

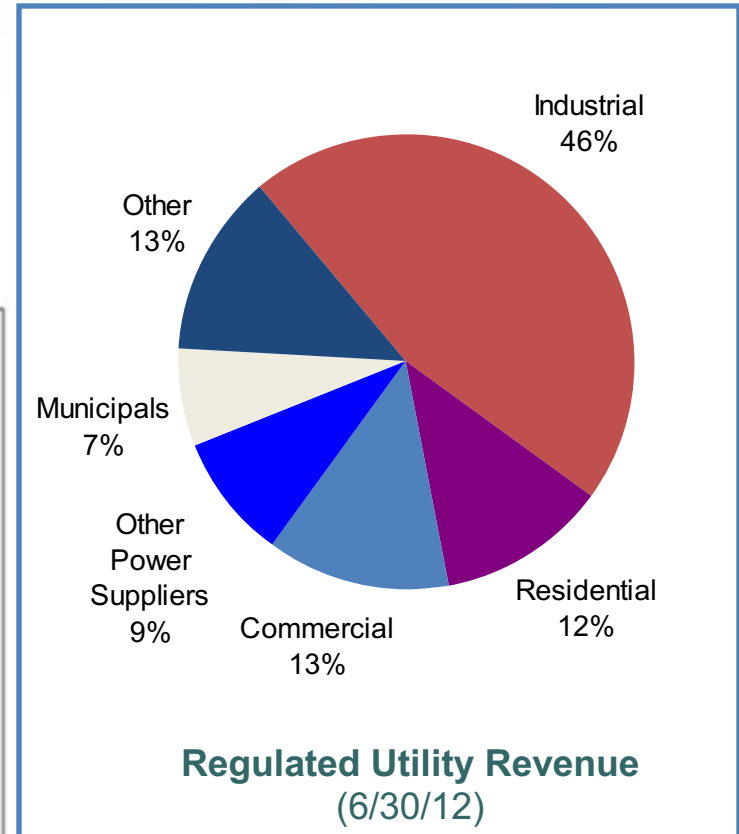
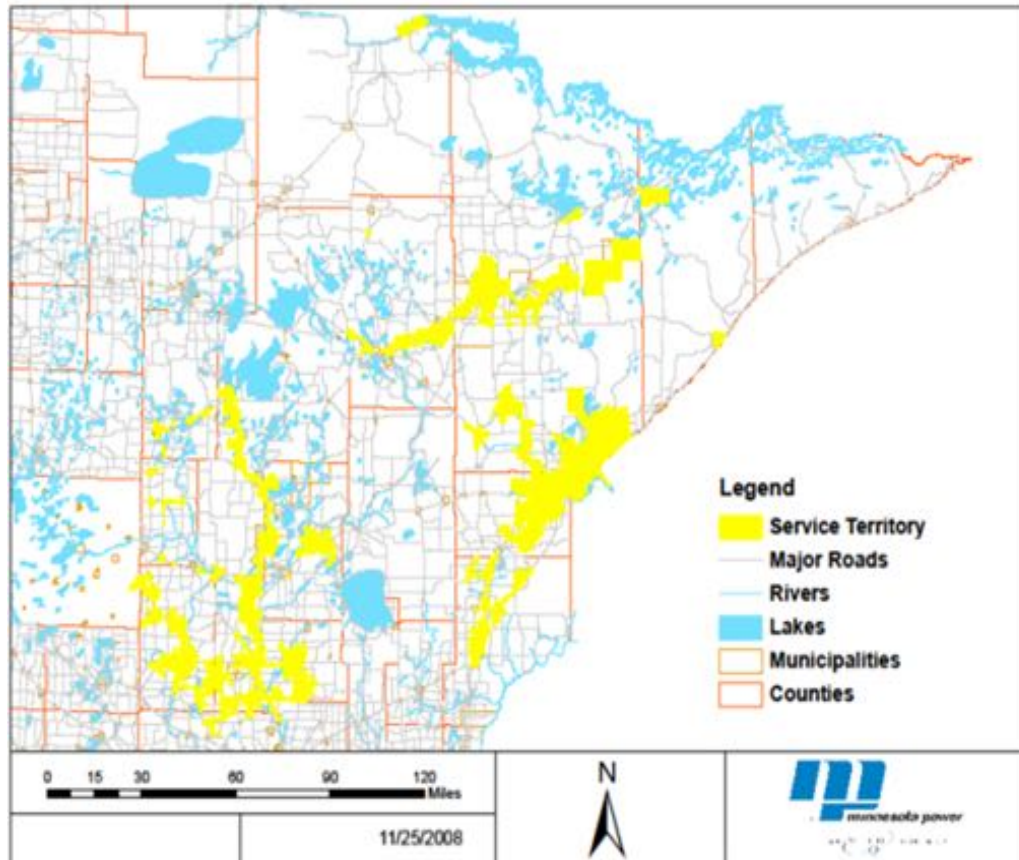
Minnesota Power Community Solar Garden Pilot Program

M-RETS Stakeholder Summit
10/4/2016

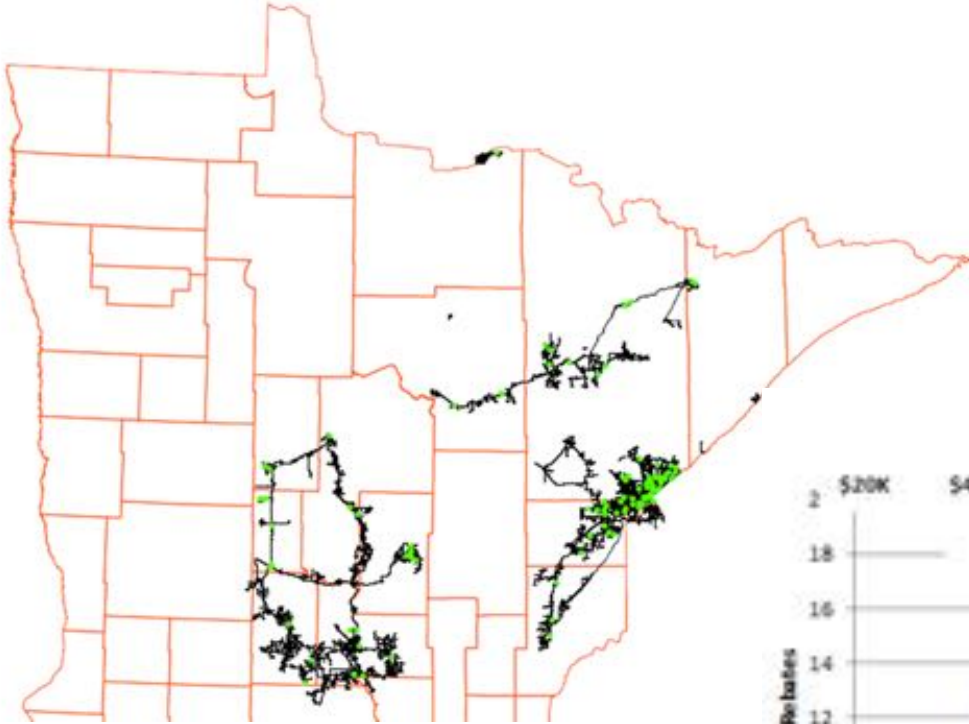


Minnesota Power Service Territory

- Customers: 144,000
- Peak Load: 1970MW
- Distribution: 6200 Feeder Miles

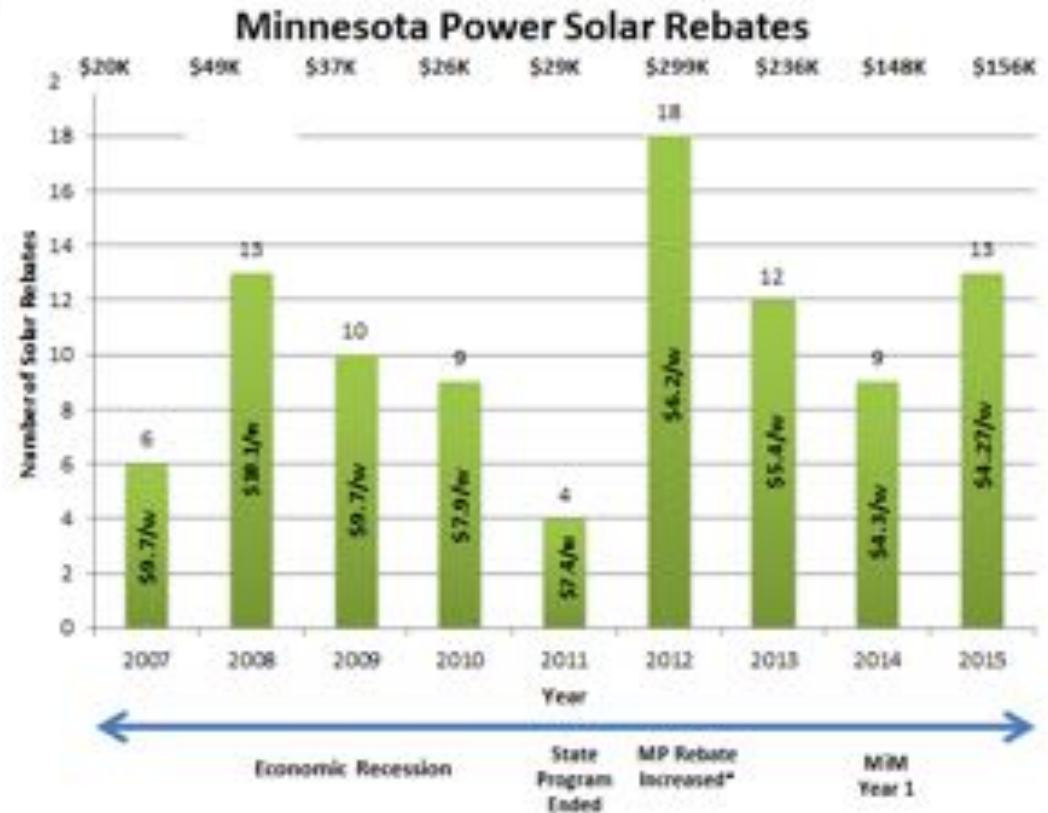


On Minnesota Power's System as of 2015



168 DG Installations (net metered)

- 153 Solar – 972.18 kW
- 15 Wind – 172.7 kW



Minnesota Power's Solar Strategy

CUSTOMER



**Solar Analysis Program
SolarSense Rebates**

Made in Minnesota Incentives

COMMUNITY



**Community Solar Garden
Pilot Program**

Approved – 2016 Construction

UTILITY



**10MW Camp Ripley Solar
Project**

Approved – 2016 Construction

Promotes solar of all sizes in northern Minnesota

CSG Design Principles

Fairness

Simplicity

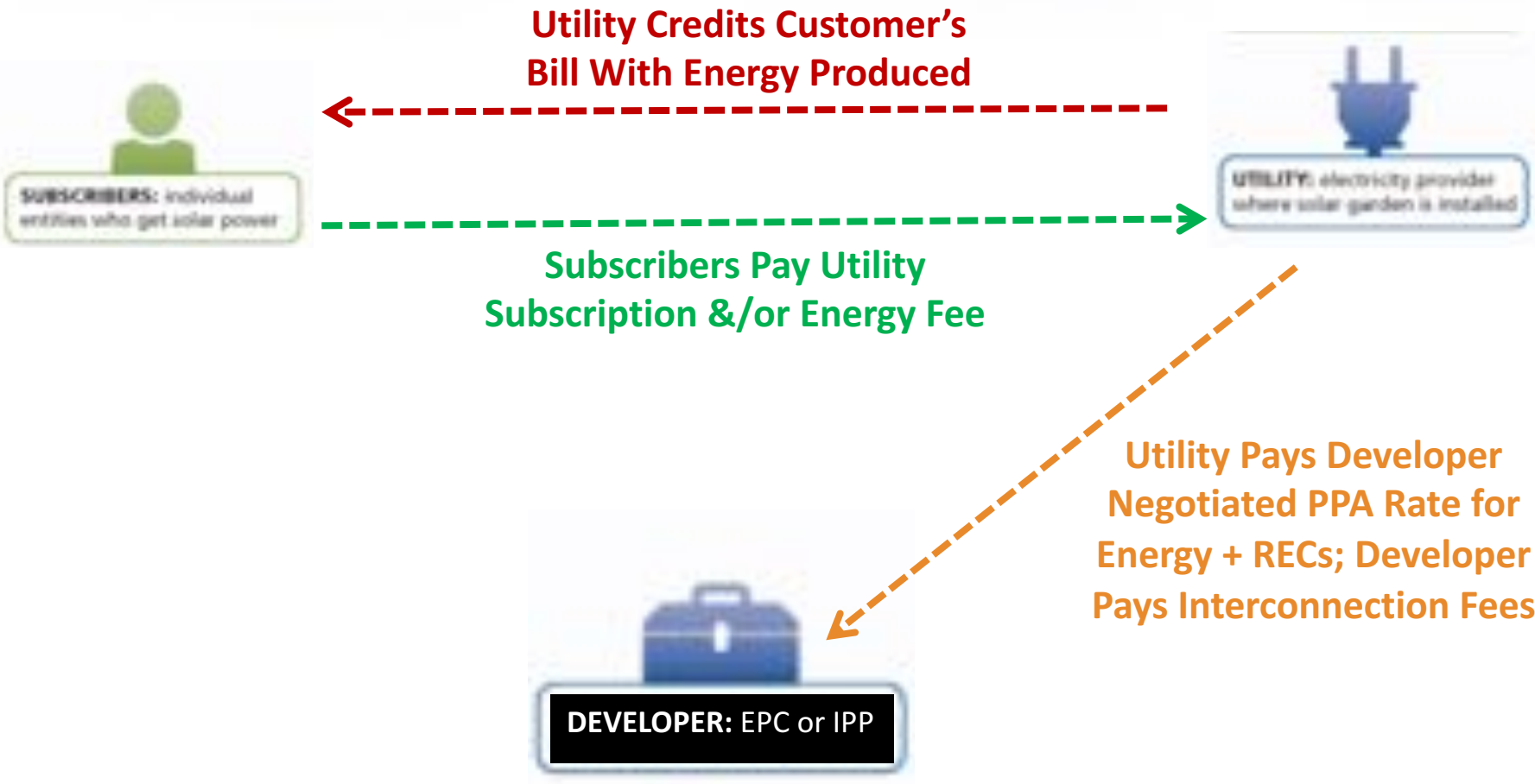
Accessibility

Scalability

Optionality

Regional Commitment

Community Solar Model (“L”)



CSG Pricing Offers Choices

Option One

- One-time, upfront payment with monthly energy credit
- **\$2132.15**

Option Two

- Fixed monthly subscription fee with a bill credit based on subscription
- **\$15.62/Mo**

Option Three

- Fixed charge for each kilowatt-hour of solar energy produced from subscription
- **11.15¢/kWh**

Program pricing is dependent on final S-REC value to be determined through a competitive bidding process

CSG Pilot Program



Evaluation

- Pilot results will be tracked and assessed
- Key metrics:
 - Customer preferences
 - Internal processes
 - SES compliance needs
- Results reporting to MPUC

Customer Preferences
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?
Internal Processes
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?
SES Compliance Needs
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?

Current Status

- Program approved by MPUC on 6/2/16
 - Solar Renewable Energy Credit RFP results filed 10/3/16
 - Draft RFP for 3 non-utility CSGs filed 10/3/16
 - VOS calculation due 2/2017
 - Communication materials for approval on 8/29/16
- Program launch expected 1/1/2017



Questions?

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