SEPA
solar electric power association

Helping Utilities Make Smart Solar Decisions

Leveraging Community Solar to Meet Utility Goals

Experience and Insights from
Clean Energy Collective & Xcel Energy

July 11, 2013

Sponsored by: Clean Energy COLLECTIVE

Logistics

- Webinar recording and slides will be sent to all registered attendees and available on the Resource Library within 2 business days
- Use hashtag **#SEPAWebinar** to share live feedback with other attendees on Twitter. *Follow SEPA @UtilitySolar*
- Submit questions in the chat window at any time – if the question is for a specific speaker, please indicate that in the question.
- Questions will be answered at the end of the session.

Upcoming SEPA Events:

- July 22: SEPA Networking Reception at NARUC
- August 8 Webinar: Distributed PV and Third-Party Financing 101 for Utilities
- October 21 – 24: Solar Power International, Chicago, IL

Speakers

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Director of Research
SEPA

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Leveraging Community Solar to Meet Your Utility's Goals

July 11, 2013

Paul Spencer

Objective

1. Develop an understanding of what community solar is and how it can help utilities

2. Program design – what you should take into consideration when designing your program

3. Program implementation – identify the necessary considerations to successfully implement a community solar program

Community Solar

Community-sized renewable energy facilities that benefit the local utility and its participating customers (ratepayers)

1. Benefits should focus on customers (customer equity), not financiers or developers

2. Predicated on mutually beneficial contracts between the utility and its participating customers

3. Long-term clean energy solutions that are managed for optimal performance and maximum life

The State of Solar

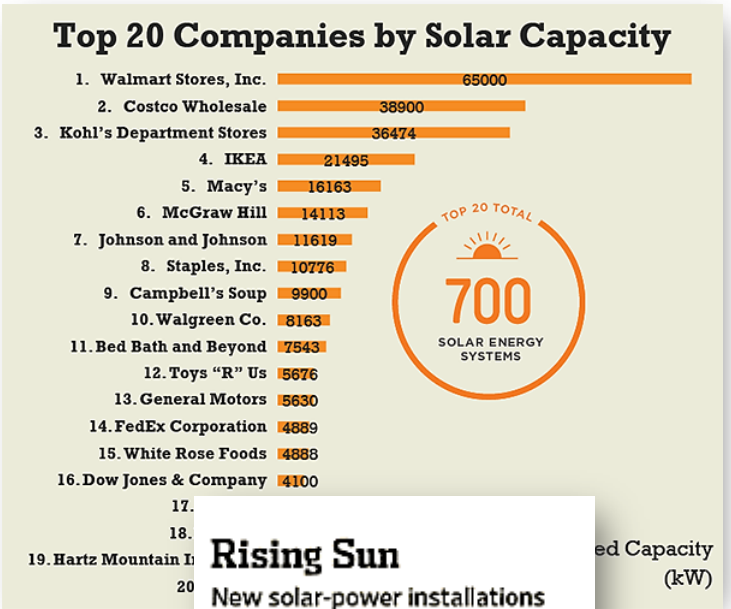
- **Solar isn't going away**
  - Capacity is growing at ~**100% per year** (only 1% total)
  - Corporate strategies are targeting energy costs
  - Erosion of power generation is a **reality**

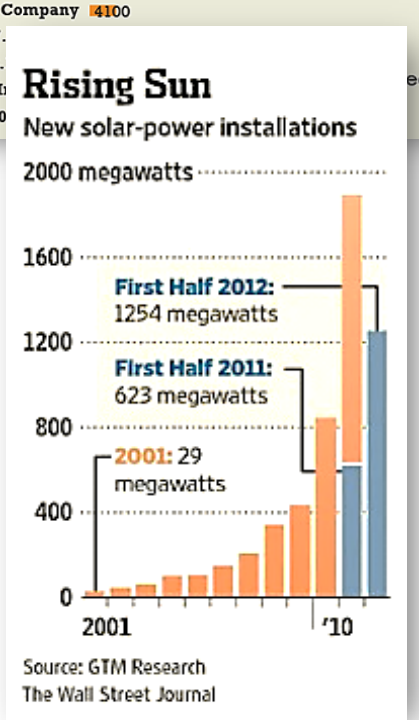
- **Onsite solar is beneficial but comes with challenges as a sole solution**
  - Existing terms are **not scalable** or **sustainable** (NEM)
  - Power **scheduling and reliability** are lacking
  - Solutions are largely unmanaged: **short-term strategy** for a long-term need (reliable renewable power)

- **Utilities are good at what they do**
  - Providing customers with **reliable, long-term power**

Solar **lacks the utility's touch**

- **Community solar is an opportunity for utilities to harness solar**
  - Provide customers a solution they want **at terms that work**
  - Keep the management and sale of electricity with **utility experts** (retain generation)



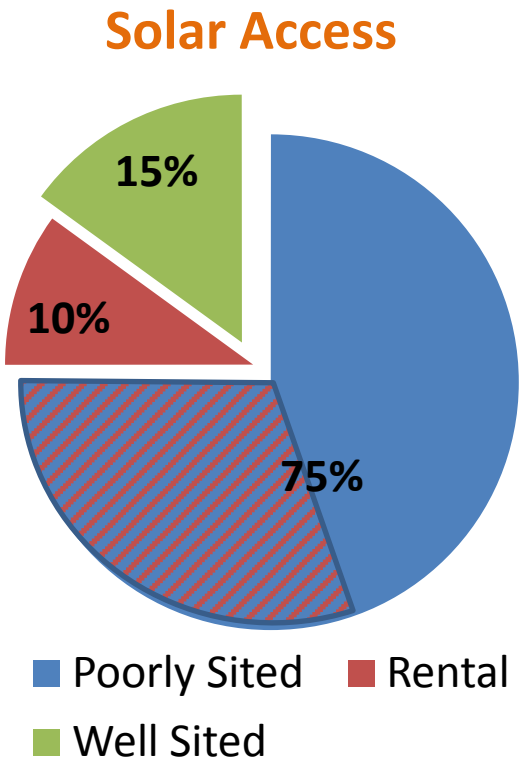


Why Community Solar?

- **Lowers the barrier-to-entry and expands availability**
  - Fractionalization enables participation at an **affordable price** (a lower-income solution - $800 vs. $15,000)
  - Participation for **renters** and **sites without solar accessibility** (not possible with traditional solar)

- **Aggregated purchasing**
  - **Lowers overall costs** by purchasing in bulk, enabling additional features and benefits (managed solutions)
  - Utilization of advantageous financing vehicles

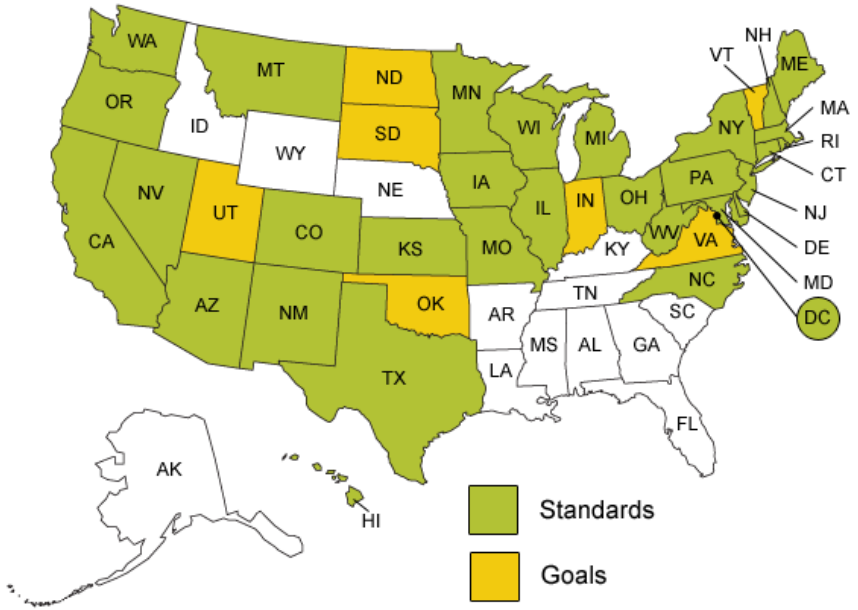
- **Maximum production equals maximum return on investment**
  - Optimally placed for **maximum production** (no shading, trees, poor aesthetics, permitting, etc.)
  - Managed solutions **produce more** for **longer**



- **Substantial local economic benefits – 1 MW creates:**
  - Up to $2M in local construction/product spending
  - $1.4M in lifetime operations and maintenance (taxes, insurance, upkeep, etc.)
  - $25M in lifetime power payments directly to local participating customers (ratepayers)

Numerous Utility Benefits

- **Increase customer satisfaction** and retain customers.
- **Affordably meet RPS with no capital costs** Customers shoulder all capital and operation expenses.
- **Ease costly network upgrades** - through systems that are strategically placed to strengthen power distribution.



- **Social equity** - provide all ratepayers with an equal opportunity to participate in solar and incentive programs (regardless of location, property ownership, siting, etc.).
- **Simplified renewable energy growth** (a few large systems versus 1,000+ small).
- **Create additional revenue streams** through tax equity investment and customer financing.
- **Utility-scale, industrial-strength** and managed clean energy facilities, utility sited and approved, with known grid connected production (reliable solutions with reduced risk to the grid).

Program Design

Design Considerations

1. Who is the system designed to benefit: customer, utility, developer, financiers, a combination thereof?
   -follow the money-

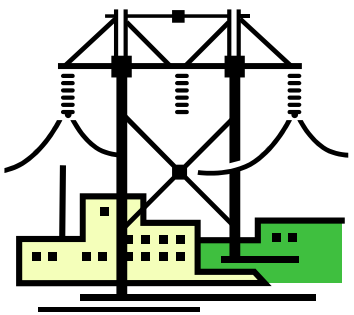
2. To what extent will it serve the beneficiary?
   -payback, rate inflation, asset value-

3. Is it a long- or short-term solution?
   -10 – 50 years, how will it sustain itself-

4. Does it make sense in the larger realm of power production and distribution?
   -can it stand the test of time-

Finding the Right Balance

A successful program for Utilities and Customers



Too Low
No Participation
Poor Image

$

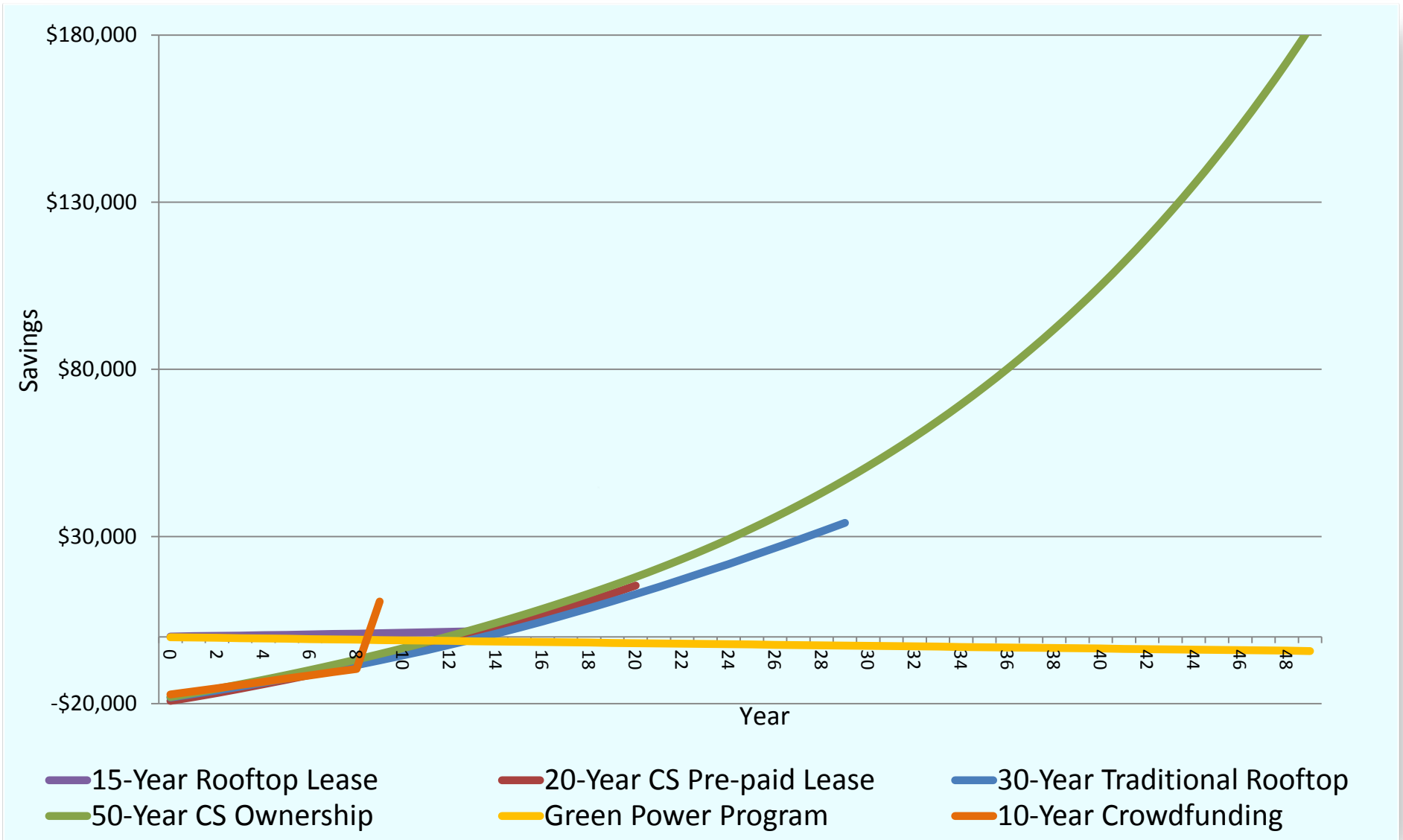
Power Purchase
(Value of Solar?)

Too High
Unfair to the Utility

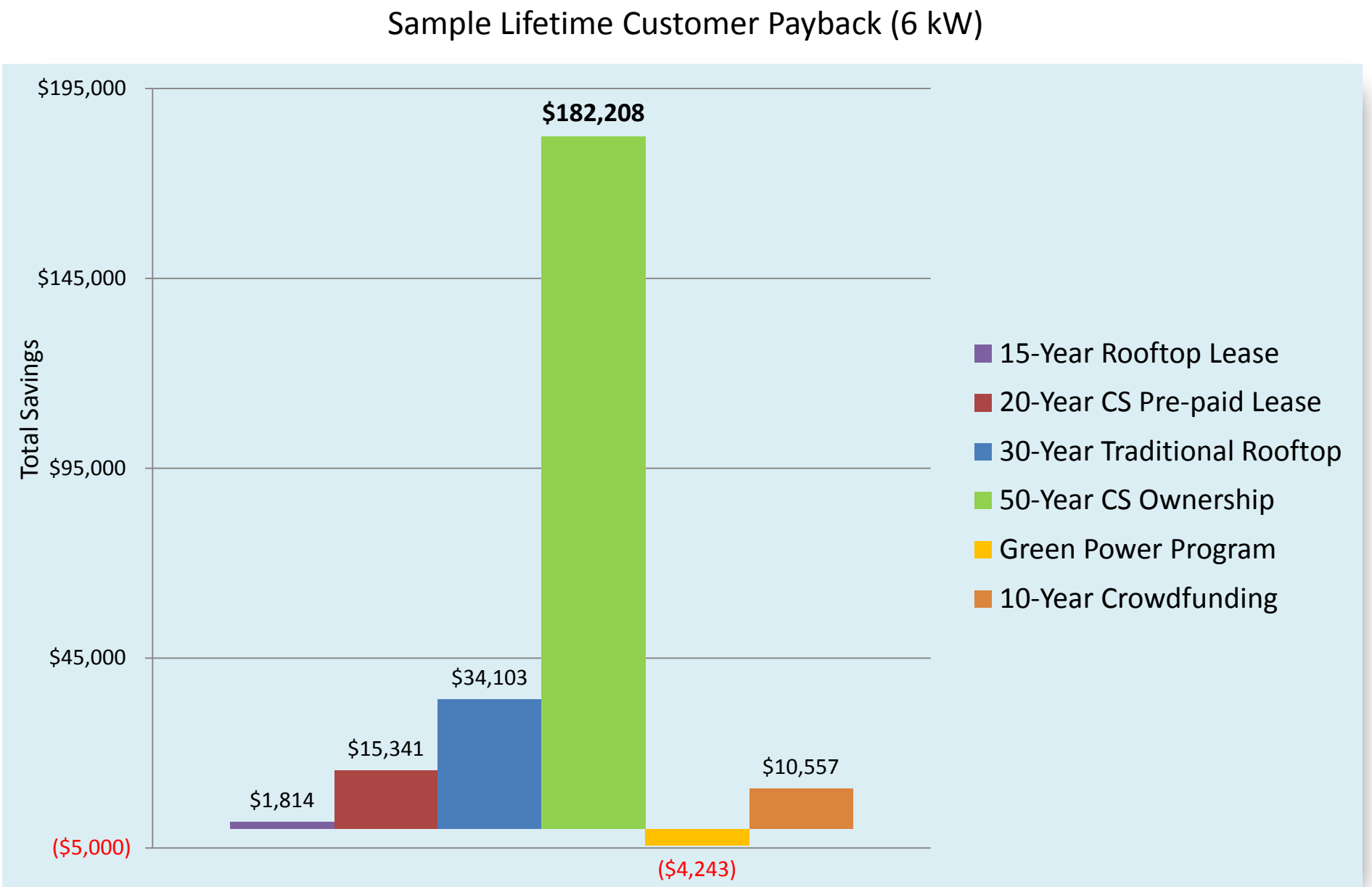
Solar Model Comparisons

Estimates based on:

- 1500 base sun hours (unmanaged)
- $3.20 / W net customer cost
- $0.12 / kWh energy credit rate
- 1% / yr. straight-line degradation for 20 yrs.
- 5% energy inflation
- 5.4% crowdfunding return



Solar Model Comparisons - Cumulative



Sizing Consideration

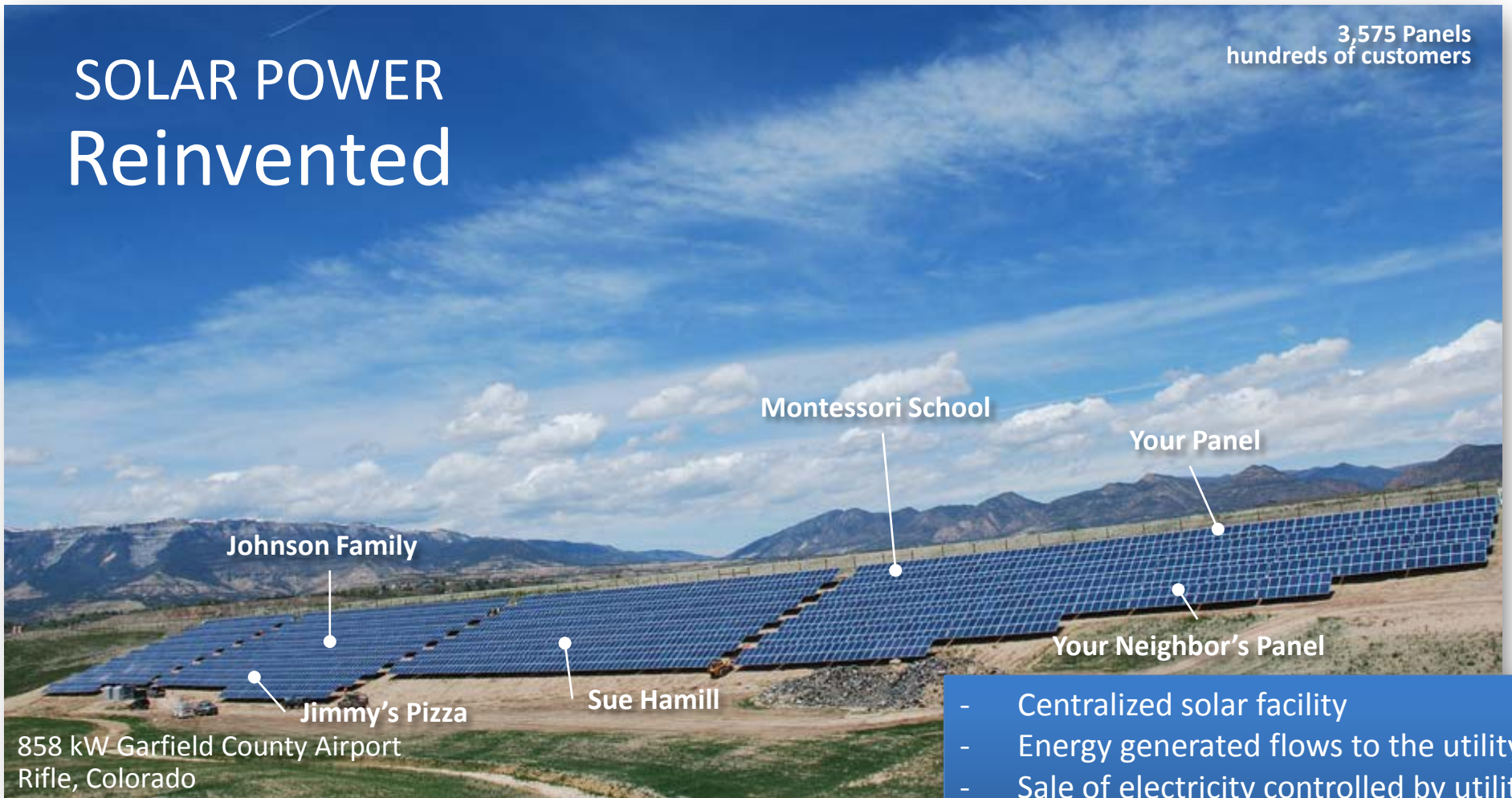
- Economies of scale start at 500 kW
  - Strengthened at 1-2 MW
  - Further strengthened at 4+ MW
- A 1 MW community solar array:
  - Will support 300-400 customers
  - Take 5-8 acres of space
  - Produce 1,100 – 1,700 MWh per year
- Be realistic about adoption
  - Less than 1% customer participation
  - Average participant offsets less than 50%

Program Implementation

Community Solar – Many considerations

- Competing interests
  - Complicated Securities and Tax Laws
  - Will tax credits apply?
  - Consumer Protections
- On-Bill Crediting
- Ongoing Operations and Maintenance
  - $2M / MW (50 yrs.)
- Ongoing Administration
- Build versus partner

Community-Owned Solar



- Centralized solar facility
- Energy generated flows to the utility
- Sale of electricity controlled by utility
- Utilizes local resources & equipment

Balanced Benefits

- 100% ownership/benefit to community members (opt-in/voluntary)
  1. All power delivered directly to the utility via contract (PPA, FIT, etc.)
  2. Payment for power production delivered to customers via **on-bill credit** ($/kWh or kWh credits)
- Used to offset energy use, not to produce excess generation
- Utility receives long-term, in-network clean power at reasonable rates; **system paid for by voluntary customers**
- Tax equity and customer finance potential
- Utility provides a solution that its customers want

PPA Payment via Customer Bill Credit
via proprietary RemoteMeter® technology

Local Win x 3

Case Studies

	GARFIELD COUNTY AIRPORT COMMUNITY SOLAR ARRAY
Location	Garfield County Airport, Rifle, CO
Type	Pole mount solar
Size	8.5 acres
Capacity	Phase 1: 858.24 kW / 1,360 kW total 3,575 solar panels (240 W Hanwha) 260 kW PV Powered inverters, 480 V
Customers	Estimated 250-350 customers

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Case Studies

	SMPA COMMUNITY SOLAR PARADOX VALLEY
Location	Naturita, CO
Type	Pole mount solar
Size	9.0 acres
Capacity	1,124.24 kW total 4,784 solar panels (235 W Hanwha) 1 MW AE PowerVault inverter, 480 V
Customers	Estimated 450-550 customers

SAN MIGUEL POWER ASSOCIATION

SMPA COMMUNITY SOLAR

Case Studies

	XCEL ENERGY SOLAR*REWARDS COMMUNITY
Locations	11 sites: Aurora, Boulder x3, Denver x 3, Jefferson x 2, Breckenridge x 2
Type	Pole mount solar and carports
Size	42+ acres
Capacity	5+ MW ~21,647 panels (235 W)
Customers	Estimated 1,750-2,250 customers

Xcel Energy®

Solar*Rewards Community™

go ahead. power up.

Clean Energy COLLECTIVE®

Thank You.

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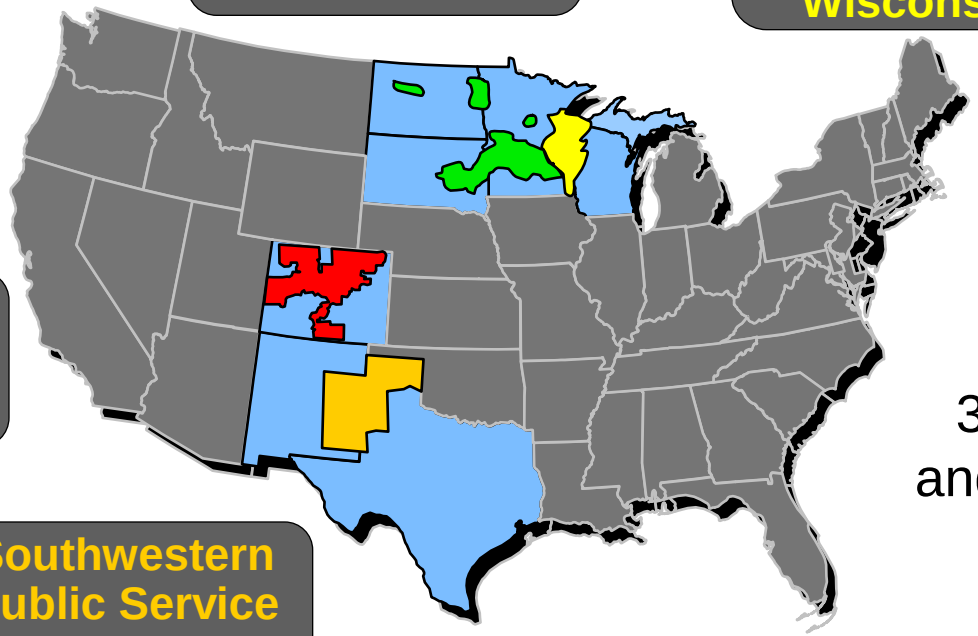
Solar*Rewards® Community® Introduction

2013

About Xcel Energy



3.3 Million electric and gas customers in 8 states

Program Overview

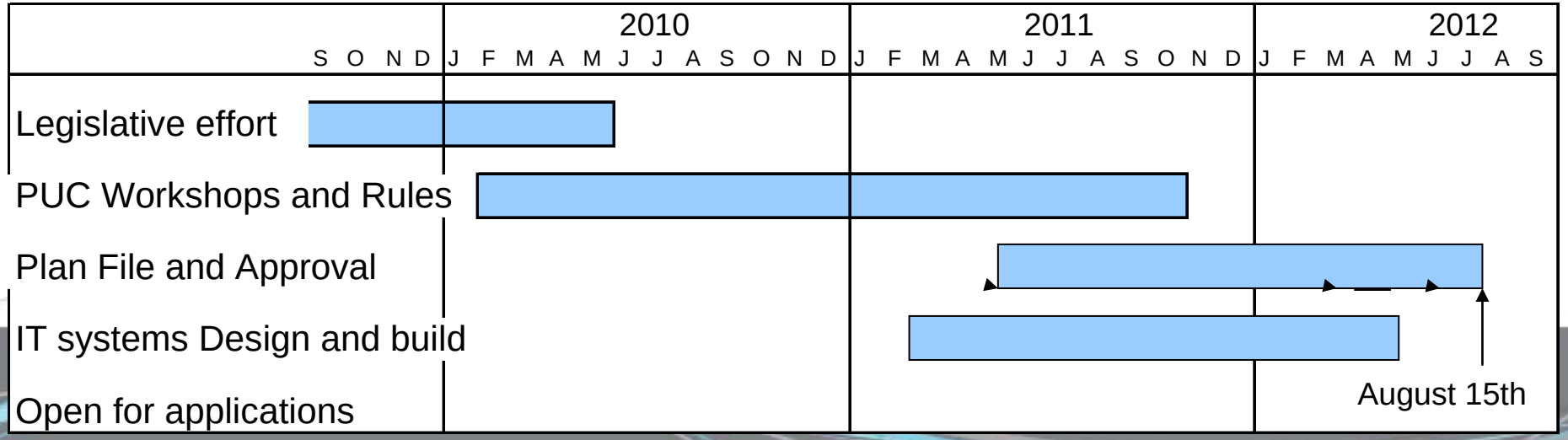
Solar*Rewards Community (SRC) allows more customers to participate in solar

- **9 MW accepted in 2012**
- **9 MW offering in 2013**
  - **4.5 MW from standard offer (10-500 kW)**
  - **4.5 MW from large RFP offer (500.1 kW-2 MW)**
- **2012 & 2013 Status**
  - **Acquisitions filled in 2 minutes!**

	2012	2013
Standard Offer	10 projects	9 projects
RFP Offer	3 projects	Opens August

Program Progression

- Bill signed into law - June 6, 2010
- PUC workshops and rules - November 2011
- Program approval - August 2012
- IT systems built - one-year effort



How It Works-
REC Incentive

For Subscriber Organizations

- Two components to payment:
  - Subscribed energy payment = kWh production x REC price
  - Unsubscribed energy payment = kWh production x average hourly incremental cost of energy

For Participating Customers

- Credit on customer's bill

How It Works-
Solar Garden Requirements

- Minimum of 10 subscribers
- No single subscriber can be allocated more than 40% of garden capacity
- Minimum subscriber allocation is 1 kW (low income excluded)
- 5% of garden allocated to low income subscribers
- 1.5 years to complete installation
- Service and production meters with remote communication

Questions?

- **You can contact me at:**

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  Renewable Energy Program Developer

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Q&A

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