Going Farther Together:

The Governmental Solar Garden Subscriber Collaborative

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Introduction

Community Solar Gardens (also known as Community Shared Solar systems) create an opportunity for individuals and organizations to receive the benefits of solar without installing it on-site. For local government entities, these benefits include supporting clean energy and its positive local economic impacts, saving on energy bills for public facilities, and hedging against the future price volatility of electricity. The Governmental Solar Garden Subscriber Collaborative was a joint effort by and for 31 local governments in the greater Twin Cities metropolitan region to procure solar garden subscriptions from a single "Request for Proposals" (RFP) process to offset the energy usage at public facilities.

By working together, the participants sought to gain an economy of scale in the solicitation process that could help to attract developers, reduce the administrative burden to vet those developers, and yield better pricing and subscription terms.

Purpose of this Report

This report is intended to detail the model and lessons learned from the Governmental Solar Garden Subscriber Collaborative so that local governments, utilities, solar garden developers, non-profit organizations, and others seeking to implement similar programs can build on this project. In particular, we aim to supplement existing resources related to collaborative solar procurement (see this in depth guide by the World Resources Institute and Joint Venture: Silicon Valley Network) by detailing the opportunities and challenges identified in using a collaborative procurement approach to *community solar subscriptions*, rather than individually-owned rooftop solar.

By providing a detailed account of what we tried, what we learned, and our suggestions for others pursuing similar work, we hope to help scale up local government participation in solar gardens.

Creation of Xcel Energy's Solar Garden Program in Minnesota

In 2013, the Minnesota legislature passed statute 216B.1641, requiring Xcel Energy, Minnesota's largest electric utility, to create a third-party solar garden program meeting the following guidelines (for more information on community solar models, check out NREL's report here):

- Community Shared Solar systems, deemed "Community Solar Gardens," could be built, owned, and operated by 3rd-party developers and their financiers.
- These Solar Gardens could be sized up to 1 MW AC, must have at least 5 separate subscribers, without any individual subscriber accounting for more than 40% of the garden's total capacity.
- Subscribers may size their cumulative subscriptions up to 120% of their annual electricity usage and must be located in the same county, or an adjacent county, to any garden to which they are subscribing.
- The energy generated by the garden each month is to be purchased by the utility and paid proportionally to the garden's subscribers through a utility bill credit.

In the fall of 2014, the Minnesota Public Utilities Commission approved the program design and shortly thereafter it opened for applications. This program provided the basic structure on which this collaborative project was built.

Project Formation & Process

Under the above rules, a solar development boom ensued in late 2014 through late 2015, in which developers were quickly seeking to secure both subscribers to their proposed systems and land on which to install them. While there was no public database to allow an analysis of the types of entities subscribed, news articles at the time were frequently citing large commercial customers as key subscribers to gardens. Within a few months after the program opening, Xcel Energy's website listed over 1,000 proposed solar gardens seeking approval to be built, most of them nearly 1 MW in size.

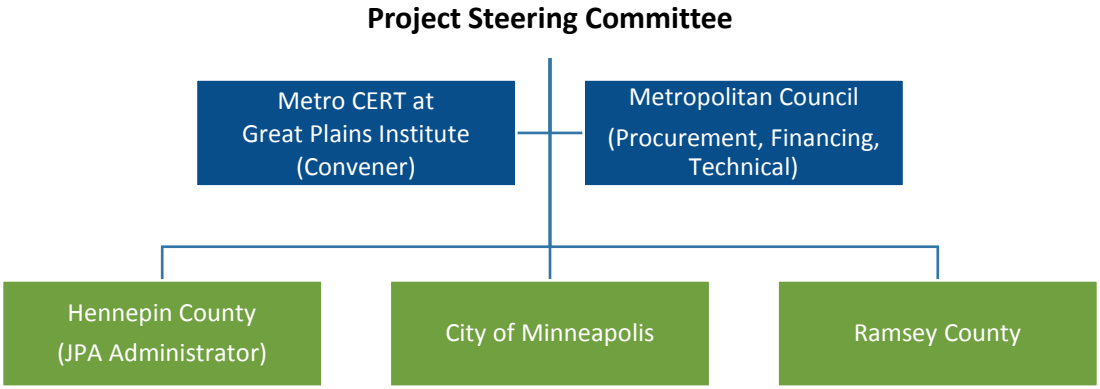
As this was happening, large local and state government entities realized that they were ideal solar garden subscribers in the eyes of developers, given their longevity and excellent credit ratings (most solar garden subscriptions were being offered for 25-year contracts, and required a high credit score to appease developers' financiers). In January of 2015, Hennepin County hosted a meeting with a group of large local government entities to discuss opportunities for collaboration, including how the Metropolitan Council might lead a joint RFP for solar garden subscriptions. As a result, several entities submitted letters to the Metropolitan Council requesting their formal leadership on the project.

By February of 2015, a project team formed to begin developing a joint RFP. Local government participants included the Metropolitan Council, Hennepin County, Ramsey County, and the City of Minneapolis, with organizing support from the Metro CERT program at the Great Plains Institute. Together, this group comprised the minimum of 5 subscribers required for each solar garden, since the Metropolitan Council was made up of two separate retail customers of Xcel Energy – Environmental Services and Metro Transit. However, in order to both reach scale and provide assistance to other communities, the group decided to open the project up to any government participant that was willing to sign a letter of intent to participate, with the original 5 entities comprising the project Steering Committee. From this point, the project team followed the structure and process outlined below.

Project Roles

Steering Committee

This project was made possible primarily by the abilities and staff capacities of the organizations that made up the Steering Committee, which was responsible for the many decisions that needed to be made throughout the project process. This included deciding to open the project up to any local government participant, determining what specifically to ask for in the RFP, setting project timelines, responding to key questions and barriers, and creating and approving project communications. The Steering Committee met bi-weekly from February 2015 through March 2016.



Steering Committee Roles	
Organization	**Roles**
Metropolitan Council	Published joint RFP, chose developer selection team, contract negotiation
Metro CERT Program at Great Plains Institute	Coordination, outreach to city governments, conducted lottery process
Hennepin County, Ramsey County, City of Minneapolis	Steering committee, part of developer selection team

Procurement and Technical Lead – Metropolitan Council

The Metropolitan Council is the regional policy-making body, planning agency, and provider of essential services for the Twin Cities metropolitan region. It is responsible for services such as transit and wastewater, as well as for coordinating comprehensive planning among the cities in its 7-County footprint. This project aligned well with the Council's mission, which is "to foster efficient and economic growth for a prosperous region." In particular, this effort furthered the goals of Thrive MSP 2040, the Council's long term vision and plan for the Twin Cities region. Thrive MSP 2040 calls for the Council to reduce impacts relating to climate by leading through example and by supporting local governments to address these impacts.

The Council acted as the procurement, financial, and technical lead for this project, which included writing (with input from the project Steering Committee) and publishing the RFP, as well as conducting negotiations with the selected solar developers. Notably, the Council has recently issued its own RFP for both behind-the-meter and solar garden subscriptions for its wastewater plants when this project formed. The Council also provided technical assistance to participants and, along with Metro CERT, recruited participants for the project.

Lead Convener – Metro CERT Program at the Great Plains Institute

Minnesota's Clean Energy Resource Teams (CERTs) are a statewide partnership of four organizations with a shared mission to connect individuals and their communities to the resources they need to identify and implement community-based clean energy projects. The four CERTs partners are the University of Minnesota, the Minnesota Department of Commerce (which houses the state's energy office), the Southwest Regional Development Commission, and the Great Plains Institute (GPI). CERTs is

defined in Minnesota statute as "a catalyst for community energy planning and projects." Leading up to the formation of this project, CERTs began emerging as a go-to source for neutral, consumer-oriented information on solar gardens throughout the state. CERTs also has a history and reputation in Minnesota for convening communities around clean energy project opportunities.

CERTs operates in seven regions throughout Minnesota, with GPI responsible for staffing "Metro CERT" -- the region covering the 11-County metro area around Minneapolis and St. Paul. GPI's mission is "to transform the way we produce, distribute, and consume energy to be both environmentally and economically sustainable" and the organization has experience and expertise in convening productive discussions on energy issues. The combination of resources and expertise from CERTs and GPI made Metro CERT a strong partner for serving as the lead convener on this project, which included initial and ongoing engagement of and communication with participants, coordinating project meetings and webinars, and providing educational resources and technical assistance.

Additionally, staff from GPI developed a computer-automated lottery process to randomly and fairly determine which participants received the best offers from developers. This is described in more detail under "Lottery Process" below.

Joint Powers Purchasing Agreement Administrator – Hennepin County

While the Steering Committee determined that there was no standard for how local governments should jointly procure solar garden subscriptions, they felt it was best to offer participants the opportunity to sign a Joint Powers Purchasing Agreement to give the Metropolitan Council formal authority to conduct the procurement process on their behalf.

Hennepin County legal staff offered to write and administer this agreement, which was modified from an existing Joint Power Purchasing Agreement. Ultimately, only the Steering Committee organizations and two additional participants signed the Agreement.

Participants

The 31 local government entities that participated in this project were mostly located in the Twin Cities metropolitan region (where Xcel Energy has the bulk of its electric customers in Minnesota). Participants in addition to the Steering Committee included cities, counties, a park district, and a regional medical center. The collaborative provided participants the opportunity to take advantage of the following benefits:

- Better subscription pricing enabled by a larger procurement
- Faster entry into the solar garden market
- Reduced staff time needed to run an individual RFP process
- Electric bill savings for public buildings and plants while hedging against the future price volatility of electricity

Even with the opportunity to save on staff time during the RFP and negotiation process, participating local government staff members still needed to solicit approval from elected officials and evaluate the offers they received.

Solar Developers

Just as city governments benefit from collaborative procurement by eliciting more competitive proposals, developers also receive benefits from participating. Specifically, developers had the opportunity to take advantage of the following benefits:

- Reduced marketing and administrative costs – by bringing together a pool of potential subscribers, this project eliminated the need for developers to individually solicit interest from each entity.
- Ease the task of finding high-quality subscribers – local governments are ideal subscribers to solar gardens because of their permanent nature, larger electric loads, and strong credit. This is useful for developers seeking to raise capital to build their solar gardens.

Project Process and Timeline

Action	Date
Kick-off Event: The Steering Committee hosted a kick-off meeting to invite government entities to join the RFP process.	June 1st, 2015
RFP Published (participants TBA): The Metropolitan Council published an RFP seeking developers to propose building solar gardens for a group of government entities, including the Steering Committee entities, with additional participants to be announced via addendum. The Council also hosted an in-person meeting for potential proposers to ask questions about the RFP.	July 10th, 2015
Letters of Intent Due: Interested local governments were required to sign a non-binding letter declaring their intent to subscribe to a solar garden if they received a "favorable" offer, their agreement to the project process (including that they would not be able to negotiate contract terms), and a list of the premises and loads they were interested in subscribing. Technical Assistance was provided by the Metropolitan Council and Metro CERT program at the Great Plains Institute with communicating the opportunity to decision-making bodies (city councils, county boards, etc.).	Due July 24th, 2015
Joint Powers Purchasing Agreements Due: Local governments requiring a Joint Powers Agreement (JPA) to be signed according to their procurement policies signed a community solar garden subscription-specific JPA. The agreement was administered by Hennepin County and allowed all entities that signed to perform services or functions for the others, specifically for solar garden subscription procurement. This gave the Metropolitan Council legal authorization to lead the competitive procurement process on behalf of other signatories.	Due July 24th, 2015
RFP Addendum Issued with Final Participant List: The Metropolitan Council issued an addendum to the RFP listing all entities that had signed letters of intent, including their desired subscription loads, which totaled nearly 180 MW of solar capacity.	July 30th, 2015

Proposals Due: Met Council received proposals from 5 solar developers with RFP.	August 21st, 2015
Selection and Ranking of Proposals: A team of governmental participants from the core steering group and major subscribers, selected by the Metropolitan Council, evaluated the proposals received, qualifying them according to a number of factors. The Council then negotiated for final contract terms with each vendor.	Completed December 2015
Lottery Process: Since offers varied and the demand for solar included in the letters of intent was greater than the sum of proposals, participants were entered into a lottery for available gardens. The lottery randomly assigned participants to subscription offers, taking into consideration the requirements that subscribers must be in the same or adjacent county to the garden and that each garden must have a minimum of 5 subscribers with no individual subscriber accounting for more than 40% of a garden's capacity.	January – March, 2016
Execution of Subscription Agreements: Lottery results were delivered to participants and vendors, with participants being given a deadline by which they needed to reach out to vendors to secure their allotted subscription opportunity. Each local government entity then evaluated and executed its own Subscription Agreement with the developers it was purchasing a subscription from. Metro CERT staff provided assistance with evaluating offers and explaining the opportunity to decision-makers.	January – June, 2016

Ongoing Steps:

- **Xcel Energy Garden Approval Process**: This process is expected to take 18-21 weeks after the initial application has been submitted by the vendor, but in some cases may be longer due to the novelty of this program and the large number of gardens seeking approval. Approval is not guaranteed and some of these gardens may not get built (more information on how this is handled can be found under the "Contract Terms" section of this report).
- **Garden Construction**: Construction of each garden can take months or longer depending on the local permitting, construction scheduling, equipment availability, and conditions at the host site.
- **Energy Produced; Bill Credits Assigned**: Once a garden begins producing solar energy, subscribers will begin paying subscription fees to the solar developer and receiving bill credits from Xcel Energy.

Comments on the Project Process

Request for Proposals:

- The RFP requested that developers include in their proposals a list of the counties they could provide subscriptions to, how much capacity they had available for each county, and some information about technical matters and the development status of the gardens. This information was helpful both for evaluation of offers and for setting up the lottery process.
- While the RFP was open for submission of proposals, the Public Utilities Commission made a ruling which limited the co-location of gardens by the same developer. In other words, larger solar installments could not be formed by placing many 1 Megawatt gardens next to each other. As a result, many vendors had to eliminate planned garden offerings, limiting the supply of gardens available for this project and possibly creating an upward price pressure in proposals. Due to this circumstance, the Council extended the deadline to submit proposals.

Negotiations:

- Metropolitan Council procurement staff led negotiations on subscription agreements with each of the five vendors. The objective was to develop contract terms that the Council felt were acceptable by government standards, but that each participant would ultimately need to evaluate individually, considering their own goals and perceptions of risk. Each government, if deciding to move forward, was expected to agree to a contract directly with the vendor(s) they were assigned or to reject the offer(s) within a 30-day window. Participants were not allowed to negotiate contract terms; rather, they only had the opportunity to evaluate and accept or reject the offers provided. They were required to explicitly agree to this process in their Letter of Intent.
- The Metropolitan Council had initially drafted a standard subscription contract to which, they intended, vendors would propose modifications, creating a common starting point for all proposals and, importantly, allowing an apples-to-apples comparison. Unfortunately, all the developers rejected most or all of the Council's sample contract, and then the Council rejected the vendors' standard contracts, so negotiations on the five separate subscription agreements took longer than expected. The negotiations were "protected confidential" under the Minnesota Data Practices Act, so no information was available to participants until the Council completed its process.
- The project team held informational meetings and webinars to prepare the participants for the eventual offers as best as could be done without the ability to reveal any of the information in the proposals being negotiated.

Lottery Process:

- The "lottery" was an automated computer program that randomly assigned participants to subscription opportunities with specific solar developers. This program created matches while adhering to the requirements that each garden must have at least 5 separate subscribers, all of which needed to be in the same or an adjacent county to the garden, and none of which could be subscribed to more than 40% of an individual garden. The lottery used a list of the participants that included their desired subscriptions loads by county and a list of available gardens that included garden location and capacity. Participants' desired subscription loads were divided into tickets sized at 200 kilowatts (roughly one fifth of a 1 Megawatt garden), which were then randomly drawn by the computer program and assigned to an eligible garden.
- Local governments drawn in the lottery had the first right of refusal to subscribe to the garden(s) for which they were drawn. If they rejected an offer or did not respond to an offer by the deadline provided, that offer was made available to other subscribers in a second lottery round.
- The Metropolitan Council, having an interest in the outcome of the lottery, funded Metro CERT staff to impartially run the lottery process.

Executing Subscription Agreement(s):

- In order to secure its subscription(s), each local government entity had to execute its own Subscription Agreement(s) with the developer it was assigned and from which it chose to purchase a subscription(s). While the project team set a deadline for executing agreements, some participants continued to evaluate offers for several months, with the understanding that the offer would not be guaranteed by the developer.
- While participants were solely responsible for evaluating subscription opportunities and deciding whether or not to execute an agreement, the project team provided information and resources to assist participants, including two webinars, a series of guidance documents, a financial analysis tool, and individual assistance available by phone and in-person.

Results

As a result of this project, 31 local government entities were engaged in seeking proposals for 180 MW of solar garden subscriptions to offset energy usage in public facilities. As of July 2016, 24 of those participants said that they were moving to sign subscription agreements for a cumulative 33 MW of solar capacity. 5 participants had decided not to sign any subscription agreements offered, and an additional 2 participants were still considering the opportunity. The table below shows results at each key stage of the project process.

Results by Project Stage

Project Stage	Results
Kick-off Event	Staff and elected officials from 44 government entities attended.
Letters of Intent Due	31 entities submitted letters of intent, seeking a cumulative total of 180MW of solar capacity if they received favorable offers.
Joint Powers Agreements Due (Optional)	4 entities signed Joint Powers Purchasing Agreement for procurement.
Proposals Due	5 vendors submitted proposals and were advanced by the selection process, totaling nearly 70 MW of proposed solar capacity open for subscription.
Lottery Process	All participants were offered at least one subscription opportunity. Opportunities to subscribe were limited in some counties due to the program rule that a subscribing premise must be in the same or an adjacent county to the garden.
Execution of Subscription Agreements	As of July 2016, 24 entities were moving to sign subscription agreements for a total capacity of 33 MW, 2 entities were still deciding on an additional 2 MW, and 5 decided not to move forward with any subscription.

Analysis of Results

Pricing Structures

As noted in the Introduction, this project was enabled by Xcel Energy's community solar program in Minnesota, a third-party community solar model in which private solar developers and their partners finance, build, and operate community solar systems to which individual customers may subscribe (for more information on the differences between various community solar models, see NREL's report on the topic here).

Under this model, solar developers may design their own subscription pricing structures, which tend to fall into two broad categories:

- **Pay Upfront**: In a pay upfront model, the subscriber pays the developer upfront for 25 years' worth of solar production. Pay upfront offers tend to be the most profitable because the subscriber is taking on some of the project's financial risk. However, it may take several years before the upfront payment is repaid through electric bill credits.
- **Pay-as-you-go**: In a pay-as-you-go model, subscribers agree to make a monthly payment to the developer for 25 years. Ideally, pay-as-you-go offers come with non-onerous exit clauses and a mechanism to base monthly payment on actual electricity produced. While pay-as-you-go offers are less profitable than pay upfront, they can be structured to allow monthly savings starting in the first month of production.

In order to reduce financial risk and the need for upfront capital, the joint RFP asked specifically for pay-as-you-go pricing. The five developers selected through the RFP process used one of the three following pay-as-you-go pricing structures. Note that regardless of the subscription pricing structure, the monthly bill credit that subscribers receive, in proportion to the energy produced by their share of a garden, is set annually by the Minnesota Public Utilities Commission. At the time of this project, the bill credit rate was roughly equivalent to, and would be escalated with, the Applicable Retail Rate (the rate for new solar gardens has since shifted to a Value of Solar methodology).

1. **Fixed**: In this model, the subscriber pays the developer a fixed amount each month, per each kWh the garden produces, for the duration of the contract. For example, if a subscriber has a 200 kW subscription that produces an average of 20,000 kWh per month (240,000 kWh/year), and the fixed rate is $0.1179/kWh, the subscriber would pay the developer $2,358 per month (20,000 kWh/month * $0.1179).
2. **Escalated**: In this model, the subscriber's rate per kWh increases by a fixed percentage each year. For example, if the same subscriber from above executed the same contract, but with an annual escalator of 1%, she would pay $2,358 per month for the first year, then $2,382 per month the next year and so on.
3. **Discounted**: In this model, the subscriber's payment rate to the developer is based off the current bill credit rate. For example, let's say the developer offers a discount off of the bill credit rate of $0.01. if the Public Utilities Commission sets a bill credit rate of $0.11740 per kWh, the subscriber described above will pay the developer $0.10740 per kWh produced, or $2,148 per month. Under this model, the subscriber will always make 1 cent per kWh that the garden produces.

RECs

Renewable Energy Credits or Certificates, also known as RECs, represent all of the environmental attributes of 1 Megawatt-hour of renewable electricity (for more info on RECs, please see this factsheet from the Center for Resource Solutions).

When this project took place, solar developers in Xcel Energy's community solar program in Minnesota could technically develop gardens under three different bill credit methodologies:

1. A standard bill credit rate for any size garden *that keeps and retires* its RECs on behalf of subscribers.
2. A second, "enhanced," bill credit rate that offers an additional $.02/kWh on top of the standard rate for gardens that *sell the RECs to Xcel Energy and are greater than 250kW capacity.*
3. A third, "enhanced," bill credit rate that offers an additional $.03/kWh on top of the standard rate for gardens that *sell the RECs to Xcel Energy and are less than or equal to 250kW capacity*.

In the joint RFP, the Steering Committee asked specifically for garden proposals in the second and third categories in order to gain the financial benefit of selling the RECs to Xcel Energy. All of the proposals received were for gardens in the second category, likely due to economies of scale achieved in developing larger gardens.

Risk in Pricing Structures

It's important to note that, of the 3 pricing structures described above, all of them eliminate some risk through the pay-as-you-go structure, because in general monthly payments are tied to monthly production (see more about warranties under "Contract Terms" below). This limits the risk in a complete upfront payment structure that the garden might under-produce, causing a loss to the subscriber who has already paid for an expected level of production.

Additionally, the Fixed and Escalated pricing structures require a subscriber to estimate their long-term savings based on a bill credit rate that is updated annually by the MN PUC in accordance with changes in retail electricity rates. This requires a subscriber to assume some risk that electricity prices may not increase over the next 25 years at the same rate they have in the past. In the Discounted structure, the developer has assumed this risk by guaranteeing a level of savings despite fluctuations in the bill credit rate.

Predictability

Another important distinction between the Discount structure and the Fixed/Escalated structures is predictability. In the Discount structure, savings over the 25-year period are predictable – no matter how the bill credit rate changes, the savings will always be $.01 per kWh produced. The monthly payment, however, may change over time. In the Fixed and Escalated structures, the monthly payment to the developer is known for each month over the 25-year period, but the monthly savings will depend on how the bill credit rate changes over time.

Offers Proposed by Developers

All participants received at least one opportunity to subscribe to a solar garden under one of the following pricing proposals. In a few cases, a participant may have only received a single opportunity for a 200kW subscription with one developer. In many cases however, participants received multiple opportunities to subscribe with multiple developers. Notably, participants *only* saw proposals for the subscription opportunities that they were offered. This was an agreement reached during the negotiation process to help developers keep their pricing models secret to competitors. In keeping this agreement, developers' names have been replaced with letters below.

Offers Proposed by Developers

Payment Structure	Developer	Starting Rate	Escalator	Discount Amount	Rate Floor
Fixed	A	$0.1179	0.00%	N/A	N/A
	B	$0.1395	0.00%	N/A	N/A
Escalated	C	$0.1220	1.00%	N/A	N/A
	D	$0.1089	2.50%	N/A	N/A
Discounted	E	$0.1074*	N/A	$0.010	N/A

* The starting rate is automatically calculated based on the Discount Amount ($0.1074 is 1 cent less than the 2016 Bill Credit Rate of $0.1174)

The tables and charts below show how each of these offers might play out over time, under the following assumptions:

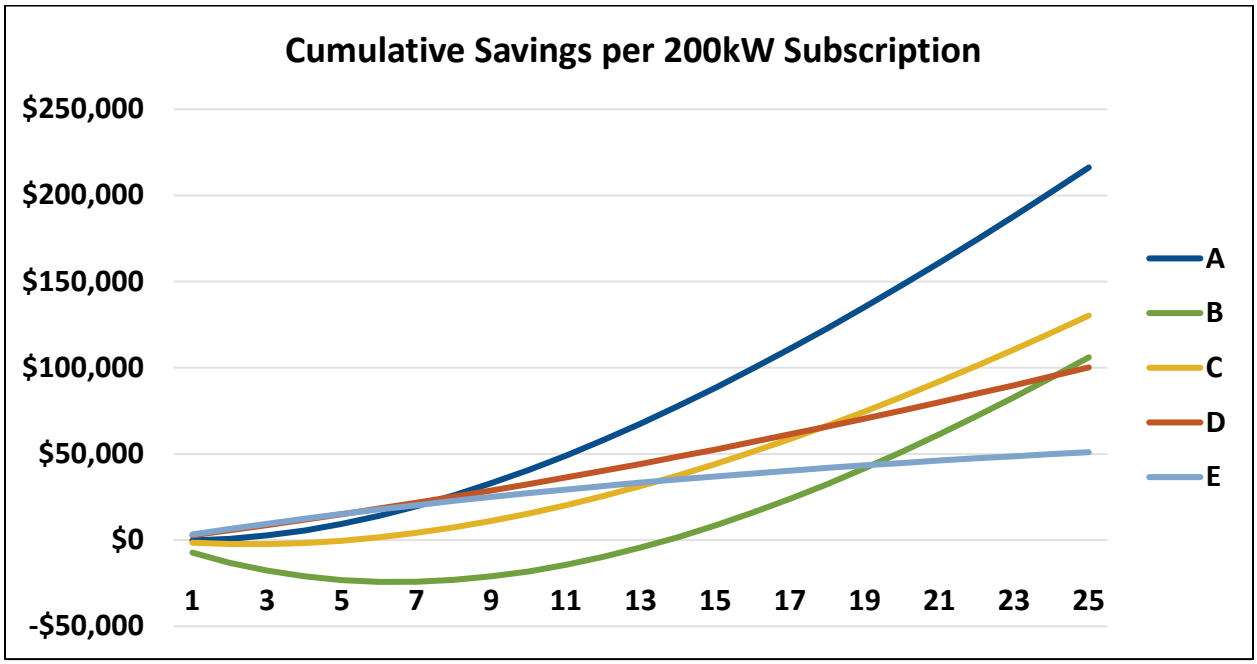
- Subscription size of 200kW AC (equivalent to 1 ticket in the lottery; tickets were sized at AC capacity because in Xcel's program, the 1MW size limit per garden is in AC capacity)
- Subscriber's load is classified under the 2016 "General Service" bill credit rate of $.11740/kWh for gardens greater than 250kW AC that will sell their RECs to Xcel Energy.
- Annual bill credit rate increase of 3.5%. This was the average Xcel Energy rate increase in Minnesota from 2000-2014 across all customer classes, though many participants used a lower predicted rate increase of 2.5%.
- Expected average annual solar production of 1,220 kWh per kW AC capacity
- Solar production degradation factor of 0.5% annually
- Annual present value discount rate of 4.0% applied to savings estimates

Average Annual Monthly Savings

Developer	Year 1	Year 5	Year 10	Year 15	Year 20	Year 25
A	($13.74)	$319.35	$643.18	$884.18	$1,059.69	$1,183.53
B	($607.38)	($178.02)	$244.49	$564.60	$803.52	$978.19
C	($126.42)	$110.87	$356.54	$553.72	$709.95	$831.71
D	$233.61	$266.27	$309.07	$351.95	$393.25	$431.84
E	274.83	$230.27	$184.58	$147.95	$118.60	$95.07

Cumulative Savings After a Specific Year During Contract Term

Developer	Year 1	Year 5	Year 10	Year 15	Year 20	Year 25
A	($164.90)	$9,442.33	$40,706.49	$88,326.00	$147,973.53	$216,232.28
B	($7,288.58)	($23,224.22)	($18,145.02)	$8,485.05	$51,307.80	$106,080.09
C	($1,517.08)	($319.94)	$15,429.11	$44,133.48	$83,161.01	$130,292.95
D	$2,803.30	$14,987.89	$32,499.75	$52,591.94	$75,206.56	$100,206.06
E	$3,298.00	$15,123.40	$27,246.07	$36,963.40	$44,752.65	$50,996.38



To put these results in perspective, participants moving forward with a subscription agreement subscribed to an average of 1.387 MW of solar capacity, equivalent to 6.9 times the 200kW subscription size used in the calculations above. In other words, the average local government that subscribed through this project could see savings between $352,000 and $1,492,000 over 25 years, depending on the size of subscription with each developer (and assuming that each of the gardens they subscribed to will be approved and built, which is not guaranteed).

Also of note, the size of subscription opportunity from each developer varied significantly. Developer B's offering was only available to one participant due to program rules on geographic proximity between gardens and subscriber. As noted in the reflection section below, subscription opportunities in Ramsey County were extremely limited due to the same constraint. Most participants chose to move forward with subscription offers from developers A and E.

Contract Terms

As described above, the Metropolitan Council handled all contract negotiations with developers, seeking to facilitate contract terms that would be acceptable given local government standards. The five contracts were similar in many ways, including their term length, their treatment of taxes, and aspects of their definitions of defaults and events of Force Majeure. However, they did vary somewhat. Below is an overview of the general topics covered in the contracts, followed by a discussion of allowable reasons for early termination. The information below is paraphrased and intended for general learning. It is not meant to serve as a comprehensive summary of the contracts, nor as legal language or advice.

Topics generally addressed in the contracts:

- **Term –** each contract will last 25 years
- **Operation of the Facility –** specifies that the developer will maintain the solar garden
- **Allocation –** specifies the kilowatt hours or percentage of the garden that a city government subscribed to
- **Price & Payment –** the pricing model (as described above), as well as how payments will be made
- **Records & Audits –** usually states that the developer will provide monthly reports of how much energy the garden is producing, along with evidence that the meter they are using is accurate
- **Taxes –** specifies that the developer, not the subscriber, is getting the investment tax credit from the solar garden
- **Representation, Warranties, and Covenants –** the general purpose of this section is to make sure everyone signing the contract is who they say they are and that they have no ongoing litigation that would affect this contract
- **Performance Guarantee –** some contracts guaranteed a certain output from the solar garden, e.g. 85% of the estimated production
- **Default and Force Majeure –** defined what circumstances would count as either the subscriber or developer breaking the contract and what would happen under those circumstances
- **Limitation of Liability –** some contracts limit the amount of reparation that a developer would have to pay in the event of damages incurred by the subscriber
- **Early Termination –** contracts vary on what circumstances would permit ending the contract before its 25 year term is up
- **Assignment –** describes how the contract can and cannot be transferred from one party to another
- **Miscellaneous –** this section can cover a variety of topics, for example, it could state that each party is responsible for individually settling their own disputes with the power company

Conditions for early termination:

Often, the contracts distinguished between reasons that the subscriber could end the contract, reasons the owner could end the contract, and reasons that they both could end the contract.

Reasons either the subscriber or the owner can end the contract:

- **Something goes wrong before a set deadline (e.g. funding falls through, the power company does not approve the solar garden proposal, or the garden does not get built):** In most cases, the developers specify a relatively short term deadline for sorting out logistics of the solar garden, including financing and interconnection with the power company. If something goes wrong before this deadline, the owner of the solar garden (the developer) or the subscriber can

end the contract without consequences. For example, one contract stated that either the subscriber or the developer can terminate the contract if the owner is unable to obtain financing for the solar garden on or before December 31, 2017. Other contracts gave a construction deadline, stating, for example, that the developer had two years to bring the garden online, and if they did not make the deadline, the subscriber could end the contract.

- **Both parties agree to end the contract in writing.** Two of the contracts allow for either the subscriber or the owner to end the contract for any reason, as long as the other party agrees.

Reasons the subscriber can end the contract:

- **A natural disaster or other major damage**: The definition of an "event of Force Majeure" is laid out in the contract, and includes things like natural disasters. If the owner does not restore the garden in a timely manner after such an event (usually 12 months), the subscriber can end the contract. The owner often has to pay the subscriber if this happens. For example, one contract states that the owner will pay the subscriber one cent for each bill credit that they would have gotten for six months.
- **The owner does not fulfill performance obligations:** Not every contract has a performance guarantee. One contract specifically stated a level of performance that the garden must meet. Others simply stated that a subscriber may submit a complaint and the owner has a certain number of days (ranging from 30 to 180 depending on the complaint) to fix the problem before the subscriber can end the contract. In some contracts, if the agreement is terminated because of a problem on the owner's end, the owner will owe the subscriber some payment. For example, one contract states that the owner will pay the subscriber one cent for each bill credit expected to have been allocated to the subscriber for the calendar year following termination.
- **The bill credit rate changes significantly:** Since subscribers are likely making their decisions to subscribe based off of their anticipated electricity bill savings, many of the contracts allow for termination if expected savings change dramatically due to a change in the bill credit rate. For example: "Before the garden's CSG application is deemed complete by NSP [the power company], if the legislature, MPUC, NSP, or any other entity significantly reduces the credit base rate, or basis of escalation of that rate from that anticipated at the time of acceptance of the proposal by the subscriber." One contract also listed this as a reason that the owner could end the contract.
- **If the subscriber backs out for some other reason,** they are often required to pay a termination fee and/or the remaining monthly payments that they would have paid the developer over the course of the contract.

Reasons the owner (developer) can end the contract:

- **The subscriber fails to meet the applicable "Eligibility Requirements"** at any time during the 25 year term. The requirements set forth in Minnesota statute include limiting the subscription size to 120% of the average annual electric load at an individual premise and the premise being located in the same county as, or an adjacent county to, the garden.
- **The subscriber transfers its allocation to an ineligible person or entity:** In the event that a local government wants to transfer its solar subscription to another entity, that entity that takes over the subscription has to meet all the requirements that the original subscriber met (e.g. strong credit, agrees in writing to the contract).
- **The owner cannot confirm the subscriber's creditworthiness:** This is an unlikely problem for local governments.

- **The solar garden project becomes unviable due to permits, costs, etc.:** As mentioned above, some contracts give a relatively short term due date for the owner to sort out logistics. However, some contracts allow for unexpected changes later on. For example: "There has been a material adverse change, not reasonably knowable by the Operator prior to execution of the Agreement, in the (i) rights of Operator to construct the System on the Premises, or (ii) financial prospects or viability of the Solar System, whether due to market conditions, cost of equipment or any other reason."
- **The subscriber is no longer a customer of the power company:** This is unlikely to happen, since it would require the power company or the city to change its location. This is included because normally solar garden owners have to account for the possibility of a subscriber relocating.
- **The subscriber fails to make a payment or breaches contract in some other way.** The contracts define "breach" or "default" in different ways; however, they agree that a subscriber is in violation of the contract if they miss monthly payments, which would allow the owner to end the contract.

These contract terms were negotiated by the Metropolitan Council and the individual developers, and therefore should not be assumed to be representative of all contracts available outside of this project. They can, however, provide a basis for what kind of contract language is possible for local governments seeking to subscribe to solar gardens in Xcel Energy's Minnesota program.

Reflections & Lessons Learned

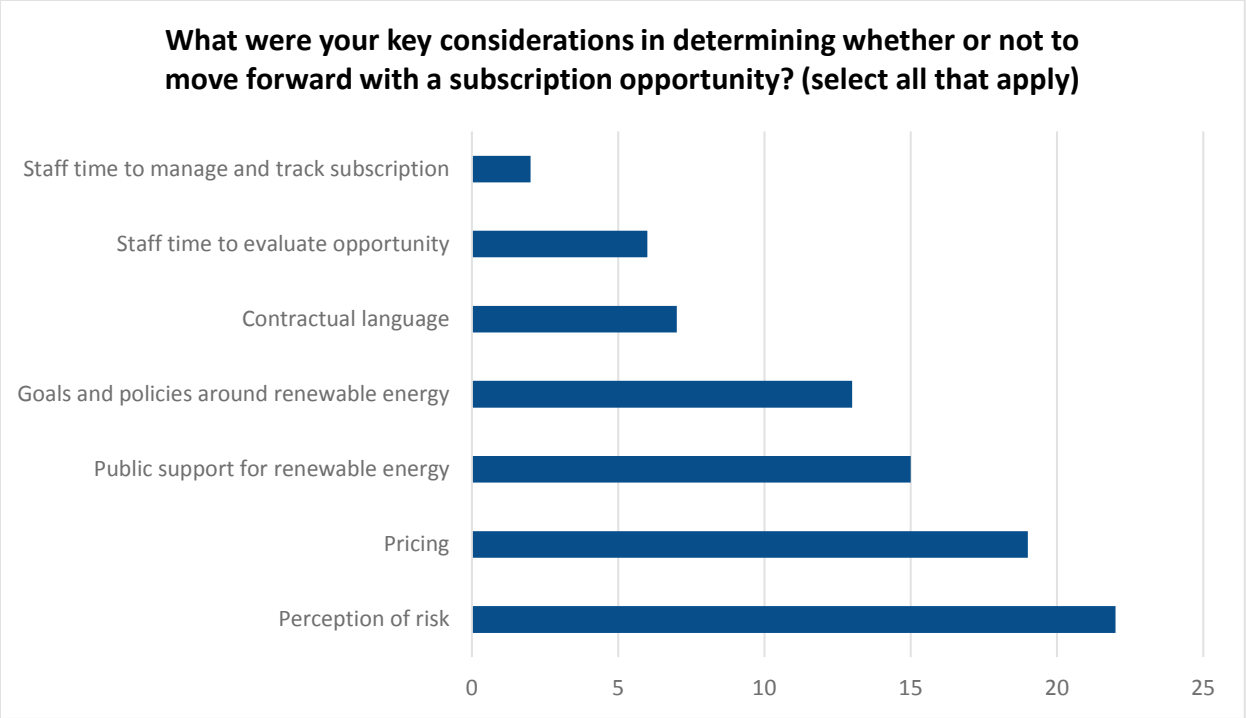
Participant Survey

In July of 2016, the Metro CERT program at the Great Plains Institute administered a survey to project participants to characterize their experience and perceptions during and as a result of the process. 31 individuals from 28 participating entities responded to the survey (because each participating entity generally had a small team of people participating, responses from multiple individuals at the same entity were allowed and included on certain questions).

Participants were asked about their key considerations in deciding whether or not to move forward with a subscription agreement, how advantageous they felt the collaborative process was compared to taking individual action, as well as their comments and suggestions for improving the process. These responses are summarized in the paragraphs and figures below. Notably, of the 28 responding entities, 14 said that they were pursuing solar garden subscription opportunities before the collaborative process began.

Considerations in Moving Forward

Participants were asked to indicate which considerations contributed to their decision to accept or deny the subscription agreements they were offered. The top three considerations were perception of risk, pricing, and public support for renewable energy. Staff time needed to manage and track the subscription over time was the least cited consideration. Respondents that ultimately chose to decline subscription offers cited low financial benefit, small offer size, and uncertainty of future electricity prices as key reasons for declining.



Advantages and Disadvantages of the Process

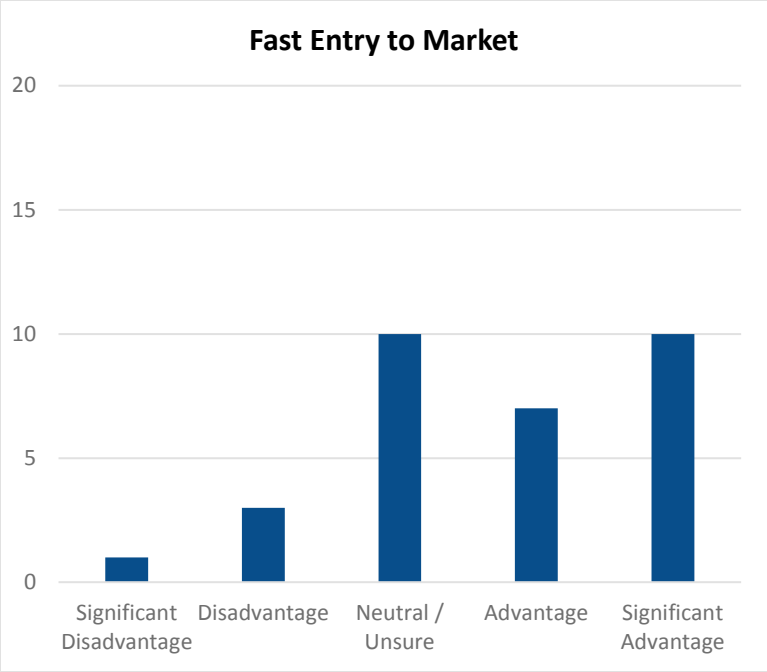
Participants were asked how advantageous they felt the process was to their entity on four specific issues: better pricing, faster entry into the market, reduced staff time, and the opportunity for peer learning. Of these benefits, participants clearly felt that reduced staff and the opportunity for peer learning were the top benefits of participation.

Better Pricing

While lower pricing would have been difficult to judge in such a new market, it's not clear that the collaborative process resulted in lower prices due to the scale of interested subscribers. The constraint on co-located gardens enacted by the PUC during the RFP process, as described above, may have limited developers' willingness to offer discounted pricing.

Faster Entry to Market

This project took place primarily in 2015. At that time, there were two key drivers that led to an early actor advantage in the market: 1) the interconnection process for solar gardens required that projects be evaluated individually and incrementally for interconnection, so that whichever project put the local gird infrastructure beyond its capacity would be required to individually fund the needed system upgrade (degrading the project's economic feasibility); 2) developers were racing to acquire cheap land, so it was expected that at some point, projects would become more expensive and more limited due to land availability constraints.

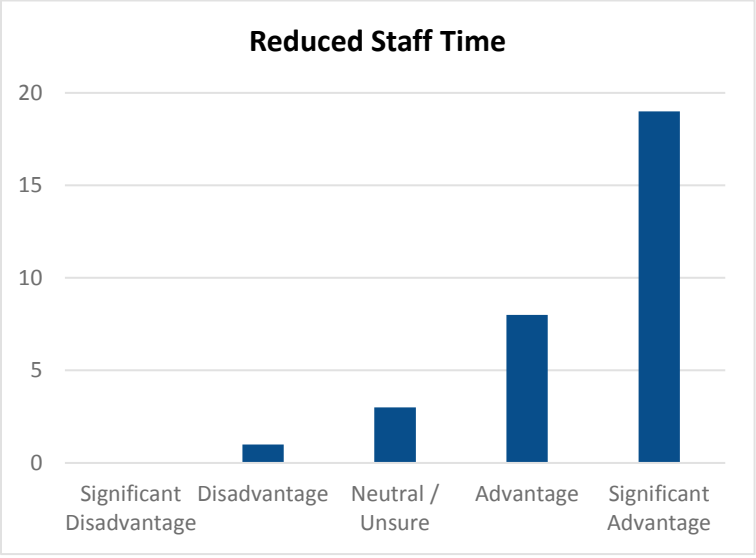


Additionally, the federal Investment Tax Credit was set to expire at the end of 2016. While it was not certain that any of the proposed projects would be approved and commence construction in time to qualify for the tax credit, the pending expiration added additional pressure to move quickly.

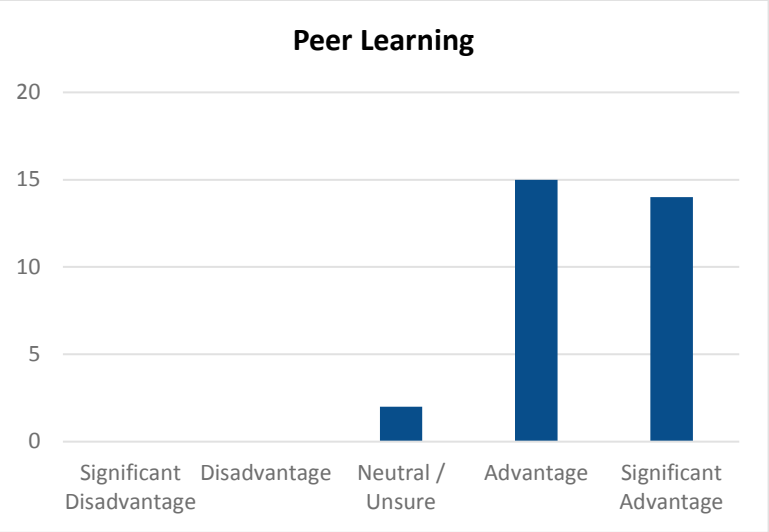
While these pressures did lead the project to move faster than it otherwise would have (and likely that sense of urgency led to higher subscription rates), it took longer than any of the Steering Committee members expected. This was partly due to the learning curve of doing a joint procurement of this nature for the first time, and partly due to unexpected delays in the process, such as the constraint on co-located gardens.

Reduced Staff Time

Certainly the top benefit of this project, especially to the smaller local government entities that participated, was reduced staff time. By taking on the extraordinary burden of conducting the RFP, selection, and negotiation process, the Metropolitan Council provided a level of expertise and assistance that otherwise may not have been available to participants. While some participants might have subscribed on their own, it's questionable they would have had the staff capacity to run as thorough a process.



Peer Learning



When this project launched, it wasn't primarily aimed at facilitating peer learning (and in fact, that wasn't even listed as a benefit to potential participants). However, as the project developed, it became clear that participants were leaning on each other to learn and make decisions, sometimes with the help of Metro CERT staff, and other times on their own (for example, by calling to compare other participants' evaluation of offers). We therefore included this as a potential advantage in the survey, and found that it ranked second-highest after reduced staff time. Since we didn't formally try to facilitate peer learning beyond a few workshops and meetings, it's possible that a more intentional facilitation would have led to a higher subscription rate among participants.

Additional benefits of participation

In an open-comment section of the survey, participants were asked about additional benefits they saw from participation. The top cited benefit was technical support and education, including presentations, 1-on-1 meetings, and tools provided to help participants evaluate the opportunities they were offered. Several respondents added that this learning went beyond this project, leading to broader internal conversations and capacity building on solar energy. One participant remarked, "It really gives the opportunity for [our entity] to get their feet wet in solar energy."

As noted above, participants found significant value in the "collective approach." One respondent stated, "It created a 'bigger than just us' environment and that helped others in our organization feel more comfortable with the topic and the process. There was a great deal of learning and capacity building across functional areas of our organization."

Other benefits cited included reduced legal consulting costs and confidence, as a result of pre-vetted contracts, that the local government was not being taken advantage of by the developer.

Feedback on the process

Participants were also asked what went well and didn't go well throughout the process. The top cited complaint by a large margin was that there were several delays throughout the process, many of which were unpredictable but nonetheless extended the timeline beyond what was initially promised. This complaint was tempered, however, with the top cited compliment of the process, which was strong communication about delays and responsiveness of the project team to questions and concerns.

In addition, several respondents felt that the process was well-organized and that staff did a good job of providing support to assist participants. A few respondents disagreed, saying that they felt overwhelmed by the decision process. Two respondents noted that they were disappointed in receiving limited lottery results (as noted above, some participants received a very small subscription opportunity due to program constraints around geographic location of gardens and subscribers). For two other participants,

the turn-around time to make decisions felt too rushed. This feedback has been incorporated into the reflections and tips for replication below.

28 of 31 respondents said they would recommend the process to others. Of the three respondents that would not recommend it, two said that it's too early to weigh the benefits as the gardens are yet to be built. The third said that they thought they could have done it on a quicker timeline individually.

Reflections from the Project Steering Committee

Procurement

By taking on the contract negotiation process, the Metropolitan Council also took on the task of addressing contract complications—of which there were several. Many of the complications arose from the particular requirements of contracts with governmental bodies. For example, the Council found that developers did not understand that the state's Data Practices Act meant that the company's offers could not be kept secret. The developers were not used to working with governments and had not come across the Act in previous negotiations.

In general, the negotiation process required a great number of considerations, ranging from what happens if panels do not produce to whether or not the contracts could be transferred to other entities. The Council's efforts considerably reduced the amount of time that cities had to devote to the project, since each participant did not have to put its own staff time toward the negotiation process.

Joint Powers Agreements

As noted above, this project offered participants the option to sign a Joint Powers Purchasing Agreement that gave the Metropolitan Council legal authorization to lead the competitive procurement process on behalf of all signatories. In review, it would have been better to require participants to sign a complete Joint Powers Agreement. Without a signed Joint Powers Agreement (JPA) from all participants, the Metropolitan Council needed to keep the entire vendor selection and negotiation process secret to all participants until completed. If the project had required a JPA, information during the selection and negotiation process could have been open to participants.

Contracting Process

In order to legally finish its procurement process, the Metropolitan Council needed to negotiate and agree upon a final contract with each selected developer. As noted above, this meant that participants could not negotiate contract terms, leaving them with a single decision between accepting or denying the contract. This structure was required according to the Council's procurement policies, and it also simplified the process for everyone involved. If participants had been allowed to negotiate contract terms individually, it would have created additional work both for the developers, who would have needed to conduct up to 30 separate negotiations rather than one, and for project staff assisting with the evaluation of offers, who would have had to help communities decide on any number of contracts terms.

For projects seeking to replicate this model, early consideration of the contracting process, and building an understanding of the legal implications of that process, is important. If possible, it may be helpful to for the project's Procurement Lead to develop a collaborative procurement policy in advance of launching the process.

Convening

One of the project pieces that turned out to be extremely beneficial was the creation of a project webpage with an additional private page that participants could log into to view files and information. This was especially helpful for delivering the lottery results, as they could be posted to the webpage, eliminating the need to send files by email. A few participants had trouble accessing the webpage, but their issues were solved relatively easily. Overall, the webpage provided a smooth process for communication.

The rules of Xcel's community solar program in Minnesota, including the minimum of 5 subscribers per garden and the requirement that a subscribed premise be in the same county or an adjacent county to the garden, proved quite challenging for designing a lottery process to match participant loads with developers' offerings. In designing the lottery, project staff initially looked at creating a physical lottery with paper tickets, but with hundreds of tickets and hundreds of garden slots, each of which needed to be checked for compliance with program rules, as well the risk of human error, the team needed the assistance of a computer program. Luckily, GPI had a staff member who was able to quickly code such a program for this project.

In review, there may have been a way to simplify the lottery upfront by providing a list of all premises and asking developers to competitively propose to specific sites on the list. Regardless of the method taken, constraints on the number of subscribers and the location of subscribers in relation to the garden are not unique to this program design. Individuals looking to coordinate collaborative procurement processes for solar garden subscriptions should be prepared to tackle these sorts of logistical challenges.

Tips for Replication

While this project was dependent on a program design specific to Xcel Energy electric customers in Minnesota, the emergence of community solar programs across the country may open the door to replications of this model. The tips below are intended to provide guidance for groups that would like to build on our experience. Additionally, we suggest reading Purchasing Power: Best Practices Guide to Collaborative Solar Procurement, published by the World Resources Institute and Joint Venture: Silicon Valley Network as a primer for coordinating projects of this nature.

1. **Assemble a Steering Committee:** Having a small and committed group of individuals to drive this project and respond to challenges is crucial to such a large undertaking. This project's Steering Committee, which consisted of 5 individuals (and occasionally their colleagues), met every other Monday morning for over one year. Ideally, this group should be comprised of both the organizations providing staffing to the project, as well as representation from participants.
2. **Consider the Need for a Joint Powers Agreement:** While this project did not *require* participants to sign the Joint Powers Purchasing Agreement that gave the Metropolitan Council the legal authority to conduct the procurement process on behalf of other participants, doing so may have a provided a stronger legal foundation for the process. Projects replicating this model should consider the need for such agreements upfront.
3. **Plan for Delays in the Timeline:** This is a best practice for project management in any situation, but it's worth repeating here. A project at this scale, with so many players, provides an opportunity for countless barriers to arise unexpectedly. While having a Steering Committee is necessary to think through overcoming challenges, having some spare time also helps. In the post-survey of participants, delays in the original timeline was the top cited complaint.

4. **Communicate Early and Often:** As noted above, there were several delays in this project's timeline. Project staff worked to communicate these delays in a timely manner, which participants clearly appreciated according to their survey responses. However, there's no doubt that communications could have been improved. One strategy that worked well was to number the emails sent to participants (e.g., "Solar Garden Collaborative Update #2"). This was helpful for tracking communications throughout the process, both for the project team and participants.
5. **Create a Project Webpage:** Having a webpage specific to this project, with both a public-facing page and a private page that participants had to log into to view, made project communications, especially file sharing, much easier. This also allowed staff to update resources for download without having to send a new file every time (for example, project staff created a calculator to evaluate long-term savings that needed several small updates).
6. **Facilitate Peer Learning:** An unexpected benefit of this project was the opportunity for peer learning. With more planning, project staff might have been able to facilitate additional peer learning opportunities by providing a participant contact list or by matching participants that were offered subscriptions with the same developer.
7. **Require Developers to Hold Offers:** If possible, require developers to hold their offers available long enough for participants to evaluate them within a reasonable timeframe. Ultimately, most of the developers that proposed in our project would not agree to this due to strong competition at the time, but it would have helped reduce pressure to move as quickly.

Conclusion

Collaborative procurement of solar garden subscriptions for local governments is a viable pathway for scaling up the deployment of solar PV in utility territories where the opportunity exists. As more community solar programs emerge across the U.S., governments, nonprofits, and utilities would do well to consider whether the work of a single entity can be amplified to serve multiple entities for slightly more effort but significantly greater impact.

This project proves that while collaborative procurement of community solar subscriptions can be logistically challenging, it opens the door to a number of benefits unique to this sort of model, including large-scale and low-cost deployment of solar to offset energy usage in public facilities, as well as creating an opportunity for peer learning among local governments. Even for the participants that didn't eventually sign a subscription agreement, the process provided the chance to learn about solar and connect with other local governments facing similar challenges and opportunities on clean energy.

Contact Information

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Learn More

Learn more at the website for this initiative: http://mncerts.org/solargardens/collaborative
Explore broader resources about solar gardens: http://mncerts.org/solargardens