



NARUC

Winter Committee Meetings

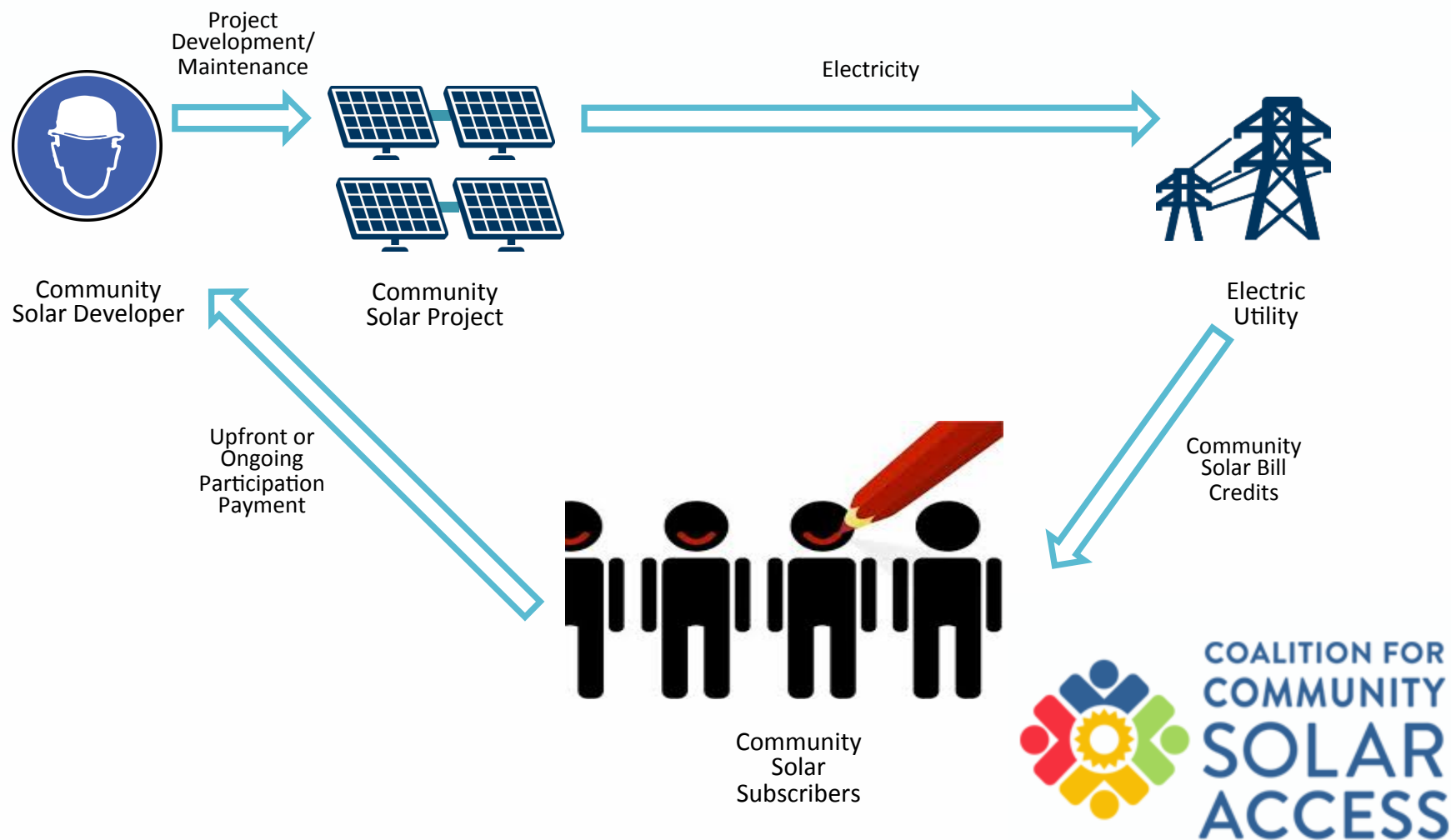
Committee On Energy Resources & the Environment



- **About:** National community solar trade association representing 25 providers, customers, and professional service businesses in the community solar sector
- **Mission:** To expand access to clean, local, and affordable clean energy nationwide through community solar – expanding access to solar for all!
- **Learn more:** www.communitysolaraccess.org, www.facebook.com/communitysolaraccess/ and twitter.com/SolarAccess



How does community solar work?



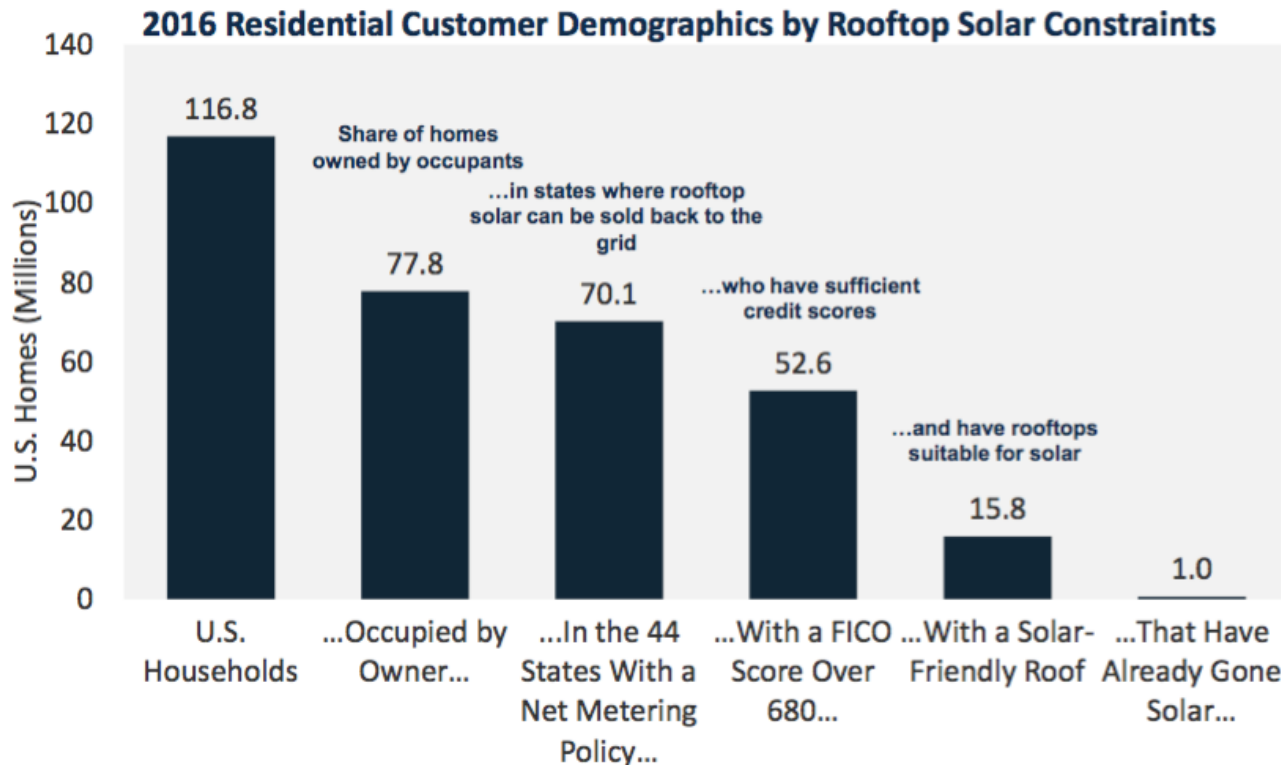
Why is community solar important?

- **5 key benefits of community solar:**

- Equal Access: Community solar works for anyone with an electric bill, including renters, residents in multi-unit buildings, and businesses that don't own their roofs.
- Favorable Economics: Local solar at scale and sunshine is free, which means solar offers reliable energy at a predictable rate for decades.
- It's Easy: Customers can sign up in a few minutes and begin receiving power production credits on their next utility bill. No contractor visits, permits, or maintenance means no hassle.
- It's Mobile: Community solar allows customers to move within the utility territory and still retain their participation in the community solar project, making it an easy, portable energy solution.
- Utility Partnerships: The community solar model works with utility programs, generally enabling them to provide a product their customers want—locally-made clean energy.



What is the potential for community solar?



GTM projection:
Community solar's addressable market is more than 7 times larger than rooftop solar

Source: Greentech Media U.S. Community Solar Market Outlook, October 2016



CCSA Core Principles

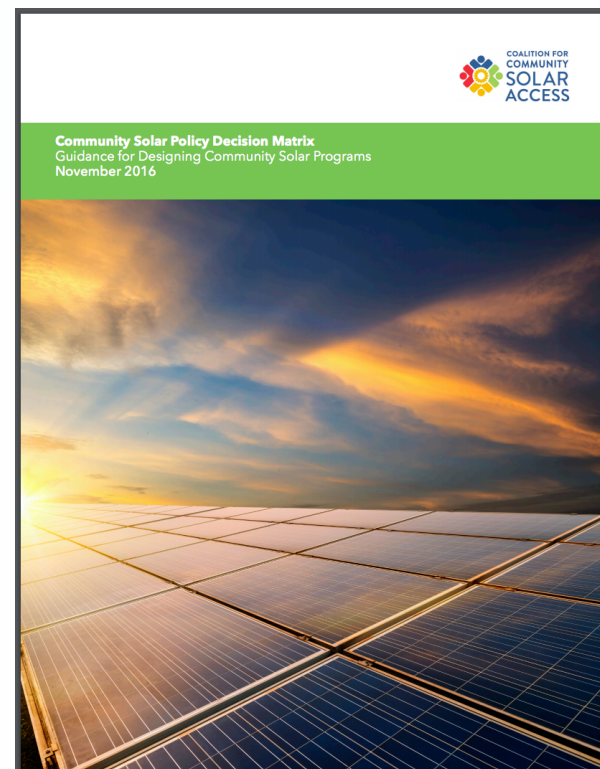
Expanding Access – Consumer Engagement and Protections – Competitive Marketplace

1. Allow all consumers the opportunity to participate in and directly economically benefit from the construction and operation of new clean energy assets.
2. Provide equal access for developers to build and operate community shared renewable energy systems and interconnect those systems to the serving utility's grid.
3. Incorporate a fair bill credit mechanism that provides subscribers with an economic benefit commensurate with the value of the long-term, clean, locally-sited energy produced by community shared renewable energy projects.
4. Support the participation of diverse customer types in renewable energy markets, and encourage customer choice with providers, product features, and attributes to catalyze innovation and best serve customers.
5. Provide assurance of on-going program operations and maintenance to ensure overall quality, that the facility lasts for decades, and that customer participation is protected. Safeguard the continuity of program benefits to protect customers and developers' investment.
6. Ensure full and accurate disclosure of customer benefits and risks in a standard, comparable manner that presents customers with performance and cost transparency.
7. Comply with applicable securities, tax, and consumer protection laws to reduce customer risk and protect the customer.
8. Encourage transparent, non-discriminatory utility rules on siting, and interconnecting projects, and collaboration with utilities to facilitate efficient siting and interconnection.
9. Maintain a 360-degree view of community shared renewable energy market And ensure a beneficial role for all parties in the partnerships forged between subscriber, developer, and utility.



CCSA Community Solar Policy Decision Matrix

- [Community Solar Policy Decision Matrix](#), released November 2016
- Offer policymakers, community leaders, utilities, and stakeholders a guide to navigate key decision points and offer recommendations on how to best develop successful community solar programs state-by-state
- How to use?
 - ✓ Step 1: Establish policy goals
 - ✓ Step 2: Use the Matrix to engage local stakeholders in process to develop programs that best achieve policy goals
 - ✓ Step 3: 2017 – working with a number states to develop programs with Matrix, and update the Matrix with input from policymakers, utilities, local stakeholders, etc.



CCSA Policy Decision Matrix:

Guides policymakers through key considerations

Key Questions to Ask	Options to Consider	CCSA Recommendations	Rationale	Example Language	Notes
What types of entities should be permitted to own and/or manage projects?	Community solar providers	Open, competitive markets with as many ownership options as possible.	Competition and innovation are necessary to drive the market forward, ultimately resulting in lower costs and more options for consumers.	A Subscriber Organization shall be any for-profit or not-for-profit entity permitted by [State] law that (A) owns or operates one or more community solar facility(ies) for the benefit of subscribers, or (B) contracts with a third-party entity to build, own or operate one or more community solar facilities.	In a program where multiple entity types are participating as project owners/managers, specific attention needs to be given to ensure a level playing field and ensure competitive markets. Considerations include equal access to data, financing, among other issues.
	Utility				
	Other (e.g. Customer, retail supplier)				
Who should fill the role of program administrator? (i.e.	State agency (such as the public utilities	A state agency, utility, or contracted third-	Program administration should be	[State agency] shall administer the community solar	If a utility oversees program administration and

CCSA Policy Decision Matrix Covers:

- **Program Structure**

- ✓ Who should own projects? – goal is open competitive markets with diverse ownership options
- ✓ Who should administer program? – state agency, utility, or third party administrator
- ✓ Who should administer bill credits – utility, though third party support may be useful
- ✓ Program size – limits vs. open ended depending on policy goals
- ✓ Project selection and approval – tariff/first come first serve preferred over RFP

- **Compensation**

- ✓ Compensation value – need for predictability, transparency, and consumer benefit
- ✓ Credit mechanism – monetary or volumetric
- ✓ Unsubscribed energy compensation
- ✓ REC treatment

- **Consumer Participation**

- ✓ Minimum subscriber threshold – more than one
- ✓ Subscription sizes – depends on credit methodology

- ✓ Customer class carve outs – yes, dependent on policy goals and local considerations
- ✓ Standard consumer protections – Yes, including existing state law coverage and standardized disclosure checklist
- ✓ Transferability and geographic limitations – Should be transferable and located within same utility districts
- ✓ Rate schedule changes – no new charges or un-vetted changes through stakeholder process

- **Project Characteristics**

- ✓ Project size – Up to 20 mW
- ✓ Licenses – Same for other solar projects

- **Low-to-Moderate Income (LMI) Considerations**

- ✓ Provide differential incentives to ensure participation and cost savings
- ✓ Enhanced financing
- ✓ Leverage existing programs





Contact: Jeff Cramer, Executive Director
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Princeton Workshop on Community Solar

- Report on the benefits and obstacles of community solar
- Provide policy recommendations for community solar in New Jersey
- Completed a literature review, fieldwork in MN, HI & CA, and interviews with 100+ practitioners and subject-matter experts



**How Should
Customers Be
Credited?**

Legislation should be clear about intent and flexible in implementation

Minnesota Statute - supports community solar, flexible

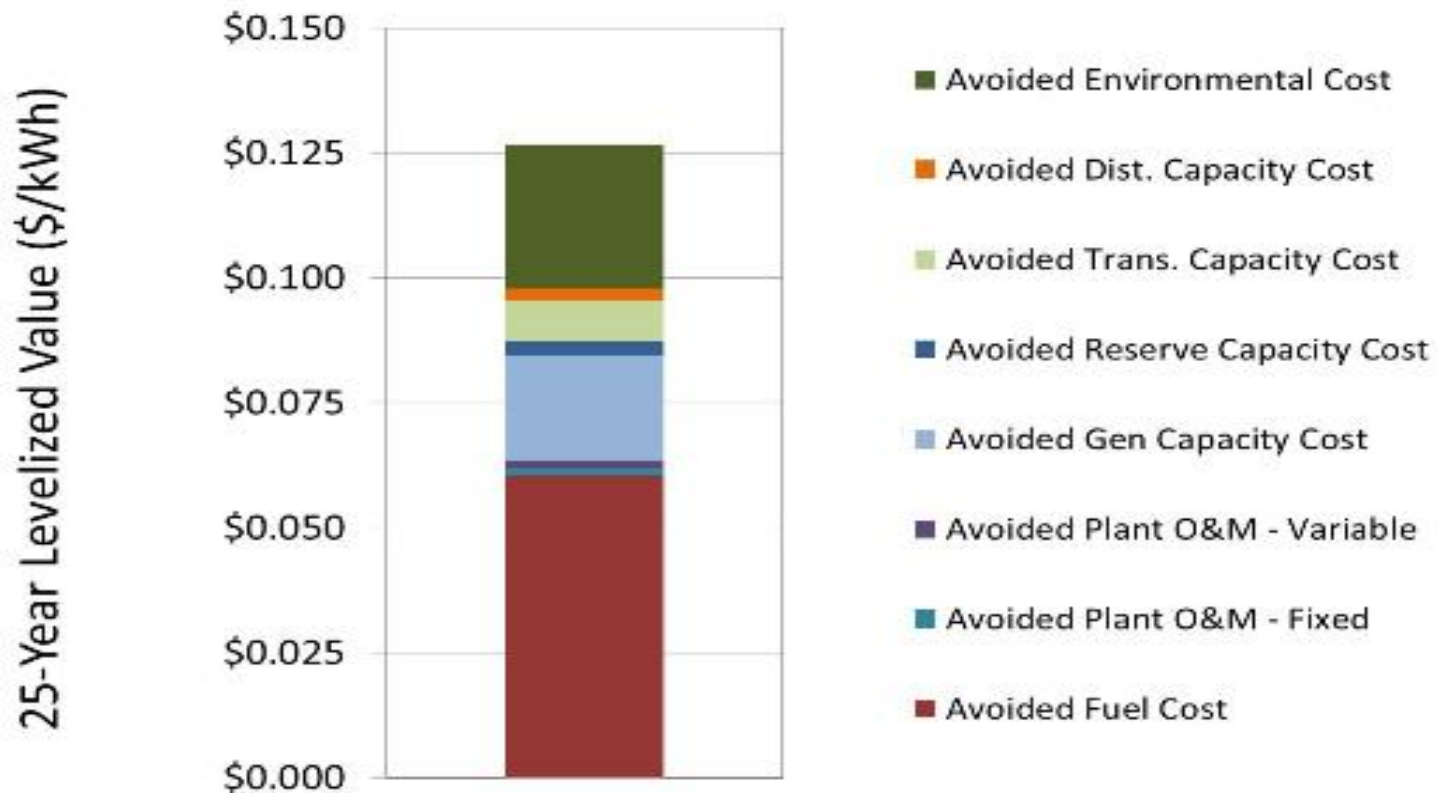
(1) “Reasonably allow for the creation, financing, and accessibility of solar gardens;”

California Statute – limits cost, rigid

(h) “It is the further intent of the Legislature that a green tariff shared renewables program be implemented in a manner that ensures nonparticipating ratepayer indifference for the remaining bundled service, direct access, and community choice aggregation customers.”

Direct the PUC to explore a value-of-solar rate

Sample value stack:



Source: NREL, Minnesota Value of Solar Generation with new "Value of Solar" Tariff

Value of Solar Recommendations

- **Discussions and methodologies explored should be transparent, predictable, and collaborative.**
- **Use placeholder rates for unknown values and make plans to improve estimates.**
- **Move towards rates that are place and time dependent.**

**How Should
Project
Applications
Be
Processed?**

Two Frameworks

RFP/Reverse Auction:

Proposals must satisfy the PUC's specified requirements

Utilities or a third-party entity manage the selection process

Winning projects move forward

Used in CA, HI

Interconnection Queue:

Projects may apply to interconnect after a date set by the PUC

First-come, first serve

Projects in the queue must meet benchmarks by stated deadlines, or be removed

Used in NY, MN, MA

Pros and Cons

RFP/Reverse Auction:

Benefits:

- Familiar, established, process
- Better for capped programs

Drawbacks:

- Slower and less efficient
- Administratively burdensome
- Higher project costs

Interconnection Queue:

Benefits:

- More transparent
- Creates a level playing field
- Better for wholesale markets

Drawbacks:

- Requires grid data
- Could lead to “land rush”
- Needs high application requirements

Summary of Recommendations

Make the statute specific in intent, but flexible for PUC implementation.

- Create a two-phase program. During phase 1, use the applicable retail rate and limit total capacity to quickly spot and fix problems. For Phase 2, create a value-of-solar credit rate.
- Cap projects at 5 MW, with a 40% subscription ceiling. Restrict projects to customers in the same service territory and county, or adjacent county.
- Require utilities to disclose grid information. Implement a cost-sharing mechanism for necessary grid upgrades.
- Use an interconnection queue process, rather than an RFP process.
- Include a 5-10% LMI carve-out. Underwrite loans for LMI customers and provide subsidies for low-income customers.

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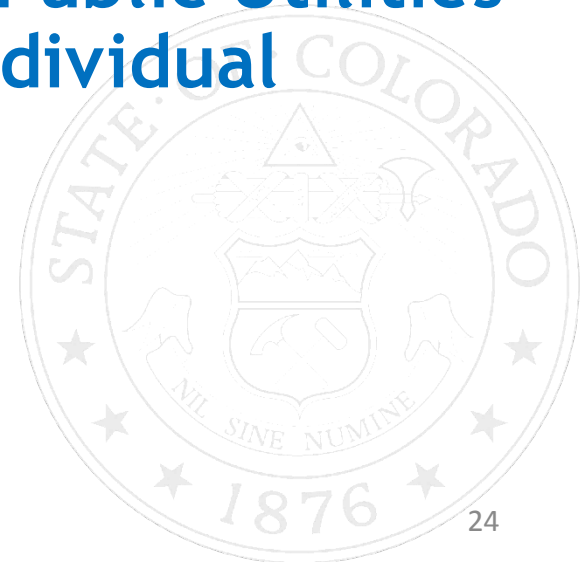
A Regulatory Perspective on Colorado's Community Solar Gardens

**Jeffrey Ackermann, Chair
Colorado Public Utilities Commission**



Disclaimer

The views expressed in this presentation are those of the presenter and do not necessarily reflect the views of the Colorado Public Utilities Commission or any other individual Commissioner.



Community Solar in Colorado

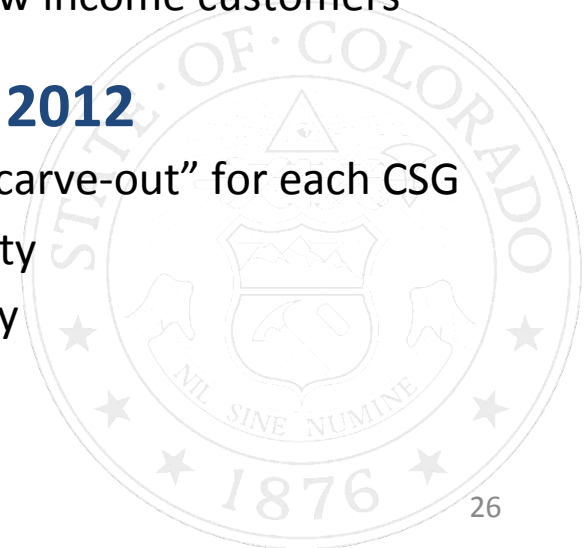
- **2009: United Power (REA) energized first CSG in CO -- 10 kW**
- **2010: State CSG legislation established requirements for IOUs**
- **Current Status: 30 MW of installed capacity in 37 projects**
 - Six times as many projects as any other state except Massachusetts
- **Near-Term Outlook: "Four states -- California, Colorado, Massachusetts and Minnesota -- are expected to install the majority of community solar over the next two years."**

Source: <http://www.seia.org/policy/distributed-solar/shared-renewablescommunity-solar>



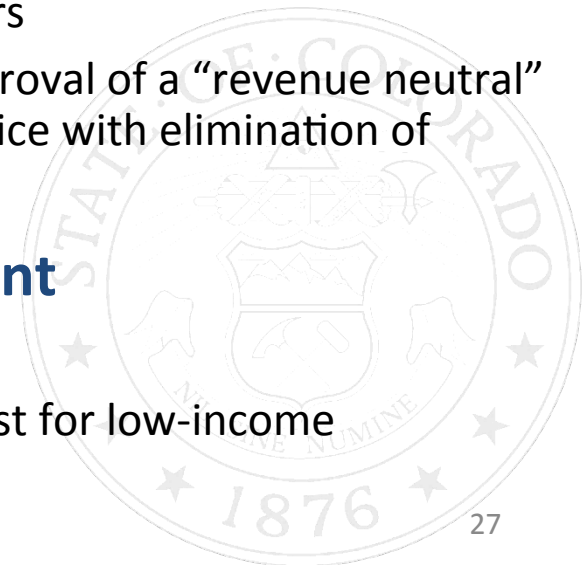
CSG Legislation and PUC Rules

- **2010: State CSG legislation established requirements for IOUs**
 - Defined CSG: PV system up to 2 MW; at least 10 subscribers
 - Qualifies as retail DG; can only fulfill 20% of retail DG RES
 - Annual growth: 6 MW per year (2011-13); PUC determines amounts thereafter
 - Subscriber limited to 120% of annual electricity use
 - Subscriber's bill credit: CSG generation share * utility's total aggregate retail rate (minus charge for delivery, integration and administration)
 - Utility's CSG plan must include proposal for including low income customers
- **2011 PUC Rulemaking – effective January 4, 2012**
 - Implemented low income provision: 5% participation “carve-out” for each CSG
 - Limited single subscriber to 40% of the total CSG capacity
 - Established provisions for share transfers and portability



Expansion of the IOU CSG Market

- **2012: first CSG offering by Public Service Company of Colorado (PSCo)**
 - Standard Offer provided 4.5 MW at pre-determined REC price for each kWh
 - Fully subscribed by CSG providers within 30 minutes
 - Additional 4.5 MW made available through an RFP process
- **2015 CSG RFP expanded to 30 MW but delayed by controversy**
 - Negative REC prices were bid by some CSG developers
 - Lengthy negotiations and multiple hearing led to approval of a “revenue neutral” settlement agreement combining 3 cent/kWh REC price with elimination of individualized bill credits for commercial customers
- **2016 PSCo multi-case settlement agreement**
 - Increased CGS program capacity to be offered:
 - Up to 105 MW over 3 years plus up to 12 MW just for low-income



IOU Direct Participation

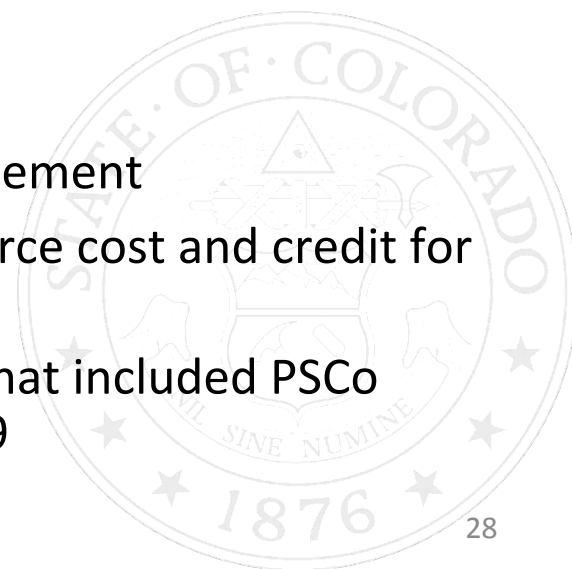
- **2014: PSCo proposes “Solar*Connect”**

- 50 MW facility, customers to pay premium to subscribe
- Offered as option for customers not eligible for rooftop or CSG
- Strong opposition; weak foundation; denied



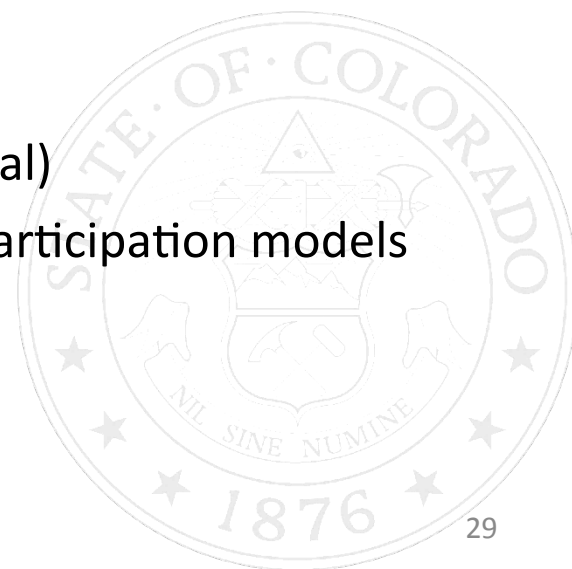
- **2016: “Solar*Connect” v.2**

- Opposed by CSG vendors as anti-competitive
- Negotiated into “Renewables*Connect” in settlement
- Customer bill to include charge based on resource cost and credit for avoided energy and capacity
- Settlement was part of multi-case agreement that included PSCo increasing CSG capacity offerings for 2017-2019



Low-Income Participation in CSG

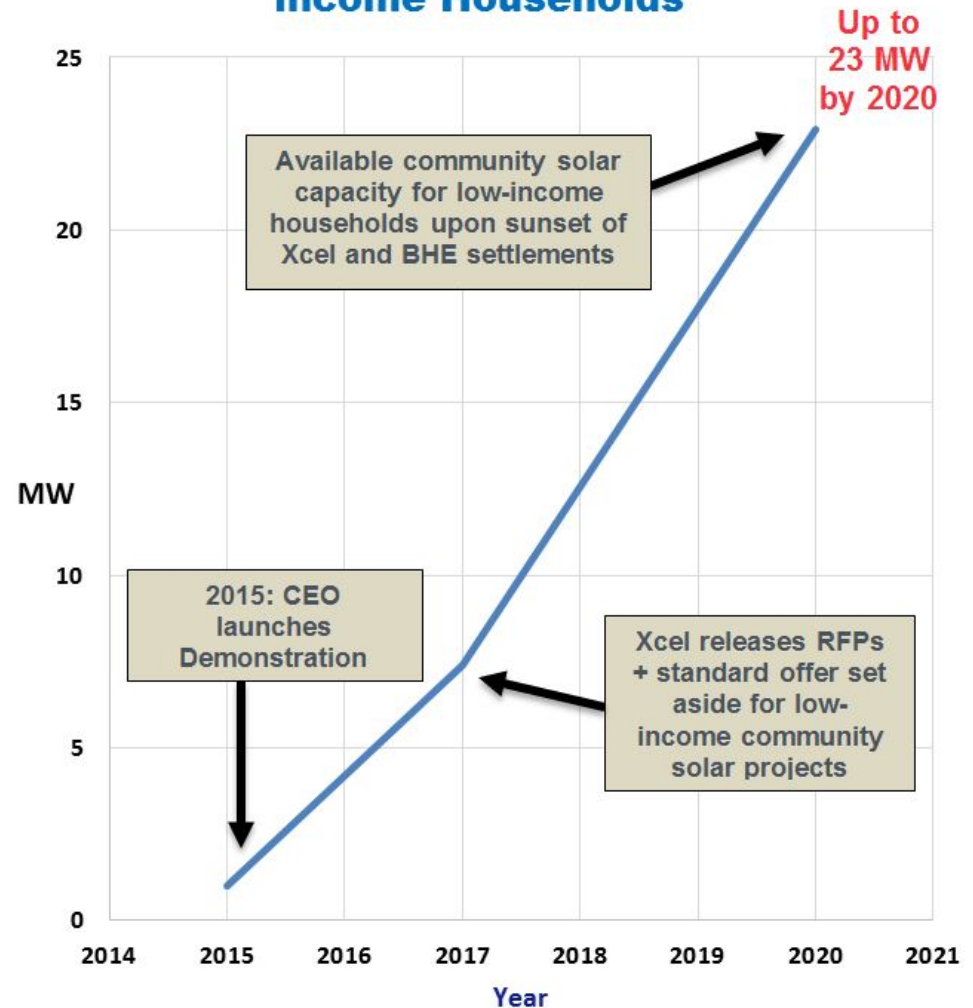
- **Colorado Energy Office (CEO) Assessment:**
 - 5% carve-out being met, but room for improvement
 - Opportunity: dedicated, low-cost (and clean) kWh's: complements EE
- **Low-Income Community Solar Demonstration Project**
 - 2015: CEO awarded GRID Alternatives \$1.2 million grant
 - Outcomes:
 - 7 projects (6 REA; 1 Muni)
 - Ranging from 20 kW to 500 kW; (1.4 MW total)
 - 100% for low-income households; various participation models
 - Third party evaluation underway



Acceleration of Low-Income Solar

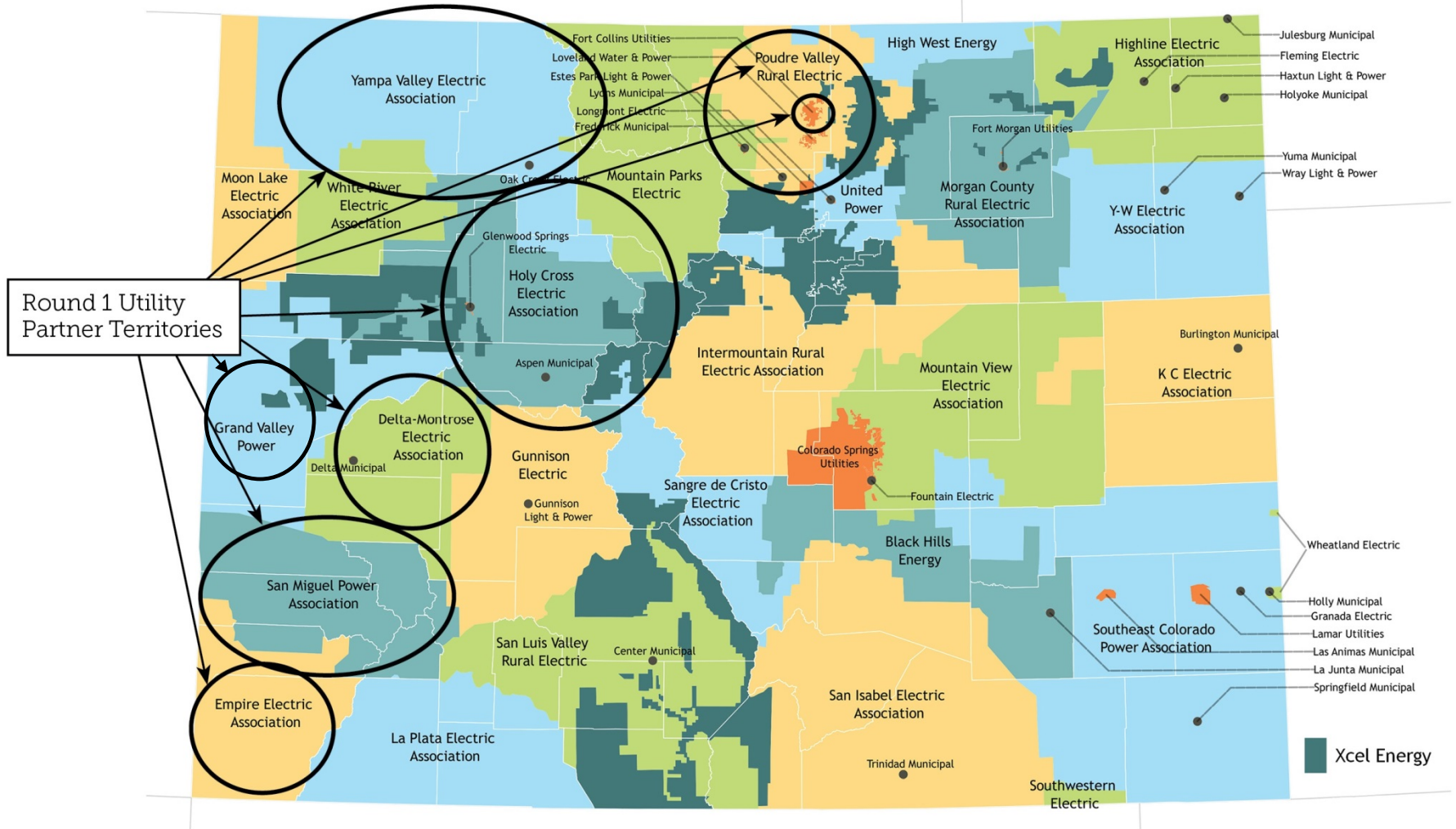
- In **2015**, **less than 1 MW** of CSG was for low-income households
- In **2017**, CEO's Demonstration Project will **add 1.4 MW** of community solar for low-income households
- From **2017-2019**, Xcel Energy will:
 - Release **RFPs annually for 4 MW** of low-income community solar gardens;
 - **Set aside 0.5 MW** for a low-income standard offer; and
 - Manage **5% carve-out across portfolio** of projects
- From 2017-2020, Black Hills Electricity will **release RFPs annually for 0.5 MW** of low-income community solar gardens

Community Solar Dedicated to Low-income Households



2016-17 Low-Income CSG Development

Colorado Electric Utility Service Territories



QUESTIONS?



[www. colorado.gov/dora/puc](http://www.colorado.gov/dora/puc)



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