



85 7TH PLACE EAST, SUITE 280  
SAINT PAUL, MINNESOTA 55101-2198  
MN.GOV/COMMERCE  
651.539.1600 FAX: 651.539.1574  
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March 1, 2017

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

RE: **Comments of the Minnesota Department of Commerce, Division of Energy Resources**  
Docket No. E002/M-13-867

Dear Mr. Wolf:

In its September 6, 2016 Order in the above referenced docket, the Minnesota Public Utilities Commission (Commission) requested that the Minnesota Department of Commerce, Division of Energy Resources (Department) submit a report by March 1, 2017 on whether or not adjustments were needed to the Value of Solar rate (VOS) adopted by the Commission as the appropriate credit for community solar gardens (CSGs).

Attached please find the comments of the Minnesota Department of Commerce, Division of Energy Resources in this matter. The Department is available to answer any questions the Commission may have.

Sincerely,

/s/ SUSAN L. PEIRCE  
Rates Analyst Coordinator

SLP/lt  
Attachment

BEFORE THE MINNESOTA PUBLIC UTILITIES COMMISSION

COMMENTS OF THE  
MINNESOTA DEPARTMENT OF COMMERCE

DOCKET No. E002/M-13-867

**I. BACKGROUND INFORMATION**

The following key Orders from the Minnesota Public Utilities Commission (Commission) relate to these comments regarding Xcel Energy's (Xcel or the Company) Solar\*Rewards Community (CSG) Program.

On April 7, 2014, the Commission issued its ORDER REJECTING XCEL'S SOLAR-GARDEN TARIFF FILING AND REQUIRING THE COMPANY TO FILE A REVISED SOLAR-GARDEN PLAN In the Matter of Establishing a Distributed Solar Value Methodology under Minn. Stat. 216B.164, Subd. 10 (e) and (f). Among other things, that Order set out rates and fees for various services, along with stating that:

10. The solar-garden operator or developer may transfer the solar [renewable energy credits] RECs to Xcel at a compensation rate of \$0.02 per kWh for solar-garden facilities with capacity greater than 250 kW and \$0.03 for solar-garden facilities with capacity of 250 kW or less.
11. The applicable retail rate and solar REC value must be reviewed annually and adjusted accordingly. At such time as the Commission may issue an order approving a value-of-solar rate for solar gardens, the applicable retail rate and the solar REC value will expire according to the schedule set forth in that order.

On August 8, 2015, the Commission issued its ORDER ADOPTING PARTIAL SETTLEMENT AS MODIFIED, which adopted a partial settlement agreement to establish program rules for Xcel's CSG Program. Under the initial program rules, subscribers to a CSG received a credit on their bills based on their applicable retail rate (ARR).

On September 6, 2016, the Commission issued its ORDER APPROVING VALUE-OF-SOLAR RATE FOR XCEL'S SOLAR GARDEN PROGRAM, CLARIFYING PROGRAM PARAMETERS, AND REQUIRING FURTHER FILINGS in the current docket. The Commission adopted the use of

the Value of Solar (VOS) rate as the subscriber bill credit rate for CSGs, and directed the Department to submit a report on March 1, 2017 addressing whether the VOS rate required any positive or negative adjustments (adders) for any of the following conditions:

- a. Brownfield sites or landfills;
- b. Public Facilities;
- c. Commercial or industrial rooftops;
- d. Prime Agricultural Land;
- e. Placement within the communities the solar gardens serve;
- f. Residential subscribers;
- g. Low-income Residential subscribers;
- h. Other conditions the Department identifies as warranting modification or an adder.

## II. VALUE OF SOLAR METHODOLOGY

Minn. Stat. §216B.164, subd. 10 provides for the determination of a VOS rate that “compensates customers through a bill credit mechanism for the value to the utility, its customers, and society for operating distributed solar photovoltaic resources interconnected to the utility system and operated primarily for meeting their own energy needs.” In its April 1, 2014 Order in Docket No. E999/M-14-65,<sup>1</sup> the Commission adopted a methodology for calculating the VOS rate that contains eight rate components:

1. Avoided Fuel Cost;
2. Avoided Plant Operation and Maintenance – Fixed;
3. Avoided Plant Operation and Maintenance – Variable;
4. Avoided Generation Capacity Cost;
5. Avoided Reserve Capacity Cost;
6. Avoided Transmission Capacity Cost;
7. Avoided Distribution Capacity Cost;
8. Avoided Environmental Cost.

Minn. Stat. §216B.1641, subd. (d) states that a public utility must purchase energy from a CSG at the “rate calculated under section 216b.164, subd. 10 (VOS Statute), or until that rate for the public utility has been approved by the commission, the applicable retail rate.” As noted above, on September 6, 2016, the Commission adopted the VOS rate for use in Xcel’s CSG program.

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<sup>1</sup> *In the Matter of Establishing a Distributed Solar Value Methodology under Minn. Stat. §216B.164, subd. 10 (e) and (f)*, ORDER APPROVING DISTRIBUTED SOLAR VALUE METHODOLOGY, E999/M-14-65, April 1, 2014.

### III. SUMMARY OF COMMENTS ON ADDERS

On December 15 and December 28, 2016, the Department sent out requests for information to parties to this proceeding. (Attachments A and B). Specifically, the Department asked for information that would enable a more thorough evaluation of the impact of an adder on a CSG's expected rate of return, with a goal of understanding the potential impact of an adder on CSG financeability. With one exception, the Department did not obtain the detailed information it requested, which hampers our ability to make a more thorough analysis.

The following parties filed responses:

- Cooperative Energy Futures
- Institute for Local Self-Reliance
- Energy Freedom Coalition of America
- Minnesota Solar Energy Industries Association
- Kandiyo Consulting, LLC
- Innovative Power Systems
- Minnesota Solar Connection
- Xcel Energy
- Fresh Energy
- A-Sharp Energy
- Metropolitan Council

A brief summary of the responses follows:

#### A. *COOPERATIVE ENERGY FUTURES*

Cooperative Energy Futures (CEF) has developed CSGs located within communities that focus on obtaining subscribers from those communities, including low-income residents. CEF stated that a barrier it experienced in siting CSGs on commercial or industrial rooftops is the unwillingness of private commercial property owners to offer a 25-year site lease at rental rates that would be financially viable for the project. CEF indicated that the rental rates it has been quoted would require a bill credit that is approximately \$0.015/kWh higher than the current ARR residential credits to make the CSG financially workable. CEF stated that one non-financial option may be to offer some type of early termination eligibility to private commercial property owners under certain circumstances to attempt to address the uncertainty of a 25-year time horizon.

With respect to CSGs focused on residential subscribers, CEF stated that a rate adder of \$0.025/kWh would be sufficient to cover additional recruitment and administrative costs associated with residential subscriptions under an assumed 10-year payback period. CEF noted that its proposed residential adder may not satisfy financiers' concerns about credit risk, but that it does not have sufficient information on the various ways investors evaluate

subscriber risk pools to determine if any additional adder beyond its proposed \$0.025/kWh is warranted.

*B. INSTITUTE FOR LOCAL SELF-RELIANCE (ILSR)*

ILSR generally supported adders for brownfields, gardens located in urban areas and on rooftops, and for residential and low-income customers. ISLR did not offer specific details on appropriate adder amounts for these categories of CSGs, but rather indicated that adders would be warranted due to the added cost of developing CSGs in these locations or to these customer groups. In addition, ISLR indicated that it believed additional benefits to the communities in which the garden was placed, or to the customer groups, supported an adder.

*C. ENERGY FREEDOM COALITION OF AMERICA (EFCA)*

The Energy Freedom Coalition (EFCA) is a group of distributed energy resource providers. EFCA supports adders for residential, low-income and other small subscribers. They cited higher customer acquisition costs, higher outreach and marketing costs, higher risk associated with poor credit and higher financing costs as justifications for an adder for residential and low-income subscribers. EFCA cited SunShare's testimony in Colorado that indicated that the cost of capital for financing a residential CSG is approximately 200 basis points higher than the cost of capital for a garden subscribing commercial or industrial customers.

EFCA stated that an adder to the VOS rate would be a straightforward mechanism for encouraging developers to market and subscribe residential and low-income customers. One possibility suggested by EFCA is to deposit the proceeds from a VOS adder into a reserve fund to be drawn on by developers in the event of customer attrition. Finally, EFCA recommended that Xcel be directed to include CSG options in any educational outreach programs to low-income customers.

*D. MINNESOTA SOLAR ENERGY ASSOCIATION (MNSEIA)*

MNSEIA argued that a general adder is necessary for all new CSGs projects, but did not propose any amount for the general adder. MNSEIA argued that the drop-off in the number of new CSG applications resulting from the reduction in the allowable size of co-located gardens from 5 MW to 1 MW, along with the lower VOS bill credit, justifies the need for a general adder for all new CSG applications.

MNSEIA also argued that many of the categories identified by the Commission also warranted additional specific adders. The one category for which the Association did not advocate a separate adder beyond the general adder was for prime agricultural land. MNSEIA noted that it does not favor a negative adder for prime agricultural land.

For each of the remaining categories, MNSEIA advocated an adder to encourage CSG development for each of the categories. Specifically, MNSEIA argued that because land

prices decrease the further the distance from an urban area, locating gardens closer to load, whether on brownfields in the urban core or on rooftops, is more expensive than locating CSGs far from the customer load. In addition, the Association cited additional labor and engineering costs, such as the need for a structural or environmental engineer for rooftop or brownfield gardens. MNSEIA argued that if the CSGs are closer to Xcel's load there are additional locational benefits, including expected further line loss reductions, and additional capacity benefits not fully reflected in the VOS rate.

Finally, MNSEIA noted that with the shift from the ARR to the VOS rate, the higher residential bill credit for residential customers was eliminated. The ARR is customer-class specific. Consequently, the Standard ARR bill credit for residential customers for garden applications filed on or before December 31, 2016 is \$0.12596 per kWh (\$0.14596 - \$0.15496 with renewable energy credits (RECs)) compared to the latest recent VOS of \$0.1239 per kWh levelized (\$0.0995 per kWh on an inflation-adjusted basis for 2016) for all classes.<sup>2</sup> In addition, MNSEIA maintained that the VOS does not include the \$0.02 - \$0.03 per kWh REC adder currently available to gardens that transfer RECs to Xcel. MNSEIA recommended a Residential adder of \$0.04646<sup>3</sup> (ARR Residential credit \$0.12596 - 2016 VOS \$0.0995 = \$0.02464 + \$0.02 REC adder) per kWh.

#### *E. KANDIYO CONSULTING, LLC*

Kandiyo stated that it believes the original intent of the CSG statute was to focus on placing CSGs within communities of ratepayer subscribers. Kandiyo favors applying adders to circumstances it believes more closely align with its view of the statutory intent. Specifically, Kandiyo favors adders for rooftop installations that provide benefits to the distribution grid, for projects that have at least 60 percent of total subscriptions from residential customers, and from projects that have at least 10 percent of their subscriptions from low-to-moderate income households.

Kandiyo recommended that rooftop CSGs with between 100 kW and 1 MW in AC capacity be eligible for an additional bill credit of \$0.03 per kWh, and roughly equivalent to Xcel's capacity credit under its current ELCC tariff. For residential subscribers, Kandiyo recommended that gardens with at least 60% residential subscribers receive an additional \$0.02 per kWh credit, with an additional \$0.01 per kWh credit for ratepayers at or below 80 percent of the area median income and holding at least 10 percent of total subscriptions in the project. In order to meet a low-income carve-out of 10 percent of total subscriptions on each project, Kandiyo offered the alternatives of contracting with small businesses (less than 25 employees), or minority- or women-owned business for at least 25 percent of the installed costs or the payment of an impact fee of \$150 per kW. Kandiyo noted that these contracting alternatives could benefit low-income neighborhoods by providing job and economic development benefits. Further, the impact payment could be pooled with other

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<sup>2</sup> MNSEIA's filing reflects 2016 ARR and VOS rates. Xcel's February 1, 2017 calculation of its ARR is a Standard credit of \$0.13310 and Enhanced credits (with RECs) of \$0.15310 or \$0.16310 depending on garden size. The latest VOS rate is \$0.1275 on a levelized basis, and an inflation-adjusted rate of \$0.1033 for 2017.

developers' impact payments to provide low-cost financing for low-income subscriptions for projects.

*F. INNOVATIVE POWER SYSTEMS (IPS)*

IPS indicated that most of its current CSG projects have been ground-mount systems located in exurban or rural areas, but that it expects to see more gardens located in urban areas in the future. IPS supports adders to the VOS rate for rooftop systems, public facilities, brownfields and low-income subscribers.

With respect to rooftop solar systems, IPS supports an adder of \$0.015 per kWh to reflect the additional costs of installing rooftop solar including higher lease payments for rooftop space, higher installation costs, and special requirements or limitations in positioning the systems, which typically reduces total energy production relative to a ground-mounted system. With respect to CSGs located on public facilities, IPS stated that such projects have higher transaction costs due to the need for bidding, public hearings, and other meetings resulting in an additional cost of approximately 5 percent on such projects. IPS recommended a \$0.005 per kWh adder to reflect the higher costs. Similarly, IPS recommended a \$0.01 per kWh adder for CSGs located on brownfield sites as an incentive to develop CSGs in those locations. Finally, IPS recommended a \$0.025 per kWh adder for low-income subscribers falling below 80 percent of the median income.

*G. MINNESOTA SOLAR CONNECTION (MSC)*

MSC advocated rate adders for residential subscribers and for residential subscribers in multi-family buildings because the relatively small subscription sizes associated with residential customers requires acquiring far more subscriptions, resulting in added marketing and subscriber acquisition costs than for a CSG with a predominately small general service or general service subscription base. MSC estimated an additional subscriber acquisition cost for a 100 percent residential 1 MW CSG to be between \$0.22 to \$0.36 per watt DC. In addition, MSC stated that higher turnover in residential customer participation, either through moves out of the service area or simply address changes, would result in higher servicing costs for a residential CSG.

MSC recommended basing an adder for residential customers on the rate differential between the residential ARR and the VOS rate. For multi-family dwellings, MSC recommended a slightly higher adder due to additional servicing costs as renters typically move more frequently than homeowners resulting in a higher turnover. MSC did not specify the size of the additional adder for multi-family dwellings.

*H. XCEL ENERGY*

Xcel stated that it does not support adders for CSGs located on specific types of land, as it believes the market price signals are already appropriately reflected in land values. With respect to the VOS rate methodology, Xcel stated that the methodology generally assumes favorable conditions for solar generation such as assuming a need for the solar capacity,

avoidance of all line losses and no integration costs. Integration costs include additional wear and tear on equipment resulting in additional maintenance as well as expansion of the distribution system. Xcel recommended that the Commission consider further exploration of these costs and to consider whether a downward adjustment in the VOS is warranted as a result.

Xcel also asserted that an adjustment to the VOS may be warranted to reflect the declining cost of solar equipment in order to share the benefits of falling equipment prices with customers. Finally, Xcel stated that projects receiving Made in Minnesota or Solar\*Rewards incentives are receiving double payment for RECs under the VOS rate; the first payment is through the program incentives and the second is the inclusion of environmental benefits in the VOS rate. Xcel suggested that one method of remedying this double payment is to eliminate the environmental benefits contained in the VOS for those gardens receiving program incentives.

#### *I. FRESH ENERGY*

Fresh Energy recommended adoption of an adder for residential customers and for low-income customers. While not offering a specific adder amount, Fresh Energy recommended a number of structural details regarding the application of an adder:

- An adder should be limited by capacity and time so that a total budget is determined and not exceeded, and that any adder and capacity should be stepped down over a three-year period;
- The adder for a given year would be applied for the life of the project;
- The adder value and capacity for the coming year should be finalized six months prior to the date of offering;
- The CSG operator should commit to the adder at the time of application, with the adder amount memorialized in the rate reservation letter;
- In the event the CSG operator falls short of its commitment at any point during the CSG's lifetime, unsubscribed energy would receive the unsubscribed rate;
- If the operator exceeds the reserved capacity at any point during the CSG's lifetime, the excess subscriptions would not receive the adder;
- The adder should be awarded to applications received within the first 24 hours of the adder offering on a lottery basis, if oversubscribed. If not fully subscribed, the remaining capacity should be awarded on a first-come, first-served basis. If there is unsubscribed capacity, or if projects are cancelled, the remaining capacity should be rolled into the next year's capacity. Limit the program to five years; and

- Any adder should be limited to a three-year timeframe to provide ongoing stability, and with the hope that additional adders will not be necessary in the future.

*J. A-SHARP ENERGY*

A-Sharp Energy indicated that it is developing a web-based application to allow potential subscribers to learn and comparison shop for CSG subscriptions. A-Sharp stated that it is focused on assisting the residential market in understanding CSGs. A-Sharp recommended that a residential adder be considered within the range of \$0.02856 and \$0.04646 per kWh. The range reflects the rate differential between the 2016 ARR and the VOS rate on the lower bound, and the rate differential with a \$0.02 per kWh adder for RECs on the upper bound.

*K. METROPOLITAN COUNCIL (MET COUNCIL)*

While not directly addressing potential adjustments to the VOS, the Met Council offered comments on the availability of various public facilities for solar gardens. The Met Council indicated that, depending on the context and nearby uses, many public facilities and buildings may be available for solar installations including closed landfills and transportation corridors. With respect to brownfields, the Met Council indicated that the goal for these properties is to return them to productive use as soon as possible. Met Council policies support cleaning up and redeveloping such sites, and therefore the Met Council would generally not support such sites for CSG use because of the long 20 to 25-year contract required for such a project.

**IV. DEPARTMENT ANALYSIS**

*A. VALUE OF SOLAR AND APPLICABLE RETAIL RATE*

Minn. Stat. §216b.1641 directs the utility to pay the applicable retail rate for solar generation from a CSG until a VOS rate is approved by the Commission. In its April 7, 2014 Order,<sup>4</sup> the Commission determined that the applicable retail rate was calculated using total retail revenues including the energy charge, demand charge, customer charge and applicable riders by class divided by the total retail sales to that class. Under the ARR methodology, rates varied by customer class.

In contrast, the VOS methodology is intended to reflect the value society places on the addition of solar to the grid, and to capture the costs avoided by solar generation in comparison to generation from a natural gas combustion turbine. The VOS methodology

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<sup>4</sup> In the Matter of the Petition of Northern States Power Company, dba Xcel Energy, for Approval of its Proposed Community Solar Garden Program, Docket No. E002/M-13-867, *Order Rejecting Xcel's Solar Garden Tariff Filing and Requiring the Company to File a Revised Solar Garden Plan*. Docket No. E002/13-867, April 7, 2014.

results in a single VOS rate for all customer classes. Table 1, below, summarizes the most recent ARR rates and VOS rate filed by Xcel.<sup>5</sup>

**Table 1: Summary of ARR and VOS Rates**

	Proposed ARR Bill Credit per kWh 2/1/17	Value of Solar – Levelized Rate Per kWh	Rate Differential (ARR-VOS)
Residential – Std.	\$0.13310	\$.1275	\$0.00560
Enhanced > 250 kW	\$0.15310	\$.1275	\$0.02560
Enhanced ≤ 250 kW	\$0.16310	\$.1275	\$0.03560
Small General Service – Std.	\$0.12798	\$.1275	\$0.00048
Enhanced > 250 kW	\$0.14798	\$.1275	\$0.02048
Enhanced ≤ 250 kW	\$0.15798	\$.1275	\$0.03048
General Service – Std.	\$0.10296	\$.1275	\$(0.02454)
Enhanced > 250 kW	\$0.12296	\$.1275	\$(0.00454)
Enhanced ≤ 250 kW	\$0.13296	\$.1275	\$0.00546

Because the ARR methodology is based on the current rate structure, and not the societal value of solar generation, the Commission added a \$0.02-\$0.03 per kWh adder to the ARR to reflect the environmental attributes and benefits of solar generation or RECs (Renewable Energy Certificates). The VOS methodology explicitly includes a rate component reflecting the environmental benefits of solar generation and, consequently, a REC adder is unnecessary.

In addition to the rate methodology, Minn. Stat. §216B.1641 (e) states that the CSG program approved by the Commission must “reasonably allow for the creation, financing, and accessibility of community solar gardens.” A number of the commenters cited Minn. Stat. §216B.1641 (e) to support the need for an adder to the VOS to make certain types of CSGs financeable.

In determining the need for an adder to “reasonably ensure financing,” the Department notes that setting rates to reasonably ensure financing does not require that all CSG projects under all circumstances are financeable.<sup>6</sup> Rather, the Department understands the statutory directive to mean that the rates are sufficient to make a variety of CSGs financeable under a variety of circumstances, not that a specific CSG proposed by a specific developer will be financeable.

<sup>5</sup> Value of Solar Filing, Docket No. E002/M-13-867, September 30, 2016, and Applicable Retail Rate Filing, Docket No. E002/M-13-867, February 1, 2017.

<sup>6</sup> The Department notes that the applicability of federal and/or state securities regulations to community solar gardens is unclear at this time, and is thus not part of this analysis.

## *B. ADDERS TO THE VOS*

The list of possible categories of CSGs for which the Commission sought comment on possible adders can be separated into two groups: 1) locational factors, and 2) subscriber types. Locational factors include brownfields, prime agricultural property, and rooftops or CSGs otherwise located close to urban load. Subscriber types include CSGs that focus on subscribing residential customers and/or low-income residents.

### *1. Locational Adders*

The Department does not recommend applying an adder to the VOS for any of the locational factors at this time due primarily to the limited information from commenters and the 2018 VOS methodology changes to incorporate locational impacts on the distribution system. The willingness of a property owner to lease or sell a location to a CSG developer will largely depend on potential returns available from alternative uses for that land. For example, in the case of prime agricultural land, the landowner will need to evaluate the payment from the developer to place a CSG on the property against the income expected from farming that land or from selling or renting that land for another purpose. The property owner is in the best position to evaluate the use of its land against alternative uses and determine whether constructing a CSG on its property is a reasonable investment choice. As noted by the Met Council, governmental entities with brownfield sites are in the best position to evaluate whether a site is best used for a CSG or would be better for their tax base and their residents if cleaned up and redeveloped.

A number of commenters recommended adopting an adder for rooftop locations citing the higher cost of such installations, lower generation output due to the type of installation, and the benefits of being closer to load. The Department can foresee the use of a locational adder when the placement of a CSG at a particular location will benefit the distribution system by avoiding the costs of upgrading or expanding the system. The Commission's September 6<sup>th</sup> Order directed Xcel to use location-specific avoided costs in the calculation of avoided distribution capacity beginning with its 2018 VOS rate filing.<sup>7</sup> The Department expects that the use of location-specific avoided costs in the VOS rate will sufficiently distinguish and reflect the benefits of different locations for CSG development, and does not recommend any adders for location considerations at this time.

### *2. Subscriber Group Adders*

In contrast to the applicable retail rate, the VOS rate applies a single subscriber bill credit to all types of subscribers. As reflected in Table 1, above, the rate differential between the most recent ARR rates and the VOS rate for residential customers ranges from \$0.0056 per kWh for a garden without the assignment of RECs to Xcel to \$0.0356 per kWh for a small (less than 250 kW) CSG with the RECs assigned to Xcel. Many of the commenters recommended a VOS adder of \$0.025 per kWh for residential subscribers. In a couple of instances, parties argued for a residential adder as reflecting payment for the REC. As

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<sup>7</sup> Order point 4.

noted earlier in these comments, the VOS includes a component for valuing the environmental benefits in its rate methodology and consequently, an additional adder for the REC value is unnecessary.

Other commenters noted the additional administrative costs of residential subscribers. Because residential subscriptions are smaller, more subscribers are required to fill a CSG. In addition, residential subscribers are more likely to move, and otherwise require changes to their subscription resulting in more customer turnover and higher administrative costs.

An additional adder seems warranted for residential customers given the added costs of administering residential subscriptions and the existing rate differential between the ARR and the VOS for residential customers. In its comments, Fresh Energy recommended a residential adder that is stepped down over a three-year period. In order to limit the cost of the residential adder, Fresh Energy also recommended a cap be placed on the total amount of money used to fund a residential adder.

The Department supports the use of a residential adder that is stepped down over a three-year period. The Department recommends that residential subscribers be given a \$0.025 per kWh adder in 2017, decreasing by \$0.01 per kWh in each of the next two years.

The Department does not recommend a cap on the total amount of money used to fund a residential adder, nor setting a targeted percentage of residential subscribers in a CSG in order to receive the adder. While a cap on the total amount of money available for a residential adder has some appeal because it would limit the rate impact on non-subscribers, the Department expects that the added administrative cost involved with tracking such a cap would make a cap unworkable. With respect to requiring developers to target a percentage of residential subscribers for a CSG in order to receive the adder, the Department again expects the cost associated with such tracking to be significant. If a developer signs up a residential subscriber, the residential subscriber will get a higher bill credit. The developer is best positioned to know what percentage of residential subscribers will work in its financing model, and that percentage may vary across developers and CSGs.

### 3. *Low-Income Residential Customers*

As with all residential customers, low-income residential customer participation in a CSG involves additional administrative costs. In addition, financing requirements based on subscriber credit scores often exclude low-income customers from participating in CSGs. Parties to this docket have had extensive discussions about methods of making CSGs more accessible to low-income participants. In its September 6<sup>th</sup> Order, the Commission directed Xcel to submit a CSG proposal specifically focused on low-income participants by March 1, 2017, and requested that any proposals by other parties to make CSGs accessible to low-income customers be filed at the same time. At this time, the Department recommends that the Commission revisit consideration of an adder specific to low-income subscribers when Xcel's low-income CSG proposal has been developed and its experience considered.

## V. DEPARTMENT RECOMMENDATIONS

The Department recommends that the Commission:

Decline at this time to adopt an adder for CSGs located on:

- Brownfields;
- Prime Agricultural property;
- Rooftops and/or close to customer load;
- Public facilities.

Adopt an adder of \$0.025 per kWh for residential subscribers to CSGs for 2017 with the rate decreasing to \$0.015 in 2019 and \$0.005 in 2020 and thereafter or until further modified by the Commission.

Revisit consideration of potential adders for low-income residential customers when Xcel's low-income CSG proposal has been developed and, potentially, the results of Xcel's low-income CSG program can be considered.

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85 7TH PLACE EAST, SUITE 500  
SAINT PAUL, MINNESOTA 55101-2198  
MN.GOV/COMMERCE  
651.539.1500 FAX: 651.539.1547  
AN EQUAL OPPORTUNITY EMPLOYER

December 15, 2016

RE: **Docket No. E002/M-13-867**

To: Parties to Xcel's Community Solar Docket

In its September 6, 2016 Order Approving Value of Solar Rate for Xcel's Solar Garden Program, Clarifying Program Parameters and Requiring Further Filings in the above referenced docket, the Minnesota Public Utilities Commission (Commission) directed the Minnesota Department of Commerce, Division of Energy Resources (Department) to report to the Commission by March 1, 2017 on the following:

Whether the Value of Solar (VOS) rate for use as a solar garden bill credit rate should be adjusted with a positive or negative adder for any of the following:

- a) Brownfield sites or landfills;
- b) Public facilities;
- c) Commercial or industrial rooftops;
- d) Prime agricultural land;
- e) Directly in the communities the solar gardens serve;
- f) Residential Subscribers
- g) Low-income residential subscribers;
- h) Others the Department identifies as warranting modification or an adder.

In order to adequately address the Commission's directive to report on potential adders to the Department requests that parties to the proceeding provide comments on the questions contained in Attachment 1 to this letter. The Department requests that responses be filed no later than January 13, 2016.

Should you have questions or need additional information, please contact me by email at [susan.peirce@state.mn.us](mailto:susan.peirce@state.mn.us) or by phone at 651-539-1832.

/s/ SUSAN PEIRCE  
Rates Analyst

## Attachment 1

Please refer to the following list of sites and subscriber groups (hereinafter referred to as subgroups) in answering the following questions:

- a) Brownfield sites or landfills;
- b) Public facilities;
- c) Commercial or industrial rooftops;
- d) Prime agricultural land;
- e) Directly in the communities the solar gardens serve;
- f) Residential Subscribers;
- g) Low-income residential subscribers.

- # Please identify any CSGs that are located at or targeting any of the sub-groups identified in a through g, above. For each garden, please identify:
1. the garden name, location, capacity, and which one(s) of the subgroups it meets.
  2. any financial analysis undertaken to determine the costs or benefits specific to targeting the identified subgroup. Provide supporting financial information.
- # Please identify any CSG projects that were considered for any of the sub-groups identified in a through g, above, but were not pursued. For each project, please identify:
1. the garden name, location, capacity, and which of the subgroups it meets.
  2. Was the decision not to go forward with the project due to factors associated with its identification with the subgroup? If so, please provide a detailed explanation and supporting documentation as to the reasons the project did not go forward.
  3. Please provide any financial analysis undertaken to identify the rate necessary to make the project financially viable.
- # For each of the sub-groups (a-g) above, please identify barriers to project development. For financial barriers, please identify the financial considerations and the specific rate adder necessary to overcome the financial barriers to making the project viable. Please provide documentation to support your quantification of the rate/adder necessary to make the project viable.
- # For each of the sub-groups (a-g) above, please identify any non-financial barriers to developing projects targeting the sub-group.
- # Please provide a detailed explanation of how you evaluate a project for financial viability, along with supporting analysis, examples and calculations.
- # Are there other types of projects you believe warrant a rate adder/modification to the value of solar rate? If so, please identify those project types and provide a detailed explanation as to why you believe an adder is warranted. Please provide information on an adder amount should be determined. Include supporting cost information.
- # For projects targeting residential and/or low-income individuals, please identify any additional administrative cost associated with serving these target groups. Please provide supporting documentation.



85 7TH PLACE EAST, SUITE 500  
SAINT PAUL, MINNESOTA 55101-2198  
MN.GOV/COMMERCE  
651.539.1500 FAX: 651.539.1547  
AN EQUAL OPPORTUNITY EMPLOYER

December 28, 2016

RE: **Docket No. E002/M-13-867**

To: Parties to Xcel's Community Solar Docket

In its September 6, 2016 Order Approving Value of Solar Rate for Xcel's Solar Garden Program, Clarifying Program Parameters and Requiring Further Filings in the above referenced docket, the Minnesota Public Utilities Commission (Commission) directed the Minnesota Department of Commerce, Division of Energy Resources (Department) to report to the Commission by March 1, 2017 on the following:

Whether the Value of Solar (VOS) rate for use as a solar garden bill credit rate should be adjusted with a positive or negative adder for any of the following:

- a) Brownfield sites or landfills;
- b) Public facilities;
- c) Commercial or industrial rooftops;
- d) Prime agricultural land;
- e) Directly in the communities the solar gardens serve;
- f) Residential Subscribers;
- g) Low-income residential subscribers;
- h) Others the Department identifies as warranting modification or an adder.

On December 16, 2016, the Minnesota Department of Commerce, Division of Energy Resources (Department) issued questions in this docket seeking information on the cost and barriers of pursuing community solar projects for the above referenced subgroups. The Department has additional questions related to the cost of solar garden development attached to this letter. The Department requests that parties provide this response to the attached questions along with responses to the first set of questions by **no later than January 13, 2016**.

Should you have questions or need additional information, please contact me by email at [susan.peirce@state.mn.us](mailto:susan.peirce@state.mn.us) or by phone at 651-539-1832.

/s/ SUSAN PEIRCE  
Rates Analyst

SP/lt

## CSG Adder Questions

- #1 In order to fully evaluate whether or not an adder/subtractor to the Value of Solar rate is needed to result in a financeable solar garden project, the Department requests information on the approximate range of various development costs. Please provide a low, median and high range for the following costs assuming a 1 MW CSG.

	Low	Median	High
DC-AC De-rating (%)			
Production (kWh per kWdc)			
EPC (Engineering, Procurement & Construction Cost) (\$/Wdc)			
Interconnection Cost for a 1 MW garden (\$/Wdc)			
Total O&M (Include O&M, insurance asset mgmt.) (\$/kWdc/year)			
Land lease fee (\$/kWdc/year)			
Residential Subscriber Acquisition Cost (\$/Wdc)			
Combined Development Cost & Development Fees (\$/Wdc)			
Target Unlevered IRR (%)			

- #2 How do the cost categories listed above change, if at all, for each of the categories of CSG identified in the PUC Order. Please identify any impact to each expected range of costs for each category of CSG including supporting documentation.
- #3 For CSGs for which you are currently subscribing customers, please provide a percentage breakdown of total subscribers by the following classes:
- a. Residential
  - b. Small Business/Non-Demand C&I
  - c. Large General Service/C&I
- #4 If the Commission adopts an adder/subtractor for a particular type of CSG, what process should be undertaken to review any adders/subtractors? How frequently should any updates occur? What criteria should be considered in determining whether an adder/subtractor is no longer needed?

## **CERTIFICATE OF SERVICE**

I, Sharon Ferguson, hereby certify that I have this day, served copies of the following document on the attached list of persons by electronic filing, certified mail, e-mail, or by depositing a true and correct copy thereof properly enveloped with postage paid in the United States Mail at St. Paul, Minnesota.

**Minnesota Department of Commerce  
Comments**

**Docket No. E002/M-13-867**

**Dated this 1<sup>st</sup> day of March 2017**

**/s/Sharon Ferguson**

First Name	Last Name	Email	Company Name	Address	Delivery Method	View Trade Secret	Service List Name
Ross	Abbey	rabbey@mnsolarconnection.com	Minnesota Solar Connection	345 St. Peter Street Suite 1600 St. Paul, MN 55102	Electronic Service	No	OFF_SL_13-867_Official
Michael	Allen	michael.allen@allenergysolar.com	All Energy Solar	721 W 26th st Suite 211  Minneapolis, Minnesota 55405	Electronic Service	No	OFF_SL_13-867_Official
Julia	Anderson	Julia.Anderson@ag.state.mn.us	Office of the Attorney General-DOC	1800 BRM Tower 445 Minnesota St St. Paul, MN 551012134	Electronic Service	Yes	OFF_SL_13-867_Official
Sara	Baldwin Auck	sarab@irecusa.org	Interstate Renewable Energy Council, Inc.	PO Box 1156  Latham, NY 12110	Electronic Service	No	OFF_SL_13-867_Official
Kenneth	Bradley	kbradley1965@gmail.com		2837 Emerson Ave S Apt CW112  Minneapolis, MN 55408	Electronic Service	No	OFF_SL_13-867_Official
Michael J.	Bull	mbull@mncee.org	Center for Energy and Environment	212 Third Ave N Ste 560  Minneapolis, MN 55401	Electronic Service	No	OFF_SL_13-867_Official
Jessica	Burdette	jessica.burdette@state.mn.us	Department of Commerce	85 7th Place East Suite 500 St. Paul, MN 55101	Electronic Service	No	OFF_SL_13-867_Official
Joel	Cannon	jcannon@tenksolar.com	Tenk Solar, Inc.	9549 Penn Avenue S  Bloomington, MN 55431	Electronic Service	No	OFF_SL_13-867_Official
Carl	Cronin	Regulatory.records@xcelenergy.com	Xcel Energy	414 Nicollet Mall FL 7  Minneapolis, MN 554011993	Electronic Service	No	OFF_SL_13-867_Official
Arthur	Crowell	Crowell.arthur@yahoo.com	A Work of Art Solar	14333 Orchard Rd.  Minnetonka, MN 55345	Electronic Service	No	OFF_SL_13-867_Official

First Name	Last Name	Email	Company Name	Address	Delivery Method	View Trade Secret	Service List Name
Timothy	DenHerder Thomas	timothy@cooperativeenergyfutures.com	Cooperative Energy Futures	3500 Bloomington Ave. S Minneapolis, MN 55407	Electronic Service	No	OFF_SL_13-867_Official
James	Denniston	james.r.denniston@xcelenergy.com	Xcel Energy Services, Inc.	414 Nicollet Mall, Fifth Floor Minneapolis, MN 55401	Electronic Service	No	OFF_SL_13-867_Official
Ian	Dobson	ian.dobson@ag.state.mn.us	Office of the Attorney General-RUD	Antitrust and Utilities Division 445 Minnesota Street, 1400 BRM Tower St. Paul, MN 55101	Electronic Service	Yes	OFF_SL_13-867_Official
Jason	Edens	jason@rreal.org	Rural Renewable Energy Alliance	3963 8th Street SW Backus, MN 55435	Electronic Service	No	OFF_SL_13-867_Official
Betsy	Engelking	betsy@geronimoenergy.com	Geronimo Energy	7650 Edinborough Way Suite 725 Edina, MN 55435	Electronic Service	No	OFF_SL_13-867_Official
John	Farrell	jfarrell@ilsr.org	Institute for Local Self-Reliance	1313 5th St SE #303 Minneapolis, MN 55414	Electronic Service	No	OFF_SL_13-867_Official
Emma	Fazio	emma.fazio@stoel.com	Stoel Rives LLP	33 South Sixth Street Suite 4200 Minneapolis, MN 55402	Electronic Service	No	OFF_SL_13-867_Official
Sharon	Ferguson	sharon.ferguson@state.mn.us	Department of Commerce	85 7th Place E Ste 280 Saint Paul, MN 551012198	Electronic Service	No	OFF_SL_13-867_Official
Nathan	Franzen	nathan@geronimoenergy.com	Geronimo Energy	7650 Edinborough Way Suite 725 Edina, MN 55435	Electronic Service	No	OFF_SL_13-867_Official

First Name	Last Name	Email	Company Name	Address	Delivery Method	View Trade Secret	Service List Name
Karen	Gados	karen@mysunshare.com	SunShare, LLC	1441 18th Street Suite 400 Denver, CO 80202	Electronic Service	No	OFF_SL_13-867_Official
Hal	Galvin	halgalvin@comcast.net	Provectus Energy Development llc	1936 Kenwood Parkway  Minneapolis, MN 55405	Electronic Service	No	OFF_SL_13-867_Official
Allen	Gleckner	gleckner@fresh-energy.org	Fresh Energy	408 St. Peter Street Ste 220 Saint Paul, Minnesota 55102	Electronic Service	No	OFF_SL_13-867_Official
Sean	Gosiewski	sean@afors.org	Alliance for Sustainability	2801 21st Ave S Ste 100  Minneapolis, MN 55407	Electronic Service	No	OFF_SL_13-867_Official
Todd J.	Guerrero	todd.guerrero@kutakrock.com	Kutak Rock LLP	Suite 1750 220 South Sixth Street Minneapolis, MN 554021425	Electronic Service	No	OFF_SL_13-867_Official
Timothy	Gulden	info@winonarenewableenergy.com	Winona Renewable Energy, LLC	1449 Ridgewood Dr  Winona, MN 55987	Electronic Service	No	OFF_SL_13-867_Official
Michael	Harvey	mike@weknowsolar.com	We Know Solar	265 Mounds View Rd Suite #1 River Falls, WI 54022	Electronic Service	No	OFF_SL_13-867_Official
Duane	Hebert	duane.hebert@novelenergy.biz	Novel Energy Solutions	1628 2nd Ave SE  Rochester, MN 55904	Electronic Service	No	OFF_SL_13-867_Official
Lynn	Hinkle	lhinkle@mnseia.org	Minnesota Solar Energy Industries Association	2512 33rd Ave South #2  Minneapolis, MN 55406	Electronic Service	No	OFF_SL_13-867_Official
Jim	Horan	Jim@MREA.org	Minnesota Rural Electric Association	11640 73rd Ave N  Maple Grove, MN 55369	Electronic Service	No	OFF_SL_13-867_Official

First Name	Last Name	Email	Company Name	Address	Delivery Method	View Trade Secret	Service List Name
Jan	Hubbard	jan.hubbard@comcast.net		7730 Mississippi Lane  Brooklyn Park, MN 55444	Electronic Service	No	OFF_SL_13-867_Official
John S.	Jaffray	jjaffray@jirpower.com	JJR Power	350 Highway 7 Suite 236  Excelsior, MN 55331	Electronic Service	No	OFF_SL_13-867_Official
Linda	Jensen	linda.s.jensen@ag.state.mn.us	Office of the Attorney General-DOC	1800 BRM Tower 445 Minnesota Street  St. Paul, MN 551012134	Electronic Service	No	OFF_SL_13-867_Official
Julie	Jorgensen	Julie@greenmark.us.com	GreenMark Solar LLC	4626 Emerson Ave. S.  Minneapolis, MN 55419	Electronic Service	No	OFF_SL_13-867_Official
Michael	Kampmeyer	mkampmeyer@a-e-group.com	AEG Group, LLC	260 Salem Church Road  Sunfish Lake, Minnesota 55118	Electronic Service	No	OFF_SL_13-867_Official
Brad	Klein	bklein@elpc.org	Environmental Law & Policy Center	35 E. Wacker Drive, Suite 1600  Suite 1600 Chicago, IL 60601	Electronic Service	No	OFF_SL_13-867_Official
Madeleine	Klein	mklein@socoreenergy.com	SoCore Energy	225 W Hubbard Street Suite 200 Chicago, IL 60654	Electronic Service	No	OFF_SL_13-867_Official
John	Kluempke	BADEMAIL-jwkluempke@winlectric.com	Elk River Winlectric	12777 Meadowvale Rd  Elk River, MN 55330	Paper Service	No	OFF_SL_13-867_Official
Jon	Kramer	N/A	Sundial Solar	4708 york ave. S  Minneapolis, MN 55410	Paper Service	No	OFF_SL_13-867_Official

First Name	Last Name	Email	Company Name	Address	Delivery Method	View Trade Secret	Service List Name
Michael	Krause	michaelkrause61@yahoo.com	Kandiyo Consulting, LLC	433 S 7th Street Suite 2025 Minneapolis, Minnesota 55415	Electronic Service	No	OFF_SL_13-867_Official
Dean	Leischow	dean@sunriseenergyventures.com	Sunrise Energy Ventures	601 Carlson Parkway, Suite 1050  Minneapolis, MN 55305	Electronic Service	No	OFF_SL_13-867_Official
John	Lindell	john.lindell@ag.state.mn.us	Office of the Attorney General-RUD	1400 BRM Tower 445 Minnesota St St. Paul, MN 551012130	Electronic Service	Yes	OFF_SL_13-867_Official
Erica	McConnell	mcconnell@smwlaw.com	Shute, Mihaly & Weinberger LLP	396 Hayes St  San Francisco, California 94102-4421	Electronic Service	No	OFF_SL_13-867_Official
Thomas	Melone	Thomas.Melone@AllcoUS.com	Minnesota Go Solar LLC	222 South 9th Street Suite 1600 Minneapolis, Minnesota 55120	Electronic Service	No	OFF_SL_13-867_Official
Andrew	Moratzka	andrew.moratzka@stoel.com	Stoel Rives LLP	33 South Sixth St Ste 4200  Minneapolis, MN 55402	Electronic Service	No	OFF_SL_13-867_Official
Martin	Morud	mmorud@trunorthsolar.com	Tru North Solar	5115 45th Ave S  Minneapolis, MN 55417	Electronic Service	No	OFF_SL_13-867_Official
Rolf	Nordstrom	rnordstrom@gpisd.net	Great Plains Institute	2801 21ST AVE S STE 220  Minneapolis, MN 55407-1229	Electronic Service	No	OFF_SL_13-867_Official
Jeff	O'Neill	jeff.oneill@ci.monticello.mn.us	City of Monticello	505 Walnut Street Suite 1 Monticello, Minnesota 55362	Electronic Service	No	OFF_SL_13-867_Official

First Name	Last Name	Email	Company Name	Address	Delivery Method	View Trade Secret	Service List Name
Eric	Pasi	ericp@ips-solar.com	Innovative Power Systems Solar	2670 Patton Rd Roseville, MN 55113	Electronic Service	No	OFF_SL_13-867_Official
Dan	Patry	dpatry@sunedison.com	SunEdison	600 Clipper Drive Belmont, CA 94002	Electronic Service	No	OFF_SL_13-867_Official
Jeffrey C	Paulson	jeff.jcplaw@comcast.net	Paulson Law Office, Ltd.	4445 W 77th Street Suite 224 Edina, MN 55435	Electronic Service	No	OFF_SL_13-867_Official
Donna	Pickard	dpickardgsss@gmail.com	Genie Solar Support Services	1215 Lilac Lane Excelsior, MN 55331	Electronic Service	No	OFF_SL_13-867_Official
Gayle	Prest	gayle.prest@minneapolismn.gov	City of Mpls Sustainability	350 South 5th St, #315 Minneapolis, MN 55415	Electronic Service	No	OFF_SL_13-867_Official
Doug	Shoemaker	dougs@mnRenewables.org	MRES	2928 5th Ave S Minneapolis, MN 55408	Electronic Service	No	OFF_SL_13-867_Official
Eric	Swanson	eswanson@winthrop.com	Winthrop Weinstine	225 S 6th St Ste 3500 Capella Tower Minneapolis, MN 554024629	Electronic Service	No	OFF_SL_13-867_Official
Thomas P.	Sweeney III	tom.sweeney@easycleanenergy.com	Clean Energy Collective	P O Box 1828 Boulder, CO 80306-1828	Electronic Service	No	OFF_SL_13-867_Official
Pat	Treseler	pat.jcplaw@comcast.net	Paulson Law Office LTD	4445 W 77th Street Suite 224 Edina, MN 55435	Electronic Service	No	OFF_SL_13-867_Official
Jason	Willett	jason.willett@metc.state.mn.us	Metropolitan Council	390 Robert St N Saint Paul, MN 55101-1805	Electronic Service	No	OFF_SL_13-867_Official

First Name	Last Name	Email	Company Name	Address	Delivery Method	View Trade Secret	Service List Name
Daniel P	Wolf	dan.wolf@state.mn.us	Public Utilities Commission	121 7th Place East Suite 350 St. Paul, MN 551012147	Electronic Service	Yes	OFF_SL_13-867_Official