Community Solar Gardens

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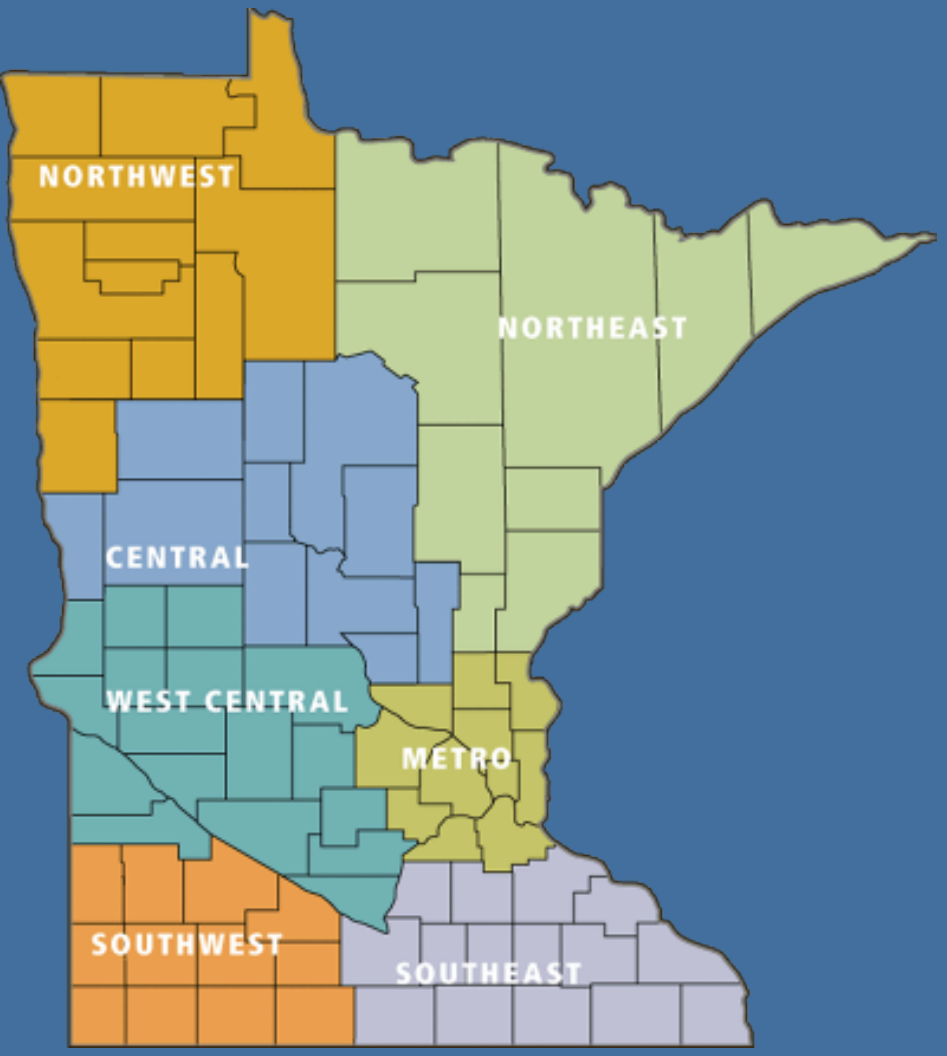
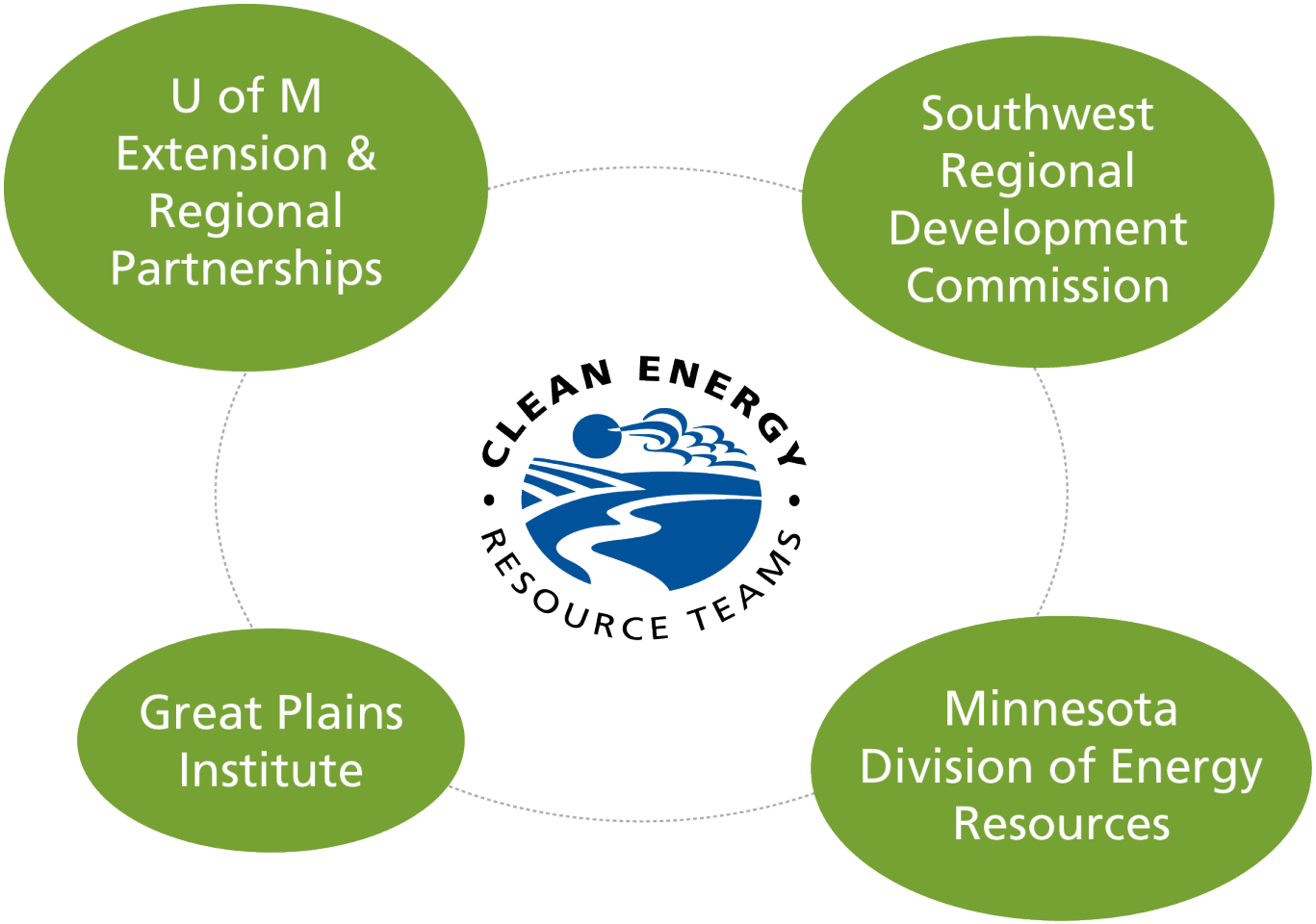
Clean Energy Resource Teams (CERTs)
UM Extension, Regional Sustainable Development Partnerships

CERTs Mission



Connect individuals and their communities to the resources they need to identify and implement community-based clean energy projects

Partnership



Community Shared Solar: Cliff Notes

Why Community Shared Solar?

Photo from: http://www.greenbeltsolar.com/solar_shading_article.html

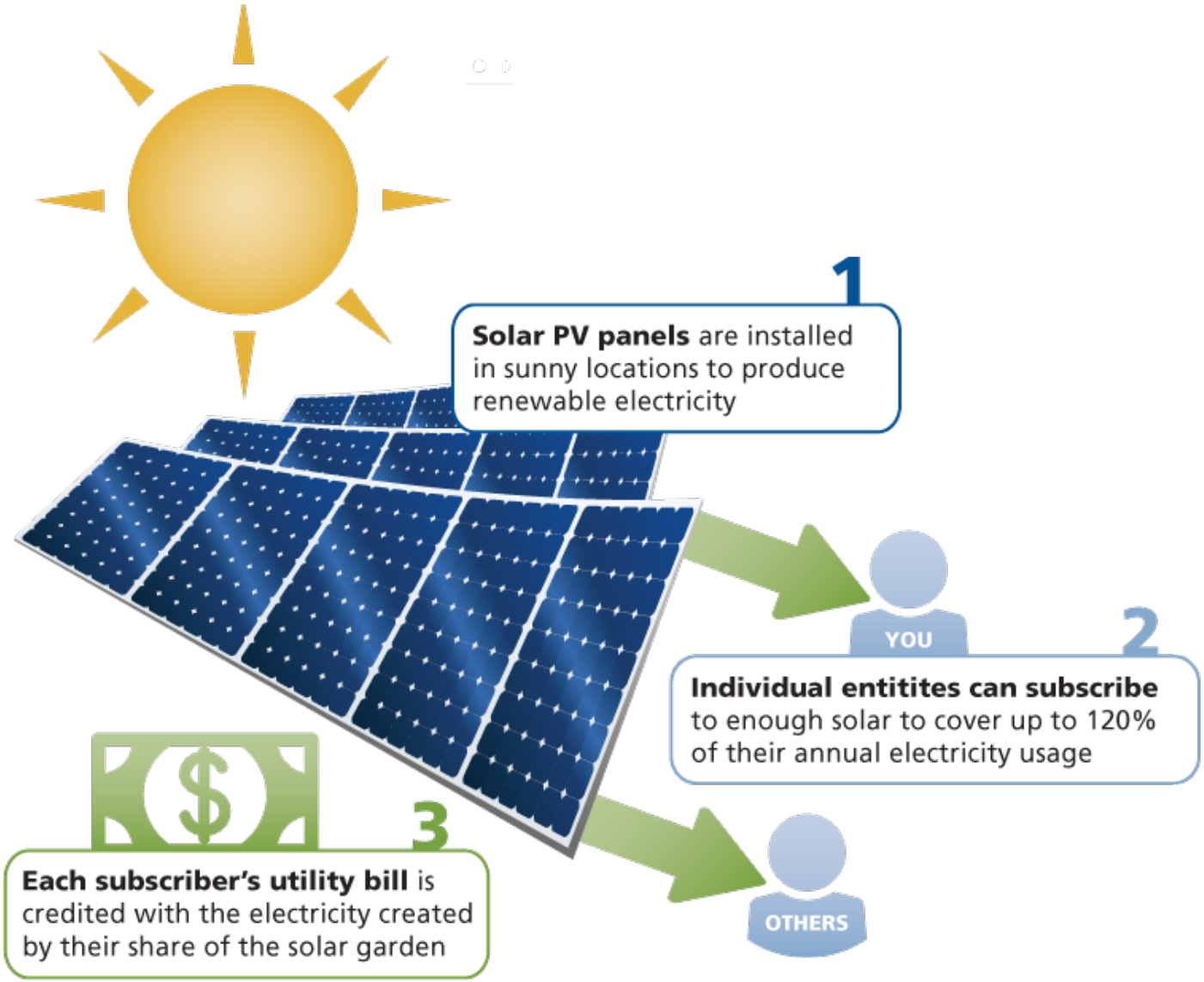
Photo from: http://www.forrent.com/apartment-community-profile/1019896.php, Rosedale Estates II

Drivers behind CSGs

- Minnesota's 2013 Policy
  - Xcel's Community Solar Garden requirement
  - 1.5 % Solar Energy Standard
- Federal Investment tax credits –
  - 30% through 2016;
  - Falls to 10% in 2017
- Customer/member interest
- First mover advantage in interconnection
- Joint solicitation potential with MetCouncil

Community Solar Gardens (CSG)

Definition:
Centrally-located solar PV systems that provide electricity to participating subscribers

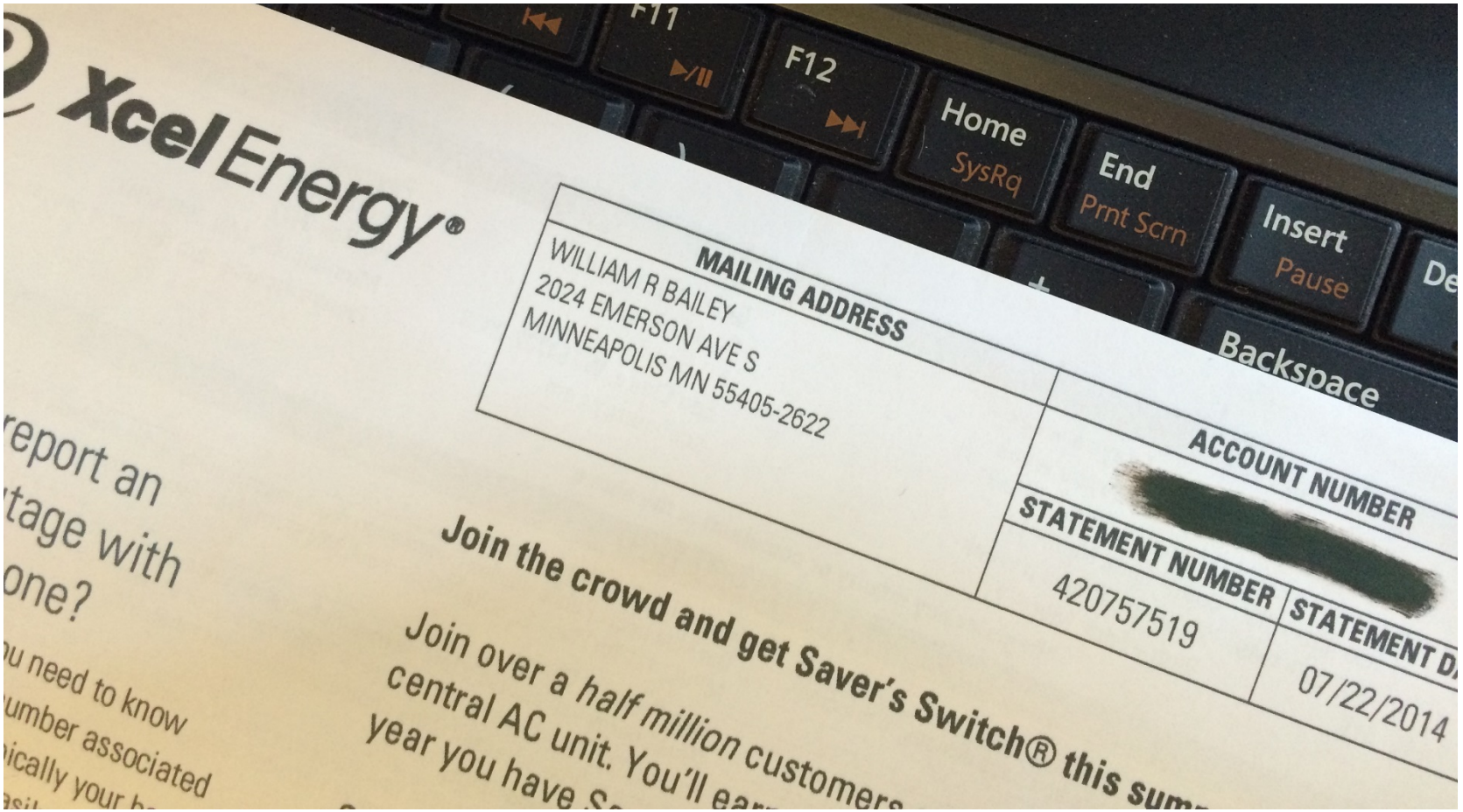


By the Numbers

- 1 garden
- Max garden size = 1 MW
- Minimum 5 subscribers per garden
- No subscriber > 40% of garden output
- Cover up to 120% of annual elec. usage

Photo credits: www.solarpowe

Only Prerequisite Is…



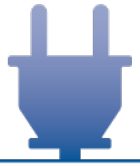
Who are the players?

SUBSCRIBERS: individuals or groups who get solar power

DEVELOPER: primary group organizing the solar garden

HOST SITE: location where solar garden is installed

FINANCE: sources of financing for the project



UTILITY: electricity provider where solar garden is located

SITE ASSESSOR: expert that studies solar garden location

INSTALLER: expert that installs the solar garden

OUTREACH PARTNERS: groups that find subscribers

This can be you!

SUBSCRIBER

CLEAN ENERGY RESOURCE TEAMS

ECOLAB

MACALESTER COLLEGE

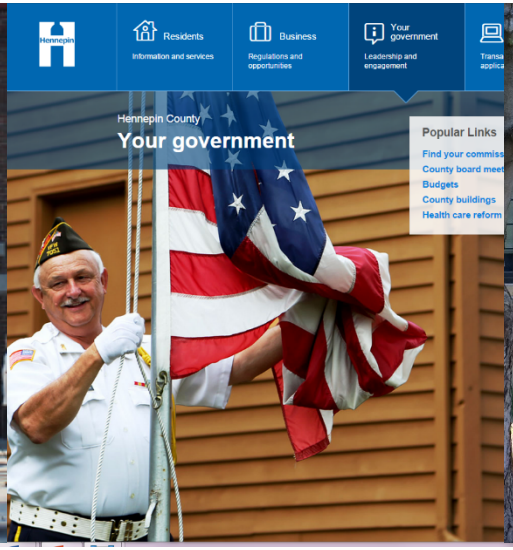
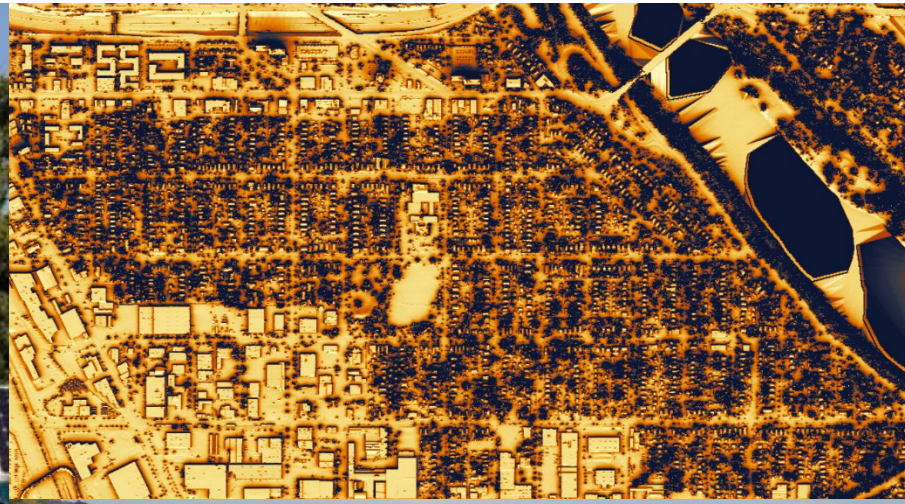


Photo credits: Henn Co. Webs

HOST SITE

Host Site Possibilities

oto credit: Wright Hennepin Coop



FINANCE

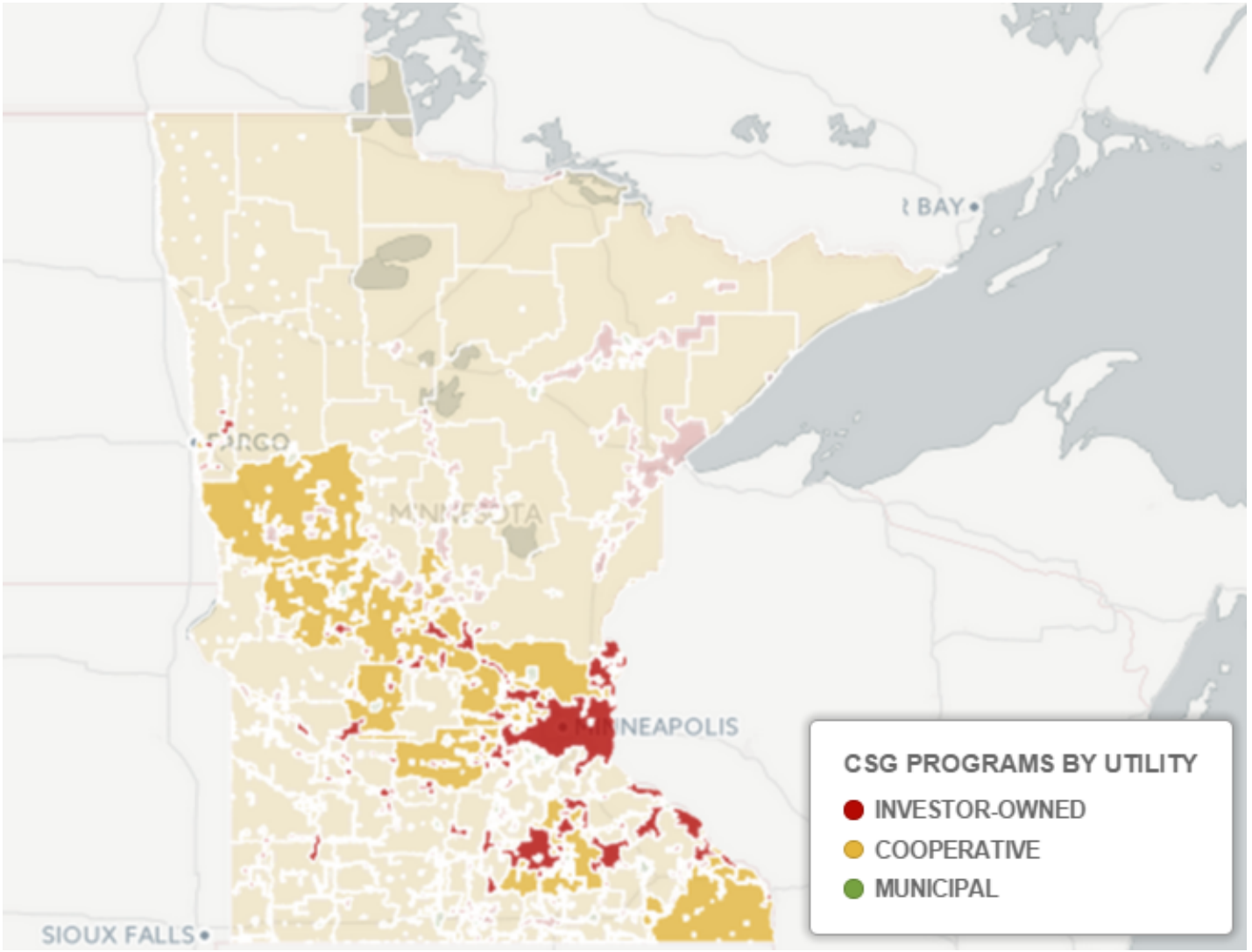
Funding for Projects

Photo credits: www.usbank.com, www.bremer.com, www.nrco.coop, https://encrypted-tbn0.gstatic.com/images?q=tbn:ANd9GcQ1pOj8btOIk_d5exvQ_6LEnmgntg5OXbfmvw9Ye26Gf_7Cpxru, alliancepayroll.files.wordpress.com/2012/03/taxcredits.gif

Current projects

Solar Gardens by Utility Territory & CERT region
Connexus Energy (current) – Metro
Kandiyohi Power Coop (current) – WC
Lake Region Electric Cooperative (current) – Central
McLeod Cooperative Power (current) – WC
Runestone Electric Association (current) – WC
Stearns Electric Association (current) – Central
Steele-Waseca Cooperative Electric (current) – SE
Tri-County Electric Cooperative (current) – SE
Wright-Hennepin Cooperative Electric Association (current) – Metro
Xcel Energy (current) – Metro, SE, SW, WC

Current projects – map view



Cooperatives Up & Running

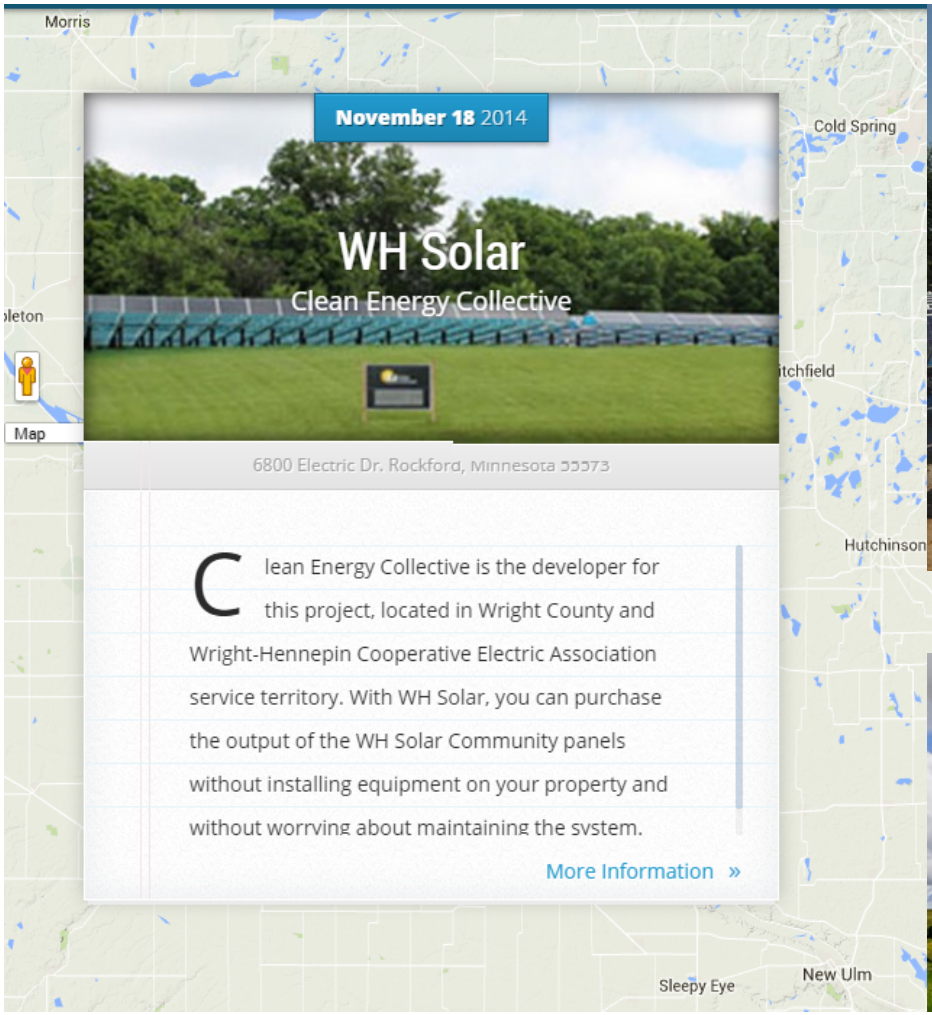
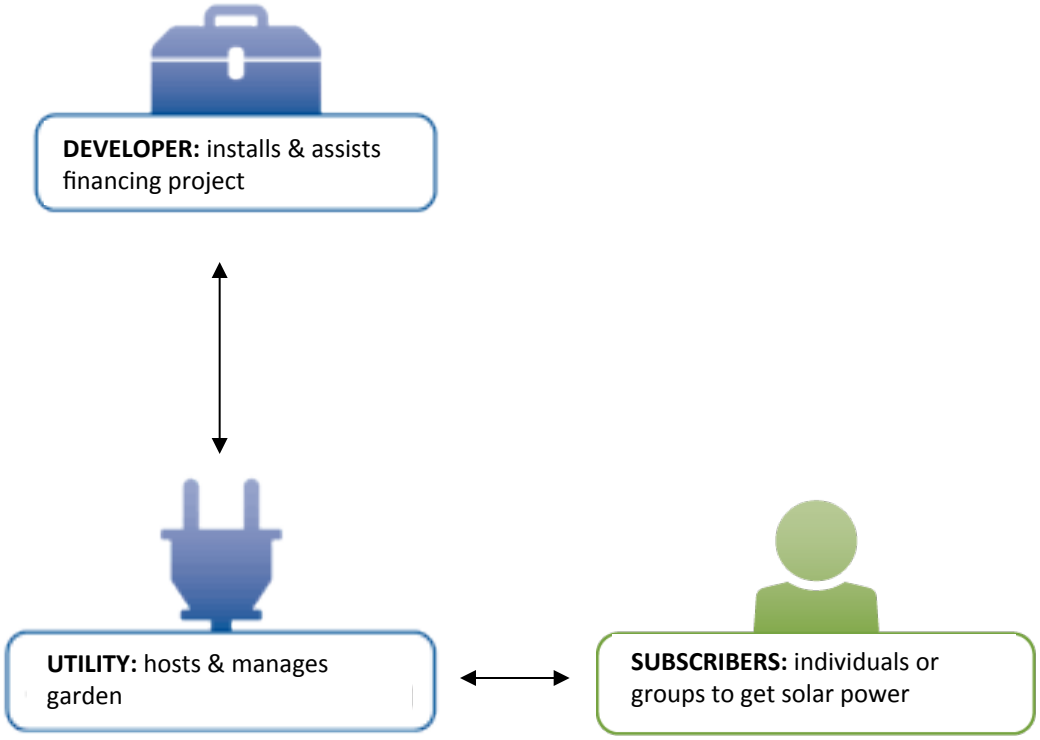


Photo credits: Connexus Energy: https://www.connexusenergy.com/residential/programs-rates/solarwise/, Wright Hennepin Cooperative: http://www.whe.org/for-my-home/products-services/wh-solar-community.html

How does it work?

Cooperative or Municipal Utility Programs



Utility can contract with developer to set up the garden. Utility operates garden and handles all aspects of relationship with subscribers.

Lake Region Electric Coop

A Cooperative Solar Solution

"Bringing renewable energy to rural Minnesota – just like we brought electricity to the countryside 75 years ago"

Lake Region Electric Cooperative
Tim Thompson, CEO

Lake Region Electric Coop

LREC

Business Resources | View/Pay my Bill | Your Cooperative | Customer Service Center

Lake Region Community Solar II Pricing

Panel Options	Average Annual Production	Price	EASY-PAY Option
1 Half Panel Output *(205 watts)*	294 kWh	$700	*Just **$20/mo** for 35 months*
1 Full Panel Output *(410 watts)*	584 kWh	$1,400	*Just **$40/mo** for 35 months*

You can buy the output of as little as one half of a panel or as much as 10 panels.
The maximum output you can purchase is limited by your average annual usage or 10 panels, whichever is less.

Kandiyohi Power Cooperative

Kandiyohi Power Community Solar

Kandiyohi Power is offering its members an affordable new way to purchase renewable solar energy.

With KPC's Community Solar, you can purchase solar power:

- Without installing equipment on your property
- Without worrying about maintaining the system
- For **$1,250** per 1 full panel output

Frequently Asked Questions

How Solar Power Works

Customer Agreement Form

Lock in your future price of power for a portion of your electric needs.

- Your monthly electric bill is reduced by the number of kWh's that the panel(s) produce and the bill credits are priced at the current KPC retail rate. If KPC's rates rise, so do the solar bill credits.

Several pricing options are available, including:

- $0 down, 24 month loan
- Full up-front purchase

You get all the benefits of owning solar panels, but with none of the hassle. Choose as few as one, or as many panels as you need to power your entire home.

For more information see our FAQ's page or call our office at (320) 796-1155.

Ready to buy your panel(s) and start receiving bill credits?

- Option 1: Print the Customer Agreement Form, complete the form, and return it to Kandiyohi Power Cooperative with payment. Phone payment also accepted.
- Option 2: Stop by to complete a Customer Agreement Form and make payment.

Kandiyohi Power Cooperative
Your Touchstone Energy® Partner

Source: www.kpcoop.com/

Steele-Waseca Coop Electric

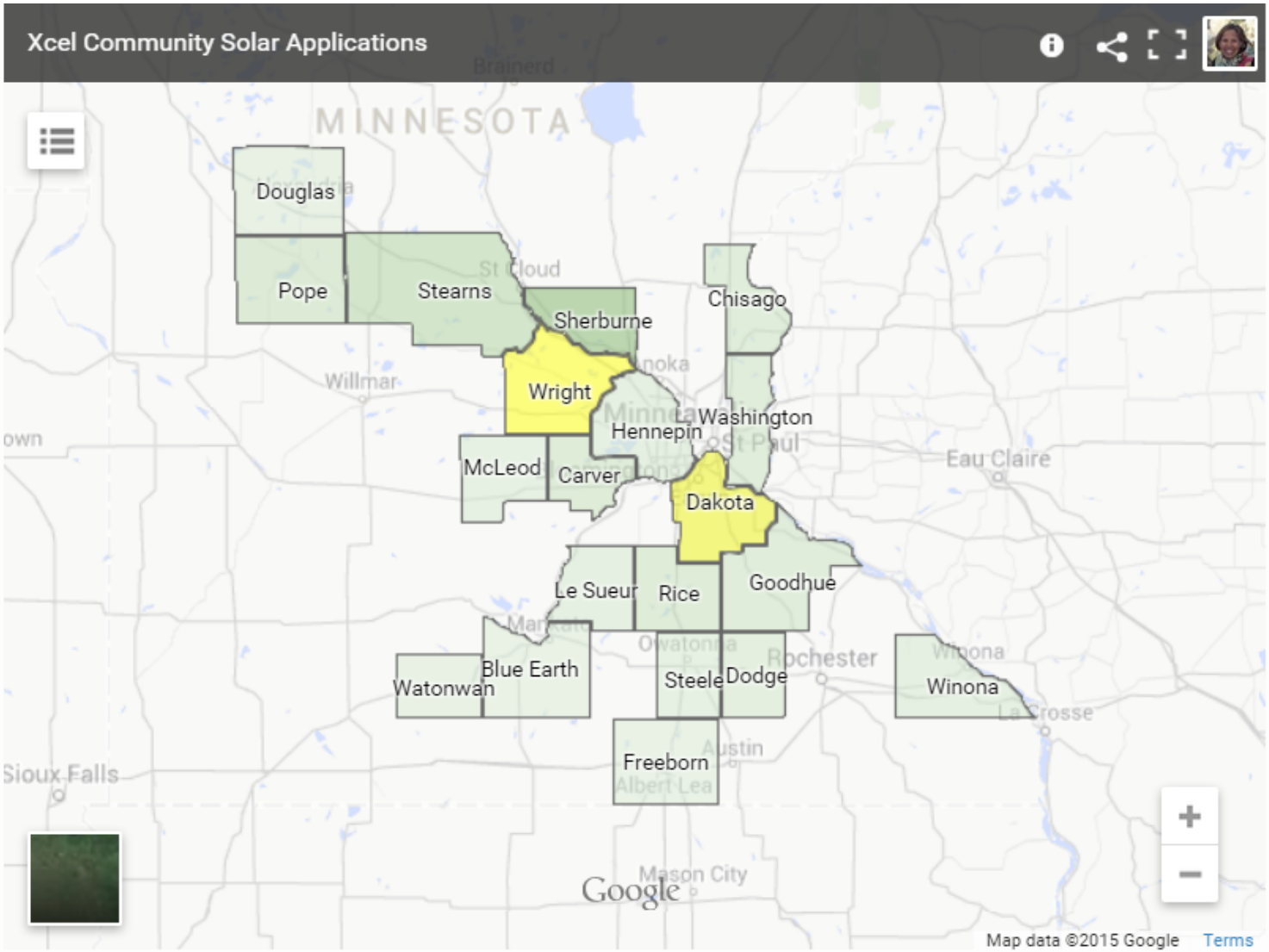
THE SUNNA PROJECT

$170 for one-410 watt panel; participate in 16-hour Storage Water Heater program

$1,225/panel w/o the water heater

Photo credits: www.swce.coop/ and http://ep.yimg.com/ca/I/yhst-13738724167386_2270_103566369

Xcel Projects in the Queue



Xcel Projects in the Queue

List of Garden Operators by County

County	Submitted Applications	Applications Reviewed for Completeness*	Approved Applications**	Sum of Ratec AC Power Output (kW)
Anoka	7		0	6,001
Blue Earth	22		0	22,000
Carver	26	14	0	25,990
Chisago	14	10	0	13,987
Dakota	159	121	0	157,377
Dodge	13	7	0	12,888
Douglas	2	1	0	1,900
Freeborn	1	1	0	950
Goodhue	31	7	0	29,720
Hennepin	39	3	0	32,087
Le Sueur	12	2	0	10,836
McLeod	3		0	3,000
Nicollet	10		0	10,000
Olmsted	3		0	3,000
Ouray	2		0	2,000
Pope	10	7	0	9,561
Ramsey	2		0	126
Redwood	3		0	3,000
Rice	42	12	0	41,996
Scott	24		0	24,000
Sherburne	72	60	0	71,840

Grand Total proposed (as of 6/18/2015) = **763 MW**

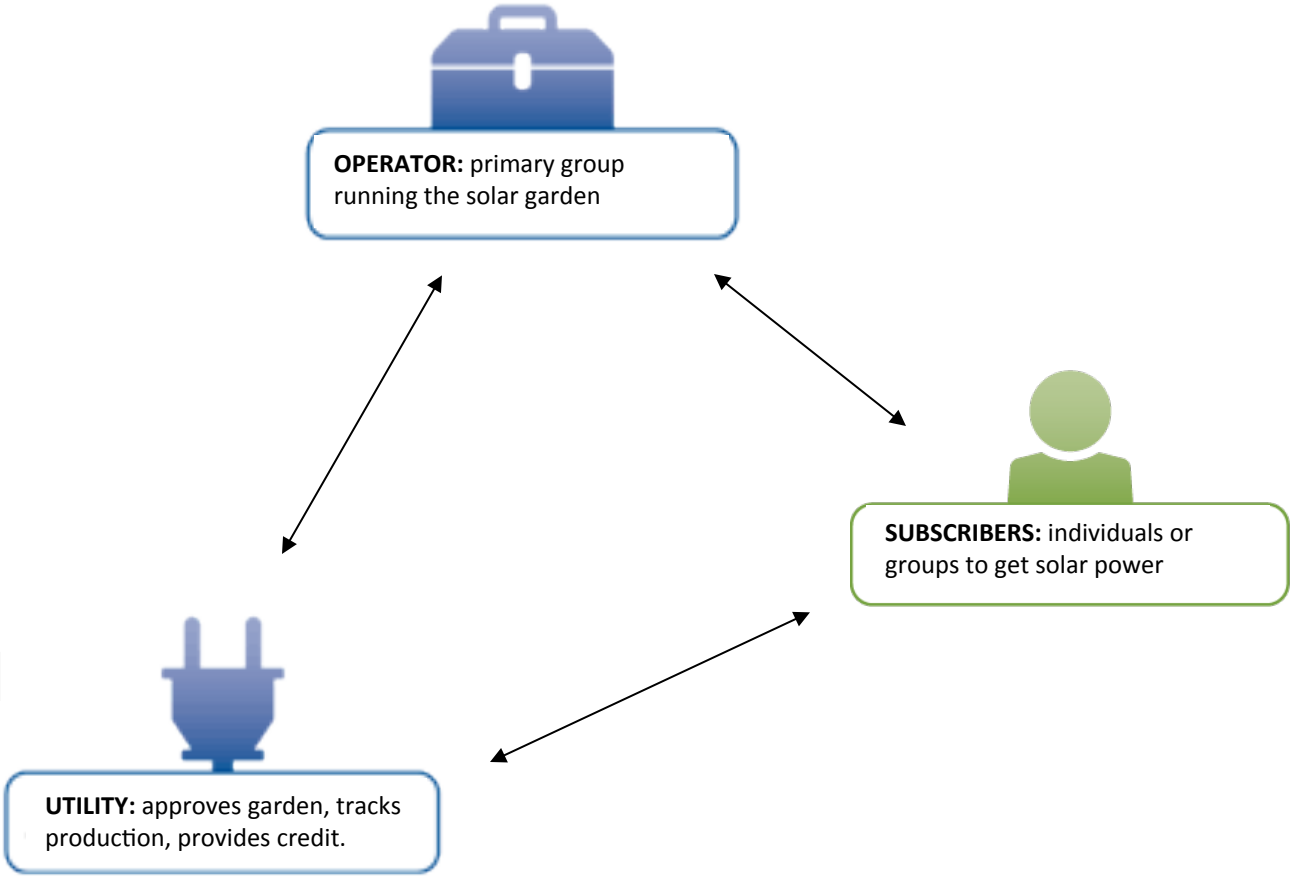
Projects in 28 of Minnesota's 87 counties.

Source: http://www.xcelenergy.com/Energy_Solutions/Business_Solutions/Renewable_Solutions/SolarRewards_Community-MN

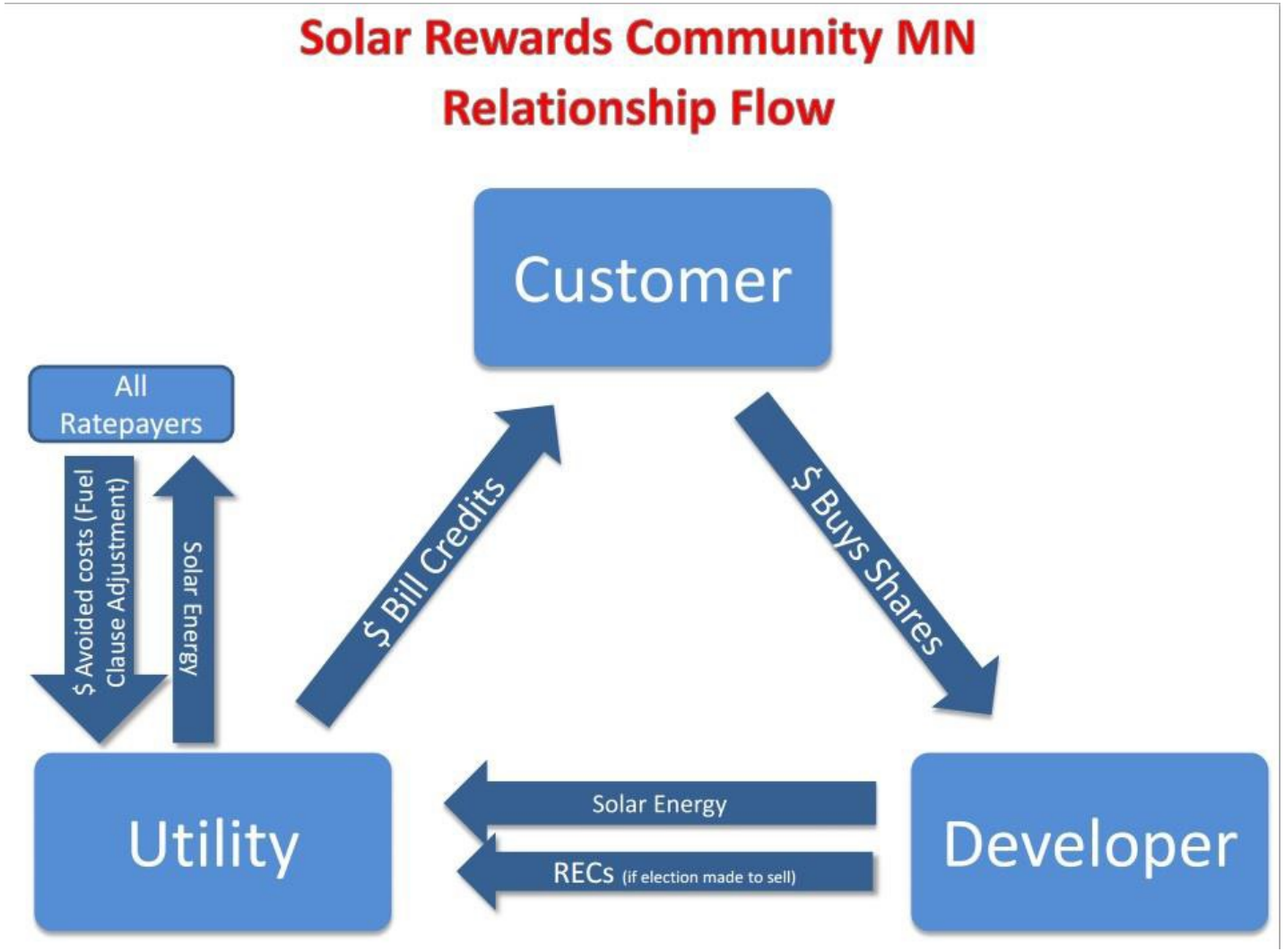
How does it work?

3rd Party Operator develops & runs garden. Maintains relationship w/ subscriber for payment. Utility provides subscriber w/ bill credit.

Xcel Energy Program



How does it work?



Payment Rates for Xcel

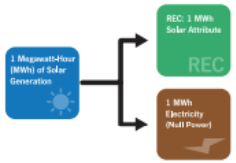
2015 Applicable Retail Rates + Renewable Energy Credit (REC) Payments ($/kWh)			
REC Payment	Residential Service	Small General Service	General Service/ Demand Metered
None (Applicable Retail Rate)	0.12743	0.12431	0.09914
0.02 (> 250 kW gardens)	0.14743	0.14431	0.11914
0.03 (≤ 250 kW gardens)	0.15743	0.15431	0.12914

RECs in brief

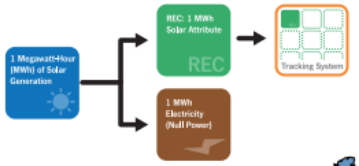
REC Best Practices and Claims

For every megawatt-hour of clean, renewable electricity generation, a renewable energy certificate (REC) is created. A REC embodies all of the environmental attributes of the generation and can be tracked and traded separately from the underlying electricity.

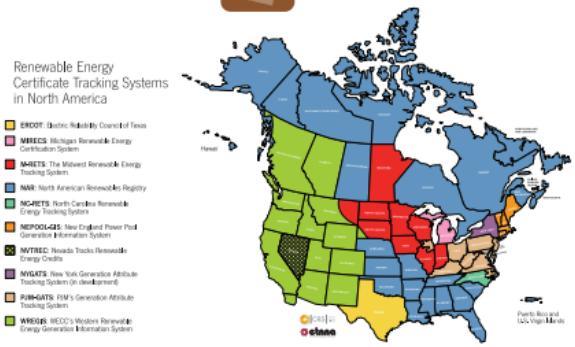
How RECs Work



Electronic tracking systems are a useful tool for tracking ownership of RECs:



Renewable Energy Certificate Tracking Systems in North America



Example Claims for a Solar Panel Owner or Leaseholder

Example 1

Keeps and retires RECs and is the only party to make claims about using the renewable energy.
Claim: *"We use renewable energy."*

Example 2

Does not own the RECs and makes public claims about using renewable energy.
Claim: *"We use solar power."*
DOUBLE CLAIM

Example 3

Keeps the RECs but a third party (such as a utility) makes a public claim about delivering the renewable energy to other customers, such as through a renewable portfolio standard.
Utility Claim: *"All solar installations in our territory contribute to our state requirements to deliver renewable energy to consumers."*
DOUBLE CLAIM

Example 4

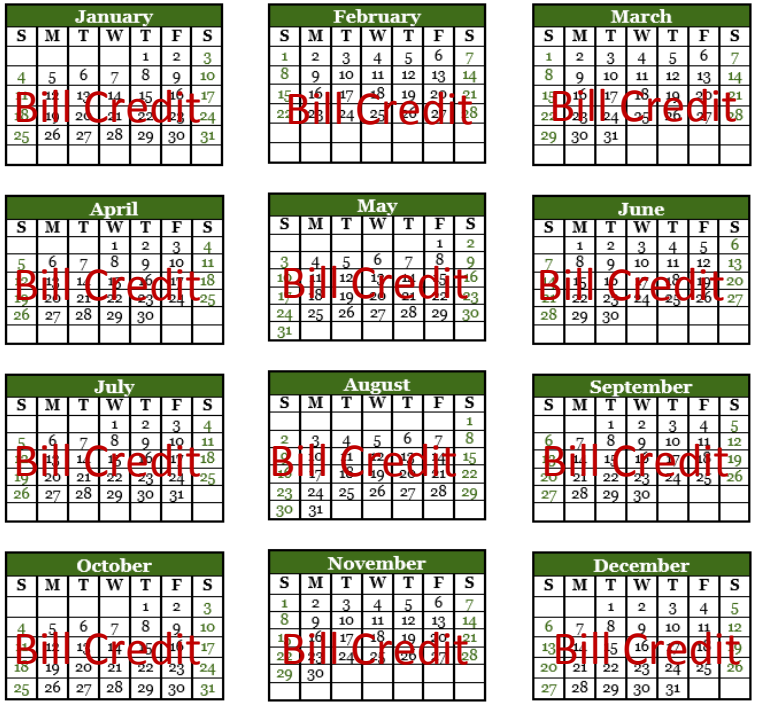
Does not own the RECs but makes clear, accurate, and prominent statements about who owns the RECs.
Claim: *"We host a solar PV system, and sell the renewable energy to other parties."*

Payment Models

Pay Up Front / Pre-Pay Model

Subscriber purchases a subscription for a onetime fee that covers the life of

Lump sum subscription paid up front



Bill credit appears monthly over 25 year project timeline.

Payment Models (cont.)

Pay As You Go

Subscriber pays in installments over time.
Subscriber receives bill credit for their share of output on their energy bill the following month.

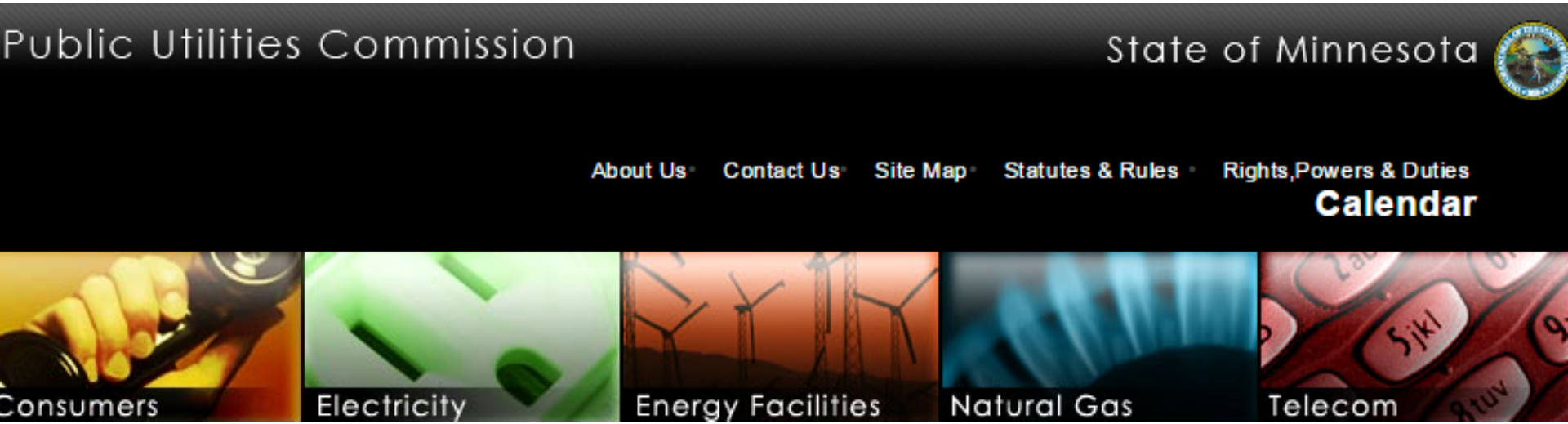
Two separate monthly transactions for 25 year project timeline:

- Bill credit
- Subscription payment

Public Utilities Commission

Docket 13-867 – Xcel Energy Community Solar Garden docket

- 309 Responses as of May 29, 2015
- Hearing slated for June 23rd and 25th, 2015
- Key issue: co-location of projects totaling > 1 MW



CERTs Resources

http://SolarGardens.MnCERTs.org

CERTs Resources

1. The Basics

Just getting started? This is the place to begin with key resources.

- What are they?
- Guide to CSGs
- Workshop video

2. Your Role

Walk through your options for getting involved.

- What are your goals?
- What roles suit you?
- Download Questionnaire

3. Finer Details

Dig a little deeper into community solar gardens.

- Frequently Asked Questions
- Guidance from Xcel Energy
- Renewable Energy Credits

4. Developers

Find developers, and ask them the right questions at the right time.

- Lists of questions & tips
- Find CSG developers
- Evaluating financials

5. Ready to Act

Steps you can take to move forward with community solar.

- Talking to council & community
- RFP examples
- Hosting agreements

6. Share Stories

We want to share your experience with other local governments!

- Blog posts
- Case studies
- Media outreach

http://MnCERTs.org/SolarGardens/Toolkit

CERTs:
Minnesotans Building a Clean Energy Future

QUESTIONS?

http://SolarGardens.MnCERTs.org