



414 Nicollet Mall  
Minneapolis, MN 55401

May 11, 2018

—Via Electronic Filing—

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

RE: STAKEHOLDER MINUTES  
COMMUNITY SOLAR GARDENS  
DOCKET NO. E002/M-13-867

Dear Mr. Wolf:

Northern States Power Company, doing business as Xcel Energy, submits the attached Compliance information in response to the Commission's February 13, 2015 Order (Order Point 3) submitted in the above-noted docket. Per Commission Order, all agendas, approved minutes and attachments from the Solar\*Rewards Community (S\*RC) Implementation Workgroup will be filed in eDockets. Attachment A includes the agenda, meeting minutes, and slide presentation for our March 14, 2018 meeting.

We have electronically filed this document with the Minnesota Public Utilities Commission, and copies have been served on the parties on the attached service list. Please contact Jessica Peterson at [Jessica.K.Peterson@xcelenergy.com](mailto:Jessica.K.Peterson@xcelenergy.com) or 612-330-6850 if you have any questions regarding this filing.

Sincerely,  
/s/

SHAWN WHITE  
MANAGER, DSM & RENEWABLE REGULATORY STRATEGY AND PLANNING

Enclosure  
c: Service List

## **AGENDA: S\*RC IMPLEMENTATION WORKING GROUP**

**Wednesday, March 14**

Xcel Energy, 401 Nicollet Mall – Bay 4

1:00 – 3:00 p.m.

Phone: 612.330.5656 or 1-866-672-3839 Participant Code: 178-8809

Web: <https://webconference.xcelenergy.com/invite/162511/178809/en/avaya>

- 1:00**      **Welcome and Approval of Minutes (*David S*)**
- 1:10**      **Program Detail Discussion (*Tom*)**
- a. Program Status
  - b. Updated Documents
    - a. Subscriber Agency Agreement
    - b. Subscriber Maintenance Quick-Reference
    - c. Application Process Manual
    - d. Commercial Operation Process Document
- 1:30**      **Regulatory Update/Discussion (*Jessie*)**
- a. Monthly Reporting
  - b. Annual Reporting
  - c. 2018 VOS
  - d. Interconnection Docket
  - e. Residential Adder Comment Period
- 2:00**      **Engineering Update (*Alan*)**
- a. Xcel Energy construction crew safety procedures
- 2:15**      **Construction Update (*Brenda & Dave*)**
- a. Update
- 2:45**      **Open Discussion & Wrap-up (*David S*)**

## S\*RC Implementation Workgroup

Meeting Minutes  
 March 14, 2018

### OPENING

The S\*RC Implementation Workgroup was called to order at 1:00 p.m. on March 14, 2018 by David Shafer, MNSEIA.

### PRESENT INCLUDE:

<b>Companies Present - Companies</b>		
<i>Phone Attendee</i>	<i>Attendee</i>	<i>Attendee</i>
<ul style="list-style-type: none"> <li>• Bruce Konewko, Cooperative Energy Futures</li> <li>• Janet Streff, JStreff Consulting LLC</li> <li>• Michael Thalhimer, All Energy Solar</li> </ul> <p style="font-size: small; margin-top: 10px;">Note: Other attendees may have attended by phone that may not be represented here.</p>	<ul style="list-style-type: none"> <li>• Brenda McDermott, Xcel Energy</li> <li>• Tom Santori, Xcel Energy</li> <li>• Dave Madigan, Xcel Energy</li> <li>• David Shaffer, MNSEIA</li> <li>• Cale Pieczynski, Xcel Energy</li> <li>• Holly Crabill, Nautilus Solar</li> <li>• Jamie Borell, IPS Solar</li> <li>• Julian White, Nokomis Partners</li> <li>• Laura Hannah, Fresh Energy</li> <li>• Andy Melka, Minnesota Solar Connection</li> <li>• Kelsey Spehar, Novel Energy</li> <li>• Alan Urban, Xcel Energy</li> <li>• Sue Pierce, Department of Commerce</li> <li>• Raisa Lee, NRG Energy</li> </ul>	<ul style="list-style-type: none"> <li>• Jessie Peterson, Xcel Energy</li> <li>• Andrew Solfest, Xcel Energy</li> <li>• Tobias Brown, Novel Energy</li> <li>• Kerry Klemm, Xcel Energy</li> <li>• Cindy Larson O’Nal, ReneSola</li> <li>• Behnorz Beladi, Apadana Solar</li> <li>• Ahmand Kian, Apadana Solar</li> <li>• Hal Galvin, ReneSola</li> <li>• Dana Hallstrom, US Solar</li> <li>• Bill Richmond, Cypress Creek</li> <li>• Gillian Coats, Cypress Creek</li> <li>• John Harlander, Xcel Energy</li> <li>• Jim Bjork, Geronimo Energy</li> <li>• Ed Shannon, Xcel Energy</li> </ul>

### APPROVAL OF MINUTES

The workgroup attendees approved the meeting minutes from January 17, 2018, IPS moved to approve and US Solar seconded.

### DISCUSSION/RESULTS

#### Topic 1: Program Updates

*Please see Document A containing the presentation used during the workgroup meeting.*

#### 1. Program Status

Xcel Energy provided a program status to workgroup attendees whereas there were 295 MW of capacity completed at the end of 2017, totally 78 sites. As of March, the program has now exceeded 300 MW of installed solar.

There are 380 MW in design and construction. Xcel Energy requested Garden Operators make sure to have in-service dates accurately represented moving into spring and summer.

There are still new applications being submitted. Xcel Energy has received eight new applications in 2018 to-date.

Additional status updates are attached in Document A.

## **2. Program Updates**

### ***a. Subscriber Agency Agreement***

The Subscriber Agency Agreement is updated and on the Xcel Energy website; please make sure to use the most recent version. The successors and assigns wording was updated along with the signature field in the new version. Xcel Energy will accept the old version until December 2018; but recommends updating to the new form immediately for new subscriptions.

### ***b. Subscriber Maintenance Quick-Reference***

Resources have been added to SalesForce to help developers manage subscribers. Xcel Energy reviewed how these can be accessed at the workgroup meeting.

## **3. Application Process Manual and Commercial Operations Process Doc**

Two additional updates have been made to help Garden Operators move through the Solar\*Rewards Community process including the application process manual and the commercial operation process. These have been updated and can be found on the Xcel Energy website at [www.xcelenergy.com/solar](http://www.xcelenergy.com/solar)

Xcel Energy noted that 52 percent of the current projects are going through the construction and design phase. As such, they have updated the Commercial Operation Process to help define specific requirements based on the projects that have already moved through the process. There are not a lot of new changes, but rather a clean up to make the document easier to review and understand. The document will be posted after today's meeting on [www.xcelenergy.com/solar](http://www.xcelenergy.com/solar); it was also sent to everyone on the workgroup email this afternoon.

## **4. Overlapping Solar\*Rewards Community Sites**

Xcel Energy has run into a couple of situations in which two or three gardens have applied for one site. This causes a bit of dilemma in how Xcel Energy studies these moving forward. Xcel energy cannot issue IA agreements for all projects in this situation. Xcel Energy also cannot disclose projects to each party.

The first in queue may not be the application that has full site control; however, Xcel Energy has no way of knowing this. In order to resolve these issues, Xcel Energy will begin to email each party that there is another party or parties who have also applied for the same site. We will then ask permission to release the Garden Developer information to all parties in order to determine the best way to move forward.

Workgroup members thought that this approach made sense. Xcel Energy will proceed based on the discussion. Xcel Energy will not be studying these sites, but will instead begin to work with the developers to determine the best way to move forward.

One question asked was, “Why can’t we study them all?” Xcel Energy can only deliver study results for one; because Xcel Energy cannot interconnect them at the same time (or rather at all in some cases of overlap).

The other question asked was, “Why cannot we do the one that came first?” This is one of the issues. The project moving forward may not have the site rights. Workgroup members noted that land rights are not a requirement of interconnection in which Xcel Energy noted that this further complicates the matter.

Filing an application without land control seems like a development issue to some members of the workgroup. Further discussion was had on land rights.

Other commenters noted that Xcel Energy’s approach was a good way forward so as to not waste anyone’s time.

Xcel Energy is trying to avoid a scenario in which Project B had secured land rights and Project A did not but gets the limited capacity availability as first in queue. This could lead to projects not being built rather than resolving the situation.

## Topic 2: Regulatory Update

### **1. Monthly Reporting Discussion**

Xcel Energy led a conversation regarding ongoing monthly reporting. Xcel Energy feels that there may be an opportunity to begin to limit or eliminate these reports moving forward.

Most workgroup members had no comment on these issues; leading Xcel Energy to believe they are not useful to the majority of the members. However, Fresh Energy noted that these reports are important for transparency. They use things such as interconnection, policy, and details to make future comments in Docket No. E002/M-13-867. They did note however, that receiving the information only on the website may work; but they felt that it was important to keep the Commission informed in order to keep their pulse on the program. Fresh Energy noted Xcel Energy does a nice job of explaining things simply so that the majority of the readers can understand the trends in the program. They also like to see the historical view, perhaps more than what is currently recorded.

MNSEIA also noted that the report is helpful and that filing the report provides a record of the detail, but perhaps monthly is more than needed.

## 2. Annual Reports

Xcel Energy reminded the workgroup that annual reports are needed by several projects to meet their contractual requirements. Two potential amendments were discussed, but no one has yet brought forward a solution to these concerns such as to which level or what size these reports are needed for. Currently, all projects need an annual report and they must be done at an LLC level.

## 3. Other Updates

Xcel Energy provided several other regulatory updates including an update on the 2018 VOS rate, interconnection docket, and VOS adder comments. They also had a discussion on subscribers in apartment buildings. More details can be found in Document A.

### Topic 2: Engineering Discussion

#### 1. *Disconnecting Gardens From An Energized Feeder*

Xcel Energy is starting to see how these gardens are operationally working. There are a few times in which Xcel Energy may have to disconnect a garden: power quality, feeder reconfiguration and hotline work.

**Power Quality:** The garden has been determined to be causing a power quality issue for neighboring customers. Xcel Energy will be contacting the developer through the contact information on the interconnection agreement. Developers can update this in the Salesforce portal – Xcel Energy does mean 24/7 on these contacts. The most common causes include incorrect power factor causing high voltage and overproduction (anything above the kW that was approved in the interconnection application).

The question asked was, “Where do we want the power quality to come from?” It needs to be at the inverter not at the billing meter. “If there a power factor of .95 and it shows as 0.946 do we want it rounded?” Xcel Energy want to see it below to bring the voltage down. Power factor is determined at full output.

**Feeder Reconfiguration:** The feeder may be temporarily reconfigured in such a manner as to no longer be compatible w/PV operating given the size and new location. Typical reasons include, outage restoration (specifically for storms) and construction and maintenance work. Xcel Energy should be able to tell the developer how long they will be out for these reasons.

“How often could this occur?” This is unknown at this time. Typically, in the last 15-20 years we probably have 12-20 days of storm restoration; such as where the feeder is difficult to get to.

**Hotline work:** Work performed on the distribution system without de-energizing it; working the line “hot”. Crews disconnect sites while performing this work as part of a safety rule, and re-energize upon completion of this work.

Notifications are done through the emergency contact, no additional phone calls will be made if this contact information is not correct. Notifications during emergency work will be consistent with the Interconnection Agreement.

## **2. *Witness Testing***

Version 1.1 of the Guidelines for Large PV Acceptance/Witness Testing will be available next week. Anti-islanding will require that this be a one-phase and three-phase test moving forward. The rest of the industry is already during this. Xcel Energy has also seen a couple of instances in which gardens do not pass a one-phase and we are trying to get a head of this. This will go into effect in the next few weeks; but all the new procedures will have them in May 2018. If it is not in the written procedure, Xcel Energy will do so in the field but still approve the procedure itself.

17-41 certifications does not apply for the system as a whole so it needs to be tested in the field. Xcel Energy has seen that these inverters are not doing what they are intended to do – they are testing to verify they work as anticipated.

This may be an issue for some sites – this may have to be dealt with on a case-by-case basis.

## **Topic 3: Construction Update**

### **1. *Design and Construction Reminders***

- 305 projects in design and construction
- 96 projects in design
- 23 projects on hold
- 70 in construction
- 30 projects cancelled (no additional movement)
- Energization and acceptance testing is first-come first scheduled.
- No waitlist will be offered in 2018.
- In-service dates do not mean energization – it is just a date in which it was determined that both construction on the developer's side and Xcel Energy's side is complete
- Acceptance testing – there is a 100% failure rate on acceptance testing due to things like gravel, labels, power factor, etc.
- Energization through May is full – there is a lot of movement however.
- There continues to be a 20-week lead time on metering equipment - if developers do not want meters to be ordered, just let Xcel Energy know
- The more proactive developers can be the better
- During project ownership changes – the developer is responsible to hand-off the project with all the details intact; if this does not occur, it can require additional design work
- Xcel Energy wants to make sure that they are constructing on the right projects at the right time; being realistic on timeframes will help with this

Developers did not understand that gravel needs to be included in a line up to all meters for Xcel Energy trucks. Xcel Energy confirmed this is the case.

Question to Xcel Energy: “Is there a way to expedite the 20-week timeline for meter?” Xcel Energy confirmed that this is the case and cannot expedite due to our vendor requirements. Xcel Energy does have an option for picking up the equipment rather than delivering it to the site – this does eliminate 1-2 weeks.

Question to Xcel Energy: “Have we had conversations with the metering manufacturer regarding CT/PCs.” Xcel Energy noted conversations have occurred.

## ***2. Requirements for Commercial Operation***

Xcel Energy reviewed the updated requirements for commercial operation as noted in Document B.

Developers asked specific questions and offered feedback to the document.

- Xcel Energy will wait to order metering until single line diagrams and cut sheets have been completed;
- Add all applicable program requirements to column 4 for clarity;
- Consistency of terms would be helpful within the document;
- Xcel Energy will verify when PE stamped procedures is needed;
- Add – Final payment/true up due, 30-days;
- Add subscribers (at least five) before subscribers;
- Activation = Post Permission to Operate (PTO);
- Add billing the first day of the next month following PTO; and
- 120-days, add calendar days here.

If developers have any other adjustments and/or edits please email [SRCMN@xcelenergy.com](mailto:SRCMN@xcelenergy.com) or Tom Santori.

### **Topic 3: Wrap-up**

MNSEIA noted that there is panel being held at APA conference. If you would like to be on the panel, please discuss with David.

Xcel Energy noted that Dundas has issued a moratorium. Those who may have projects in this area please be aware.

We will have an in person meeting on June 27, 2018.

Minutes submitted by: Jessie Peterson, Xcel Energy

Approved by: By Workgroup during special session held on 5/9/2018.





# Stakeholder Workgroup

## Solar\*Rewards Community

March 2018



# Agenda

- 1:00**      **Welcome and Approval of Minutes (*David S*)**
  
- 1:10**      **Program Detail Discussion (*Tom*)**
  - a. Program Status
  - b. Updated Documents
    - a. Subscriber Agency Agreement
    - b. Subscriber Maintenance Quick-Reference
    - c. Application Process Manual
    - d. Commercial Operation Process Document
  - c. Overlapping SRC Sites
  
- 1:30**      **Regulatory Update/Discussion (*Jessie*)**
  - a. Monthly Reporting
  - b. Annual Reporting
  - c. 2018 VOS
  - d. Interconnection Docket
  - e. Residential Adder Comment Period
  
- 2:00**      **Engineering Update (*Alan*)**
  - a. Xcel Energy construction crew safety procedures
  
- 2:15**      **Construction Update (*Brenda & Dave*)**
  - a. Update
  
- 2:45**      **Open Discussion & Wrap-up (*David S*)**



shutterstock - 189535307

# Approval of Minutes

# Program Update

# Minnesota Solar\*Rewards Community®

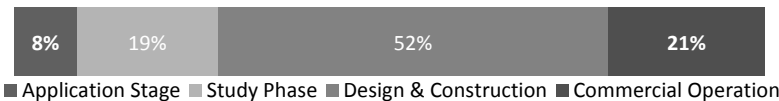
## Status Report | March 2018

### PROJECT STATUS

- New Applications (2018) = 8
- Total No. of Applications under the VOS = 69

March 1, 2018	Project Sites	MW
Active Applications	295	498
Completed Projects	78	295
↓ PROGRESS SUMMARY ↓		
Application Stage	31	31
Study Phase	70	87
In process	51	51
Interconnection Agreement Issued	19	36
Design & Construction Phase	194	381

### PROJECT SITES BY STAGE

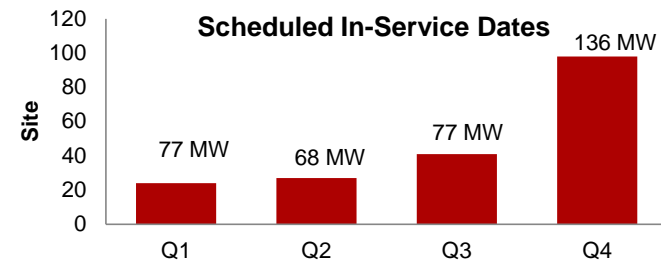


### PROGRAM UPDATE

- 24 MW at 6 sites came online during February 2018. Shortly after the first of the month we hit 300 MW of Solar\*Rewards Community online.
- Very high volumes of design and construction work continue despite the cold weather, and spring and summer already scheduled to be very busy.
- The Value of Solar for 2018 is not yet approved; in the interim, projects that are deemed complete prior to its approval will receive the 2017 Value of Solar rate.

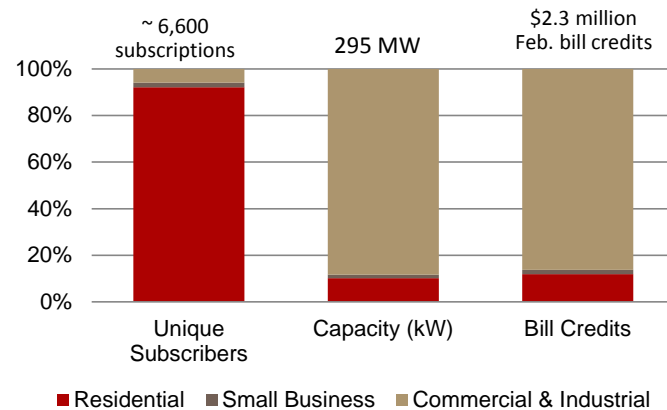
### SOLAR GARDENS IN DESIGN & CONSTRUCTION

- 381 MW in Design & Construction at 194 sites



### ACTIVE SOLAR GARDENS

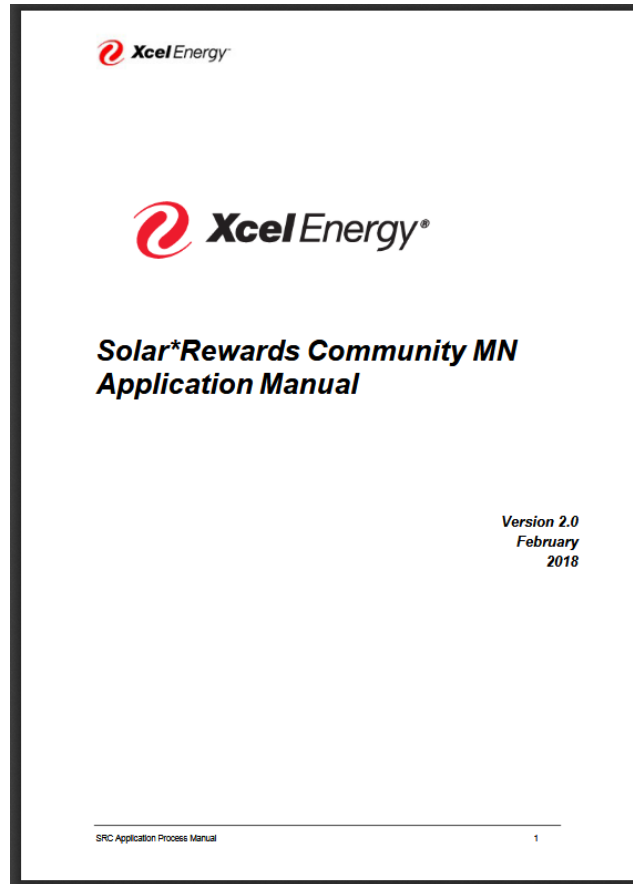
- 57 projects received bill credits in December



# Program Updates – Subscriber Agency Agreement & Maintenance Quick-Reference

- Subscriber Agency Agreement
  - Updated SAA in effect as of December 2017
    - allows for successors and assigns
    - additional language around Subscriber disclosures
    - signature fields updated to provide clarity in the signatories for organizational subscribers
  - The MPUC’s 12/7/17 order allowed the prior version of the SAA to be used for an additional 24 months – meaning that we could accept the prior form up through December 2019
- Subscriber Maintenance Quick-Reference
  - Resource for developers when entering subscribers
  - Particular focus on understanding the cause for entry error messages that developers have been seeing

# Program Update – Application Process Manual & Commercial Operation Process Doc



Solar Rewards Community®

**Requirements for Commercial Operation**

Revision 3.0 | March 1, 2018

The following summary of Xcel Energy's Section 9 and Section 10 tariffs and Solar Rewards Community program requirements is provided for your convenience; official tariffs govern should inconsistencies arise. Please read thoroughly to ensure you align your expected in-service dates with all Xcel Energy requirements.

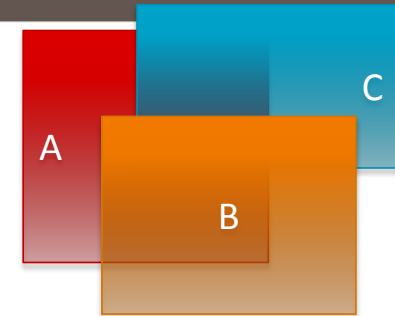
**Requirements at a Glance**

Program Requirement	Final design	Equipment Delivery	Equipment Installation & Energization	Final Acceptance Testing	Post Activation	
<p>At least 6 weeks prior to Final Acceptance Test (upload &amp; notify SRCMN):</p> <ul style="list-style-type: none"> <li>Final testing procedure</li> <li>Insurance documentation</li> </ul> <p>At least 3 full business days prior to Energization (upload &amp; notify SRCMN):</p> <ul style="list-style-type: none"> <li>State Electrical Inspection Sign Off with sticker verification</li> <li>Insurance Requirement approved</li> <li>Production metering installation</li> </ul> <p>At least 3 full business days prior to Final Acceptance Testing (upload &amp; notify SRCMN):</p> <ul style="list-style-type: none"> <li>Pay at least 2/3 of current Exhibit B</li> <li>Upload at least 5 valid subscribers</li> <li>Signed SRC contract</li> <li>Signed REC agreement Forms</li> <li>Signed reservation letter</li> <li>Final Interconnection Agmt, including any updated exhibits</li> <li>Validate legal entity authorized to do business in Minnesota</li> <li>Approved testing procedure</li> </ul>	<p><b>Solar Garden Developer</b></p> <ul style="list-style-type: none"> <li>Confirm In-Service Date (ISD) with designer</li> <li>20 weeks prior to ISD (upload &amp; notify SRCMN) final Single Line Diagram, Site Plan &amp; Meter Cut Sheets</li> <li>Schedule Energization &amp; Final Acceptance Testing once equipment is ordered</li> </ul>	<p><b>Xcel Energy</b></p> <ul style="list-style-type: none"> <li>Order PT, CT &amp; communication cabinet</li> <li>Lock in Energization &amp; Final Acceptance Test dates</li> <li>Allow 15 weeks for equipment procurement</li> </ul>	<p>When ready to install, email SRCMN to schedule delivery / pickup of PT, CT &amp; communication cabinet</p> <p>Coordinate pick up or onsite delivery of PT, CT &amp; communication cabinet with solar garden developer</p>	<ul style="list-style-type: none"> <li>To proceed with energization, the following must be complete 3 full business days prior:                             <ul style="list-style-type: none"> <li>Install PT, CT &amp; communication cabinet</li> <li>Upload affidavit of state electrical inspection sign off with sticker verification</li> </ul> </li> <li>Verify energization requirements are completed</li> <li>Meet onsite to perform energization (for testing purposes only)</li> </ul>	<ul style="list-style-type: none"> <li>To proceed with final acceptance testing, all program requirements must be met 3 full business days prior</li> <li>Submit RE stamped testing procedure</li> <li>Acceptance Testing preparation**</li> <li>Verify all program requirements have been met</li> <li>Meet onsite to perform final acceptance testing</li> </ul>	<p><b>Activation</b></p> <ul style="list-style-type: none"> <li>Update 24/7 emergency contact information in salesforce</li> <li>Review and update billing address</li> <li>Final payment/tue up due</li> <li>Send PTO confirmation</li> <li>Sign SRC contract</li> <li>Issue final invoice approx. 120 days from Activation</li> </ul>

\* 15 week procurement timeline above references metering equipment. Procurement timelines may vary depending on equipment type. Work with your designated designer for equipment schedule. Delivery & installation timelines may be expedited by scheduling in advance.

\*\*Large PV Systems are required to meet all Minnesota Tariff Section 9, Minnesota Tariff Section 10, Xcel Energy Standards for Electric Installation and Use (Blue Book), and all applicable local regulations before being granted permission to operate. Solar Garden operators should reference the "Guideline for Large PV Acceptance-Witness Testing Version 1.0 (PDF)" that is available on the SRCMN Developer Resource Page.

# Overlapping SRC Sites



## The Dilemma

- Sites being proposed that overlap other sites, in part or entirety
- We have not screened for this and won't always catch them early
- No assurance first in queue has site control
- Can't continue pursuing interconnections with overlapping site designs
- Risk is we build to meet schedules without assurance anyone is moving forward, or this hinders good projects with site control
- Can't share confidential project details with other developers without consent

## Proposed Action

- Email each project's contacts to notify of issue without identifying other parties, request permission to release contact information to other parties to resolve the issue
- No further study / progress will occur until we receive joint notice of resolution from all impacted parties
- Be flexible on this policy to react to facts, such as one party not cooperating in resolving the issue.

## Discussion ...



# Regulatory Update

# Monthly Reporting - Discussion

- Monthly Compliance Reports
  - Detail regarding the “427 cohorts” on status, by county, etc.
  - Breakdown of customer class, subscriptions, quarterly
  - Section 10 compliance to timelines
  - +/- 20% compliance
  - Total number of pending and approved applications (website)
- 2017 Request
  - Movement towards discontinuing monthly reports
  - Addition of monthly dashboard on our website
  - Subscribers, breakdown by county, compliance to be added to yearly report
  - Queue remains unchanged – updated by interconnection guidelines

## Program Update – Annual Reports

- As part of the Solar\*Rewards Community Contract, it is an obligation to provide annual report to subscribers and Xcel Energy
- Due at the end of the first full calendar year or fiscal year after a site becomes commercial operational. Thus, if a site achieves commercial operation on 12/01/2016, their annual reports would be due shortly after 12/31/2017 or at the end of the next fiscal year.
- Annual Report Template available upon request
- Report to include (at minimum):
  - Signed by Developer
  - Audited financial statements: Balance Sheet, Income Statement, Source of Funds
  - Energy produced by garden/site
  - Identification of the Management and Operatorship of the CSG
  - Protection of Privacy
  - Proof of report being sent to subscribers and comments allowed

## Program Update – Annual Reports –Issues

- Identification of the Management and Operatorship of the CSG
  - You may need to spell this out more clearly
- If the co-located Annual Report CSG Amendment has been signed, then you only need to report per co-located garden site (rather than each SRC) where all such co-located SRCs are owned by the same legal entity.
  - This means that each LLC at a co-located site must have its own annual report. This amendment, where it applies, allows such reports to have un-audited details.
- The Annual Reports from all developers are public

## Other Updates

### 2018 VOS Rates

- Commission approved the 2018 VOS with changes
- Xcel Energy is waiting for an order to complete tariff sheets
- All projects approved between Jan. 1 and the tariff approval date receive the 2017 VOS rate

### Interconnection Docket

- Department has submitted a draft tariff for Minnesota
- This will impact current tariffs including Section 9 and Section 10

### VOS Adder Comment Period

- Comments on April 6<sup>th</sup>
- Reply Comments on May 11<sup>th</sup>

### SRCMN Subscriber Issue - Apartments

- Situation – We have heard that some apartment complexes may be planning on requiring residents to enter into a Subscription contract as a prerequisite for signing a lease for an apartment.
- Xcel Energy is concerned about the lack of customer choice for a voluntary program in this situation.

# Engineering Discussion

# Disconnecting Gardens From An Energized Feeder

Gardens may be disconnected from an energized feeder in several scenarios:

1. Power Quality
2. Feeder Reconfiguration
3. “Hotline” Work
4. Other tariff, IA, or program rules violations.

# Disconnecting Gardens From An Energized Feeder

## Power Quality

- The garden has been determined to be causing power quality issues for neighboring customers.
- Most common causes to date include, but are not limited to:
  - Incorrect power factor causing high voltages
  - Overproduction, causing high voltages or protection device operation



# Disconnecting Gardens From An Energized Feeder

## Feeder Reconfiguration

- The feeder may be temporarily reconfigured in a such a manner as to no longer be compatible w/ PV operating given the size and new location
- Typical reasons include, but are not limited to:
  - Outage restoration
    - Abnormal configurations to restore power quickly while repairs are made
  - Construction/Maintenance work
    - Abnormal configurations to maintain power while construction or maintenance is performed

# Disconnecting Gardens From An Energized Feeder

## “Hotline” Work

- Hotline work: Work performed on the distribution system without de-energizing it; working the line “hot.”
- Crews will disconnect sites while performing this work as part of their safety rules, and re-energize upon completion of this work.

# Disconnecting Gardens From An Energized Feeder

## Notifications

- Garden operators will be notified prior to disconnection via the contact information provided in the IA or to the program office for all non-emergency work
  - **If contact information is incorrect, no additional phone calls will be made**
- Notifications during emergency work will be consistent with IA. Please note that IA, Sheet, 120, Par. VII.F, states:

Disconnection of Unit: Xcel Energy may disconnect the Generation System as reasonably necessary, for termination of this Agreement; non-compliance with this Agreement; system emergency, imminent danger to the public or Xcel Energy personnel; routine maintenance, repairs and modifications to the electric power system. When reasonably possible, Xcel Energy shall provide prior notice to the Interconnection Customer explaining the reason for the disconnection. If prior notice is not reasonably possible, Xcel Energy shall after the fact, provide information to the Interconnection Customer as to why the disconnection was required. It is agreed that Xcel Energy shall have no liability for any loss of sales or other damages, including all consequential damages for the loss of business opportunity, profits or other losses, regardless of whether such damages were foreseeable, for the disconnection of the Generation System per this Agreement. Xcel Energy shall expend reasonable effort to reconnect the Generation System in a timely manner and to work towards mitigating damages and losses to the Interconnection Customer where reasonably possible.

## Witness Testing

### **Single-phase testing will now be required during the witness test**

- This testing will begin within the month.
- If your commissioning test is scheduled after May 1<sup>st</sup>, this must be a listed step in your witness test procedure
- Memo to be issued next week with more details

# Construction Update

# Design and Construction Reminders

## 305 projects in Design & Construction (+33)

- 86 project with PTO – 310mw (+19)
- 70 projects In-Construction - 185mw (+2)
- 96 projects In-Design – 146mw (-6)
- 23 projects on HOLD – 22mw (+18)
- 30 projects have canceled – 100mw

## Energization and Acceptance Testing

- First come first scheduled
- No waitlist
- Compliance date
- ISD
- 100% failure rate

## Allow time for Material procurement

- Establishing ISD
- 20 weeks prior

## Requirement for energization and acceptance testing

- 3-days prior to energization
  - Permit and stickers for each circuit
  - Insurance
- 3-days prior to acceptance
  - Section 10
  - Testing procedures
  - 2/3/payment

# Design and Construction Reminders

## Project Ownership Changes

- Email stating the sale/permission
- Developer responsible
  - Hand-off
  - Program understanding
- Primary to Secondary or POI changes

## Date Management

- Realistic ISD (Start)
- Understanding project milestone
  - Target date
- Inclement weather

## Site Readiness

- Easement/Private Property
- Drivable surfaces
- Site activity

## 2018 ISD by Month

- Q1 – 27 sites 79mw
- Q2 – 27 sites 68mw
- Q3 – 41 sites 77mw
- Q4 – 97 sites 135mw

**WORK  
SAFELY**



# Requirements for Commercial Operation

Solar\*Rewards Community®

## Requirements for Commercial Operation

Revision 3.0 | March 1, 2018



The following summary of Xcel Energy's Section 9 and Section 10 tariffs and Solar\*Rewards Community program requirements is provided for your convenience; official tariffs govern should inconsistencies arise. Please read thoroughly to ensure you align your expected in-service dates with all Xcel Energy requirements.

### Requirements at a Glance

Program Requirement	1 Final design	2 Equipment Delivery	3 Equipment Installation & Energization	4 Final Acceptance Testing	5 Post Activation
<p>At least 6 weeks prior to Final Acceptance Test (<a href="#">upload &amp; notify SRCMN</a>):</p> <ul style="list-style-type: none"> <li>Final testing procedure</li> <li>Insurance documentation</li> </ul> <p>At least 3 full business days prior to <a href="#">Energization (upload &amp; notify SRCMN)</a>:</p> <ul style="list-style-type: none"> <li>State Electrical Inspection Sign Off with sticker verification</li> <li>Insurance Requirement approved</li> <li>Production metering installation</li> </ul> <p>At least 3 full business days prior to <a href="#">Final Acceptance Testing (upload &amp; notify SRCMN)</a>:</p> <ul style="list-style-type: none"> <li>Pay at least 2/3 of current Exhibit B</li> <li>Upload at least 5 valid subscribers</li> <li>Signed SRC contract</li> <li>Signed REC agreement Forms</li> <li>Signed reservation letter</li> <li>Final Interconnection Agmt, including any updated exhibits</li> <li>Validate legal entity authorized to do business in Minnesota</li> <li>Approved testing procedure</li> </ul>	<p><b>Solar Garden Developer</b></p> <ul style="list-style-type: none"> <li>Confirm In-Service Date (ISD) with designer</li> <li>20 weeks prior to ISD (<a href="#">upload &amp; notify SRCMN</a>): final Single Line Diagram, Site Plan &amp; Meter Cut Sheets</li> <li>Schedule Energization &amp; Final Acceptance Testing once equipment is ordered</li> </ul>	<p>When ready to install, email SRCMN to schedule delivery / pickup of PT, CT &amp; communication cabinet</p>	<p>To proceed with energization, the following must be complete 3 full business days prior:</p> <ul style="list-style-type: none"> <li>Install PT, CT &amp; communication cabinet</li> <li>Upload affidavit of state electrical inspection sign off with sticker verification</li> </ul>	<p>To proceed with final acceptance testing, all program requirements must be met 3 full business days prior</p> <ul style="list-style-type: none"> <li>Submit PE stamped testing procedure</li> <li>Acceptance Testing preparation**</li> </ul>	<p><b>Activation</b></p> <ul style="list-style-type: none"> <li>Update 24/7 emergency contact information in salesforce</li> <li>Review and update billing address</li> <li>Final payment/true up due</li> </ul>
	<p><b>Xcel Energy</b></p> <ul style="list-style-type: none"> <li>Order PT, CT &amp; communication cabinet</li> <li>Lock in Energization &amp; Final Acceptance Test dates</li> </ul> <p>*Allow 15 weeks for equipment procurement</p>	<p>Coordinate pick up or onsite delivery of PT, CT &amp; communication cabinet with solar garden developer</p>	<ul style="list-style-type: none"> <li>Verify energization requirements are completed</li> <li>Meet onsite to perform energization (for testing purposes only)</li> </ul>	<ul style="list-style-type: none"> <li>Verify all program requirements have been met</li> <li>Meet onsite to perform final acceptance testing</li> </ul>	<ul style="list-style-type: none"> <li>Send PTO confirmation</li> <li>Sign SRC contract</li> <li>Issue final invoice approx. 120 days from Activation</li> </ul>

\* 15 week procurement timeline above references metering equipment. Procurement timelines may vary depending on equipment type. Work with your designated designer for equipment schedule. Delivery & installation timelines may be expedited by scheduling in advance.

\*\*Large PV Systems are required to meet all Minnesota Tariff Section 9, Minnesota Tariff Section 10, Xcel Energy Standards for Electric Installation and Use (Blue Book), and all applicable local regulations before being granted permission to operate. Solar Garden operators should reference the "Guideline for Large PV Acceptance-Witness Testing Version 1.0 (PDF)" that is available on the SRCMN Developer Resource Page.





# Guideline for Large PV Acceptance/Witness Test



## Guideline for Large PV Acceptance/Witness Testing – Ver 1.0

The following items will typically be verified by Xcel Energy during witness test of a large PV system. This is not an exhaustive list of all requirements, nor does this replace the required test procedure unique to each system. Large PV systems are required to meet all Minnesota Tariff Section 9, Minnesota Tariff Section 10, Xcel Energy Standards for Electric Installation and Use (Blue Book), and all applicable local regulations before being granted permission to operate.

### Site Security

- Site should have 24/7 keyless entry and drivable access if Xcel equipment is present within the site fence.
- If applicable, site should have 24/7 drivable access to any Xcel equipment installed outside of the site fence that is used for the sole purpose of feeding the PV system.
- Gate Signage – needs to have 24/7 emergency contact information, site name, address.

### Proper Labelling

- Devices labelled clearly
  - AC Disconnect for each site labelled
  - Billing Meter socket for each site labelled, if present
  - Production Meter socket for each site labelled, if present*Each device should be labelled distinctly so as to be able to tell the difference between devices for each individual PV system, i.e. "Production Meter – Unit 1," "Production Meter – Unit 2," etc.*
- Placard indicating device locations
- Labelling matches at the billing meter (where the bi-directional A3 meter is located) and it's corresponding inverter pad prior to setting production meter
- Verify telemetry cabinet hasn't been altered
- Once meters are set, power flow in proper direction will be verified
- Polarity markings (white dot) on Production Meter CT must face towards inverters
- After the Production Meter is set, the telemetry test will begin:
  - Check that Ethernet connections are made
  - Developer must provide Female RJ45 plug for all Production and Billing Meters on site.
  - Check that the telemetry cabinet is powered up

### One-Line (DG/AE)

- System Layout Resembles One-Line
  - Number of inverter pads, disconnects, etc. should be the same, OH vs UG metering points, etc.*
- Grounding Bank Nameplate Matches One-Line
  - If nameplate isn't accessible, have plate mounted outside of equipment*

### Anti-Islanding Witness Test

- System is generating at fullest reasonable capacity.
  - System output may be limited by cloud cover. All PV panels should be cleared of snow prior to beginning test. All inverters must be operational and in-service.*
- System ceased generation within 2 seconds of loss of utility source
  - Developer will open a disconnect to simulate a loss of utility source. Developer will provide the means to monitor power output. No Xcel Energy device (i.e. Production Meter) should be used.*
- Meter Tech has verified metering equipment
  - Metering will verify the correct Billing Meter indicates loss of generation*
- System resumed generation no less than 5 minutes after utility source is restored
  - Developer will close disconnect to restore utility source. System should not begin generation until 5 minutes has elapsed. After 5 minutes, generation should not begin simultaneously. All PV sites are required to implement a staggered start of their inverters.*
- Meter Tech has verified telemetry and communication
  - Metering will verify communication, telemetry, and other outstanding items necessary for commercial operation.*



## Wrap Up

- Topics for next discussion?
- Next Meetings
  - June 13<sup>th</sup>
  - September 12<sup>th</sup>
  - November 14<sup>th</sup>

## CERTIFICATE OF SERVICE

I, Lynette Sweet, hereby certify that I have this day served copies of the foregoing document on the attached list of persons.

xx by depositing a true and correct copy thereof, properly enveloped with postage paid in the United States mail at Minneapolis, Minnesota; or

xx by electronic filing.

**Docket Nos.: E002/M-13-867**

Dated this 11<sup>th</sup> day of May.

/s/

---

Lynette Sweet  
Regulatory Administrator

First Name	Last Name	Email	Company Name	Address	Delivery Method	View Trade Secret	Service List Name
Ross	Abbey	ross.abbey@us-solar.com	United States Solar Corp.	100 North 6th St Ste 222C  Minneapolis, MN 55403	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
David	Amster Olzweski	david@mysunshare.com	SunShare, LLC	1774 Platte St  Denver, CO 80202	Electronic Service	No	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
Laura	Beaton	beaton@smwlaw.com	Shute, Mihaly & Weinberger LLP	396 Hayes Street  San Francisco, CA 94102	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
Generic Notice	Commerce Attorneys	commerce.attorneys@ag.state.mn.us	Office of the Attorney General-DOC	445 Minnesota Street Suite 1800  St. Paul, MN 55101	Electronic Service	Yes	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

First Name	Last Name	Email	Company Name	Address	Delivery Method	View Trade Secret	Service List Name
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
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@xcenergy.com	Xcel Energy Services, Inc.	414 Nicollet Mall, Fifth Floor  Minneapolis, MN 55401	Electronic Service	No	OFF_SL_13-867_Official
Ian	Dobson	residential.utilities@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
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
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
Matthew D.	Forsgren	mforsgren@greeneespel.com	GREENE ESPEL PLLP	222 S. Ninth Street, Suite 2200  Minneapolis, MN 55402	Electronic Service	No	OFF_SL_13-867_Official

First Name	Last Name	Email	Company Name	Address	Delivery Method	View Trade Secret	Service List Name
Nathan	Franzen	nathan@geronimoenergy.com	Geronimo Energy	7650 Edinborough Way Suite 725 Edina, MN 55435	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	emily@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
Kimberly	Hellwig	kimberly.hellwig@stoel.com	Stoel Rives LLP	33 South Sixth Street Suite 4200 Minneapolis, MN 55402	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@jrpowers.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 Community Solar LLC	708 N. 1st St. #421 Minneapolis, MN 55401	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
John	Kearney	jmkearney@MnSEIA.org	MnSEIA	2512 33rd Ave S  Minneapolis, MN 55406	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
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
Aaron	Knoll	aknoll@greeneespel.com	Greene Espel PLLP	222 South Ninth Street Suite 2200 Minneapolis, MN 55402	Electronic Service	No	OFF_SL_13-867_Official

First Name	Last Name	Email	Company Name	Address	Delivery Method	View Trade Secret	Service List Name
Jon	Kramer	sundialjon@gmail.com	Sundial Solar	3209 W 76th St Edina, MN 55435	Electronic Service	No	OFF_SL_13-867_Official
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@sunrisenrg.com	Sunrise Energy Ventures	315 Manitoba Ave Wayzata, MN 55391	Electronic Service	No	OFF_SL_13-867_Official
Christopher W.	Madel	N/A	MADEL PA	800 Hennepin Ave Ste 800 Minneapolis, MN 55403	Paper 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@gpsd.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
Eric	Pasi	ericp@ips-solar.com	IPS Solar	2670 Patton Rd Roseville, MN 55113	Electronic Service	No	OFF_SL_13-867_Official



First Name	Last Name	Email	Company Name	Address	Delivery Method	View Trade Secret	Service List Name
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
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
David	Shaffer	shaff081@gmail.com	Minnesota Solar Energy Industries Project	1005 Fairmount Ave  Saint Paul, MN 55105	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
Anna	Tobin	atobin@greeneespel.com	Greene Espel PLLP	222 South Ninth Street Suite 2200 Minneapolis, MN 55402	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