



AN ALLETE COMPANY

# MINNESOTA POWER'S COMMUNITY SOLAR GARDEN PILOT PROGRAM

COMMUNITY





AN ALLETE COMPANY

**PUBLIC DOCUMENT  
TRADE SECRET DATA  
HAS BEEN EXCISED**

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September 10, 2015

**VIA ELECTRONIC FILING**

Mr. Daniel P. Wolf  
Executive Secretary  
Minnesota Public Utilities Commission  
121 7<sup>th</sup> Place East, Suite 350  
St. Paul, MN 55101-2147

Re: In the Matter of the Petition for Approval of Minnesota Power's  
Community Solar Garden Pilot Program  
Docket No. E015/M-15-\_\_\_

Dear Mr. Wolf:

Minnesota Power ("the Company") is pleased to present this Petition to the Minnesota Public Utilities Commission ("Commission") for approval of its proposed Community Solar Garden Pilot Program ("CSG Pilot Program"). The Company also requests Commission approval of customer purchased subscriptions to the CSG Pilot Program to be eligible for compliance towards meeting the state's Solar Energy Standard ("SES") Small Scale Solar Carve-Out, as well as approval of current cost recovery for investment and activities related to compliance with the Small Scale Solar Carve-Out.

The Company's Small Scale Solar Strategy consists of the Community Solar Garden Pilot Program and its individual customer solar programs, which together are expected to make significant progress toward meeting the Small Scale Solar Carve-Out of the SES. Minnesota Power's Proposed CSG Pilot Program consists of 1,040 one kilowatt blocks of new solar capacity that customers may subscribe to, which would equal approximately one fourth of the solar energy needed to meet the Small Scale Solar Carve-Out by 2020. The Company has conducted extensive research to help develop a thoughtful program focused on its customers. The proposed CSG Pilot Program will provide customers with more choices for solar participation, a streamlined service experience, consumer protections, and a market-based approach to the program's pricing structure.

Minnesota Power understands the use of trade secret designations in filings to the Commission must be limited. Certain portions of the Petition contain trade secret information and are marked as such, pursuant to the Commission's Revised Procedures for Handling Trade

Mr. Wolf  
September 10, 2015  
Page 2

Secret and Privileged Data which further the intent of Minn. Stat. § 13.37 and Minn. Rule 7829.0500. As required by the Commission's Revised Procedures, a statement providing justification for excising the trade secret data is included in the Petition.

The Company is excited to offer a new program that represents an opportunity for more customers to participate in solar, regardless of whether they own their home or business, have suitable rooftops or have resources for a sizable upfront capital investment. Minnesota Power looks forward to the opportunity to work with the Department of Commerce – Division of Energy Resources and the Commission to advance its customer-focused Community Solar Garden Pilot Program. Please contact me at 218-355-3202 with any questions related to this matter.

Respectfully,

A handwritten signature in black ink, appearing to read "Jennifer J. Peterson", with a long horizontal stroke extending to the right.

Jennifer J. Peterson  
Policy Manager  
Minnesota Power

JJP:sr  
Attach.

**STATEMENT REGARDING JUSTIFICATION FOR EXCISING  
TRADE SECRET INFORMATION**

Pursuant to the Commission's revised Procedures for Handling Trade Secret and Privileged Date in furtherance of the intent of Minn. Stat. § 13.37 and Minn. Rule 7829.0500, Minnesota Power has designated portions of its attached Petition as Trade Secret.

Minnesota Power is requesting approval of a Community Solar Garden Pilot Program pursuant to Minn. Stat. § 216B.05. Minnesota Power has made certain information in the Petition non-public to prevent compromising Minnesota Power's competitive bidding processes for solar energy generation. Minnesota Power's competitors, other developers and potential suppliers would gain a commercial advantage if Minnesota Power's price estimates, which are used for demonstration purposes in a regulatory filing, were publicly available. Minnesota Power follows strict procurement procedures to ensure products and services are contracted for at the best economic value for its customers. If this information became publicly available, Minnesota Power and its customers would suffer from the corruption of Minnesota Power's negotiating position as it obtains renewable resources for its retail load. Minnesota Power respectfully requests the opportunity to provide additional justification in the event of a challenge to the trade secret designation provided herein.

**STATE OF MINNESOTA  
BEFORE THE  
MINNESOTA PUBLIC UTILITIES COMMISSION**

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In the Matter of the Petition for  
Approval of Minnesota Power’s  
Community Solar Garden Pilot Program

Docket No. E015/M-15\_\_\_\_

**PETITION FOR APPROVAL**

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**SUMMARY OF FILING**

Minnesota Power respectfully submits this Petition to the Minnesota Public Utilities Commission pursuant to Minn. Stat. § 216B.05<sup>1</sup> and is seeking approval of a proposed Community Solar Garden Pilot Program as described in this filing. Based on an initial offering as described in this filing, the solar generation from the Program will account for approximately one fourth of the Minnesota Power needs to meet the Solar Energy Standard’s (“SES”) Small Scale Carve-Out. Minnesota Power intends to appropriately scale community solar development to meet customer demand. Minnesota Power respectfully asks that the Commission approve the following specific requests set out in this Petition:

1. Approval of a CSG Pilot Program featuring three pricing options for participating customers, including: an upfront payment, a fixed monthly subscription fee and a fixed charge per kWh.
2. Approval for customer-purchased subscriptions to the CSG Pilot Program to be eligible for compliance towards meeting the Small Scale Carve-Out of Minnesota’s SES.
3. Approval of current cost recovery for investment and activity related to compliance with the Small Scale Carve-Out of the SES including, but not limited to, a 40 kW solar array, under a recently requested Solar Renewable Factor (“Solar Factor”) within the existing Renewable Resources Rider (“RRR”).<sup>2</sup>

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<sup>1</sup> Minnesota Power is not subject to the filing requirements under Minn. Stat. § 216B.1641 and is not requesting approval of this Petition under that statute.

<sup>2</sup> The Solar Renewable Factor was requested in the Company’s Camp Ripley Solar Project Plan Filing (Docket No. E015/M-15-773).

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**STATE OF MINNESOTA  
BEFORE THE  
MINNESOTA PUBLIC UTILITIES COMMISSION**

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In the Matter of the Petition for  
Approval of Minnesota Power’s  
Community Solar Garden Pilot Program

Docket No. E015/M-15\_\_\_\_

**PETITION FOR APPROVAL**

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**I. INTRODUCTION**

This Petition is seeking approval of a pilot program offering solar garden subscriptions to Minnesota Power’s (or “the Company”) customers. During the 2013 legislative session, Minn. Stat. § 216B.1691, the statute establishing Minnesota’s Renewable Energy Standard (“RES”), was amended to include an additional Solar Energy Standard (“SES”). The SES requires 1.5 percent of a public utility’s retail sales, net of customer exclusions, to come from solar energy resources by 2020. Of the 1.5 percent SES, at least 10 percent must come from solar energy generated by or procured from solar photovoltaic (“PV”) devices with a nameplate capacity of 20 kilowatts (“kW”) or less (“Small Scale Carve-Out”). Minnesota Public Utilities Commission (“Commission”) approval of the requests made in this filing will enable Minnesota Power to launch a thoughtful solar garden program for its customers which expands their solar options.

Minnesota Power’s commitment to diversifying its power supply and supporting renewable energy options is exemplified by its *EnergyForward* resource strategy, where an energy mix consisting of one-third renewable energy, one-third coal and one-third natural gas is targeted. Minnesota Power has developed a robust, portfolio-based solar strategy with three points of focus: 1) *Customer* – maintaining relationships and providing thoughtful solar incentive and education programs, 2) *Community* – enabling customer access to solar energy options and promoting community development, and 3) *Utility* – leveraging economies of scale to integrate efficient solar resources within our customers’ broader power supply.<sup>3</sup>

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<sup>3</sup> This strategy was initially outlined in Minnesota Power’s 2014 Solar Energy Standard Progress Report, Docket No. E999/M-15/462.

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The Company took recent action within the utility segment of its solar strategy with the filing of a 10 MW Camp Ripley Solar Project Petition for Commission approval. Activities within the customer and community segments comprise the Company’s Small Scale Solar Strategy, which specifically includes both a Community Solar Garden Pilot Program (“CSG Pilot Program” or “Pilot Program”) and individual customer-facing solar programs. While the generation from the 10 MW Camp Ripley Project will account for one third of the solar energy needed to meet Minnesota’s SES, together the proposed CSG Pilot Program and individual customer-facing solar programs area intended to make significant progress toward meeting the Company’s requirements under the SES Small Scale Carve-Out.

The proposed CSG Pilot Program will provide customers with more choices for solar participation a streamlined experience, consumer protections, and a market-based approach to the program’s pricing structure. Minnesota Power believes that community solar gardens represent an opportunity for more customers to participate in solar, regardless of whether they own their home or business, have suitable rooftops or sizable upfront capital for investment. Figure 1 introduces key design features of Minnesota Power’s proposed CSG Pilot Program, which will be further explained in this Petition.

**Figure 1: Minnesota Power's CSG Pilot Program Design Elements**



## **MINNESOTA POWER'S COMMUNITY SOLAR PILOT PROGRAM DESIGN ELEMENTS**

1. **MINNESOTA POWER'S COMMUNITY SOLAR PROGRAM IS CUSTOMER DRIVEN.** Minnesota Power's program size will be determined by customer demand balanced with compliance needs.
2. **MINNESOTA POWER'S COMMUNITY SOLAR PROGRAM IS DESIGNED TO BE FAIR TO ALL CUSTOMERS.** The costs associated with Minnesota Power's program are intended to be covered by customer subscriptions, limiting the impact on non-participating customers.
3. **CUSTOMERS WILL BENEFIT FROM LOW COST SOLAR ENERGY.** Minnesota Power will strive to procure the lowest cost solar energy through competitive bidding processes, passing savings onto customers.
4. **SOLAR DEVELOPERS PLAY A KEY ROLE IN MINNESOTA POWER'S COMMUNITY SOLAR PROGRAM.** Solar developers have a role in Minnesota Power's program, either as an Independent Power Producer (IPP) or Engineer/Procure/Construct (EPC) firm.
5. **THE COMMUNITY SOLAR GARDEN IS A HASSLE-FREE ALTERNATIVE TO THE SOLAR ROOFTOP EXPERIENCE.** Minnesota Power's program is designed to replicate a solar rooftop installation by crediting customers the energy produced by their share of the garden, with options for subscribers to finance their subscriptions. However, subscribers do not have to worry about permitting, constructing, operating or maintaining the solar system.

Actions within the individual customer segment of the solar strategy, focused on providing thoughtful incentive and education programs, are also a key component of Minnesota Power's approach to addressing the Small Scale Carve-Out and will complement the proposed CSG Pilot Program offering. The Company has supported the adoption of customer-owned solar for over a decade through solar programs addressed within its Conservation Improvement Program ("CIP"). While Minnesota Power continues to see value in its comprehensive portfolio that reflects the importance of both energy efficiency and renewable energy, the Company believes that customer renewable programs and financing should be administered outside of its conservation program portfolio. Figure 2, below, illustrates how the customer and community segments will work together to form a comprehensive solar strategy for customers and comply with SES requirements.

If the Commission approves current cost recovery for investment and activity related to compliance with the Small Scale Carve-Out, Minnesota Power will propose removal of solar costs from the Conservation Improvement Program ("CIP") and their inclusion under the RRR in its next Triennial CIP Filing. Costs related to solar rebates and solar program expenses are currently recovered through CIP and addressed in both Minn. Stat. § 216B.241, subd. 2b. and in Minnesota Power's 2014-2016 Triennial CIP Filing.<sup>4</sup> Due to the solar customer exemptions required by Minn. Stat. § 216B.1691, subd 2f., Minnesota Power is proposing that these solar costs be recovered through a new Solar Factor under Minn. Stat. § 216B.1645, subd. 2a, separate from the Company's existing RRR.<sup>5</sup> The Company would request that these costs be reallocated in the next CIP Triennial Filing, covering the period of 2017-2019. Additionally, at that time the Company will request that the costs associated with the Made in Minnesota solar incentive<sup>6</sup> also be recovered through the proposed Solar Factor.

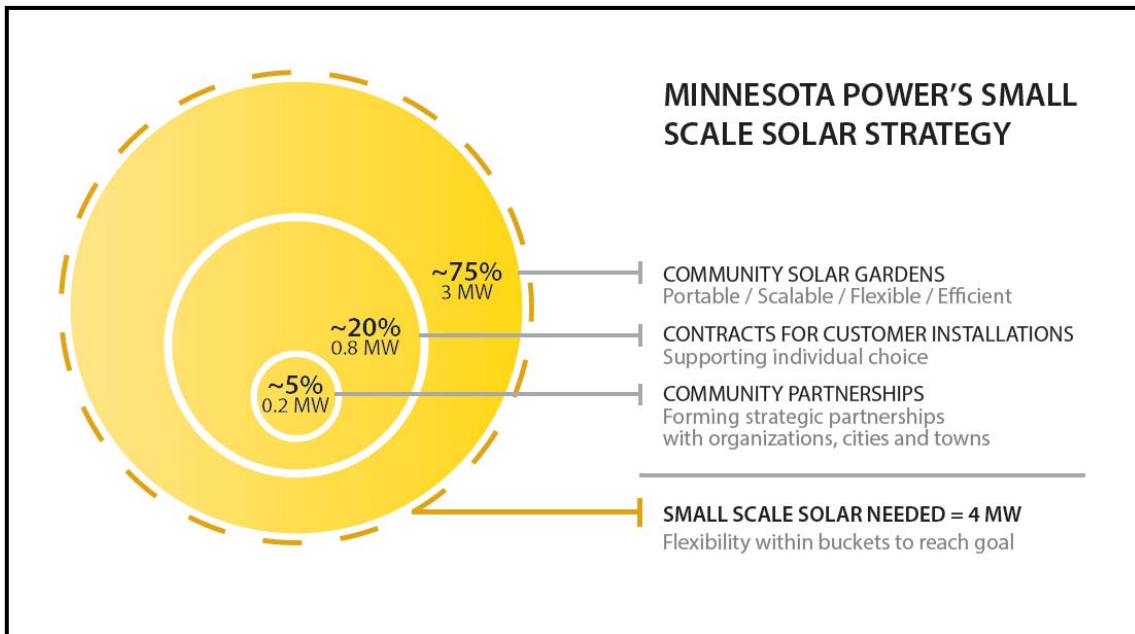
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<sup>4</sup> Minnesota Power's 2014-2016 Triennial Conservation Improvement Program Filing. Docket No. E015/CIP-13-409. Customer Renewable Energy Program, page 59.

<sup>5</sup> Minnesota Power's proposed solar cost allocation procedures were outlined in the 2014 Solar Energy Standard Progress Report (Docket No. E999/M-15-462) and the Company's Camp Ripley Solar Project Plan Filing (Docket No. E015/M-15-773).

<sup>6</sup> Minn. Stat. § 216C.412.

**Figure 2: Minnesota Power's Small Scale Solar Strategy**



In a separate proceeding, Minnesota Power also recently requested Commission approval for changes necessary to appropriately allocate solar costs to customers as set out in the SES in the August 21, 2015 Camp Ripley Solar Project filing, which are also applicable to the approval of its proposed CSG Pilot Program. In total, Minnesota Power previously requested Commission approval of the following items in the Camp Ripley filing:

1. Approval for investments and expenditures related to the Camp Ripley Project pursuant to Minn. Stat. § 216B.1645. Minnesota Power's development of this 10 MW solar project will facilitate compliance with the requirements under Minn. Stat. § 216B.1691, subd. 2f.
2. Approval for the Company's proposal to add a Solar Renewable Factor under Minn. Stat. § 216B.1645, subd. 2a, separate from the Company's existing Renewable Resources Factor under its Renewable Resources Rider, in order to appropriately allocate costs to customers as set out in the SES.
3. Approval for the Company's proposal to add a new Rider for Solar Energy Adjustment ("SEA Rider") in conjunction with the Company's existing Rider for Fuel and Purchased Energy Adjustment ("FPE Rider").

4. Approval to adjust the Company's existing FPE Rider to exclude solar costs and energy.
5. Permission to itemize on customer bills, both the Solar Factor and the Solar Energy Adjustment ("SEA").



## II. PROCEDURAL MATTERS

### A. General Filing Information

Pursuant to Minn. Stat. § 216B.16, subd. 1 and Minn. Rule 7829.1300, Minnesota Power provides the following required general filing information.

#### 1. Summary of Filing (Minn. Rule 7829.1300, subp.1)

A one-paragraph summary accompanies this Petition.

#### 2 Service on Other Parties (Minn. Rule 7829.1300, subp. 2)

Pursuant to Minn. Stat. § 216.17, subd. 3 and Minn. Rule 7829.1300, subp. 2, Minnesota Power eFiles the Petition on the Department of Commerce - Division of Energy Resources (“the Department”) and the Minnesota Office of the Attorney General - Antitrust and Utilities Division. A summary of the filing prepared in accordance with Minn. Rule 7829.1300, subp. 1 is being served on Minnesota Power’s general service list.

#### 3. Name, Address and Telephone Number of Utility (Minn. Rule 7829.1300, subp. 4(A))

Minnesota Power  
30 West Superior Street  
Duluth, MN 55802  
(218) 722-2641

#### 4. Name, Address and Telephone Number of Utility Attorney (Minn. Rule 7829.1300, subp. 4(B))

David R. Moeller  
Senior Attorney  
Minnesota Power  
30 West Superior Street  
Duluth, MN 55802  
(218) 723-3963  
dmoeller@allete.com

#### 5. Date of Filing and Date Proposed Rate Takes Effect (Minn. Rule 7829.1300, subp. 4(C))

This Petition is being filed on September 10, 2015. The effective date is the date of the Commission’s Order or such other date as directed in the Commission’s Order.

#### 6. Statute Controlling Schedule for Processing the Filing (Minn. Rule 7829.1300, subp. 4(D))

This Petition is made in accordance with Minn. Stat. § 216B.05 and no statutorily imposed time frame for a Commission decision applies to this filing. Minn. Rule 7825.3200 requires that utilities serve notice to the Commission at least 90 days prior to the proposed effective date of modified rates. Furthermore, Minnesota Power’s Petition falls within the

definition of a “Miscellaneous Tariff Filing” under Minn. Rules 7829.0100, subp. 11 and 7829.1400, subp. 1 and 4 permitting comments in response to a miscellaneous filing to be filed within 30 days, and reply comments to be filed no later than 10 days thereafter.

Minnesota Power is not subject to the filing requirements under Minn. Stat. § 216B.1641 and is not requesting Commission approval of this Petition under that statute.

**7. Utility Employee Responsible for Filing (Minn. Rule 7829.1300, subp. 4(E))**

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**8. Impact on Rates and Services (Minn. Rule 7829.1300, subp. 4(F))**

This filing will have no direct effect on Minnesota Power’s base rates. However, Minnesota Power provides anticipated rate implications in Section V. The proposed tariff sheet is included as Appendix A.

**9. Service List (Minn. Rule 7829.0700)**

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**B. Trade Secret Designation (Minn. Rule 7825.0500)**

Pursuant to Minn. Stat. §§ 13.01 et seq. and Minn. Rule 7829.0500, Minnesota Power has designated portions of the Petition as containing Trade Secret Information and these have been redacted as appropriate to reflect the Trade Secret nature of the documents. Trade Secret and Public copies of the Petition are being eFiled in accordance with the Commission’s Rules and Minn. Stat. § 216.17, subd. 3. A statement regarding justification for excising Trade Secret information accompanies this Petition.

### **III. MINNESOTA POWER'S COMMUNITY SOLAR GARDEN PILOT PROGRAM**

#### **A. Community Solar Garden Pilot Program Principles and Development**

A community solar garden is a centrally located solar PV system that provides electricity for participating subscribers.<sup>7</sup> Because solar garden subscribers are buying output at a fixed price, their energy prices are stable over long periods of time.

Minnesota Power took a time-tested, principle-centered approach to the development of its proposed CSG Pilot Program. The core principles that the Company has balanced effectively for many years are affordability, reliability and environmental stewardship. These principles are the foundation of Minnesota Power's business and are reflected in any Company activity or new program design. Additionally, Minnesota Power's CSG Pilot Program includes the principles of fairness, accessibility, optionality, simplicity, scalability and regional commitment (See Figure 3).

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<sup>7</sup> Community Solar Gardens. Clean Energy Resource Teams.  
<http://www.cleanenergyresourceteams.org/solargardens#basics>

**Figure 3: Minnesota Power's Community Solar Principles**



## **MINNESOTA POWER'S COMMUNITY SOLAR PRINCIPLES**

### **1. FAIRNESS**

Minnesota Power values all customers and fairness is a guiding principle in any product design, as the impacts to non-participating customers are limited as much as possible.

### **2. ACCESSIBILITY**

Minnesota Power recognizes that traditional rooftop solar is not accessible to the majority of customers and is offering a Community Solar Garden pilot program to allow more customers to participate in solar energy offerings. Additionally, Minnesota Power continues to explore options for low income customers to participate in solar energy programs.

### **3. OPTIONALITY**

Minnesota Power is committed to maintaining a primary focus on its customers and providing product and service options they desire. Minnesota Power realizes flexibility is important for our customers and has designed options that are transportable, transferable and transparent.

### **4. SIMPLICITY**

As Minnesota Power endeavors to offer innovative products and services that customers want, it strives to maintain a transparent and straightforward customer experience.

### **5. SCALABILITY**

Scalability is a unique characteristic of solar energy and provides customers an option to participate at a level which works for them. Minnesota Power intends to use the scalability of solar assets to respond to customer interest in future community solar gardens.

### **6. REGIONAL COMMITMENT**

As Minnesota Power begins to add solar energy to its power supply, siting community solar projects close to main population centers within its service territory is a priority in project development.

Recognizing that operating a community solar garden program has implications on various internal business processes, Minnesota Power commissioned a companywide cross-functional work group to design its initial Community Solar Garden Pilot Program. Many areas of expertise are represented on this workgroup, including renewable energy, project development, regulatory affairs, legal, resource planning, rates, accounting, customer billing, tax, marketing, and many more. The cross-functional nature of program design ensured that the resulting program and implementation considerations were thoroughly vetted and thoughtfully considered.

A National Renewable Energy Laboratory (“NREL”) study found that only 22 to 27 percent of all residential rooftops are suitable for hosting solar PV installations.<sup>8</sup> Shading, roof orientation, pitch and home ownership are all factors that affect the suitability of rooftops for solar PV. Moreover, customers who do have suitable rooftops need to make a sizeable upfront capital investment to install solar on their home or business and those that are able to finance the installation through a private lender generally need a higher credit rating to do so. Community solar gardens allow more customers to participate in solar energy - regardless of whether they own their own homes or businesses, have suitable rooftops or have the sizeable upfront capital investment needed. Community solar gardens make solar energy accessible to a far greater number of customers.

## **1. Minnesota Power’s Proposed Plan is based upon Local Market Research**

Minnesota Power believes that incorporating insights from customers is critical to the success of any new product or service. Therefore, in addition to the national market research referenced, the Company conducted market research in its service territory to learn more about customer preferences. The results of this local market research are incorporated into the design of this Pilot Program.

Local market research was conducted in the spring of 2015 and focused on Minnesota Power residential customers across the service territory. The research indicated that of the

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<sup>8</sup> Supply Curves for Rooftop Solar PV-Generated Electricity for the United States. National Renewable Energy Laboratory. November 2008. [www.nrel.gov/docs/fy09osti/44073.pdf](http://www.nrel.gov/docs/fy09osti/44073.pdf)



customer sample, approximately one third were interested in solar energy but a significantly smaller portion felt financially comfortable and willing to pay a premium for that energy.

Surveyed customers expressed that their top three motivations for wanting more renewable energy were: renewable energy is good for the environment, renewables are cleaner forms of energy, and renewable energy could represent cost savings. The top three barriers to usage expressed were: upfront cost, lack of information, and lack of energy storage. These findings, specific to Minnesota Power's service territory, are consistent with national-level studies. NREL issued a report on national consumer attitudes towards renewable energy and found that customers primarily associated renewable energy with environmental benefits over other benefits. NREL also found that consumers are sensitive to the price of renewable energy while awareness of renewable energy purchase options was relatively low. In fact, when the Midwest sector was compared to the Northeast, South and West, Midwestern consumers surveyed were the most price sensitive and least aware of their available renewable energy purchase options.<sup>9</sup>

Additional market research of medium to large size commercial customers demonstrated similar findings, with environmental and sustainability commitments, along with cost savings, driving solar adoption. Market research focusing on commercial customers also identified that the primary barriers to solar adoption are upfront cost, other business priorities and lack of information. Similar to the NREL findings about Midwest consumers, market surveys of commercial customers also note that, when compared to other regions of the country (North, West and South), Midwestern commercial customers are generally less familiar and less active regarding the deployment of solar energy.<sup>10</sup> Many of the key themes from market research conducted both on a national and regional level, surveying residential and commercial customers, were addressed in Minnesota Power's Pilot Program design, including options to address the barriers of upfront cost and lack of information.

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<sup>9</sup> Consumer Attitudes about Renewable Energy: Trends and Regional Differences. National Renewable Energy Laboratory. April 2011. NREL/SR-6A20-50988. <http://apps3.eere.energy.gov/greenpower/pdfs/50988.pdf>

<sup>10</sup> "How Photovoltaics and Distributed Generation will Disrupt the Utility Industry: Results from a Multi-Client Study." eSource Presentation. July 28, 2015.

## 2. Community Solar Garden Best Practices Are Incorporated into Program Design

In addition to market study, Minnesota Power has conducted extensive solar industry research while developing options for customers and solar gardens in particular. As a long-standing member of the Solar Electric Power Association (“SEPA”), the Company has participated in the annual utility solar conference for the past three years, and has participated in numerous other industry trade organization groups, community events and stakeholder conversations. Minnesota Power also engaged with electric utilities from around the state and nation to learn about different perspectives regarding community solar programs. As industry best practices were observed and considered, Minnesota Power designed a thoughtful program tailored to its customers.

On a national scale, Minnesota Power observed and incorporated community solar best practices from leading utilities, including: Sacramento Municipal Utility District (“SMUD”), San Diego Gas and Electric (“SDG&E”), and Tucson Electric Power (“TEP”). A leader in solar power for more than two decades, SMUD built the first utility scale solar array in the country in 1984. Minnesota Power evaluated SMUD’s community solar program and incorporated some design elements into its proposed CSG Pilot Program, including: crediting subscriber bills with the amount of energy each customer’s share of the garden produces (a kWh credit), a fixed monthly fee to participate, and a solar array sized at 1 MW.<sup>11</sup>

SDG&E has been recognized as a national climate leader twice by the US Environmental Protection Agency for its efforts to combat climate change by reducing its carbon footprint.<sup>12</sup> Some of the best practices Minnesota Power adapted from SDG&E’s solar program include: use of market research to inform program design and implementation, attempts to maintain ratepayer indifference for non-participating solar customers, providing attractive renewable rate options by leveraging utility resources, allowing participants to be located anywhere in the service territory,

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<sup>11</sup> For information on Sacramento Municipal Utility District solar programs, please visit their website: <https://www.smud.org/en/residential/environment/solar-for-your-home/solarshares-FAQs.htm>

<sup>12</sup> SDG&E Environmental Facts and Achievements. <http://www.sdge.com/environmental-top-10>

designing subscriptions to be portable within the service territory, and requiring customers pay a modest rate premium for solar.<sup>13</sup>

A third program Minnesota Power studied and considered was TEP's Bright Tucson Community Solar program. In TEP's program, participating customers pay a premium to offset traditional power with solar power from a shared array and the program offers potential long term energy savings. Excess credits in TEP's program are carried over month to month to offset energy charges on future bills.<sup>14</sup> The Company considered these practices and incorporated them into the proposed CSG Pilot Program design.

In addition to a national view, the Company looked at successful community solar examples in our state and region. In the Midwest, electric cooperatives ("co-op") have led the way on community solar garden programs. Minnesota Power has worked closely with Minnesota co-ops to incorporate their lessons learned into its proposed CSG Pilot Program. The Company met with representatives from Wright-Hennepin Electric Co-op - the first co-op in the state to build a community solar garden - along with Lake Region Electric Co-op, Steele-Waseca Co-op, Great River Energy and Cedar Falls Utilities to discuss various community solar programs. Minnesota Power investigated numerous aspects of program implementation, including billing processes, technology needs, marketing strategies and popular customer options. Minnesota Power's proposed CSG Pilot Program includes many program design features that have proven successful for Minnesota co-ops, including: multiple subscription options, fixed pricing structures, limited impact on non-participating customers and flexible termination procedures.<sup>15</sup>

### **3. Minnesota Power's Proposed CSG Pilot Program Ensures Consumer Protections**

Market research indicated that of customers who were interested in solar energy, more than 95 percent wanted to purchase solar energy from their local utility as opposed to a different provider. Additionally, in several different survey categories, customers expressed their preference for Minnesota Power over other service providers regarding specific aspects of

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<sup>13</sup> For information on San Diego Gas & Electric's solar programs can be found on their website, here: <http://www.sdge.com/environment/connected-to-the-sun>

<sup>14</sup> For information on Tucson Electric Power's solar programs can be found on their website, here: <https://www.tep.com/renewable/home/bright/#tab2>

<sup>15</sup> Information on Wright-Hennepin's solar programs can be found on their website, here: <http://www.whe.org/for-my-home/products-services/wh-solar/wh-solar-faq.html>

service, including: billing and customer support, repairing equipment and preventing outages, and building large renewable systems.

In this proposed CSG Pilot Program, consumer protections are provided for within the regulatory framework which governs electric utilities in Minnesota. The Pilot Program will benefit from the oversight of regulators charged with ensuring reliable service and reasonable rates for all customers.<sup>16</sup> Secondly, the MPUC's rules and the Company's service regulations protect solar garden customers on issues such as billing disputes or late payment fees. Finally, the Commission's Consumer Affairs Office ("CAO") provides information and dispute assistance to Minnesota Power's customers and assistance from the CAO would be available to the Company's solar garden customers as well.

#### **4. National Trends Support the Proposed CSG Pilot Program**

Various efforts across the country are underway to examine the current electric utility business model and address changing customer needs and expectations. Many of these efforts focus on the benefit of customers having access to new products and services, as Minnesota Power is proposing in this Petition.

Certainly the creation of the Small Scale Solar Carve-Out in 2013 Minnesota legislation was prompted in part by this idea of offering utility customers more solar alternatives. Beyond Minnesota legislation, initiatives across the country are investigating new energy products and services for customers, including activities in New York and California. Here in Minnesota, the e21 Initiative ("e21" or "Initiative") is a stakeholder-driven collaboration that aims to encourage a more customer-centric framework for utility regulation in Minnesota. E21 includes a diverse group of stakeholders from the utility industry, government sector, business, non-profit, academia and advocacy groups. Minnesota Power is a member of e21.

In its Phase I consensus report, issued in December 2014, e21 outlines the group's guiding principles, one of which is "enable delivery of services and options that customers value." E21 identified a challenge in the state's regulatory construct in which, "the current system offers customers few options or control, at the same time, other customers do not have

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<sup>16</sup> Minn. Stat. § 216B.01 Legislative Findings.

the capacity or the desire to take a more active role in making energy decisions.”<sup>17</sup> Minnesota Power recognizes some customers desire more energy options, and is proposing this CSG Pilot Program to meet customer demand for solar products in its service territory.

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<sup>17</sup> E21 Initiative Phase I Report: Charting a Path to a 21<sup>st</sup> Century Energy System in Minnesota. December 2014. [http://www.betterenergy.org/sites/www.betterenergy.org/files/e21\\_Initiative\\_Phase\\_I\\_Report\\_2014.pdf](http://www.betterenergy.org/sites/www.betterenergy.org/files/e21_Initiative_Phase_I_Report_2014.pdf)



## **B. Minnesota Power's Proposed Community Solar Garden Pilot Program Structure**

### **1. Program Description**

Minnesota Power thoughtfully designed a customer-focused solar garden program that provides customers flexible choices within an innovative solar energy product. The proposed Pilot Program will consist of 1,040 one kW blocks of capacity for customers to subscribe to with contract terms of 25 years. As the number of subscriptions grow, Minnesota Power anticipates expanding the CSG Pilot Program to accommodate customer demand.

Customers will have three options in which to participate and flexible termination clauses in the event they wish to leave the program. The pricing for these options is based upon the procurement of competitively priced solar energy and program costs are intended to be paid for primarily by participant subscription payments, limiting the impact on non-participating customers.

#### *Solar Garden Generation for the Pilot Program*

Minnesota Power seeks to initially execute a contract for a 1 MW Power Purchase Agreement ("PPA") and build and own a smaller, more locally visible 40 kW solar array. Both the 1 MW and the 40 kW solar systems together will supply the generation used in the Community Solar Garden Pilot Program. In order to fully utilize the value of the solar Investment Tax Credit ("ITC") before it decreases from 30 percent to 10 percent at the end of 2016, Minnesota Power will begin the Request for Proposal ("RFP") process for the 1 MW PPA in September 2015 and initiate a separate competitive bidding process for the 40 kW system in November 2015. Both the 1 MW and 40 kW systems will be in service before the end of 2016, ensuring full utilization of the ITC. This early procurement action allows the Company to contract with developers ahead of the ITC reduction and ensures customers receive competitively priced solar energy.

The 1 MW array will bring economies of scale to program supply, while the 40 kW system will be a more visible solar array for subscribers. The smaller system is intended to be built on Company-owned land along one of the most heavily trafficked thoroughfares in its most populous city, Duluth, Minnesota (see Section IV). As outlined in Table 2, Minnesota Power

intends to use the Pilot Program to learn more about customer preferences regarding size and location of community solar arrays for future program design.

In the Community Solar Garden Pilot Program, the final pricing for all options will be based upon the actual cost of the 1 MW PPA and the revenue requirements of the 40kW solar array. Minnesota Power's intention for the program is to acquire solar energy at a competitive cost and pass the cost on to customers who wish to participate in the community solar program. Therefore, the final cost of the solar generation will ultimately determine the subscription pricing, and if the program is fully subscribed non-participating customers will not be financially impacted.

Because Minnesota Power will own the 40 kW array and contract for the energy from the 1 MW array, the Company will retain ownership of the Solar Renewable Energy Credits ("SRECS") from both systems and use SRECs associated with subscribed energy towards compliance with the Small Scale Carve-Out of the SES<sup>18</sup>. SRECs associated with unsubscribed energy will be applied towards compliance with the overall SES.

#### *Project Costs and Investments*

Minnesota Power requests recovery of the costs associated with the 40 kW system, today estimated to be between **[TRADE SECRET DATA EXCISED]**, through a new Solar Factor within the Renewable Resources Rider, as described in Section E. Additionally, the Company seeks recovery of the costs associated with the 1 MW PPA through the Solar Energy Adjustment within the Fuel and Purchased Energy Rider. Together, these two resources will supply the solar generation for the Community Solar Garden Pilot Program, projected to be at a cost of about **[TRADE SECRET DATA EXCISED]** per MWh for subscribing customers.

#### *Proposed CSG Pilot Program Subscription Pricing and Payment Options*

Customers subscribing to Minnesota Power's Community Solar Garden Pilot Program will have the following three choices from which to participate:

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<sup>18</sup> The Small Scale Carve-Out refers to the requirement that 10% of the 1.5% Solar Energy Standard needs to come from systems 20kW or less.

**Figure 4: Minnesota Power's Proposed CSG Customer Options**

<b>Option #</b>	<b>CSG Pilot Program Subscription Option Description</b>
<b>Option 1</b>	Upfront payment; customer receives monthly energy credit of kWh produced from subscribed block of capacity
<b>Option 2</b>	Fixed monthly subscription fee; customer receives monthly energy credit of kWh produced from subscribed block of capacity
<b>Option 3</b>	Fixed charge for each kWh of solar energy produced from customer's subscribed block of capacity from the garden

These choices allow customers to participate in a way that works best for them. Market research indicated that over 70 percent of customers sampled want scalability in their garden offerings, meaning they would like the ability to buy a small amount of solar now with the potential to purchase more in the future. This Pilot Program provides scalability over traditional rooftop systems as it allows customers to subscribe to smaller amounts of solar than may be economical to install on their homes or businesses and potentially increase their subscriptions at a later time.

The proposed Pilot Program initially will consist of 1,040 one kW capacity subscriptions. In the upfront payment option (Option 1), subscribers will pay a onetime fee for each 1 kW block of capacity subscribed to. Based upon current knowledge of the market and solar energy pricing estimates, the upfront payment for each 1 kW block is expected to be approximately **[TRADE SECRET DATA EXCISED]**. After paying the onetime fee, the customer will receive a bill credit in kilowatt-hours for the solar energy produced from that kW block of capacity as an offset to the energy they use over the monthly billing period. The portion of the customer's monthly energy usage that is matched by their solar subscription will be billed at no cost. This option is the most comparable to a solar PV rooftop installation, in which the customer incurs an upfront cost, receives the solar energy at zero energy charge going forward, but assumes the risk of production. According to Company's market research conducted this spring, approximately 16 percent of customers preferred an upfront payment option, while 69 percent preferred to spread costs over several years. The remaining customers were undecided.

Market research also showed that the top barrier for customers to participate in solar is cost. Therefore, the second option offered is a fixed monthly subscription fee of approximately **[TRADE SECRET DATA EXCISED]** per kW block. Option 2 is essentially the upfront payment option financed over the length of the contract. Customers will pay the price per kW block every month, and receive a bill credit for the energy produced from their subscription. This option is comparable to a solar PV rooftop system that is financed over time. However, the Company is not charging interest on the monthly subscription fee and the term is longer than a typical loan for a PV system, providing additional benefits to the customer.

The third option for customers is a fixed charge paid per kWh of solar energy produced. In this option, the customer signs a contract and purchases all the solar energy produced from their subscribed amount of capacity. Current estimates place the cost at approximately **[TRADE SECRET DATA EXCISED]** per kWh produced.<sup>19</sup> Neither the second, nor the third, option requires an upfront investment and both have similar termination procedures.

All options are equal in value based on the assumed financing and operating costs, and expected solar production over a period of 25 years, ensuring fairness between different offerings. However, the risk of production varies between options. In the first two options, subscribing customers bear the risk of production. If the solar array produces more energy than expected, customers will benefit from the extra energy at no additional cost. If the solar array produces less energy than expected, customers will receive fewer kWh of solar energy on their monthly bills. In the third option, customers paying a fixed charge per kWh do not bear the risk of production, since they will only pay for the energy produced by the solar array. Customers in all options will also continue to pay other applicable charges according to their standard electric service schedules, including the service charge, the affordability surcharge, franchise fees and sales tax. Additionally, all riders, with the exception of the Fuel and Purchased Energy rider, will be based upon the gross kWh usage.

While the proposed Pilot Program costs are intended to be paid for by subscribing customers, if the program is not fully subscribed, unsubscribed energy from the solar garden and

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<sup>19</sup> Subscription prices noted are estimates based upon current market knowledge and will be finalized after execution of the contracts for solar generation. Pricing is marked Trade Secret as a competitive bidding process is currently underway.

the associated cost will flow through the Company's FPE Rider as a generation resource and will help the Company meet its Solar Energy Standard requirements. Additionally, any revenue requirements associated with the 40 kW system not covered by subscription fees will be recovered from customers through the Solar Factor within the RRR.

There are no application fees or administrative fees included in the pricing for the proposed CSG Pilot Program. Because the Pilot Program is the Company's first solar garden project, the Company intends to use the Pilot Program to determine the actual cost of administering the program and will include those costs in the pricing of future garden projects.

#### *Bill Crediting in the Proposed Pilot Program*

In Option 1 and Option 2, customers will receive kWh credits on their bills for the amount of solar generation produced from their subscribed capacity. In Option 3, customers will be charged for the energy (kWh) their subscribed portion of the garden generates. Customers will not receive any cash payments or monetary credits in this program. Given the uncertainty around the issue of community solar garden subscriptions potentially being classified as securities issuances,<sup>20</sup> Minnesota Power designed a program based on the subscription to installed energy capacity output. According to the US Department of Energy's SunShot Initiative, "in a utility-owned model, in which the utility enters into a contract or arrangement with its retail customer to provide electricity generated by a project, there is a risk that the contract or arrangement could be deemed a security if the customer is required to finance a part of the project and if the customer has an expectation of some kind of profit over and above the value of the electricity it receives."<sup>21</sup> In Minnesota Power's proposed Pilot Program, the subscribers will not receive monetary value over and above the value of the electricity they receive from the output of their subscribed blocks of capacity.

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<sup>20</sup> "A security is an investment instrument issued by a corporation, government or other organization that offers evidence of debt or equity. Any transaction that involves an investment of money in an enterprise, with an expectation of profits to be earned through the efforts of someone other than the investor, is a transaction involving a security." Excerpt from: "A Guide to Community Shared Solar: Utility, Private and Nonprofit Project Development." US Department of Energy, SunShot Initiative.

<sup>21</sup> "A Guide to Community Shared Solar: Utility, Private and Nonprofit Project Development." US Department of Energy, SunShot Initiative. Page 46.



The fiscal year for this program will be from April 1 to March 31 of each year and subscribers may carry over unused kWh energy credits from month to month. Basing the program on a fiscal year, rather than a calendar year, ensures customers retain as many of their solar energy bill credits as possible by being able to use excess credits through the winter months. Ending the fiscal year on March 31 also provides Minnesota Power time to analyze program data from the previous fiscal year and report findings in the June 1 annual SES Progress Report.

Minnesota Power proposes to allow subscribers to carry over unused energy credits year-to-year for a period of five years. During this five-year period, the Company will evaluate what limits, if any, should be placed on the rolling over of energy credits. Banked credits are not transferable to other customers through subscription transfers. During the registration process, customers will be encouraged to right size their subscriptions with their average energy usage.

#### *Contract Term, Transfers and Cancellation Procedures in the Proposed Pilot Program*

Each customer participating in the Community Solar Garden Pilot Program will sign a 25 year contract which secures the price they will pay for solar energy, aligned with the timeframe of the Company's power supply resource acquisition. This long term contract affords participating customers a hedge against potentially rising energy prices. However, since part of the appeal of a solar garden is the flexibility it provides customers, Minnesota Power will allow gifting, bequeathing, transferring and canceling of subscriptions.

Customers may leave the program at any time with no added penalty and customers on all options may either have their subscription reassigned to another qualifying participant or relinquish their subscription to Minnesota Power. A customer reassigning their subscription will provide the information for the new customer taking over their subscription to Minnesota Power. The Company will then verify that the new customer is a qualified participant and if so, transfer the subscription. Because customers on the upfront payment option (Option 1) have made a significant investment, if they cannot sell or transfer the subscription to another qualifying participant in a private transaction, Minnesota Power will purchase the subscription back from them at a predetermined depreciated amount. The straight line depreciation schedule depicted in

Table 1 is consistent with Minnesota Power's current practices for the depreciation of utility assets.

For subscriptions that are relinquished back to the Company, Minnesota Power will provide qualified low income customers and organizations first priority to participate in the remaining subscriptions. The Company will use the same low income qualification standards currently used in the Customer Affordability of Residential Electricity ("CARE") program to qualify low income customers for priority in remaining CSG subscriptions.<sup>22</sup> CARE customers must be Low Income Heat Energy Assistance Program ("LIHEAP) qualified and sign up for the program. The economic value of solar garden subscriptions is expressed in the financial benefit demonstrated in later subscription years, making the offering of relinquished subscriptions more attractive to low income customers. Minnesota Power has been engaged in stakeholder discussions on low income participation in solar offerings and will continue to actively explore additional opportunities.

Solar garden subscribers that leave the Pilot Program, by reassigning or relinquishing their subscription, will not be eligible for participation in any Minnesota Power community solar garden program for a period of twelve months. Additionally, any unsubscribed energy from the solar garden and the associated cost will flow through the Company's Rider for Fuel and Purchased Energy Adjustment ("FPE Rider) as a generation resource and will help the Company meet its Solar Energy Standard requirements.

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<sup>22</sup> For more information on Minnesota Power's CARE program, please visit the Company's website here: <http://www.mnpower.com/customerservice/careprogram>

**Table 1: Amount Reimbursed for Relinquished CSG Subscriptions**

<b>Year</b>	<b>Percent of Purchase Price</b>	<b>Year</b>	<b>Percent of Purchase Price</b>
1	96%	14	44%
2	92%	15	40%
3	88%	16	36%
4	84%	17	32%
5	80%	18	28%
6	76%	19	24%
7	72%	20	20%
8	68%	21	16%
9	64%	22	12%
10	60%	23	8%
11	56%	24	4%
12	52%	25	0%
13	48%		

## **2. Participation Requirements and Application Process**

All Minnesota Power retail customers who are not exempt from the SES (“non-exempt customers”)<sup>23</sup> will be eligible to participate in the Community Solar Garden Pilot Program, regardless of their county of residence within the Company’s service territory. A customer will submit an application to Minnesota Power’s Renewable Programs Department, which will verify the customer’s average annual usage and assist in right-sizing the customer’s subscription. Subscriptions will be capped at 120 percent of the customer’s average annual usage in the previous twelve months, consistent with usage guidelines in several other statutes.<sup>24</sup> However,

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<sup>23</sup> Minn. Stat. § 216B.1692 subd. 2f states that any iron mining extraction and processing facility, scam mining facility, paper mill, wood products manufacturer, sawmill or oriented strand board manufacturer is exempt from the SES.

<sup>24</sup> Minn. Stat. § 216B.164 Cogeneration and Small Power Production Subd. 4c (2); Minn. Stat. § 216B.1641 Community Solar Garden; Minn. Stat. § 116C.7792 Solar Energy Incentive Program.

customers will be encouraged to right-size their subscription amounts, consistent with other program goals like energy efficiency. Customers who subscribe at levels closer to 120 percent of their average annual usage increase the likelihood they will accumulate excess energy credits and potentially have to surrender those credits after the five year evaluation period is concluded. Minnesota Power will conduct annual verification checks of solar garden subscriptions to ensure they are sized appropriately to the customer's usage.

As described in Table 2 on page 28, the proposed CSG Pilot Program aims to evaluate varying levels of interest between commercial and residential customers in solar garden participation. For Minnesota Power's first community solar project, the participation of commercial customers will be limited to no more than fifty percent of the total garden capacity during the initial offering, reserving at least half of the project for residential customers. Minnesota Power will use information gained from this Pilot Program to determine the need for additional future solar garden offerings. Moreover, keeping with the intent of the Small Scale Carve-Out of the SES, the Company will cap customer subscriptions at 20 kW per Service Agreement.

After Minnesota Power submits this Petition to the Commission, the Company will create an Interest List to track customers who are interested in participating in a future solar garden offering. The Company will not sign contracts with or take deposits from customers prior to Commission approval of the Pilot Program. Customers on the Interest List will be notified upon Pilot Program approval and will then have the opportunity to subscribe to the Pilot Program on a first-come first-served basis. Contingent upon Commission approval, Minnesota Power expects the Pilot Program to be operational in January 2017, with the solar generation under contract by the end of 2016.

If the Company's Pilot Program is approved and fully subscribed, Minnesota Power will create a Reserve List of customers to be notified of openings in the pilot program and/or alerted when the next project is planned. Both the Interest List and the Reserve List will allow the Company to track customer demand and interest in solar garden offerings.

### **3. Communication Plan, Outreach, Recruitment and Customer Support**

Minnesota Power intends to promote this Pilot Program to all non-exempt customers through a phased approach, providing information through multiple communication methods, which could potentially include: a press release, information available on the Company's website, social media, a renewable programs newsletter and sending marketing material in bill inserts. The Company also intends to host educational public meetings across its service territory.

Minnesota Power will have dedicated resources, in addition to the Renewable Programs Department, within its Customer Call Center to provide customer support for the Community Solar Garden Pilot Program. This is similar to the approach the Company is using for providing customer service during its Residential Time-of-Day Rate Pilot Program.

### **4. The Role for Solar Developers in the Proposed Pilot Program**

In this Pilot Program, solar developers may participate as either Engineer/Procure/Construct ("EPC") firms or as Independent Power Producers ("IPP"). Minnesota Power intends to contract for 1 MW of solar energy through a PPA, in addition to entering into an EPC contract with a vendor to build a 40 kW solar array. Both the 1 MW and 40 kW solar systems will serve as the generation sources for the CSG Pilot Program.

As stated in the 2014 SES Progress Report, Minnesota Power's service territory is largely an immature market for PV installations. To help gather maximum interest from the developer community, the Company plans to issue a notice of the project's competitive bidding process on its website and in industry trade publications. This approach ensures newer and smaller developers in the Company's service territory have an opportunity to compete for this solar project.

Community organizations are welcome to participate in the Company's standard community solar offering through this Pilot Program. In future years, Minnesota Power intends to utilize the infrastructure created through this Pilot Program to advance customized gardens to meet potential customer demand.

### **C. Pilot Program Evaluation**

By definition, pilot programs for customers are intended to be innovative offerings that allow a company to gain experience with product design and customer response. In addition to thoughtful front-end design to encourage success, Minnesota Power has developed robust evaluation criteria to capture and utilize the results and lessons learned from this proposed Pilot Program. The preliminary evaluation criteria are categorized into three main themes: customer preferences, internal processes and SES compliance needs (see Table 2). The Company will track information related to these three areas throughout the Pilot Program and recommends reporting the results and lessons learned from this program through the SES Progress Report, filed annually on June 1. In that Docket, Minnesota Power would also include outlooks on future community solar garden projects, compliance requirements and recommendations for moving forward.

**Table 2: CSG Pilot Program Evaluation Criteria**

<b>Customer Preferences</b>
What is the average subscription size?
Are there other target markets to consider (commercial customers, non-profit offerings)?
How do we further leverage community partnerships?
What are the participation levels between different customer classes (commercial vs. residential)?
Of the customers who expressed interest (via the Interest List), how many actually signed up for a subscription?
What type of customer is most likely to subscribe (apartment/rental residents, age, demographics, average energy usage)?
Which option do customers prefer (upfront payment, monthly, kWh charge)?
What are the driving factors for customers choosing CSG subscriptions over traditional rooftop solar installations?
What are customer motivations in participating in the CSG program (environmentally conscious, price hedge, etc.)?
Is there a preference for a more visible array versus the larger, 1MW system?
What questions are customers asking and how can we refine education/promotional materials?
How well do customers understand the program?
What percentage of the community solar garden is subscribed?
What is the attrition rate for this program?
What are the barriers for entry to this program?
Do customers express satisfaction from program participation?
<b>Internal Processes</b>
How many calls are received and representatives needed at the Customer Call Center to handle CSG inquiries? Is special training needed for Call Center representatives to answer CSG questions?
How quickly is the program up and running?
What are some best practices regarding the interconnection process for 1MW and 40kW systems (Engineering study, costs to interconnect)?
How can the customer acquisition process be refined?
What are the real ongoing solar operations and maintenance needs?
Are there specific physical security considerations and needs for the CSG?
How does the production data from solar systems perform versus expectation?
Are there challenges for the Customer Information System (“CIS”) to place customers on different rates (difficulty, time needed, etc.)? What issues may arise regarding rate development and administration? How were issues addressed during the Pilot Program?
What are the ongoing administrative requirements for a program of this nature (customer interface, usage verification, billing, SREC compliance, etc.)?
What is the participation rate of low income customers and what options can be created for low income customers?
How many energy credits are customers retaining at the end of the fiscal year? Should there be a cap on rolling credits over from year to year?
What are the administrative costs associated with running this program?
<b>SES Compliance Needs</b>
How do economies of scale impact price (5kW rooftop vs 5kW CSG subscription)?
How effective is community solar as a means of SES small scale carve-out compliance?
What are the effects of the Pilot Program on other solar customer programs?
What (if any) additional incentives are needed to drive subscriptions?
What are the cost impacts of incentives on non-participating customers?

#### **D. Program Communication and Filing**

As previously mentioned, the solar generation for the proposed CSG Pilot Program will come from a 1 MW PPA and a Minnesota Power-owned 40 kW system. Once the competitive bidding process for the 1 MW system is complete and the agreement is executed, the Company will submit the 1 MW PPA for Commission approval. This agreement is expected to include project completion security and solar energy production guarantees.

A competitive bidding process will also be used to award construction of the 40 kW system. Minnesota Power will communicate to the Commission upon execution of the EPC contract for the 40 kW solar array.

On an annual basis, Minnesota Power intends to communicate the status of the CSG Pilot Program in the SES Progress Report. A reporting requirement in the progress report currently exists to address Solar Renewable Energy Credits generated from community solar gardens. The Company will expand upon that requirement and report on the status of the CSG Pilot Program in that filing.

#### **E. Community Solar Scalability**

Minnesota Power's intention is to use the proposed CSG Pilot Program to meet current customer demand and utilize the Pilot Program's infrastructure for future potential garden projects. As previously stated, if the Company's proposed Pilot Program is approved and fully subscribed, Minnesota Power will create a Reserve List of customers to be notified of openings in the Pilot Program and/or alerted when the next project is planned – allowing the Company to track customer demand and interest in solar garden offerings. The Company will use this Pilot Program to evaluate the number of customers who subscribe to the garden compared to the number who previously expressed interest (see Table 2) and consider this conversion rate when evaluating the customer demand for further solar garden projects.

Additionally, Minnesota Power anticipates being able to use the infrastructure created through this Pilot Program to advance customized gardens to meet potential customer demand. The proposed program is structured such that, if fully subscribed, costs associated with the program are paid for by participants. This closed-pool structure will allow Minnesota Power to



offer customized programs to customers, organizations and community groups that want a dedicated garden, without adversely impacting other non-participating customers.

Of note, Minnesota Power has not included application or administrative fees in the pricing for the proposed CSG Pilot Program. Because the program is the Company's first solar garden project, it intends to use the Pilot Program to determine the actual cost of administration and will include those costs in the pricing of potential future garden projects.

#### **F. Cost Allocation for the Community Solar Pilot Program**

Although the Commission has not yet initiated a proceeding to address solar cost allocation issues, Minnesota Power's analysis of how to meet the legislative requirement to ensure statutorily exempt customers do not incur solar-related costs resulted in three focus areas: solar capital costs and the RRR, solar energy costs and the FPE Rider, and solar program costs and a potential Solar Tracker. The Company's recommendations were communicated in the 2014 Solar Energy Standard Progress Report, filed on June 1, 2015. Additionally, in the Camp Ripley Solar Project Petition, the Company requested approval to adjust the existing FPE Rider and add a new SEA Rider

For the CSG Pilot Program, Minnesota Power expects to incur solar energy costs through a PPA for the 1 MW array, solar capital costs for the 40 kW array, and costs associated with program administration, education and outreach. The Company's recommendations for solar cost allocation procedures are outlined below.

Solar energy capital projects are eligible for current cost recovery under Minn. Stat. § 216B.1645, subd. 2a, as they are eligible energy technologies as defined in Minn. Stat. § 216B.1691. However, due to the legislative requirement to exclude statutorily exempt customers from solar costs, the cost of solar projects cannot be included in the current RRR billing factors because they are applied to all retail customer bills. Therefore, a separate Solar Factor, within the RRR, is necessary for the Company to obtain current cost recovery on eligible projects while meeting statutory cost allocation requirements. This Solar Factor would contain solar projects and costs, which would be recovered from only non-exempt customers. The Company formally requested approval of a new Solar Factor in the Camp Ripley Solar Project Plan Filing on August

21, 2015.<sup>25</sup> The first CSG Pilot Program cost expected to be recovered through the Solar Factor is the 40 kW solar system, generation from which will be used for the CSG Pilot Program.

Minnesota Power has been incentivizing solar energy through its Conservation Improvement Program (“CIP”), via its SolarSense program, since 2004. Utilities are currently able to recover programmatic expenses for the installation of qualifying solar energy projects under CIP, through Minn. Stat. § 216B.241 Subd. 5a. Within CIP, program costs like rebates, research and development, evaluation and planning, and customer engagement are recovered through a CIP Tracker. Minnesota Power has successfully exceeded the state’s conservation goals year after year. Given the Small Scale Carve-Out requirement of the SES, the Company believes a programmatic approach, similar to that of CIP, is required for successful achievement of the small scale solar goal. The programmatic approach currently used in Minnesota Power’s successful conservation program includes areas of focus such as education and outreach, research and development, advertising and promotion, customer incentives, and evaluation and planning. The Company intends to leverage its foundational solar program offerings and experience in meeting the SES, and believes current cost recovery of solar program expenses is consistent with both statute and precedent. A tracker for the solar program, similar to what is in place for CIP, may be an appropriate mechanism for timely recovery of solar program costs. The Company intends to address the role of solar programs currently in CIP in its next Triennial filing in 2016.

#### **G. The Community Solar Garden Pilot Program is in the Public Interest**

This CSG Pilot Program is Minnesota Power’s first community solar program and a key component of the Company’s overall solar strategy. The CSG Pilot Program is cost effective as a resource option for meeting the Small Scale Carve-Out requirement of the SES by 2020. It also provides a new carbon-free energy source that will be used to meet general customer energy requirements if the program is not fully subscribed.

When fully operational by the end of 2016, the CSG Pilot Program is projected to add approximately 1,400 MWh of renewable energy per year to Minnesota Power’s energy supply

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<sup>25</sup> Docket No. E015/M-15-773.

for participating customers. This amount is approximately 25 percent of the solar energy required for the Company to comply with the Small Scale Carve-Out of the SES. Should customer demand require, additional community solar garden projects will be considered. The Pilot Program's initial assets will be positioned near where the majority of Minnesota Power distributed solar customers are today, in addition to being close to the largest population center in the Company's service territory. The timing of the program will capture the cost benefit for eligible customers of the higher federal ITC that is currently positioned to step down at the end of 2016.

## **1. SES Compliance**

In the Commission's October 23, 2014 Order<sup>26</sup> accepting utilities' 2013 Solar Energy Standard Progress Reports, it noted: "the Commission recognizes that some utilities may face certain difficulties in meeting the small scale solar requirement imposed by the SES, including challenges that may not be entirely within the utilities' control." The Company has outlined a broad solar strategy to meet the estimated SES requirement in 2020 and intends for the individual customer subscriptions from the CSG Pilot Program to count towards the Small Scale Carve-Out of the SES. Minnesota Power will limit customer subscriptions to 20 kW per service agreement, consistent with the size required for Small Scale Carve-Out compliance, and procure the solar energy for the proposed Pilot Program on behalf of subscribing customers.

In addition to complying with the SES, this Pilot Program also provides a cost effective source of small scale solar. The current form of small scale solar energy supply comes from individually installed rooftop systems. By installing a centralized community solar array as an equivalent to numerous rooftop installations, Minnesota Power is able to take advantage of economies of scale and pass cost savings to customers. If translated to residential rooftop systems, Minnesota Power's proposed CSG Pilot Program would equate to approximately 174 customer-sited solar systems. While customer adoption rates for rooftop solar are increasing, at the end of 2014 and after more than a decade of solar programs being in place, Minnesota Power had 132 customer-sited solar PV installations in its service territory. To meet the requirements of the SES, Minnesota Power will need expedited action on small scale solar and believes strongly

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<sup>26</sup> Docket No. E-999/M-14-321.

that this proposed CSG Pilot Program will help to meet the state SES. A more balanced, cost-effective approach of utilizing both organic rooftop installations and Community Solar Garden programs will be more efficient and increase customer access to solar energy.

Another benefit of this program is that it would be available to customers who are unable to install solar on their own premises for any number of reasons (obstructed access to sunlight, upfront capital investment, lack home or business site ownership, etc.). The demand for a solar electric option, beyond the current SolarSense program, has already been identified by the Company through market research and the Community Solar Garden would help fill this void to reach more customers with solar.

Utilizing its individual customer, community and utility initiatives together will allow Minnesota Power to leverage multiple sizes and types of solar energy. SRECs will be generated for each MWh that the community solar garden produces and the Company will utilize the SRECs associated with subscribed portions of the garden to meet the Small Scale Carve-Out of the SES. SRECs associated with unsubscribed energy will be used for the larger requirement of the SES.

## **2. Adding the Community Solar Garden Pilot Program Now**

The timing of this Program allows Minnesota Power to capture for its customers the benefit of the highest level of ITC, which is scheduled to decrease from 30 percent to 10 percent at the end of 2016. However, Minnesota Power evaluates the potential for program projects both with and without the ITC, as it is just one component in the consideration of new programs such as this. While the ITC affords cost savings on solar resources, the Company is mindful that solar still represents a larger energy supply cost that is paid for by customers than other available renewable alternatives.

## **3. Customer Demand**

Minnesota Power is committed to exploring and providing product and service offerings its customers want. As market research has identified (Section III.A.), approximately one third of surveyed customers are interested in solar energy products. The research also indicated that customers felt there was a lack of information and knowledge about solar energy available and that northeastern Minnesota is currently an immature solar market. The Company is taking a

thoughtful, well-designed approach to exploring and encouraging solar energy development in its service territory through this Pilot Project.

Minnesota Power is also mindful of cross-subsidization that may occur between participating and non-participating solar garden customers and has worked diligently to design a program that limits the impact of cross-subsidization. This program design has an appropriate rate impact approach as solar garden costs are intended to be contained to participants of the program. Within that framework, the Pilot Program will provide participating customers with several new financial options to participate in solar and lock in stable energy prices.

Energy from the Community Solar Garden will be allocated to subscribing customers based upon their percentage of the garden and an energy credit will be displayed on subscribers' bills. Any excess energy that is not subscribed become part of Minnesota Power's total solar energy supply, with costs recovered through adjustments to the proposed SEA Rider within the FPE Rider and the proposed Solar Factor within the RRR. The excess energy from the non-subscribed portion of the Community Solar Garden will enter Minnesota Power's SES portfolio as utility solar energy supply, and it will not be counted as Small Scale Solar.

The Pilot Program will allow Minnesota Power to engage with interested customers on their energy supply in a new way, providing practical insight about residential and commercial customers' appetite for solar energy offerings. The Company intends to refine programs and internal processes based upon the knowledge gained from this Pilot Program. Minnesota Power will use this knowledge to make an informed decision about broader implementation and infrastructure investments to support further solar offerings.

## **H. Federal Tax Matters**

While the 1 MW solar garden will be owned and operated by a developer with the generation sold back to Minnesota Power through a PPA (as described in Section III.B1), the smaller, 40 kW array (as also described in Section III.B1) will be owned and operated by Minnesota Power. Any tax benefits related to accelerated tax depreciation and the ITC for the 1 MW solar garden will be utilized by the developer and will be built into the PPA pricing.

The 40 kW garden will include the tax benefits of accelerated tax depreciation, and any potential related tax net operating losses (“NOLs”) would be included under the hybrid method. Under the hybrid method, the NOL deferred tax asset amount added to rate base in each year by each project is based on the lower of the stand-alone and consolidated methods. The approved hybrid methodology is currently being applied to all Minnesota Power current cost recovery rider projects.

The 40 kW garden has an anticipated in-service date of 2016, which would qualify for the ITC. The allowable ITC for solar is 30 percent of the qualifying cost. If any portion of the 40 kW garden qualifies for ITC, the ITC will be amortized over the life of the project and included as a reduction to revenue requirements. Tax benefits are captured in the price of the solar energy and passed on to customers through their subscription options.

## **I. Customer Bill Impacts**

As previously stated, Pilot Program pricing noted in this filing is calculated from estimates and the final pricing for all options will be based upon the actual cost of the 1 MW PPA and the projected revenue requirements of the 40 kW solar array. Minnesota Power’s intention for the Pilot Program is to acquire solar energy at a competitive cost and have the customers who wish to participate in the community solar program pay for the cost of the energy. The proposed CSG Pilot Program is intentionally designed so, if fully subscribed, all costs are assigned to subscribing customers and non-participating ratepayers are not materially impacted. If not fully subscribed, unsubscribed energy will flow to all non-exempt customers as part of the energy needed for the broader SES. Additionally, the portion of unsubscribed costs related to the 40 kW solar array would flow through the Solar Factor in the RRR and the portion of unsubscribed costs related to the 1MW PPA would flow through the SEA Rider.

The proposed CSG Pilot Program will have a bill impact on customers who subscribe to the garden, depending upon the option they choose and the amount of capacity the customer subscribes to. Tables 3 to 6 below show typical monthly bills for four different customers compared to the resulting bills under each subscription option, at varying levels of capacity subscriptions. The bill comparisons are calculated based on the following subscription pricing assumptions: **[TRADE SECRET DATA EXCISED]**. The bill comparisons assume the monthly

kWh generation for a 1 kW block subscription is equal to the average monthly generation over 25 years. A 1 kW block of CSG capacity is assumed to produce 107 kWh of solar energy on an average monthly basis. All other bill components are based on the Company's current rates. The energy charge under each option is calculated using the customer's net kWh of energy usage (total kWh usage – solar kWh output from subscribed blocks). Option 2 has a fixed monthly subscription charge per each subscribed kW block. The monthly bill is then adjusted based on riders applicable to the standard rate schedule. The Fuel and Purchased Energy adjustment is calculated using net kWh, and the Affordability Surcharge is a fixed rate for each rate class. Other adjustments (Renewable Resources, Transmission, Conservation Program, and Boswell 4 Plan) are calculated using total kWh usage. Although there are no current values, the Solar Factor and Solar Energy Adjustments would be calculated in the future using total kWh.

The monthly bill comparison for Option 1 does not include the upfront payment, as this fee would be invoiced separately, but shows what the typical bill would be after the subscription was paid. The monthly bill comparisons for Option 2 and 3 include the monthly kW subscription fees and solar energy charges as described above.

As previously mentioned, keeping with the intent of the Small Scale Carve-Out of the SES, the Company will cap customer subscriptions at 20 kW per Service Agreement. As shown in Table 5, for a typical General Service Demand customer, a 20 kW subscription would be equivalent to about 40 percent of their kWh usage. As shown in Table 6, for a typical Large Light and Power customer, a 20 kW subscription would be equivalent to about one percent of their kWh usage.

**Table 3: Residential Average Monthly Bill Comparison**

<b>Residential Average Monthly Bill Comparison</b>							
<i>Total Monthly Bill</i>	<i>\$80.27</i>						
	<b>Number of kW Block Subscriptions</b>	<b>Option 1 Upfront Payment</b>	<b>% Change From Standard</b>	<b>Option 2 Monthly Fee</b>	<b>% Change From Standard</b>	<b>Option 3 Fixed kWh Charge</b>	<b>% Change From Standard</b>
Customer Subscribes to 50% of Usage	<b>[TRADE SECRET DATA EXCISED]</b>						
Customer Subscribes to 100% of Usage	<b>[TRADE SECRET DATA EXCISED]</b>						

**Table 4: General Service Non Demand Average Monthly Bill Comparison**

<b>General Service Non Demand Average Monthly Bill Comparison</b>							
<i>Typical Monthly Bill</i>	<i>\$69.42</i>						
	<b>Number of kW Block Subscriptions</b>	<b>Option 1 Upfront Payment</b>	<b>% Change From Standard</b>	<b>Option 2 Monthly Fee</b>	<b>% Change From Standard</b>	<b>Option 3 Fixed kWh Charge</b>	<b>% Change From Standard</b>
Customer Subscribes to 50% of Usage	<b>[TRADE SECRET DATA EXCISED]</b>						
Customer Subscribes to 100% of Usage	<b>[TRADE SECRET DATA EXCISED]</b>						



**Table 5: General Service Demand Average Monthly Bill Comparison**

<b>General Service Demand Average Monthly Bill Comparison</b>							
<i>Typical Monthly Bill</i>	<i>\$443.91</i>						
	<b>Number of kW Block Subscriptions</b>	<b>Option 1 Upfront Payment</b>	<b>% Change From Standard</b>	<b>Option 2 Monthly Fee</b>	<b>% Change From Standard</b>	<b>Option 3 Fixed kWh Charge</b>	<b>% Change From Standard</b>
			<b>[TRADE SECRET DATA EXCISED]</b>				
<b>Customer Subscribes to 50% of Usage</b>							

**Table 6: Large Light & Power Average Monthly Bill Comparison**

<b>Large Light &amp; Power Average Monthly Bill Comparison</b>							
<i>Typical Monthly Bill</i>	<i>\$16,627.51</i>						
	<b>Number of kW Block Subscriptions</b>	<b>Option 1 Upfront Payment</b>	<b>Percentage Difference From Standard Bill</b>	<b>Option 2 Monthly Fee</b>	<b>Percentage Difference From Standard Bill</b>	<b>Option 3 Fixed kWh Charge</b>	<b>Percentage Difference From Standard Bill</b>
			<b>[TRADE SECRET DATA EXCISED]</b>				
<b>Customer Subscribes to 1% of Usage</b>							

#### **IV. 40KW SOLAR ARRAY PROJECT – RENEWABLE RESOURCES RIDER AUTHORIZATION**

Minn. Stat. § 216B.1645 allows the Commission to approve a schedule that provides for the automatic adjustment of charges to recover prudently incurred investments, expenses, or costs associated with facilities constructed, owned, or operated by a utility to satisfy the requirements of Minn. Stat. § 216B.1691.

The solar energy generated by the 40 kW solar array, intended for use in the Company's proposed CSG Pilot Program, qualifies as eligible energy technology under Minn. Stat. § 216B.1691, subd. 1. Minnesota Power is required to generate or procure solar energy to meet at least 1.5 percent of the utility's total retail electric sales to retail customers by the end of 2020, as described in Minn. Stat. § 216B.1691, subd. 2f. The Company requests Commission approval pursuant to Minn. Stat. § 216B.1645, subd. 2a of this Petition for eligibility to include cost recovery of incurred investments and costs for the 40kW solar array - through a Solar Factor within the authority of Minnesota Power's Commission-approved Renewable Resources Rider.

##### **A. Project Description and Overview (Minn. Stat. § 216B.1645, subd. 2a(b)(1)(2))**

The generation from the 40 kW solar array will be used in Minnesota Power's proposed CSG Pilot Program. The array will be located on Minnesota Power's property, near the Herbert Service Center on Arrowhead Road in Duluth, Minnesota. The 40 kW solar array will serve as a visible project for potential subscribers in their community, and cost approximately **[TRADE SECRET DATA EXCISED]** to build. The 40kW solar array will be Minnesota Power's first community solar garden generating asset, further securing the Company's ability to timely, reliably and affordably meet the Small Scale Carve-Out of the SES. This 40 kW solar array, along with the 1 MW PPA, will secure approximately 25 percent of the solar energy Minnesota Power is expected to need to meet the Small Scale Carve-Out.<sup>27</sup>

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<sup>27</sup> As reported in the 2014 SES Progress Report (Docket No. E015/M-15-462), Minnesota Power needs approximately 32MW of solar energy to meet the SES by 2020, with 4MW of the total needed to meet the Small Scale Carve Out.

**B. Ensuring Reasonable and Prudent Cost (Minn. Stat. § 216B.1645, subd. 2a(b)(3)(4))**

Based upon current market estimates, Minnesota Power projects the cost of the 40 kW solar array to be approximately **[TRADE SECRET DATA EXCISED]**. In order to ensure the costs of this project are reasonable and prudent, the Company will conduct a competitive bidding process for an EPC developer to build the array. The competitive bidding process will begin in November 2015 so construction can be completed by the end of 2016 in order to qualify for the current federal ITC. Constructing the array on Company-owned property will also lower the overall project cost as a land purchase or lease is not needed.

**C. Project Benefits (Minn. Stat. § 216B.1645, subd. 2a(b)(5))**

The 40 kW solar array promotes the development of renewable energy by making solar energy visible to a larger number of customers. As previously stated in Section III.B., the construction of this solar project will provide a new, emission-free power resource for customers and achieve progress in meeting the Small Scale Carve-Out of the SES.



Proposed Site of 40kW Solar Array – 3215 W. Arrowhead Road, Duluth Minnesota

## **V. INDIVIDUAL CUSTOMER PILLAR OF THE SMALL SCALE SOLAR STRATEGY**

### **A. Relocating Solar Programs from CIP to the Solar Factor in the RRR**

Since 2004, Minnesota Power has included a renewable energy program component under its Power of One<sup>®</sup> conservation program, as provided for under an optional provision in Minn. Stat. § 216B.2411, subd. 1(a). This has primarily been an education and outreach program with no direct energy savings associated with expenditures. A modest budget has been available to provide capacity-based incentives each year for customer-owned installations.

Beginning in 2014, a new statutory provision was introduced for Made in Minnesota incentives. This provision states that “each public utility subject to Minn. Stat. § 216B.241 must annually pay to the commissioner of commerce five percent of the minimum amount it is required to spend on energy conservation improvements under § 216B.241, subd. 1. A public utility subject to this paragraph must be credited energy savings for the purpose of satisfying its energy savings requirements under § 216B.241, subd. 1c, based on its payment to the commissioner.”<sup>28</sup>

During the same timeframe, a SES was established,<sup>29</sup> requiring 1.5 percent of a public utility’s retail sales, net of customer exclusions, to come from solar energy resources by 2020. Of the 1.5 percent SES, at least 10 percent must come from solar energy generated by or procured from solar photovoltaic devices with a nameplate capacity of 20 kilowatts or less.

While Minnesota Power continues to see the value in a comprehensive portfolio that reflects the importance of both energy efficiency and renewable energy, it is the Company’s view that customer renewable programs should be administered outside of its conservation program portfolio from a financing and program resources perspective. There are enough differences from a tracking, funding, and overall portfolio objective to warrant such change and the Company will request relocating cost recovery from CIP to the Solar Factor in its next Triennial CIP filing, to be submitted by June 1, 2016. Those differences, as well as further historical context and Minnesota Power’s suggested approach going forward, are discussed in the following sections.

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<sup>28</sup> Minn. Stat. § 216B.412, subd. 2.

<sup>29</sup> Minn. Stat. § 216B.1691 Subd. 2f.

Both the Solar Energy Standard and the Conservation Improvement Program have statutory provisions for customer exemptions. As a general description, this means retail electric sales to customers who are exempted from these provisions are not used in calculating eligible retail sales and that electric energy usage by these customers is not included in determining rates or cost recovery for satisfying these provisions. However, these exempt customers, the parameters for applying for exemptions, and the related processes<sup>30</sup> are not the same between programs. The SES exempts iron mining, paper and wood products manufacturer customers from both the calculation of the solar requirement and from incurring any costs related to meeting the SES.<sup>31</sup> However, under the state's Conservation Improvement Program, customers who are large energy users and meet other specified conditions are exempt from the energy efficiency calculations and CIP costs.<sup>32</sup> While some of these customers fit both categories, not all do.

#### **B. A Programmatic Approach to the Small Scale Solar Carve-Out is Necessary for Success**

The Company believes that a programmatic approach, similar to that of the Company's Power of One<sup>®</sup> conservation offerings, is the best strategy for meeting the Small Scale Carve-Out of the SES. Power of One<sup>®</sup> contains educational and incentive programs that mutually support the goal of conservation. Similarly, Minnesota Power sees a benefit in having a similar organizing principle of having its customer solar offerings within one framework and a framework that is separate from conservation programs. There are many factors to be considered when installing a solar PV system and customers have expressed a need for access to information that will help them evaluate whether solar energy is the right fit for them. Figure 5 illustrates that, the customer's experience is the center of a successful renewable program and combined with the tools, information and technology needed to make informed decisions about their energy needs. Minnesota Power intends to continue enhancing the offering of solar energy products to its customers by coordinating these programmatic elements.

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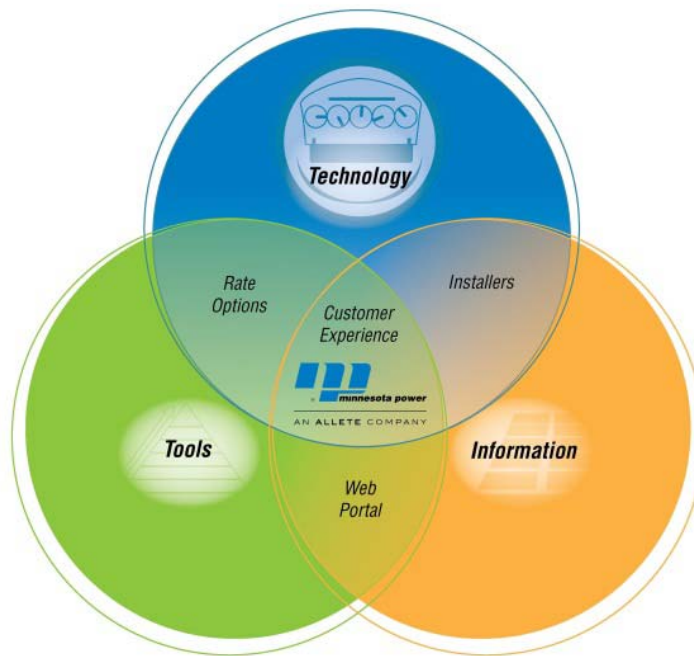
<sup>30</sup> There is a proceeding under way regarding the process for customer exemptions under the Solar Energy Standard. No final order has been issued by the MPUC as of the date of this filing. Docket No. E999/CI-13-542.

<sup>31</sup> Minn. Stat. § 216B.1691 Subd. 2f.

<sup>32</sup> Minn. Stat. 216B.2411 Subd 1g.

The Company also recognizes that, similar to the Conservation Improvement Program, dedicated resources are needed to administer effective small scale solar programs. Recognizing that a small but growing investment in renewable energy options by retail customers is a likely future to diligently plan and prepare for, Minnesota Power added a new customer focus area called Renewable Programs in 2014. The Renewable Programs department consists of two dedicated full time professionals who provide support for solar energy activities and the customer interconnection process. Assigning dedicated resources is one of the multiple steps Minnesota Power has taken in the development of scalable support systems and appropriate organizational focus for solar.

**Figure 5: Minnesota Power's Solar Customer Experience**

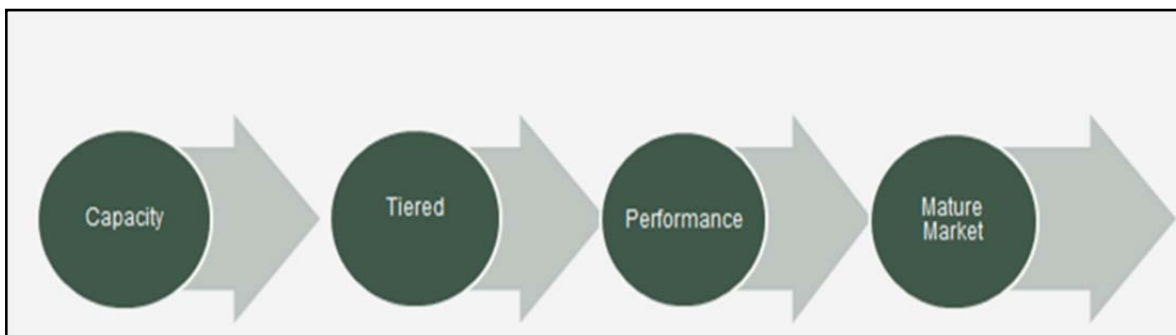


In an effort to enhance the customer experience and encourage growth in the current immature solar market in Northern Minnesota, the Company believes that a market-building approach to renewable programs is necessary. This includes a balanced offering of incentive programs, educational products and services, training opportunities and informational resources.

## 1. Incentives

Minnesota Power has offered rebates for distributed renewable resources through its SolarSense program, which helps to reduce the upfront cost of solar PV systems and make solar a more viable option for Minnesota Power customers. The program has evolved over time from a capacity-based incentive to the current tiered-incentive structure. As shown in Figure 6 below, this evolution is consistent with the solar incentive trends seen nationwide, with steps succeeding tiered rebated being performance-based incentives followed by a mature market where grid parity has been reached and incentives are no longer needed to advance adoption of the technology.

**Figure 6: Solar Rebate Evolution**



According to market research conducted by an independent third party in 2015, 43 percent of Minnesota Power customers interested in solar said that the main barrier to entry is the initial cost. With this insight in mind, the Company feels that continued support of solar through a customer incentive program is essential to encouraging the continued adoption of small, distributed solar and meeting the Small Scale Carve-Out of the SES.

## 2. Education and Outreach

Minnesota Power views solar education and outreach as critical efforts in ensuring successful compliance with the SES, and particularly with the Small Scale Carve-Out. The current solar market in northern Minnesota is in its infancy with an average of less than 20 distributed solar installations per year in Minnesota Power's service territory.<sup>33</sup> Continued efforts

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<sup>33</sup> Docket No. E999/PR-15-10.



to provide customers with the tools needed to make informed decisions about their energy investments will help to better align customer expectations with achieved results. In addition, the Company feels that providing continued training opportunities for solar installers, electricians, inspectors, utility personnel and more will encourage continued growth in the solar industry in Northern Minnesota. Minnesota Power is continually monitoring opportunities to improve solar education for customers, installers and utility staff. Education and outreach efforts already performed by the Company are detailed in the recent Solar Energy Standard Progress Report.<sup>34</sup>

### **3. Solar Energy Analysis Pilot Program Launched**

Solar Energy Analysis is a pilot program initiated in 2015 for Minnesota Power customers to explore the suitability of installing a solar energy system at their home or business. In this Pilot Program, an experienced Minnesota Power solar professional consults with interested customers, visits their site to analyze how solar may benefit them, and identifies site-specific conditions that may affect their installation. A summary of findings that they may use as reference when consulting with installers on system design is then generated for the customer. The summary includes information on the customer's usage, suitability of array locations, and interconnection considerations. The Solar Energy Analysis program is evolving and will be modified based upon feedback from customers and installers.

Minnesota Power views the Solar Energy Analysis Pilot Program as an opportunity to educate customers about solar energy and the interconnection process while reducing the soft costs of installing solar by enhancing the customer acquisition process. Program costs, customer satisfaction, and conversion rate metrics will be tracked during the pilot year and used to determine the ongoing value proposition. Additionally, a Solar Energy Analysis provides an opportunity for the Company's solar professionals to engage with and educate customers on the multiple solar options available to them.

Minnesota Power has already taken great steps to enhance the customer experience by providing customers with tools, technology and information needed to make informed decisions

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<sup>34</sup> Docket No. M-15-462.

about their energy investments. The Company hopes to continue to expand on this foundational programmatic approach to meet the small-scale requirement of the SES.

## **C. A Cost Recovery Path for Small Scale Solar Expenses**

### **1. Annual Program Budget – Similar to CIP**

Assuming approval of a separate cost recovery path related to compliance with the SES, Minnesota Power proposes to file a three-year budget for Customer Programs in its next SES Progress Report, with effective program years being 2017-2019. To ensure continuity of program delivery, Minnesota Power intends to continue its SolarSense offering as filed under its currently approved CIP triennial filing<sup>35</sup> through 2016 and will address the proposed transition out of CIP as part of its next triennial filing, which is also scheduled for June 1, 2016 for a program period of 2017-2019. As there are separate regulatory approval processes related to each, this appears to be the most logical approach to this transition. Minnesota Power suggests, similar to conservation program reporting, that solar program results will be reported annually in the SES report, thereby providing the Commission a more comprehensive and complete record of activity and related cost recovery.

### **2. Recovery of Solar Program Costs in the Solar Factor within the RRR**

Utilities are currently able to recover programmatic expenses for the installation of qualifying solar energy projects under CIP, through Minn. Stat. § 216B.241 Subd. 5a. Within CIP, program costs like rebates, research and development, evaluation and planning, and customer engagement are recovered through a CIP Tracker. Minnesota Power has successfully exceeded the state's conservation goals year after year and, given the small-scale carve out requirement of the SES, Minnesota Power believes a programmatic approach for solar, similar to that of CIP, is necessary. The Company intends to leverage its foundational program offerings and experience in meeting the SES, and believes current cost recovery of solar program expenses is consistent with both statute and precedent. A tracker for the solar program, similar to what is in place for CIP, may be an appropriate mechanism for timely recovery of solar program costs.

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<sup>35</sup> Docket E015/CIP-13-409

Minnesota Power has worked diligently to streamline, simplify and add transparency to the interconnection process for distributed generation (“DG”) customers, installers, electricians and inspectors. Each installation is unique and has its own set of considerations. Minnesota Power understands that there is still room for improvement in the interconnection process and fully expects these efforts to continue. While important when considering the SES and the ability to meet the small-scale carve out provision, the Company considers costs specific to the interconnection process part of standard operations available to all customers. As such, these would not be considered part of the Company’s programmatic approach to meeting the small-scale requirement of the SES, as described in this filing.

## VI. CONCLUSION

Minnesota Power is pleased to file its proposed Community Solar Garden Pilot Program and requests Commission approval of the following:

1. Approval of a CSG Pilot Program featuring three pricing options for participating customers, including: an upfront payment option, a fixed monthly subscription fee option and a fixed charge per kWh option.
2. Approval for Company-sold customer subscriptions to the CSG Pilot Program to be eligible for compliance towards meeting the Small Scale Carve-Out of Minnesota's Solar Energy Standard ("SES").
3. Approval of current cost recovery for investment and activity related to compliance with the Small Scale Carve-Out of the SES including, but not limited to, a 40 kW solar array, under a recently requested Solar Renewable Factor ("Solar Factor") within the existing Renewable Resources Rider ("RRR").<sup>36</sup>

Minnesota Power believes that a comprehensive approach to small scale solar development - to include a community solar garden offering, solar incentive programs, education and outreach - is necessary for successful SES compliance and the further responsible deployment of distributed solar energy resources in northern Minnesota. While the Company continues to see a value in providing a comprehensive portfolio for serving customers that reflects the importance of both energy efficiency and renewable energy, it is Minnesota Power's view that customer renewable programs should be administered outside of its conservation program, from a financing and program resources perspective, and to help ensure statutory compliance and success.

The Company also believes that solar gardens are an opportunity for more customers to participate in solar, regardless of whether they own their home or business, have suitable rooftops or sizable upfront capital for investment and the Company has conducted extensive research to develop a thoughtful program focused on its customers. The 1,040 kW Community

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<sup>36</sup> The Solar Renewable Factor was requested in the Company's Camp Ripley Solar Project Plan Filing (Docket No. E015/M-15-773).

Solar Garden Pilot Program is the first step in providing customers with a streamlined experience, consumer protections, increased choices and a market-based approach to the pricing structure, while resulting in approximately one fourth of the solar energy needed to comply with the Small Scale Carve-Out of the SES.

Actions within the individual customer solar pillar, focused on providing thoughtful incentive and education programs, are also key components of Minnesota Power's solar strategy and overall *EnergyForward* strategy aimed at delivering a balanced, one third renewable, one third coal and one third natural gas power supply.

Dated: September 10, 2015

Respectfully submitted,

A handwritten signature in black ink, appearing to read "Jennifer J. Peterson". The signature is fluid and cursive, with a long horizontal stroke extending to the right.

Jennifer J. Peterson  
Policy Manager  
Minnesota Power  
30 West Superior Street  
Duluth, MN 55802  
(218) 355-3202  
jjpeterson@mnpower.com

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**PILOT RIDER FOR COMMUNITY SOLAR GARDEN SUBSCRIPTION**

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**APPLICATION**

This Rider shall be applicable on an optional basis to any retail customers who are not exempt from Solar Energy Standard obligations under Minnesota Statute § 216B.1691, subd. 2(d) and who are not exempt through processes approved in MPUC Docket No. E999/CI-13-542.

**RATE (Monthly)**

The Customer may choose one of the following options for charges and credits which shall be applicable in addition to all charges for service being taken under Company's standard rate schedule.

I. Upfront Payment per kW

Customer shall pay a one-time subscription charge for each contracted kW solar block. A solar block under this rider represents 1 kW of capacity. Customer will receive a monthly energy kilowatt-hours (kWh) credit for the solar energy produced by each solar block. The charge and credit shall be as follows:

kW Block Charge            \$            per subscribed block.

Monthly kWh Credit        Customer will receive a bill credit in kWh for the solar energy produced per subscribed kW block of capacity as an offset to the customer's standard energy use during the monthly billing period.

II. Monthly Subscription per kW

Customer shall pay a monthly subscription charge for each contracted kW solar block. A solar block under this rider represents 1 kW of capacity. Customer will receive a monthly energy (kWh) credit for the solar energy produced by each solar block. The charge and credit shall be as follows:

kW Block Charge            \$            per subscribed block per month

Monthly kWh Credit        Customer will receive a bill credit in kWh for the solar energy produced per subscribed kW block of capacity as an offset to the customer's standard energy use during the monthly billing period.

III. Fixed Charge per kWh

Customer shall pay a charge for the energy the customer's subscribed portion of the solar garden generates. The charge shall be as follows:

Fixed kWh Charge        \$            per kWh

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Filing Date \_\_\_\_\_ MPUC Docket No. \_\_\_\_\_  
Effective Date \_\_\_\_\_ Order Date \_\_\_\_\_

Approved by: \_\_\_\_\_  
Marcia A. Podratz  
Director - Rates

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**PILOT RIDER FOR COMMUNITY SOLAR GARDEN SUBSCRIPTION**

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**SERVICE CONDITIONS**

1. To participate in the Community Solar Garden Pilot Program, a customer must submit an application to Minnesota Power's Renewable Programs Department. Each customer's subscription will be capped at 120 percent of the customer's average annual energy usage in the previous twelve months.
2. Total participation of non-residential customers will be limited to no more than 50 percent of the total solar garden capacity during the initial offering.
3. Customer subscriptions will be capped at 20 kW per Service Agreement.
4. Each customer participating in the Community Solar Garden Pilot Program will sign a 25-year contract which specifies the price customer will pay for solar energy, aligned with the timeframe of the Company's power supply resource acquisition.
5. Customers who choose the monthly subscription per kW or fixed charge per kWh options will have the ability to leave the program at any time. These customers may either have their subscription reassigned to another qualifying participant or relinquish their subscription to Minnesota Power.
6. Customers who choose the upfront payment option will also have the opportunity to reassign or relinquish their subscription. Because customers on this option have made a significant upfront investment, if they cannot sell or transfer the subscription to another qualifying participant in a private transaction, Minnesota Power will purchase the subscription back from them at a predetermined depreciated amount that will decline by 4 percent per year from the original upfront payment amount.
7. Solar garden subscribers who leave the pilot program, by reassigning or relinquishing their subscription, will not be eligible for participation in any Minnesota Power community solar garden program for a period of twelve months.
8. Customers will not receive any cash payments or monetary credits in this program. Any excess energy shall be carried forward in the form of a kWh credit to customer's subsequent bills for a period of five years. During this five-year period, the Company will evaluate what limits, if any, should be placed on the rolling over of energy credits. Banked credits are not transferable to other customers through subscription transfers.

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**Filing Date** \_\_\_\_\_ **MPUC Docket No.** \_\_\_\_\_  
**Effective Date** \_\_\_\_\_ **Order Date** \_\_\_\_\_

**Approved by:** \_\_\_\_\_  
**Marcia A. Podratz**  
**Director - Rates**

# APPENDIX B



# We're Growing Solar





## APPENDIX B

# Community Solar Garden — Coming Summer 2016

Minnesota Power's first community solar garden, planned for 2016, will be a simple way for customers to participate in solar without the need to install a system on their own home or business. It's a safe, flexible, and convenient choice for customers who want to go solar but either rent or don't have a location that is well-suited to generating electricity from the sun.



Customers will have three options for participating\*

### OPTION 1

**Upfront payment.** Subscribers pay a onetime fee and receive a monthly energy credit of kilowatt-hours based on their subscription. This option is most comparable to a traditional rooftop solar installation.

### OPTION 2

**Fixed monthly subscription fee, which is essentially the upfront payment financed over the length of the contract.** The customer receives a bill credit for the energy produced from their subscription. This option is comparable to a traditional rooftop installation financed over time.

### OPTION 3

**Fixed charge for each kilowatt-hour of solar energy produced from a subscription.** The customer purchases all the solar energy produced from their subscribed amount of capacity.

**Interested in learning more? Visit [mnpower.com/communitysolar](http://mnpower.com/communitysolar), call 218-355-3720, or email [solarprogram@mnpower.com](mailto:solarprogram@mnpower.com)**

\*Subject to approval by the Minnesota Public Utilities Commission (MPUC)

STATE OF MINNESOTA     )  
  ) ss  
COUNTY OF ST. LOUIS    )

AFFIDAVIT OF SERVICE VIA  
E-FILING AND  
FIRST CLASS MAIL

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Susan Romans, of the City of Duluth, County of St. Louis, State of Minnesota, says that on the **10<sup>th</sup>** day of **September, 2015**, she e-filed Minnesota Power's Petition for Approval of Community Solar Garden Pilot Program on the Minnesota Public Utilities Commission and the Energy Resources Division of the Minnesota Department of Commerce via electronic filing. The persons on the attached service list were served as requested.



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Susan Romans

First Name	Last Name	Email	Company Name	Address	Delivery Method	View Trade Secret	Service List Name
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	GEN_SL_Minnesota Power_Minnesota Power General Service List
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