U.S. DEPARTMENT OF ENERGY | Office of ENERGY EFFICIENCY & RENEWABLE ENERGY

SOLAR ENERGY TECHNOLOGIES OFFICE

NREL NATIONAL RENEWABLE ENERGY LABORATORY

BERKELEY LAB

Launch Webinar

April 28, 2020

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energy.gov/eere/solar/national-community-solar-partnership

Today's Agenda

1. Welcome
2. State of community solar
3. Opportunity space
4. National Community Solar Partnership overview
5. How to get involved
6. National Community Solar Partnership program elements
    a. Network
    b. Technical Assistance
    c. Collaboration
7. Q&A

Today's Webinar

- All participants are muted so all can hear
- Engage with us via Polls function in WebEx
- We will do Q&A at end of presentation. Please use WebEx Q&A function to add your questions, not Chat.
- Slides will be posted on DOE's National Community Solar Partnership website after the meeting

Poll #1 - Breaking the Ice

1. Who is on the call today?
   - Federal government
   - State, local, or tribal government
   - NGO / community org
   - Solar developer
   - Utility company
   - Financial institution
   - Educational institution
   - Trade / member association
   - Software vendor
   - Other
2. What do you work on in community solar?
   - Implementing projects/programs

     Design, development, financing, customer acquisition/subscription/management
   - Facilitating projects/programs

     Policy, member associations, technology provider, analysis

The State of Community Solar

Jenny Heeter, Senior Energy Analyst

April 28, 2020

What is Community Solar?

Community solar, for the purposes of this research, refers to a product where the **financial benefits** of a single solar photovoltaic array are distributed among an **exclusive** group of customers that have **chosen** to subscribe to the program.

The Key Criteria

Financial benefits: All community solar products convey some part of the financial gains of electricity generation to subscribers. Community solar products may also but do not necessarily include non-financial benefits such as environmental benefits (e.g., renewable energy certificates).

Exclusive: All community solar programs are exclusive, meaning that they serve some exclusive set of subscribers *within* a utility or community choice aggregation service territory.

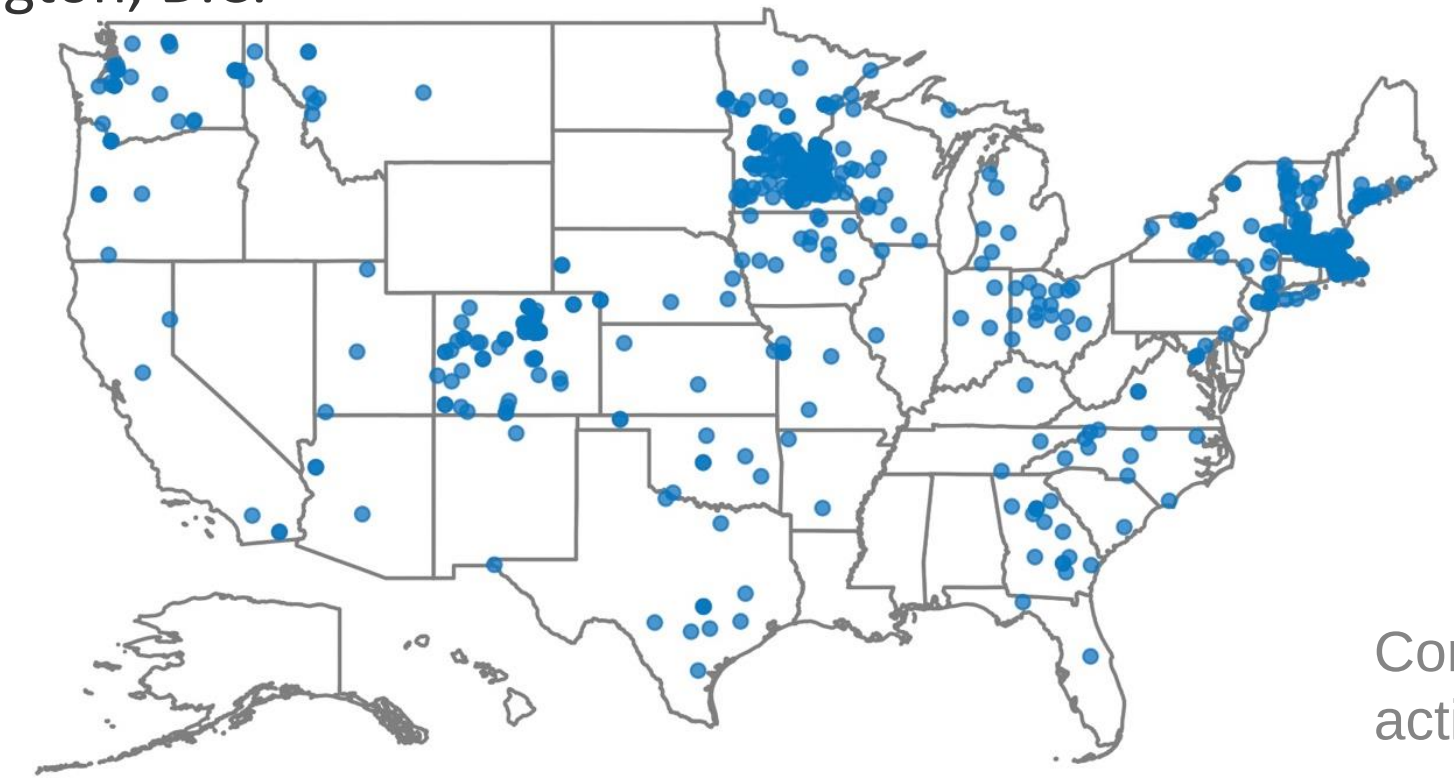
Chosen: Participation in community solar is always discretionary. Subscribers opt into the program, either through contractual payments or some non-financial transaction.

Quiz

- >90% of the community solar market (MW basis) is located in how many states?
  - 10
  - 20
  - 40
- What percent of community solar projects have a positive net present value (NPV) for residential subscribers?
  - >10%
  - >50%
  - >80%
- How many states have community solar projects with a low- and moderate-income focus?
  - 2
  - 10
  - 25

The Community Solar Market in 2018

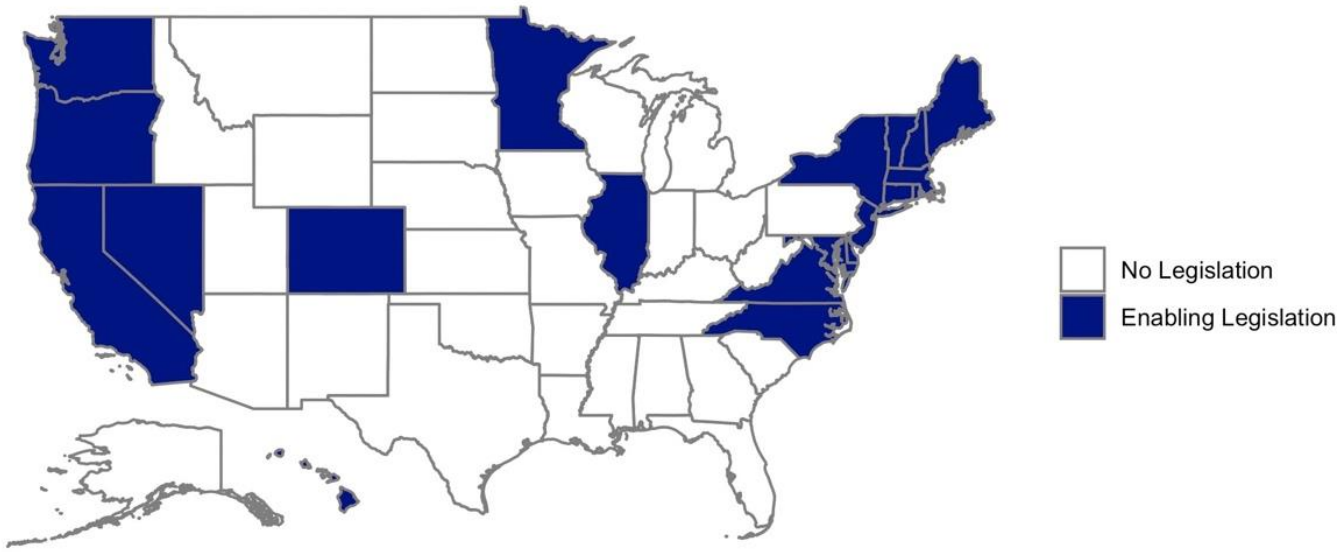
By the end of 2018, we estimate that there were at least 1,184 MW-AC of community solar capacity distributed across 811 projects in 39 states and Washington, D.C.



Community solar projects active as of end of 2018

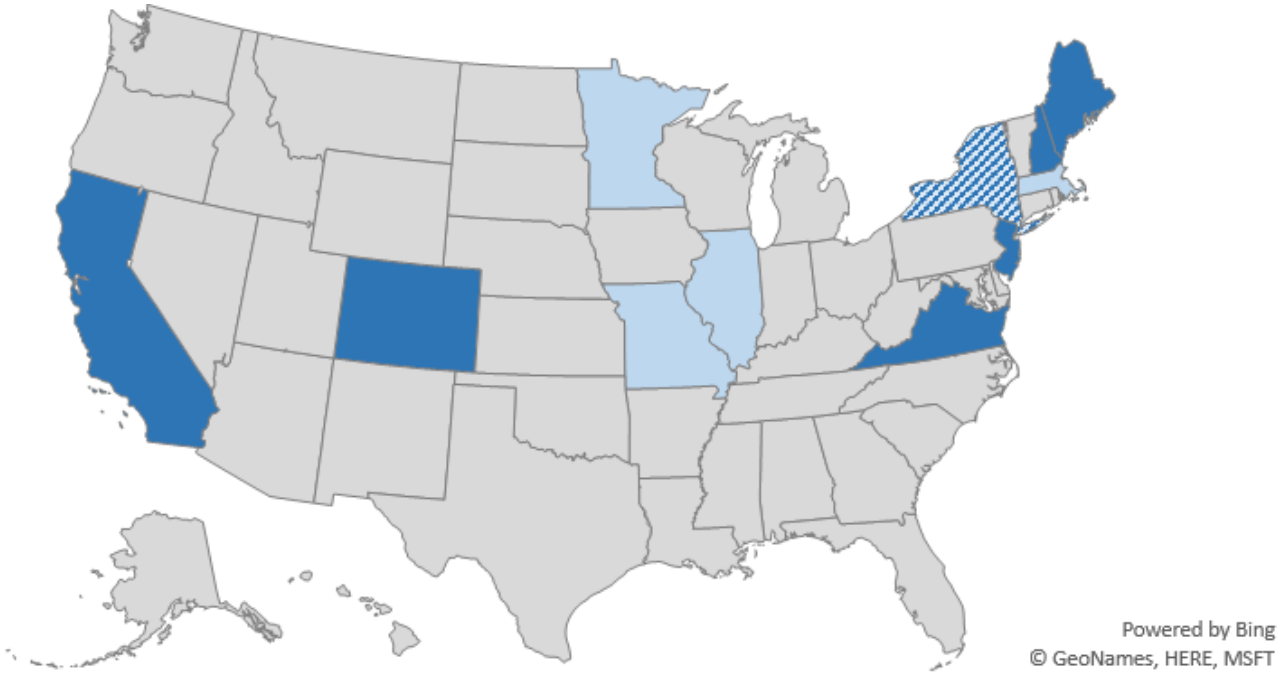
Community Solar State Policies

- 20 states and Washington, D.C. have passed some form of legislation enabling community solar, either through statewide programs or the authorization of a limited number of pilot projects.
- These programs vary in scope, but they generally all allow for some form of virtual net metering so that subscribers can benefit from their community solar subscriptions.



State-level community solar enabling legislation

2019-2020 Community Solar Policy Snapshot



2019-2020 Policy Updates

- No Change
- Passed Policy Change
- New or Amended Policy Introduced in 2020
- Passed Policy Change & 2020 Policy Introduced

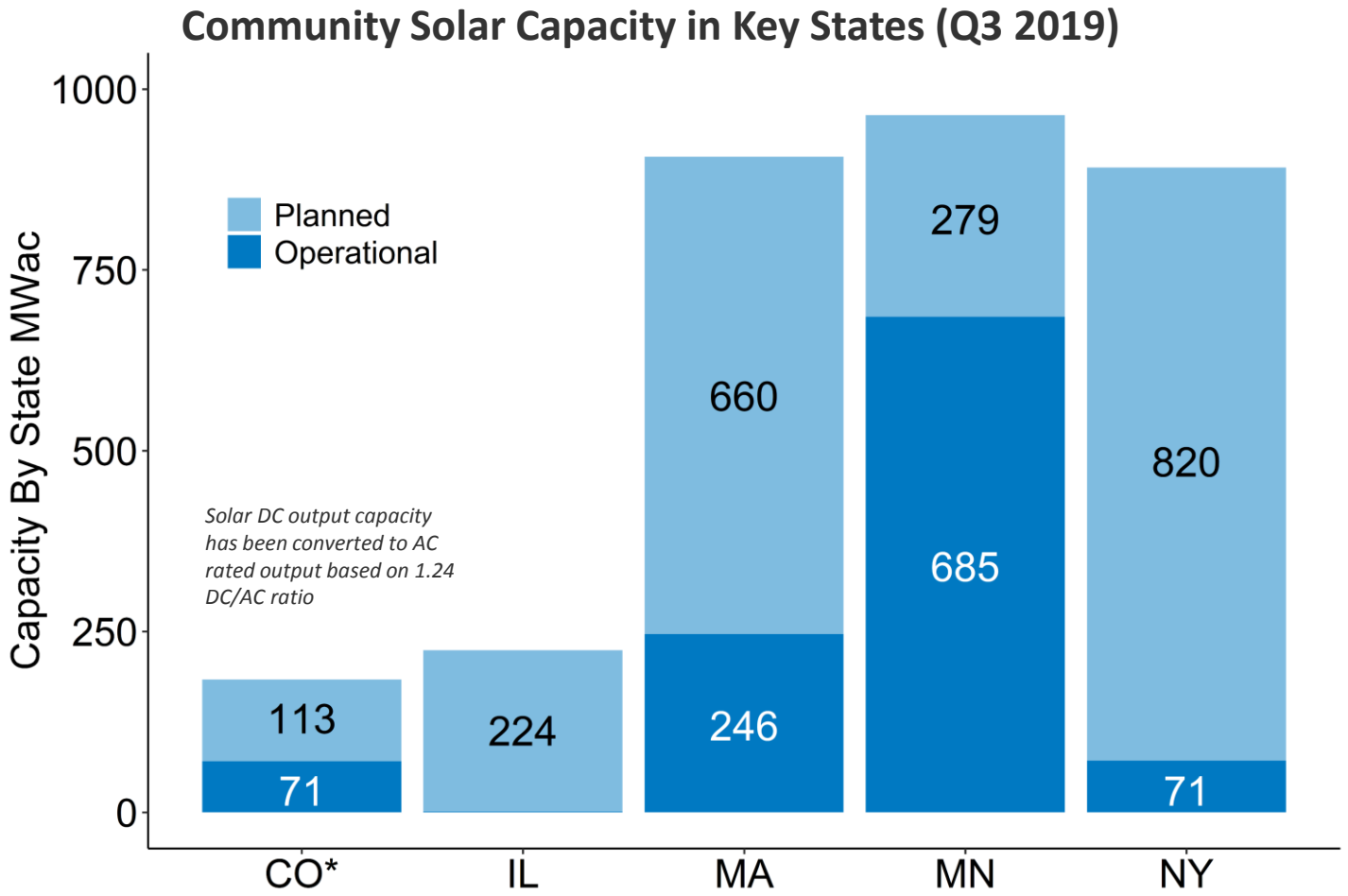
Enacted Community Solar Policies:

- **New York-** 19-M-0463 Passed Consolidated Billing for Distributed Energy Resources
- **Maine**- Implemented LD 711- An Act to Promote Solar Energy Projects and Distributed Generation Resources in Maine
- **New Jersey**- Approved TRECs, the transition program away from Solar Renewable Energy Credit SREC program, and approved 45 new Community Solar Projects to increase capacity for the community solar pilot program
- **Colorado-** Passed HB19-1003 amending the Colorado Solar Gardens Modernization Act to raise the cap on community solar gardens maximum size
- **California-** California Energy Commission approved a project for community solar to substitute for the solar panels to be installed on all newly constructed homes, setting precedent for 2019 Energy Code
- **New Hampshire-** Implemented SB 165- Relative to net energy metering by low-moderate income community solar projects
- **Virginia-** Recently passed 5 community solar specific bills (SB 710, HB1184, HB 572, HB 573, SB 629)-Effective July 1, 2020

Introduced Community Solar Policies:

- **Minnesota**- Introduced two bills (SF 3213 & HB 3368) to modify their Community Solar Gardens Program in 2020
- **Missouri**- Introduced HB 2490 an Act Establishes provisions for community solar gardens in 2020
- **Illinois**- Introduced in 2019, HB 3624- the Clean Energy Jobs Act was put on the 2020 legislative calendar and expands the Solar for All program
- **Massachusetts-** Introduced Bill S. 2500: An Act setting next-generation climate policy and updating Solar Massachusetts Renewable Target (SMART) Program
- **New York-** NY State Energy Research and Development Authority (NYSERDA) request additional funds for NY Sun Program

Community Solar Capacity in Queue

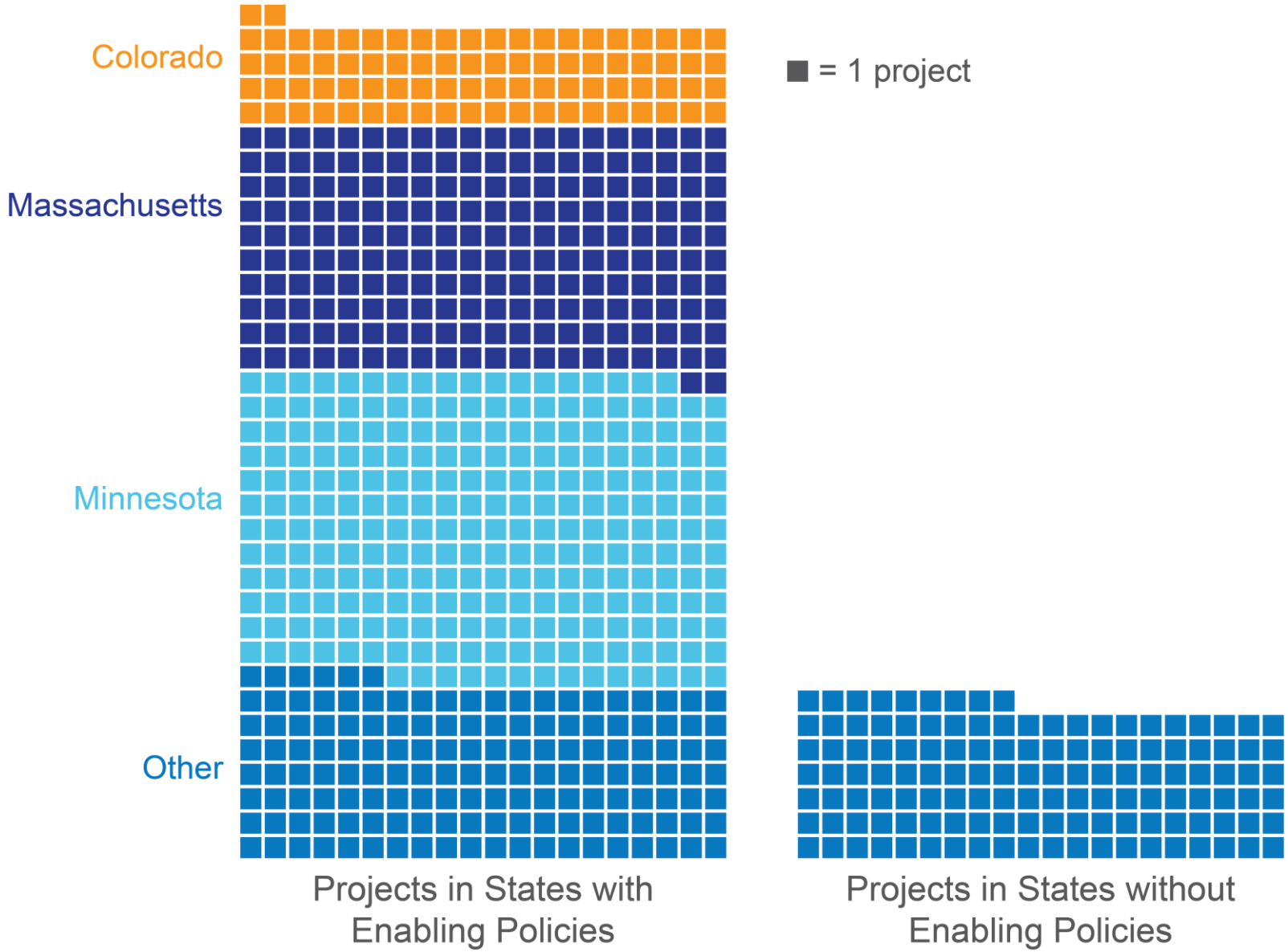


Operational data come from the NREL/UMN Sharing the Sun Data List. CO: Colorado installed solar capacity only includes projects under Xcel program; IL: Planned capacities include the adjustable block program and solar for all sub-program; MA: Planned capacities include SREC II (converted to AC) and SMART program; MN: Planned capacities only includes projects under Xcel program; NY: Planned capacities are converted to AC output.*
The solid blue represents the cumulative rated AC power output (MW) for community solar in operation by corresponding year in corresponding state. The semi-transparent blue represent capacity in queue

- **As of Q3 2019, five States (CO, IL, MA, MN and NY) have the most community solar capacity in queue.**
  - Over 2,000 MWac in queue
- **In addition, Florida Power & Light received approval of 1.4 GW community solar.**

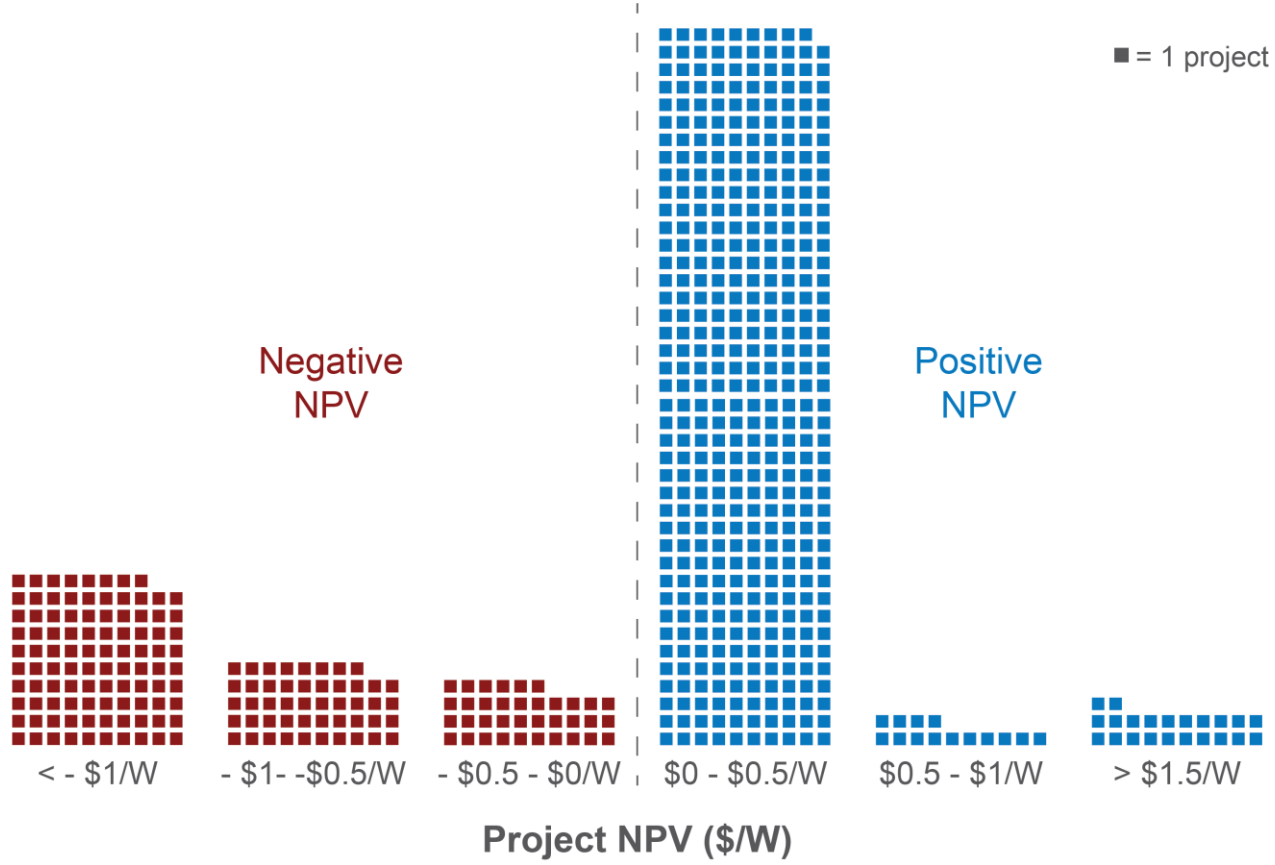
Deployment by State

- About 76% of capacity and 84% of projects are located in states with enabling legislation, dominated by capacity and projects in Colorado, Massachusetts, and Minnesota.
- Legislation is not a prerequisite for a community solar market. There are about 279 MW in 129 projects located in 23 states without enabling legislation.



More than 80% of Projects have a Positive Net Present Value (NPV) for Residential Subscribers

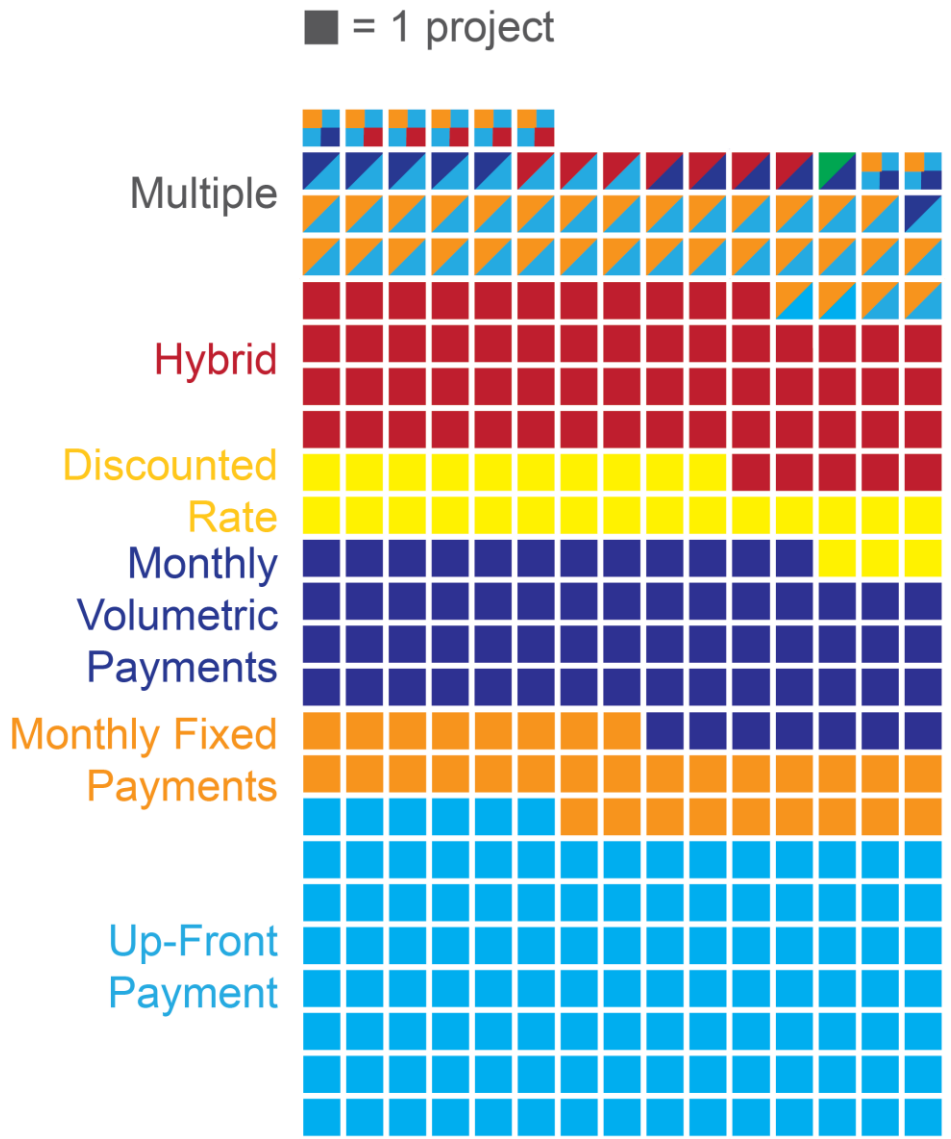
- To evaluate the community solar value proposition from the perspective of residential subscribers, we estimated the NPV under the various contracts offered by each project, where data were available. (See the Appendix for details on the NPV modeling assumptions.)
- The median project-level NPV is about **+$0.37/W (sensitivity range: +$0.20/W to +$0.46/W)** and about **83% (sensitivity range: 74 - 86%)** of projects yield a positive NPV, meaning that most projects result in positive net benefits to the customers over the course of the subscription.



Distribution of Project-Level NPVs

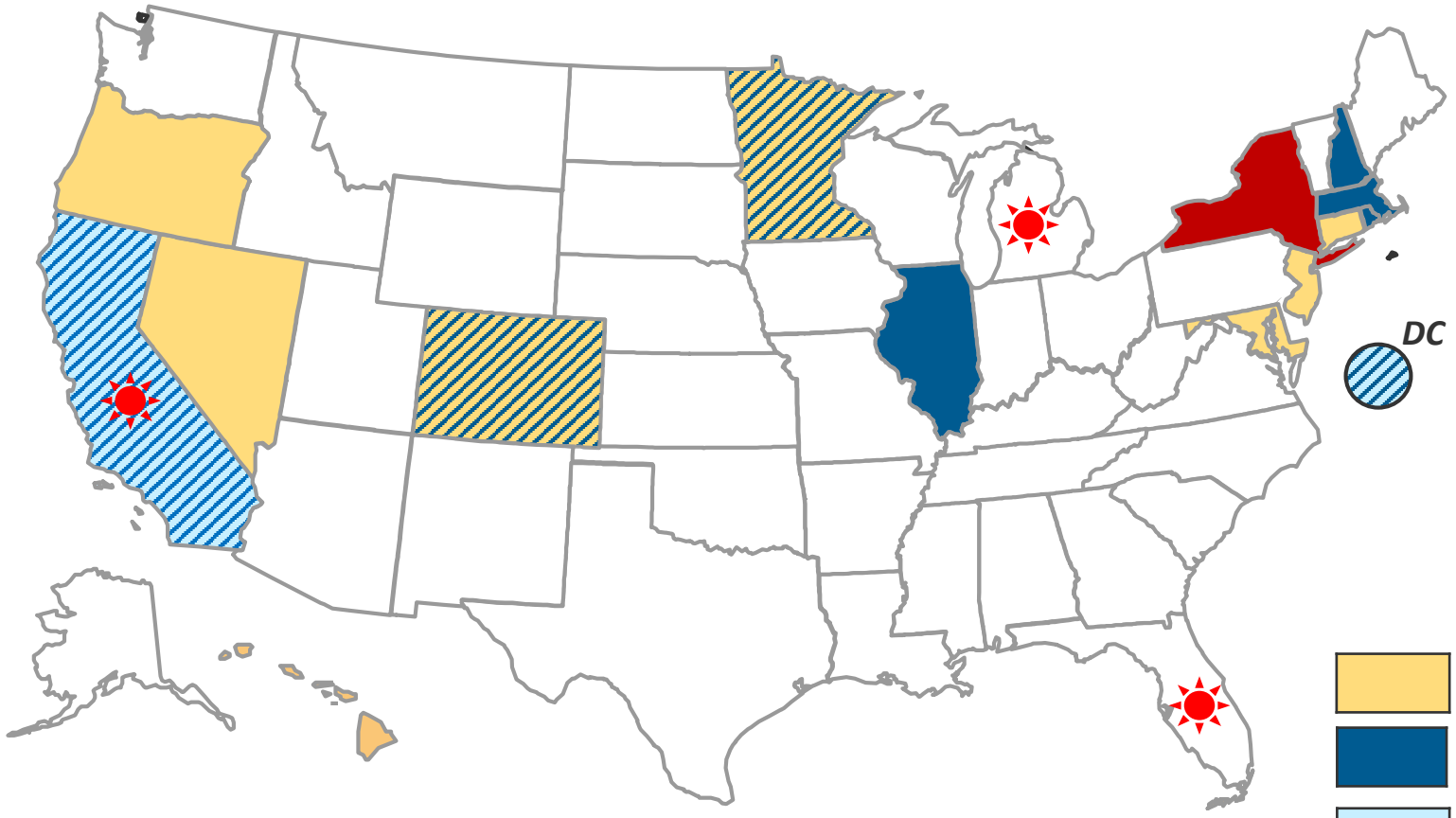
Residential Payment Terms are Diverse

- Up-front payments are the most common payment structure, offered in about 46% of projects, followed by monthly volumetric payments (22%).
- About 21% of projects offer a hybrid model (combining different up-front and monthly payments).
- About 15% of projects offer multiple payment structures, most commonly a combination of upfront and fixed monthly payments.
- About 8% of projects offered a fixed discount over the customer's electricity rate instead of a payment.



Distribution of Program Payment Methods

States are Expanding Low- and Moderate-Income (LMI) Access



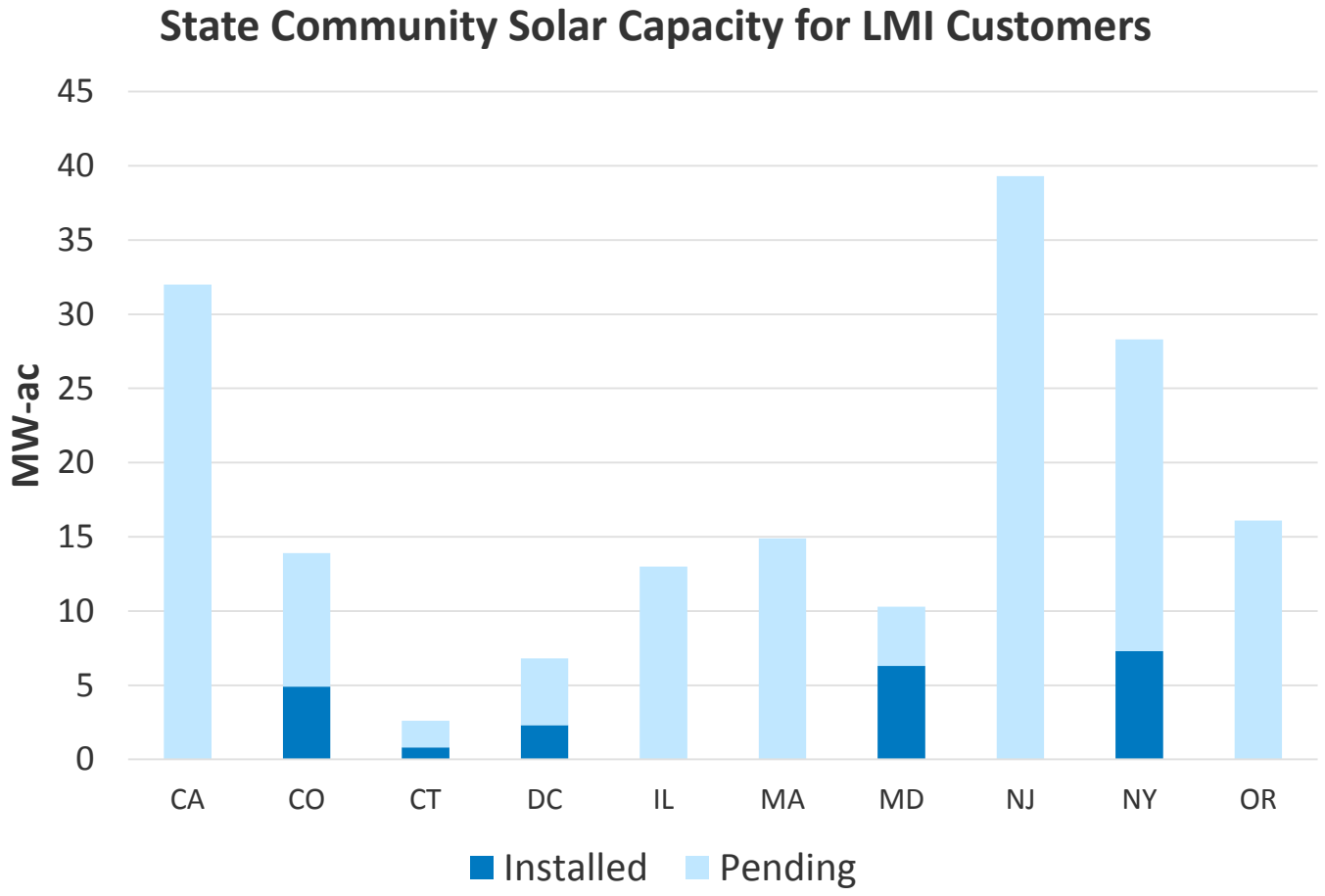
14 states and Washington, D.C. have a policy or program supporting LMI community solar capacity.

California, Michigan, and Florida have new voluntary programs.

- Carve-out
- Incentives/Grants
- Multifamily housing
- To be determined
- Voluntary Program

*Note: See appendix for state policy references. In addition, MN Solar*Rewards Programs 2019 will provide incentives to both low-income nonprofit and multifamily qualifiers*

>20 MW of LMI Community Solar Installed and >150 MW Pending



- Based on the most recent data, 21.6 MW of community solar serving LMI customers are in operation, and 155.6 MW are planned. This LMI capacity will benefits over 40,000 LMI households, once in operation.
- LMI projects are developed through:
  - State community solar programs with an LMI carve-out (CO, CT, MD, NJ, OR)
  - State community solar program with an LMI adder (MA)
  - State LMI community solar program (DC, IL, NY)
  - LMI community solar project investments (CA)

Community Solar 101, NREL Presentation (2020)
Sharing the Sun: Understanding Community Solar Deployment and Subscriptions, NREL Presentation (2020)

Summary

- Community solar is growing rapidly but is heavily concentrated in a small number of states.
- The net present value of community solar subscriptions is positive in states with high levels of deployment.
- A few states and utilities have developed LMI community solar programs and projects.

Persistent Barriers Limiting Solar Access

50%

of Americans cannot access rooftop solar*

Technological Barriers

- Lack suitable roof space
- Rent home
- Live in multifamily buildings

Financial Barriers

- High up-front expense
- Lack of competitive interest rates
- Few options for those with a low credit score and/or income below traditionally acceptable underwriting criteria
- Inability of tax-exempt businesses and certain LMI populations to use the Investment Tax Credit

* Shared Solar: Current Landscape, Market Potential, and the Impact of Federal Securities Regulation, NREL Technical Report (2015) https://www.nrel.gov/docs/fy15osti/63892.pdf

Value of Increasing Access to Solar Energy

- Enable financial benefits from solar to flow to everyone and every community
- Increase the demand for solar energy
- Drive innovation
  - MORE actors + MORE familiarity = MORE ideas

National Community Solar Partnership ("NCSP")

The National Community Solar Partnership is a coalition of community solar stakeholders working to expand access to affordable community solar to every American household by 2025.

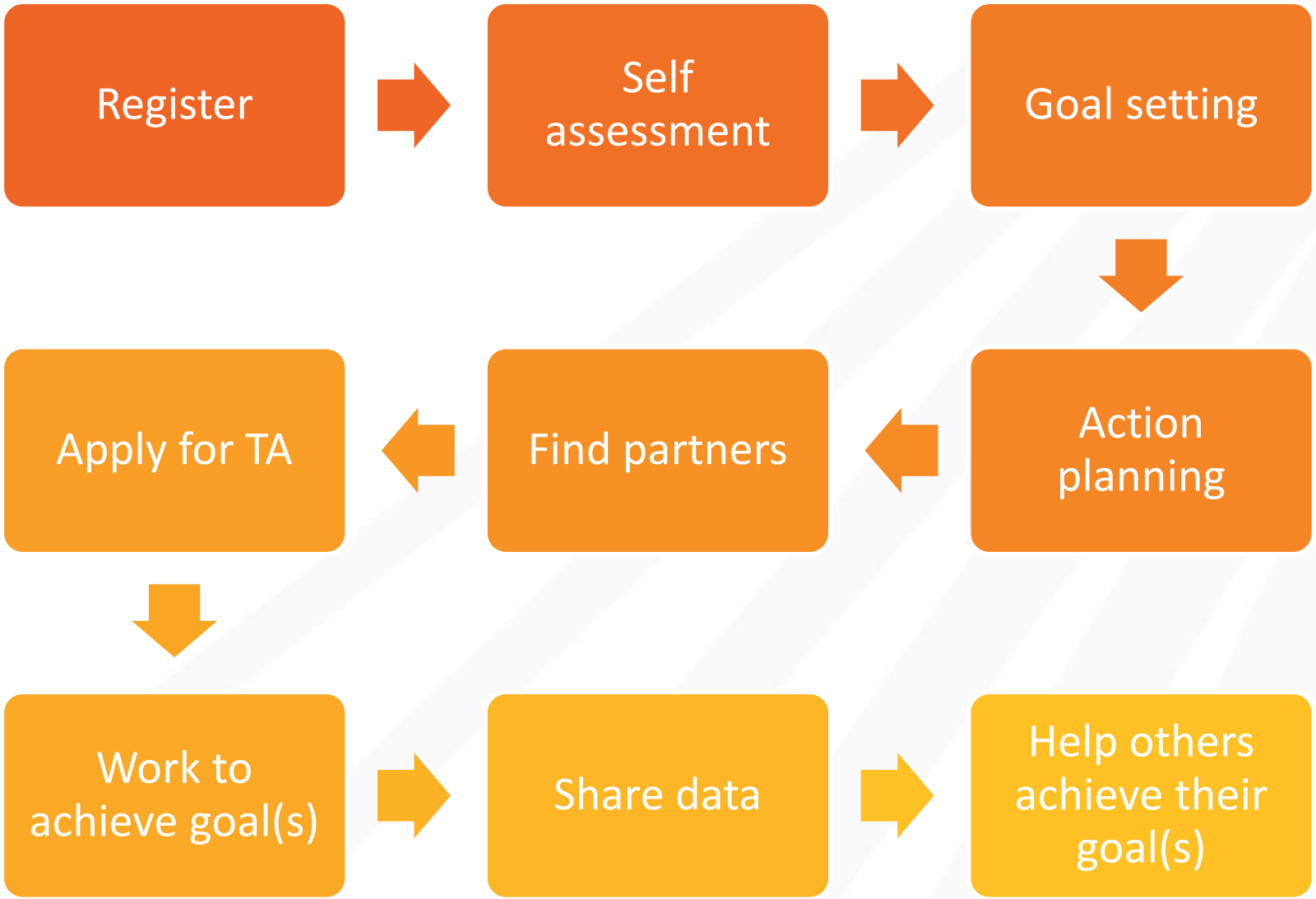
Goals of the Program

- Make community solar accessible to every U.S. household
- Ensure community solar is affordable for every U.S. household
- Enable communities to realize supplementary benefits and other value streams from community solar installations, such as increased resiliency and workforce development

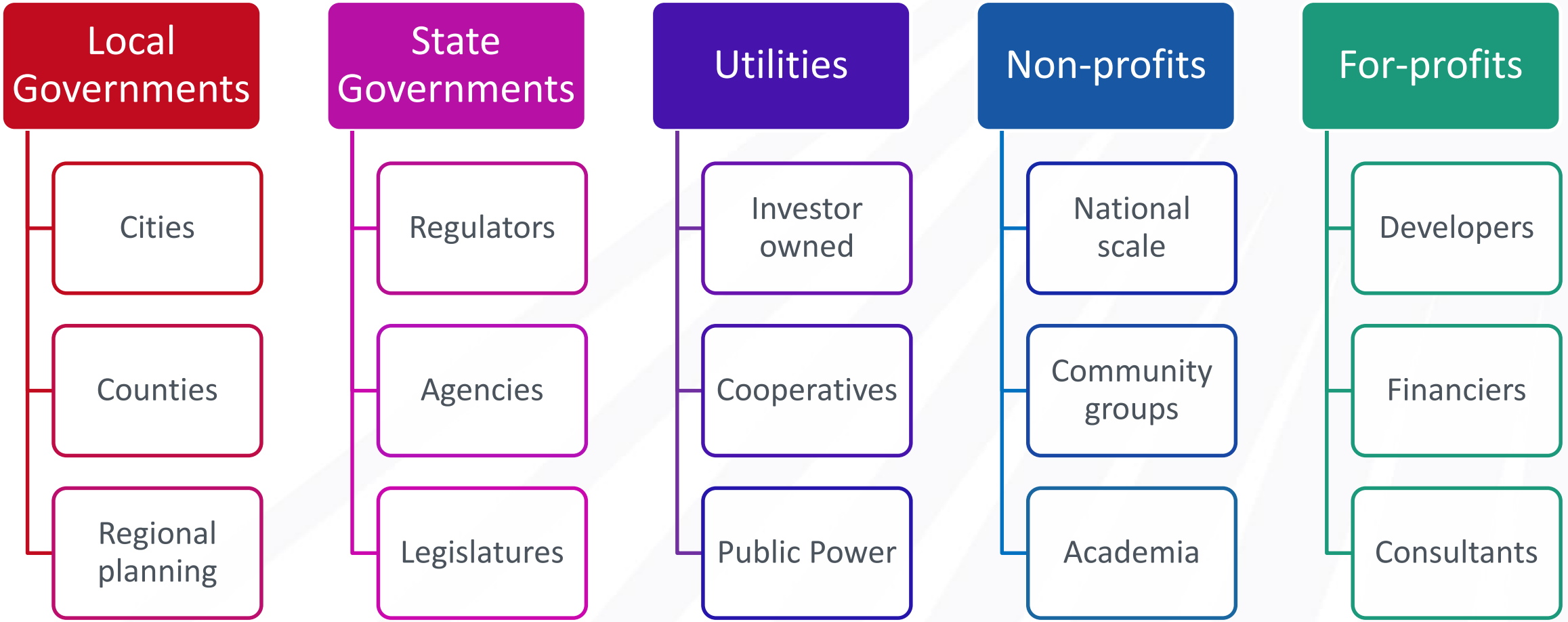
Approach

- Network Infrastructure: Partners have access to an online community platform, virtual and in-person meetings, webinars and other tools to engage with U.S. Department of Energy (DOE) staff and each other.
- Technical Assistance: Partners have the opportunity to receive technical assistance resources from DOE, its National Laboratories, and independent third-party subject-matter experts for support on unique local challenges.
- Collaboration: Multi-stakeholder teams of partners form groups around specific goals to address common barriers to solar adoption by learning from each other and sharing resources.

Partner Experience



Who are NCSP partners?



Who are NCSP partners?

2C Mississippi
Alder Energy Systems
Appalachian Voices
Arcadia
BlueHub Energy
Boulder County
Cadmus Group LLC
City of Cambridge, Massachusetts
City of Jackson, Mississippi
Clean Energy States Alliance
Cleveland Owns
CVE North America
Decent Energy, Inc.
Energy Solutions
Energy Trust of Oregon
Fosterra, LLC
Fresh Energy
Great Lakes Renewable Energy Assoc
GRID Alternatives
Hawaii Green Infrastructure Authority
Hawaiian Electric Company
High Peaks Solar, LLC
HOPE Village CDC
Illinois Power Agency
Intelli-Products Inc.
Katsujinken Foundation
Litty Solar
Marketingforgreen LLC
Mid-Ohio Regional Planning Commission
MIrasol Solar
Montana Renewable Energy Association
muGrid Analytics
Nautilus Solar Energy, LLC
New Mexico Energy Minerals and Natural Resources, Energy Conservation and Management Division
North Carolina Clean Energy Technology Center
Office of the People's Counsel of DC
Ohio University
PACE Fund NM, Inc.
Paseki Strategies Corporation
PowerMarket
PowerSetter
Puget Sound Energy
Saginaw Chippewa Indian Tribe of Michigan
Seattle Housing Authority
Solar One
Solar United Neighbors
Solstice
Spark Northwest
Stewards of Affordable Housing for the Future
TeraVolt Energy
Texas Energy Poverty Research Institute
The Energy Coalition
To the Point
Transduction Technologies
University Of Alabama at Birmingham
US Department of Agriculture
Vote Solar
World Resources Institute
XUTILITY
YSG Solar

As of April 27th

Join Us!

- Commit to:
  - Active engagement
  - Data and information sharing
  - Goal setting/ impact evaluation
- In return, DOE will:
  - Facilitate network
  - Offer technical assistance
  - Develop and disseminate practical resources
- To join, visit

  https://www.energy.gov/eere/solar/national-community-solar-partnership

NCSP Partner Goals include:

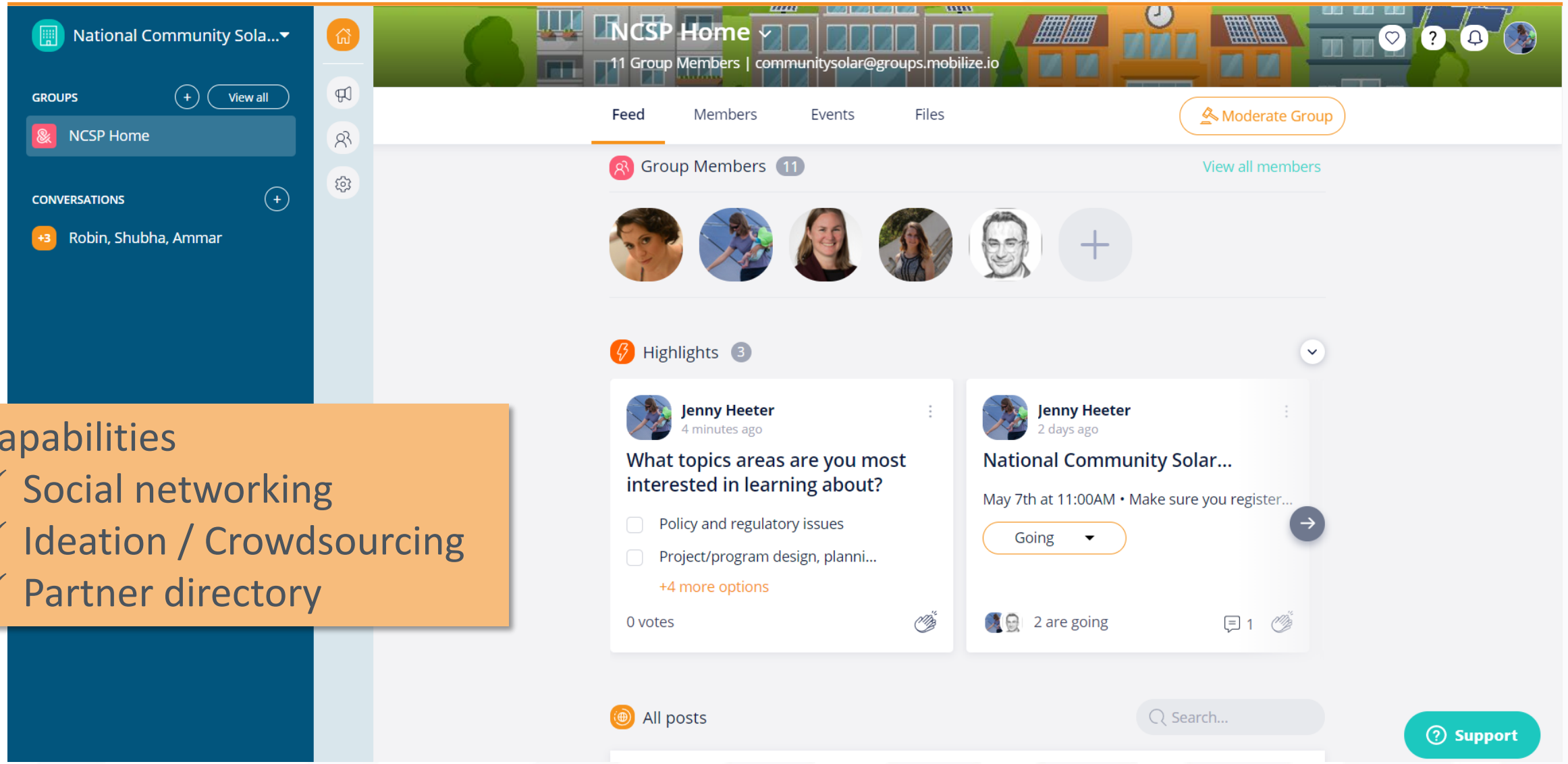
- ✓ *Create first low income CS project in Mississippi*
- ✓ *Provide benefits of local solar to 100,000 LMI households reducing their energy bills 50% by 2032*
- ✓ *Site CS within Opportunity Zones, provide subscription options to low-income customers*
- ✓ *Implement the Oregon CS Program and achieve the program's equity goals*

Note on Partner Eligibility: The NCSP welcomes participation from all entities that meet the following requirements: (a) citizens or permanent residents of the United States; (b) private or public entities, such as townships, tribes, corporations, governmental agencies, or other organizations that are legally formed in and maintain a primary place of business in the United States.

Poll # 2 - Checking In

1. Which part of NCSP are you most excited about?
   - Network (online platform, events, meetings)
   - Technical assistance
   - Collaboration with peers
2. Are you already a registered partner?
   - Yes
   - No

Community Platform → Register here: https://ncsp.mobilize.io/registrations/groups/39758

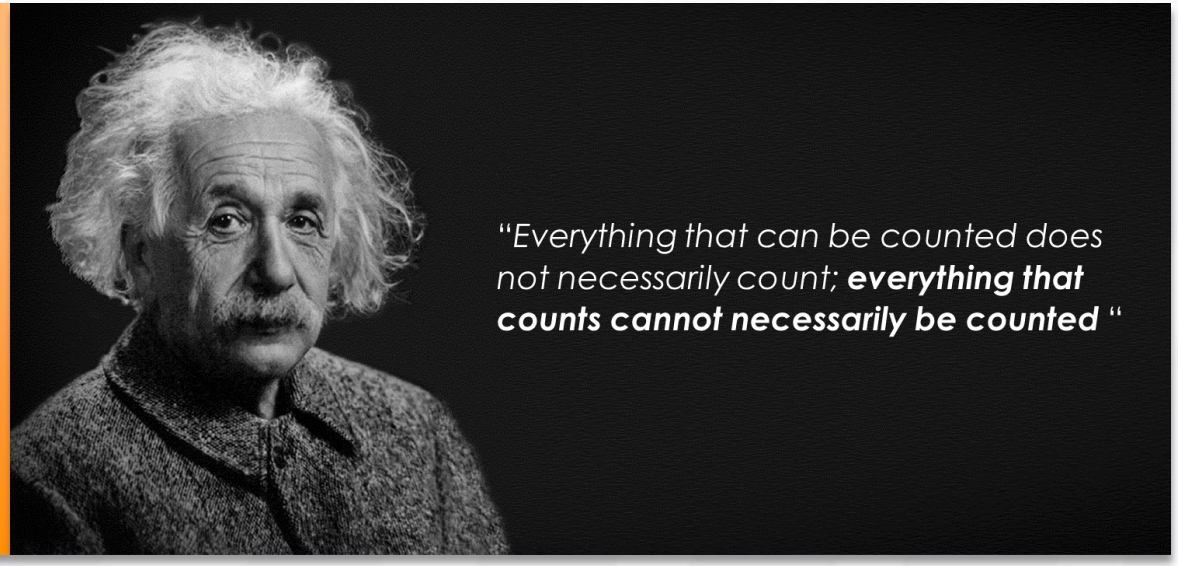


Capabilities
- ✓ Social networking
- ✓ Ideation / Crowdsourcing
- ✓ Partner directory

Approach to Impact Evaluation

- Support every partner in goal setting and action planning
- Guide partners in using a highly effective evaluation framework
- Help partners monitor progress and evaluate impact over time

Training coming soon!



NCSP Technical Assistance → Coming Soon

Registered NCSP Partners can apply for direct technical assistance to help accelerate their community solar goal(s)

TA Announcement	Webinar on TA Application and Review Process	TA Applications Due	Selected Applications Notified
Wednesday, 4/29	Thursday 5/7	Friday 5/29	June 2020

NCSP Technical Assistance Offerings and Selection

- Co-location benefits community solar can provide
- Co-location technical challenges or valuing the benefits
- Customer acquisition, subscriber management, and billing
- Integration with existing state/NGO/utility energy programs
- Integration with other technologies (e.g., storage)
- Outreach and engagement with governments/public officials, low-income communities/households, or utilities
- Program and project evaluation
- Program design
- Project finance (e.g., cost-benefit analysis, subscription structures, finance considerations and modeling incentives structures for low-and-moderate income communities/households)
- Project planning and development
- Regulatory issues
- Resiliency of energy systems, grid impacts, and interconnection
- Solar modeling, analysis, and tool development
- Workforce development

Important Notes:

- ✓ TA is only available for registered NCSP Partners
- ✓ TA application is not for duplicative work (for example work happening in another DOE project)

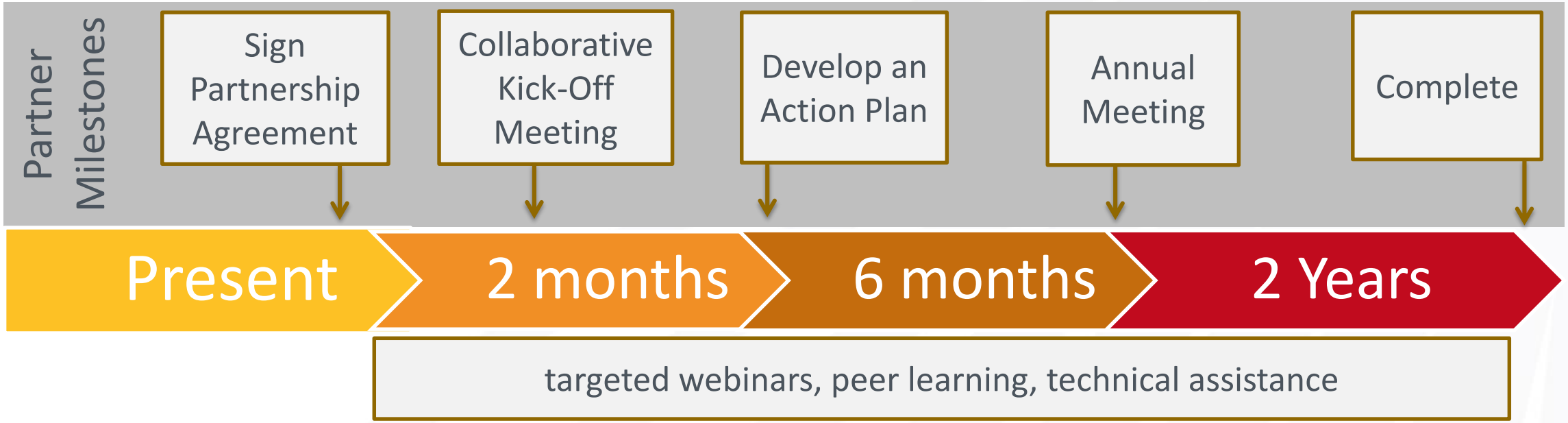
Technical Assistance Providers include National Lab staff and third-party subject matter experts

Collaboratives → Enrollment Open

A collection of organizations engaged in peer learning and that receive direct assistance to accelerate a partner's community solar goal(s) and identify sector challenges and replicable solutions for a two-year duration.

First Collaboratives	Future Collaboratives	Commitment	Value Proposition
• Municipal Utilities ("Muni") • Multifamily Affordable Housing ("MFAH")	• DOE will launch new Collaboratives in the future based on partner interest	• Collaborative agreement between DOE and partner to work together, share data/information, and amplify solutions	• Peer network • Targeted webinar series • 1-on-1 access to DOE/SMEs • Technical assistance

Generalized Collaborative Timeline



Outcomes: replicable models and solutions to industry barriers that accelerate community solar and underserved solar access via outputs including case studies, road maps, guides and other actionable resources.

MFAH Collaborative

Goal: Create and/or scale affordable community solar access in multi-family affordable housing units to low-income and other underserved communities.

- Low-and moderate-income households reside in 60% of multi-family housing unit
- Common Barriers: Financing, Split Incentives, Tenant Benefits, Capacity of MFAH Building Owners
- Overall Goals:
  - Achieve individual partner goals
  - Demonstrate replicable models in MFAH for solar energy deployment that reduce resident's monthly electric utility bills by at least 10%

Muni Collaborative

Goal: Create and/or scale muni programs that provide affordable community solar access to low-income and other underserved communities.

- Currently very few municipal utilities have community solar offerings
- Common Barriers: Siting, Procurement / Contracting, Unique organizational structures, Project finance
- Overall Goals:
  - Achieve individual partner goals
  - Demonstrate replicable models in munis for solar energy deployment and offer low or no-fee subscriptions that result in energy bill savings for low-income residents

Collaborative Agreement

Collaborative Partners Agree to:

- Appoint a collaborative lead and assemble a team of key stakeholders needed to achieve goals, within the first month
- Work with DOE to complete a self-assessment, set specific goals/metrics, identify critical barriers, and create an action plan
- Work to complete action plan over 2 years
- Work with DOE to collect data to track progress on individual action plan goals and support benchmarking and evaluation of community solar models for the NCSP
- Document lessons learned and share DOE and other NCSP partners to contribute to NCSP's evaluation and best practices of the program

DOE Agrees to:

- Engage: Appoint a point of contact for each collaborative member and schedule check-ins with each member during the collaborative's active period
- Facilitate interactions between members, other NCSP partners, and subject matter experts through virtual and in-person engagements.
- Provide technical assistance to develop solutions that help to overcome identified barriers.
- Develop resources that facilitate implementation of solutions by other NCSP partners and stakeholders across the country.
- Provide public recognition of members for achieving milestones and commitments.

Upcoming Meetings

Date	Meeting	Detail
May 7	NCSP Technical Assistance Webinar	LBNL provides overview of the TA support available to NCSP partners, describes the application process, and provides examples of prior TA engagements and outcomes. Webinar Registration
May 21	Sharing the Sun Webinar	NREL provides deeper dive into recent trends and analysis on the community solar market. Webinar Registration
July 8	NCSP Annual Meeting	Co-located with the Community Solar Power Summit (CCSA, SEIA, and SEPA's community solar conference), the annual meeting is an opportunity to showcase NCSP activities and results, obtain feedback on existing and future efforts, and provide opportunities for attendees to network with each other.

- ***Regular webinars on relevant topics***
- ***Ad-hoc meetings on topics resulting from virtual networking on platform***

Poll #3 - Before We Wrap Up

1. What is your biggest barrier to expanding solar access ?
   - Program design
   - Siting
   - Financing
   - Policy/Regulation
   - Customer outreach/engagement
   - Institutional capacity/bandwidth
2. How would you rate this webinar?
   1. Informative and useful
   2. Somewhat useful
   3. Not helpful enough
3. Please provide any feedback on the NCSP program or this webinar
   - Free form

Next Steps

- ✓ Register (if you haven't already)
- ✓ Engage in the community platform
- ✓ Join us at upcoming meetings
- ✓ Help us spread the word!

We Have Important Goals to Achieve Together

- Expand affordable community solar access

Thank You!

QUESTIONS?