



# Community Solar Update

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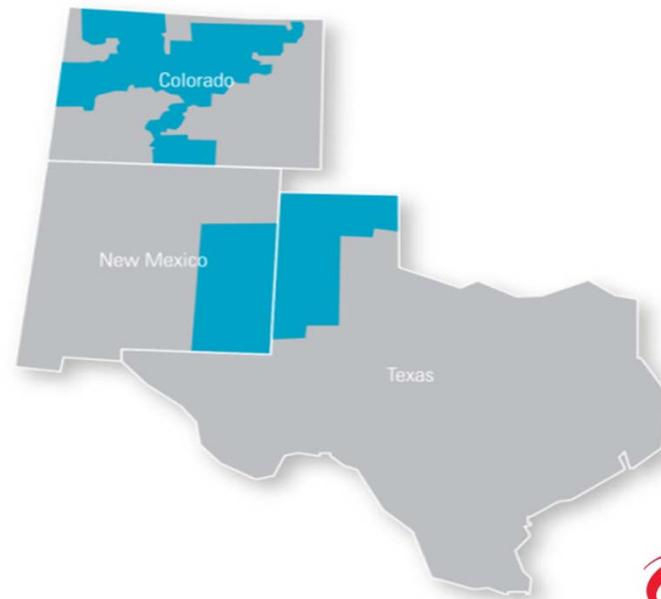
# Xcel Energy

## Serving eight states

- 3.6 million electricity customers
- 2 million natural gas customers

### Nationally recognized leader:

- Wind energy
- Energy efficiency
- Carbon emissions reductions
- Innovative technology
- Storm restoration



# Xcel Energy Priorities



Lead the Clean  
Energy Transition



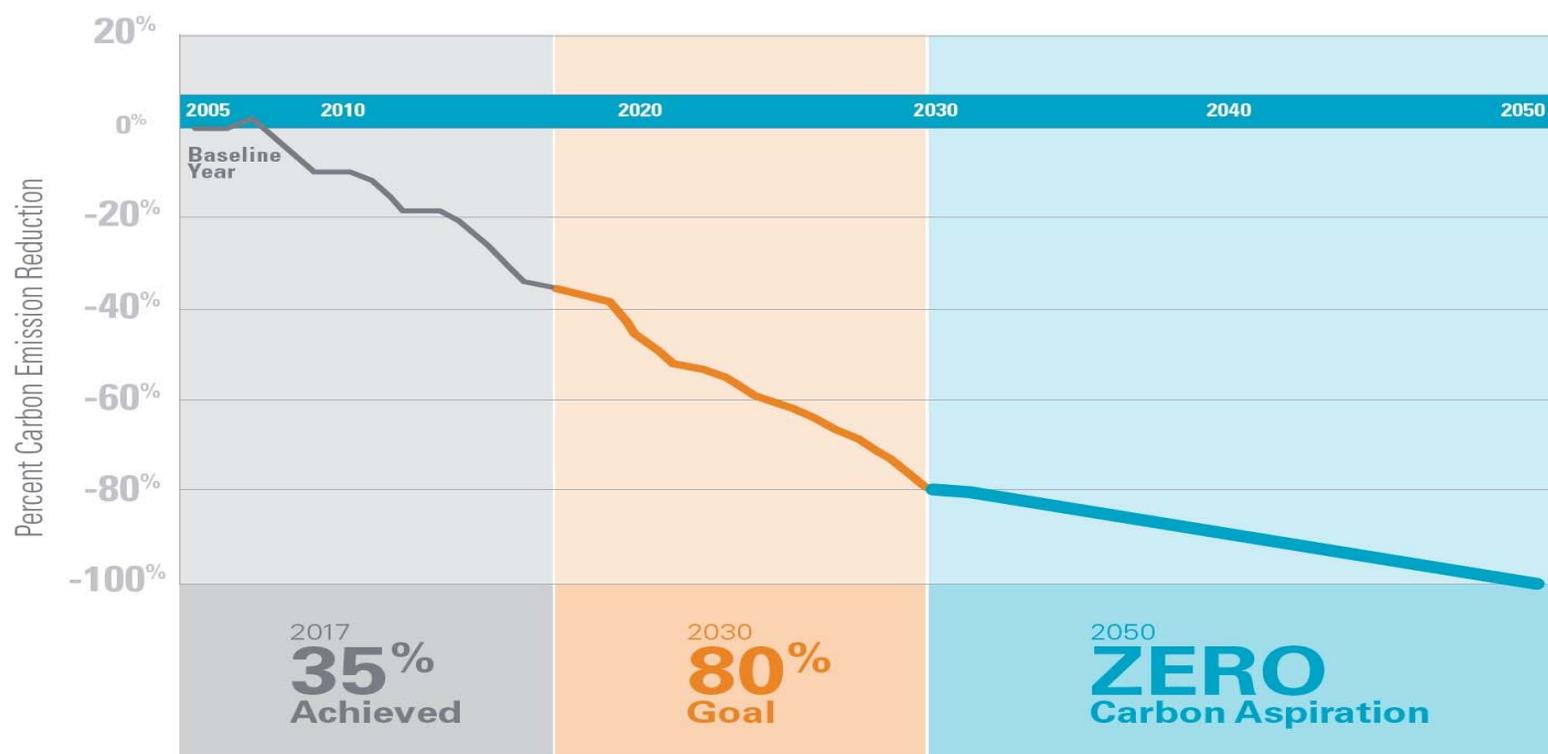
Enhance the  
Customer Experience



Keep Bills Low

# The Clean Energy Transition

## A bold, new vision for 2030 and 2050



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# Customer Choice Renewables

Universal Renewables

Customer Choice

Private Solar

Community Solar

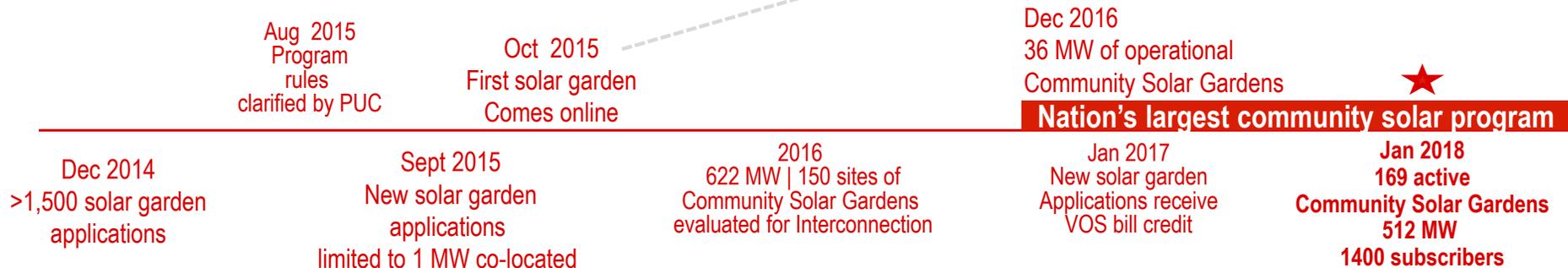
Green Pricing

Company

3<sup>rd</sup> Party

# Solar\*Rewards Community MN

Solar\*Rewards Community lets our customers support solar gardens and get paid for solar production without having their own private on-site solar.



**Nation's largest community solar program** ★

>2500 applications submitted since program began

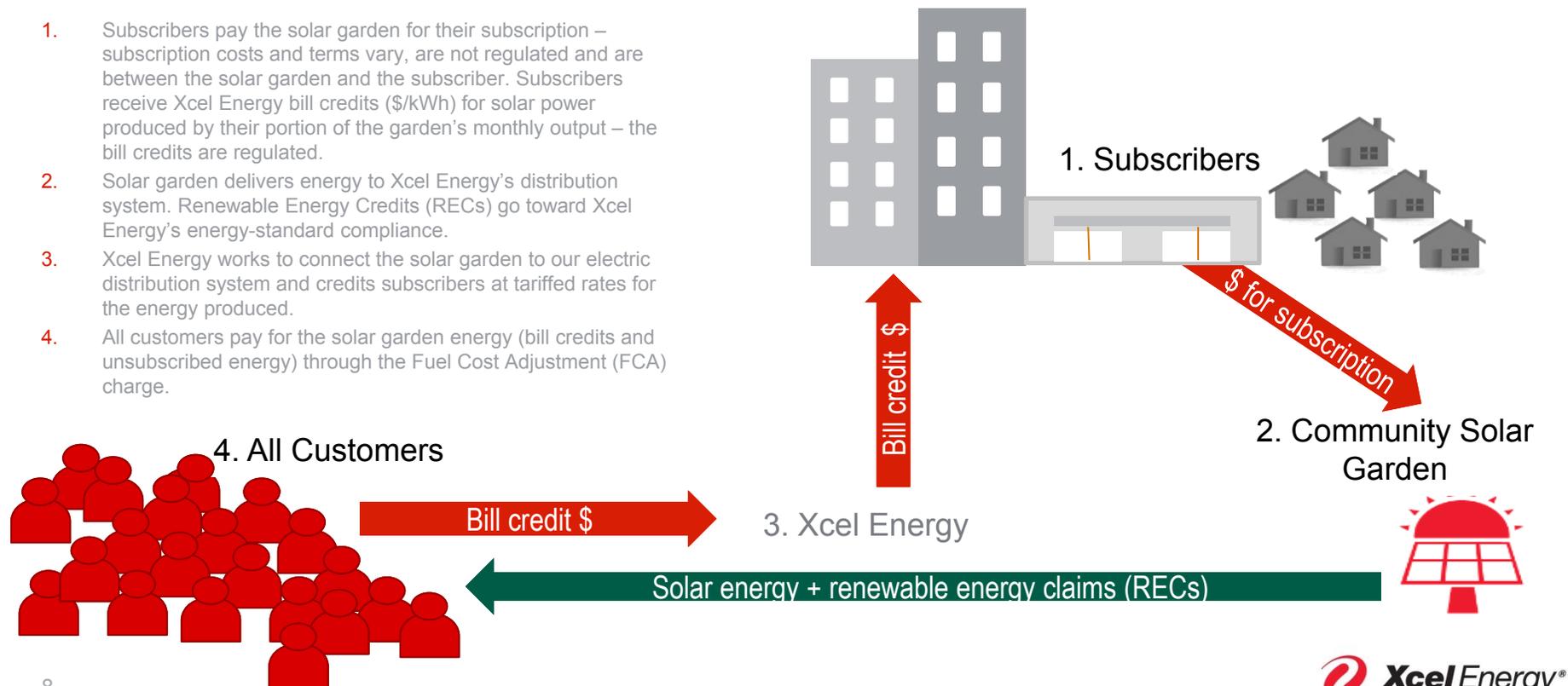
# Minnesota Community Solar Gardens

- **Purpose:** Community Solar Gardens (“CSG”) were intended to allow members of a community to purchase a share of a CSG as a substitute for a roof-top installation. Proponents spoke of renters, customers for whom rooftop installation was undesirable or not possible, parishioners of churches and neighborhood groups pooling resources for this purpose.
- **Rules provided in statute:**
  - Must have at least five subscribers.
  - No subscriber with more than 40% of CSG.
  - CSG limited to 1 MW in size (about seven acres).
  - No customer can get more than 120% of their energy from all combined on-site solar and CSG.
  - CSG must be in Xcel Energy service territory.
  - Subscribers and CSG must be in contiguous counties.



# Minnesota Solar\*Rewards Community

1. Subscribers pay the solar garden for their subscription – subscription costs and terms vary, are not regulated and are between the solar garden and the subscriber. Subscribers receive Xcel Energy bill credits (\$/kWh) for solar power produced by their portion of the garden’s monthly output – the bill credits are regulated.
2. Solar garden delivers energy to Xcel Energy’s distribution system. Renewable Energy Credits (RECs) go toward Xcel Energy’s energy-standard compliance.
3. Xcel Energy works to connect the solar garden to our electric distribution system and credits subscribers at tariffed rates for the energy produced.
4. All customers pay for the solar garden energy (bill credits and unsubscribed energy) through the Fuel Cost Adjustment (FCA) charge.



# Community Solar Options Vary By State

	Minnesota Solar*Rewards Community	Colorado Solar*Rewards Community	Wisconsin Solar*Connect Community
Garden Ownership	Mostly 3 <sup>rd</sup> party 17 MW Utility Owned	Mostly 3 <sup>rd</sup> party Company Low Income Underway	Xcel Energy Owned
Active Sites	169	52	1
Active MW	505 <20% Residential	60 MW ~9% Residential	1 ~12% Residential
Subscribers	13,300 >90% Residential	1,800 ~70% Residential	140 ~80% Residential
Subscription Cost	Set by garden	Set by garden	\$1,600 / kW up-front
Bill Credit	ARR + REC changes yearly <u>12.5¢ - 16.5¢/kWh</u> VOS 9.8¢/kWh year 1	Retail minus T&D 5.2¢ - 7.3¢	6.9¢ - 7.4¢ / kWh
Low Income	No	Yes 5% of capacity + RFP bids	No
REC	Utility (Compliance)	Utility (Compliance)	Retired on Behalf of Customer

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## Alternate Approach – Renewable\*Connect

- Directly offered by Xcel Energy to customers
- Mix of large-scale wind and solar resource
- Price locked for contract terms (monthly, 5 or 10 years)
- Credit varies by state & year – typically fuel based
- Fully Subscribed
  - MN 75 MW
  - CO 30 MW
  - WI launching in March
  - Expansions under consideration

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# Some Lessons Learned

- Expectations
  - Legislation – Regulatory Approval – Program Launch – Implementation – Active Gardens can take years.
- Balance
  - Customer needs, solar industry needs, financier needs, non-participant needs, utility need and capabilities.
- Engaged Cross Functional Team
  - Impacts a broad group of internal parties.  
Collaboration + commitment to succeed.
- Communication & Relationships
  - Projects that go most smoothly have bi-weekly updates, frequent communications.
  - Clear expectations & timelines help build consistency and trust.
  - Ownership changes often lead to confusion and delay.

# Community Solar Cost Considerations

- Non-participant Cost
  - Driven by bill credit
    - 2018 VOS = \$0.12/kWh levelized
    - 2018 ARR (changes annually) = \$0.125 to \$0.165/kWh with REC adder
    - Bill credit type determine by garden vintage year
  - ARR Gardens incremental cost  $\approx$  \$17M / 100 MW / year for 25 years
  - Extrapolated: 400 MW = \$68M / year | \$1.7B over 25 years
- System upgrade costs needed to accommodate large CSGs
- Substation outages leading to lost revenue
- When things go wrong that impact others

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# Resources

- MN PUC [e-dockets](#) 13-867
- MN legislation [216B.1641](#)
- Solar\*Rewards Community for [Customers](#) & [Developers](#)
- Xcel Energy [Section 9 Tariff](#)
- Program team: [SRCMN@xcelenergy.com](mailto:SRCMN@xcelenergy.com)
  
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# Minnesota Community Solar Gardens

- **How it works:**

- Solar Garden Operators and subscribing customers enter into a subscription contract. Xcel Energy is not a party to the contract.
- Under the subscription contract, the subscriber gets paid (by Xcel Energy) for a portion of the CSG production for 25 years and agrees to pay a fee to the Solar Garden Operator. Contract terms and subscription fees vary. CSG fees are unregulated.
- The Solar Garden Operator delivers the energy from the CSG to Xcel Energy.
- Xcel Energy purchases the energy by paying subscribers in the form of a credit on their Xcel Energy bill. Xcel Energy uses the energy to meet its Solar Energy Standard.
- The rate that Xcel Energy pays is set by the PUC.
  - Applicable Retail Rate (ARR) (for projects initiated before 2017).
  - Value of Solar Rate (VOS) (for projects initiated in 2017 and later).
- Xcel Energy collects the amount of the bill credit from all its customers.

# Policy & Operational Issues

## (Incomplete) List of Considerations

### Policy

- Program Capacity – Unlimited, Set
- Deposits
- Bill Credit Rate: Retail, VOS, Other?
- RECs: Pricing + Ownership
- Adders (Customer Class, Location, Jobs)
- Disputes (Engineering & Policy)
- Low-Income Considerations
- Customer Class Eligibility & Bill Credit
- REC Treatment
- Co-location
- Proximity to Subscribers
- Carve-outs for Subscriber Groups
- Cost to Non-Subscribers  
(MN \$17M / 100 MW / Yr for 25 Years)

### Operations

- Subscriber Protection
- Subscriber Management
- Queue Management
- Service Area Requirements
- Location on System
- Material Upgrade Limits
- In-service Dates – Missed Dates, Dropouts & Implications for Resource Planning
- Ownership Changes
- Timeline / Milestone Requirements
- Penalties & Consequences
- Substation / Feeder Capacity
- System Impacts & Subsequent Testing, Monitoring
- System Outages
- Cost Estimates vs. Actuals
- Marketing Messaging