, in November of 2017;

2. If the beneficiaries of the current interim rate expand to include new customers and new PV systems over the next year or more, it will sow confusion in the market as customers may lack a clear picture of the expiration of the interim rate;
3. Extending the term length will significantly exacerbate the issue of overpayment by non-participating customers – By lengthening the period of time that the credit is applied to current beneficiaries, as well as by expanding the class of beneficiaries to new enrollees, all other customers will overpay.
4. There are negative public policy implications of dismantling a settlement agreement pursued in good faith and built on compromise.
5. Delaying action on the proposed methodology is inconsistent with traditional ratemaking – regulators approve rates with the knowledge that more data will be available in the future, and that there will be opportunities to reconcile and update rates with the passage of time.

Staff notes further that if the Commission approves or modifies Xcel’s proposed methodology and updated credit rate, there would not be a reason to extend the expiration date as there would not be any delay to the negotiated agreement or the proceeding.

B. Term Certainty

MNSEIA and the CCC further recommended that the Commission add term certainty in alignment with utility-originated agreements to improve equitable treatment for customer-sited solar.

As noted above, the tariff language for the solar PV Demand Credit Rider states the standard rate may be revised at any time subject to approval by the Commission. MNSEIA and the CCC recommended that the final approved methodology includes a 15-year term length for an initial credit value to provide more consistency with Xcel’s renewable PPAs.¹⁰⁴

Xcel explained the tariffed rates are periodically determined based on approved costs and other valuations and MNSEIA and the CCC seek extraordinary treatment from the Commission in the form of suspended action on rate updates. Xcel noted power purchase agreements (PPA) are for resources whose full output and contractual rights (including capacity) are offered for sale to the Company and are subject to cost-effectiveness review and differ substantially from customer’s on-site solar used for self-generation. Xcel stated it is both reasonable and prudent to treat different resource types in different ways.¹⁰⁵

C. Credit Limiters

The CCC recommended the elimination of the “Credit kWh limit” and the “Credit Limit” from Xcel’s solar PV Credit Demand Rider. Xcel’s credit limit tariff language for the PV Demand Credit Rider states the following:

¹⁰⁴ Commercial Customer Cohort Comments, pp.7-8.

¹⁰⁵ Xcel Reply Comments, pp. 4-5.

CREDIT KWH LIMIT

The maximum kWh applied to the Rider credit per kWh each billing period is the Peak Period maximum 15-minute Solar Photovoltaic kW output for the billing period times 100 hours for billing periods ending in the months of June, July, August or September and 75 hours for billing periods ending in other months.

CREDIT LIMIT

The maximum credit for each billing period is the applicable standard or on-peak billed demand charge from the base tariff associated with this Rider. For Peak-Controlled Service and Peak-Controlled Time of Day Service customers, the maximum credit for each billing period is the billed demand charge for Firm Demand.

The CCC argued the Credit kWh limit is not appropriate and adds unnecessary billing complexity, while the Credit Limit artificially limits the credit value of the solar resource to the system to an individual customer's demand charges that are a product of the customer's load shape and rate class.¹⁰⁶

Xcel explained the purpose of the Rider is to provide a rate adjustment to PV customers for being over-billed for peak generation relative to their peak load requirements in comparison to other non-PV customers. Xcel described the credit kWh limit as setting a maximum credited kWh per maximum kW demand contribution. According to Xcel, the kWh limit was designed to recognize seasonal production variations and to have little or no effect on credited production under normal circumstances and is a safety check against unjustified credit levels.¹⁰⁷

Xcel described the other credit limit as specifying that the PV credit amount cannot exceed the billed demand charge for the same month. Xcel explained that this is an entirely reasonable provision consistent with the purpose of the Rider as a credit to demand charges. According to Xcel, eliminating this credit limit would allow the possibility of a credit exceeding the charge it was designed to offset, an absurd result.¹⁰⁸

Xcel stated that the CCC's proposal to eliminate credit limits demonstrate either a misunderstanding of the concept and purpose of the Rider, or are an attempt to unfairly bolster the credit at the expense of all other customers. Xcel explained the credit limitations are reasonable safeguards that prevent extreme and excessive over-crediting scenarios, and these provisions should be retained.¹⁰⁹

¹⁰⁶ Commercial Customer Cohort Comments, pp. 8-9.

¹⁰⁷ Xcel Reply Comments, pp. 13-14.

¹⁰⁸ *Id.*

¹⁰⁹ *Id.*

D. Storage

MNSEIA and the CCC also requested that Energy Storage that is paired with PV should be eligible to participate in the program. The CCC argued that there should be an option to include energy storage technologies under the tariff, because commercial and municipal customers are increasingly interested in solar + storage applications for resiliency and continuity of operations. MNSEIA argued that both solar combined with storage are able to deliver even more capacity to the utility at the designated peak periods and the Commission should find that storage installation is a permissible use for the Rider.¹¹⁰

Xcel argued that storage is not compatible with the underlying purpose of the Rider, which is to recognize that billed kW demand quantities do not fully recognize PV contributions to system peak load requirements. In contrast to solar PV, Xcel explained that storage technologies have the inherent flexibility to allow customers to manage their load profiles to reduce their non-coincident peak based billing demand quantities without a credit mechanism. Furthermore, Xcel explained using storage for its design purpose of reducing kW billing demand produces customer savings that would be doubled counted by also applying the Rider credit.¹¹¹

Although storage is a tool that may have more value to PV customers than other customers, to manage PV intermittency, Xcel claimed there is no justification for the inclusion of storage in the Rider. Xcel explained the demand credit rate was tailored specifically to the unique attributes of PV generation, which would be fundamentally altered if storage was present. Additionally, Xcel claimed storage is at odds with the underlying purpose of the Rider and can be used to “game” the rate. Xcel also noted that new metering configurations required to include PV and storage are not feasible under the Company’s proposal.¹¹²

E. Enrollment Definition

In Supplemental Comments in response to the Commission’s August 29, 2019 Notice, MNSEIA and the CCC brought up a new issue over a disagreement with Xcel over the interpretation of Xcel’s existing tariff and requested that the Commission clarify the fulfillment of “enrollment” as being when a complete interconnection application is submitted for a planned project. According to the CCC, Xcel has interpreted *enrollment* differently and requires a system to be fully operational by the date of the Commission’s next Order. Because this issue is new and not directly within the scope of the issue to be decided, staff suggests the Executive Secretary determine the timing and appropriate docket for building the record on this issue. A decision option has been drafted to this effect.

¹¹⁰ MNSEIA Comments, p. 8.

¹¹¹ Xcel Reply Comments, p. 16-17

¹¹² *Id.*

IX. Decision Options

A. Should the Commission approve, modify or reject Xcel's proposed solar PV Demand Credit Rate methodology and Xcel's proposed updated credit rate?

1. Approve Xcel's proposed solar PV Demand Credit Methodology and Xcel's Updated credit rate, as filed.
2. Modify Xcel's proposed solar PV Demand Credit rate methodology and the proposed updated credit rate through one or more of the recommended cost components in Table 3 on p. 14 of these Briefing Papers.
3. Reject Xcel's proposed solar PV Demand Credit Rate Methodology and its proposed updated credit rate.

B. Should the Commission direct Xcel, in its next rate case, to propose a pilot project for its commercial demand-metered customers with behind the meter solar installations, as recommended by the Department?

1. Direct Xcel, in its next rate cast, to propose a pilot project for its commercial demand-metered customers with behind the meter solar installations, as recommended by the Department.
2. Do not Direct Xcel in its net rate case to propose a pilot project for its commercial demand-metered customers with behind the meter solar installations, as recommended by the Department.

C. Should the Commission require Xcel to develop another option to its proposed solar PV credit valuation methodology?

1. Direct Xcel to develop a Buy-all/Sell-all concept for Demand-Metered Customers with on-site solar generation by December 1, 2020
2. Direct Xcel, in its next rate case, to develop a Buy-all/Sell-all concept for Demand-Metered Customers with on-site solar generation.
3. Direct Xcel to develop further its alternative methodology Demand-Metered Customers with on-site solar generation by December 1, 2020.
4. Direct Xcel, in its next rate case, to develop further its alternative methodology Demand-Metered Customers.

D. Should the Commission direct Xcel to make other tariff changes to its current PV Demand Credit Rider?

1. Direct Xcel to extend the expiration date of the closed rate (A85) from April 20, 2024 to April 20, 2027.
2. Direct Xcel to provide customers with a 15-year term associated with each PV Demand Credit Rider vintage year.
3. Direct Xcel to eliminate the 'Credit kWh Limit' in the Tariff.
4. Direct Xcel to eliminate the 'Credit Limit' in the Tariff.

5. Direct Xcel to allow customers with energy storage to participate under the Rider.
6. Direct Xcel to clarify the fulfillment of “enrollment” as being when a complete interconnection application is submitted for a planned project.

E. Should the Commission refer this issue to the Office of Administrative Hearing (OAH) for a contested case proceeding?

1. Refer to the OAH to evaluate and recommend for Commission approval a new rate design that includes a coincident peak based generation and transmission demand rate and billing quantities, and a non-coincident based distribution demand rate and billing quantities, which may be an approach based on:
 - a. TOU rate design; and/or
 - b. An after-the-fact coincidental peak measurement; or
2. Refer to the OAH to evaluate and recommend for approval a single rate design among one or more rate proposed in the record, which may or may not include a capacity value stack approach.

F. Remaining Issues

1. Direct Xcel to convene a stakeholder process with commercial customers and that the stakeholder meetings are led as follows:
 - Work with historically engaged commercial customers involved in PV Demand Credit rate design discussions to schedule multiple meetings with notice;
 - Facilitate the exchange of stakeholder materials in advance of meetings to allow for review time and maximize meeting productivity;
 - Offer access to the Company’s underlying calculation data for stakeholder review.
2. Delegate authority to the Executive Secretary to set the appropriate schedule and docket to develop the record on the enrollment issue raised in supplemental comments.