

# INCLUSIVE SHARED SOLAR: The State Policy Landscape and Select Community Solar Project Profiles



**NEADA**  
NATIONAL ENERGY ASSISTANCE DIRECTORS' ASSOCIATION

**NASEO**  
National Association of  
State Energy Officials

# **INCLUSIVE SHARED SOLAR: The State Policy Landscape and Select Community Solar Project Profiles**

## **DISCLAIMER**

This material is based upon work supported by the U.S. Department of Energy under award number DE-EE0009008. This report was prepared as an account of work sponsored by an agency of the United States Government. Neither the United States Government nor any agency thereof, nor any of their employees, makes any warranty, expressed or implied, or assumes any legal liability or responsibility for the accuracy, completeness, or usefulness of any information, apparatus, product, or process disclosed, or represents that its use would not infringe privately owned rights. Reference herein to any specific commercial product, process, or service by trade name, trademark, manufacturer, or otherwise does not necessarily imply its endorsement, recommendation, or favoring by the United States Government or any agency thereof. The views and opinions of authors expressed herein do not necessarily state or reflect those of the United States Government or any agency thereof.

---

## **ACKNOWLEDGMENTS**

This report was prepared in October 2022 by the National Energy Assistance Directors Association (NEADA) and the National Association of State Energy Officials (NASEO). It serves as an overview of the community solar landscape and provides project profiles of state policies that enable and enhance low- and moderate-income communities' access to shared solar. It was developed with support from the U.S. Department of Energy's Solar Energy Technologies Office within the Office of Energy Efficiency and Renewable Energy through the Inclusive Shared Solar Initiative, a joint initiative among NASEO, NEADA, and state agencies in Minnesota, Wisconsin, and Washington, D.C. overseeing low-income clean energy programs.<sup>1</sup>

Special thanks to the following contributors and reviewers of the report:

## **AUTHORS**

Will Macheel, NEADA  
Cassandra Lovejoy, NEADA

## **REVIEWERS**

David Terry, NASEO  
Grace Lowe, NASEO  
Sandy Fazeli, NASEO  
Kirsten Verclas, NASEO  
Sam Cramer, NASEO  
Dylan Tucker, NASEO

This report was designed and formatted  
by Dana Magsumbol Design

*Front Cover: iStock.com/Cavan Images  
Back Cover: iStock.com/Maryna Terletska*

## Table of Contents

|   |    |
|---|----|
| <b>Introduction</b> .....   | 4  |
| <b>Types of LMI Shared Solar Legislation</b> .....  | 5  |
| <b>Common Components in LMI Community Solar Projects</b> .....                            | 6  |
| Capacity Limits .....   | 6  |
| Subscriber Eligibility .....  | 6  |
| Subscriber Compensation .....   | 7  |
| <b>Selected Community Solar Project Profiles</b> .....                                    | 8  |
| Project Snapshots .....   | 8  |
| <b>1. Oregon – Mt. Hope Solar Farm</b> .....  | 9  |
| Program Overview and LMI Policy Provisions .....  | 9  |
| Project Profile .....   | 10 |
| <b>2. Connecticut – Town of Bloomfield Community Solar Program</b> .....                  | 11 |
| Program Overview and LMI Policy Provisions .....  | 11 |
| Project Profile .....   | 11 |
| <b>3. Colorado – Delta-Montrose Electric Association and Fort Collins Utilities</b> ..... | 12 |
| Program Overview and LMI Policy Provisions .....  | 12 |
| Project Profile – Delta-Montrose Electric Association .....                               | 13 |
| Project Profile – Fort Collins Utilities .....  | 14 |
| <b>Conclusion</b> .....   | 15 |
| <b>References</b> .....   | 16 |

---



## Introduction

Installing solar energy can help reduce household energy costs, increase energy resilience, and stimulate local job growth. Community solar allows households unable to install solar directly on their property to access these benefits through a shared model. While community solar programs have expanded significantly, in recent years many continue to reach primarily wealthier customers. States play a crucial role in the development of community solar markets and, in this capacity, can help minimize the costs and ensure the benefits of solar extend more effectively to low- and moderate-income (LMI) populations.<sup>2</sup> Policies at the state level can require or incentivize that a percentage of community solar subscriptions or output be reserved for LMI communities. States can also design community solar programs to encourage participation among LMI customers by adjusting key program elements, such as compensation structures, location requirements, and capacity limits.

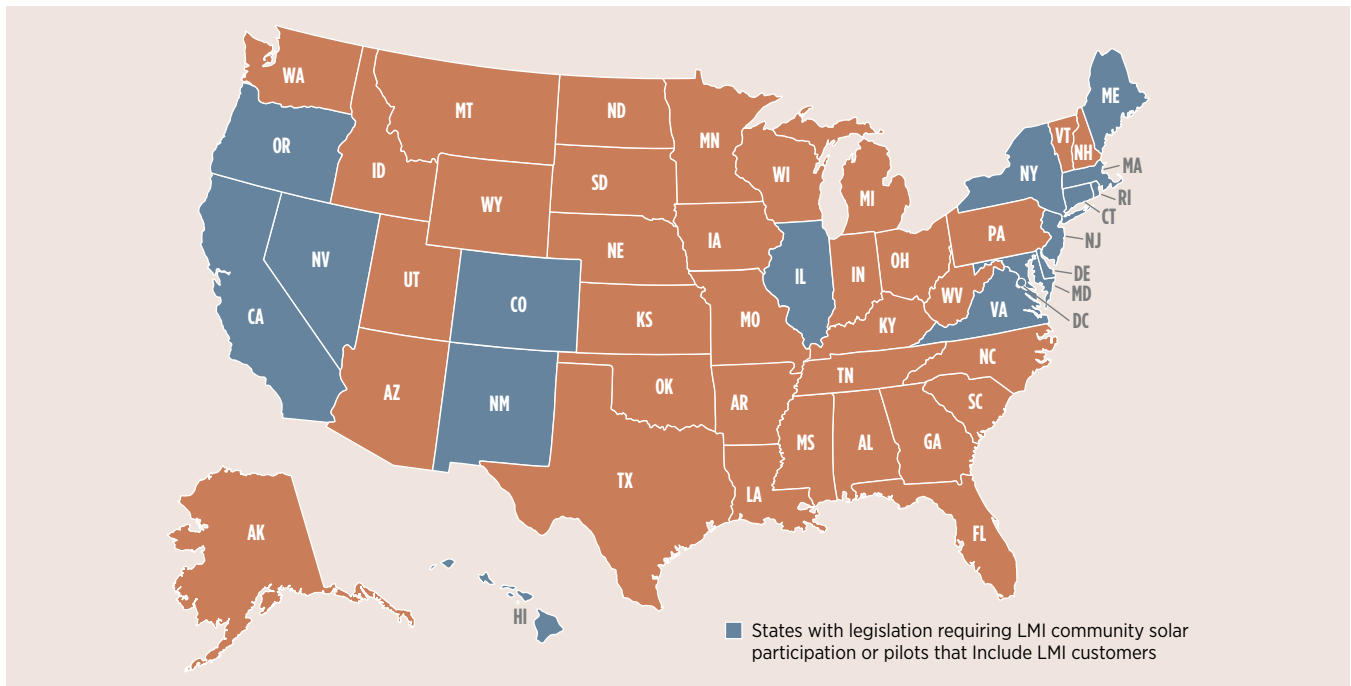
State Energy Offices and Low-Income Home Energy Assistance Program (LIHEAP) offices occupy a unique position within the community solar ecosystem. In their roles advising and engaging governors, legislators, and regulators, developing clean energy incentives and programs, and convening a wide array of stakeholders involved in low-income energy programming, State Energy Offices can help shape policies and program requirements to achieve state clean energy and equity goals. Similarly, LIHEAP offices inform policy, develop programs, streamline income qualification processes, and are connected to and can elevate the needs of LMI communities. Together, these two sets of agencies can collaborate to promote inclusive community solar policies and improve access among LMI households at the state level. This premise forms the basis of the Inclusive Shared Solar Initiative, a multi-state partnership coordinated by the National Association of State Energy Officials and the National Energy Assistance Directors Association with the goal of making community solar more accessible through innovative partnerships between State Energy Offices, LIHEAP offices, solar providers, utilities, community-based organizations, and other interested parties.<sup>3</sup>

This report provides an overview of the LMI community solar landscape to help State Energy Offices, LIHEAP offices, and other key stakeholders understand and take advantage of opportunities to expand the reach and impact of community solar programs. It discusses common LMI community solar policy and program considerations and profiles four projects in three different states to show how state policy decisions can impact community solar program design and implementation.



## Types of LMI Shared Solar Legislation

Many states have already recognized the importance of increasing access to community solar programs among LMI residents. Sixteen states and the District of Columbia have legislation requiring LMI participation in community solar development or have community solar pilots that include LMI customers.<sup>4,5</sup> The map below provides a snapshot of states with designated provisions to enhance community solar opportunities for LMI communities.<sup>6</sup>



Across these states, there are two main categories of policies that encourage LMI household participation in community solar: carveouts and incentives. Twelve states use carveouts, which mandate that a certain percentage of subscribers or percentage of a total project or program's electricity generation output be reserved for LMI subscribers.<sup>7</sup> They are:

- California (50% of total electric output generated by the project)
- Colorado (5% of total subscribers to the project)
- Connecticut (50% of output)
- Delaware (15% of subscribers by project)
- Maryland (9% of output)<sup>8</sup>
- Maine (10% of output)
- Massachusetts (1120 Mwhac carveout)
- New Jersey (40% of output in phase 1, 51% in phase 2)
- New Mexico (30% capacity by project)
- Nevada (25% of subscribers)
- Oregon (10% of output)
- Virginia (30% of output for Dominion programs, 50% of output overall)

Other states, including those with carveouts, have policies to incentivize LMI participation. These incentives range from discounted subscription rates in New York<sup>9</sup> and Oregon<sup>10</sup> to project developer incentives in Maryland.<sup>11</sup> In addition, Washington, D.C. has a competitive grant-based program, Solar for All, for project funding with the goal of providing community solar benefits to 100,000 LMI households by 2032.<sup>12</sup> Hawaii has created a special tariff program for utilities to work with LMI customers who wish to participate in community solar projects.<sup>13</sup> These policies can allow states to ensure that the benefits of community solar, such as cost savings and clean energy generation, are accessible to subscribers who normally would not be able to participate due to factors such as credit scores or income.





iStock.com/halbergman

## Common Components in LMI Community Solar Programs

In addition to carveouts and incentives, states can tailor the design of community solar programs to meet LMI participation goals. States that choose to design LMI community solar programs must consider many different policy components. These include program capacity limits, project capacity limits, subscriber location requirements, subscriber eligibility requirements, and subscriber compensation.<sup>14</sup> The goals of the program, such as community ownership, LMI engagement, and sustainable financing, can inform how a policy might define these constraints.

### Capacity Limits

Program capacity limits determine the overall generation capacity limit for a state-level community solar program, while project capacity limits determine the maximum individual project size. Some states initially place hard limits on their programs' sizes so they can closely monitor those programs' progress. Keeping program size manageable relative to available administrative resources early on can help reduce the burden of project management. For example, Connecticut's pilot program has an aggregate capacity of 6 MW. If a state prefers to accelerate project deployment, it can remove the program's capacity limit and instead let market factors, utility planning, and interconnection considerations determine installation of community solar projects.

Varying approaches to project size capacity limits within the larger program also have different implications. Larger projects—those over 2 MW—may result in economies of scale leading to lower costs per MW for subscribers. However, depending on the program's design, larger projects may dedicate a significant portion of their output to a single or small number of commercial and industrial subscribers to reduce administrative costs, which risks crowding out LMI-focused efforts. On the other hand, smaller projects may be less costly to install upfront, and their siting typically needs a smaller geographic footprint. In this regard, they may be easier to locate near the subscribers and the communities they serve. Due to their smaller size and cost, smaller projects may also increase the opportunity for rural and remote communities, as well as small- and mid-scale developers, to invest in community solar.<sup>15</sup>

Overall, when considering program and project caps, states should consider how a cap may or may not affect statewide renewable energy goals, reduce the energy burden of LMI households, and attract interest from solar developers. In addition, states must consider other limitations which may also act as an upper bound on the program's potential, such as interconnection barriers and the availability of large subscribers.<sup>16</sup>

## Subscriber Eligibility

A community solar program's subscriber eligibility requirements may include such components as subscriber location, the type of subscribers allowed (residential, commercial, etc.), the number of subscribers (ex. a minimum of ten subscribers), and the size of subscriptions. For subscriber location requirements, states (ex. Massachusetts) often require that subscribers reside in the same utility territory as a project to ease administrative burdens.<sup>17</sup> California has gone beyond this requirement, limiting subscriber location eligibility to smaller jurisdictions that are closer to the project site to encourage community involvement in the project and local job creation.<sup>18</sup>

## Subscriber Compensation

Lastly, states must consider how subscriber compensation structures will affect program participation and benefits, as cost savings are a driving factor for customer participation and may be a make-or-break proposition for income-constrained households. The treatment of retail rate compensation or Renewable Energy Credits (RECs) will affect the on-bill credits and subscriber cost savings. Another emerging approach is implementing a grid value of solar methodology<sup>19</sup> to quantify and compensate subscribers for the costs and benefits of the electricity generated by their solar subscription, such as avoiding carbon emissions and infrastructure upgrades. Minnesota has been a leading example of using value of solar methodology for their community solar projects, by allowing utilities to apply to the Public Utility Commission to use a value of solar tariff in rate setting for community solar installations.<sup>20</sup>

Outside of variable on-bill credits offered by other states, California maintains a green tariff program whereby customers can only subscribe to a portion of the community solar project which meets up to 100% of their energy consumption, limiting the risk of cross-subsidization by other non-participating utility ratepayers.<sup>21</sup> The subscribers face a fixed rate for the length of their subscription, which acts as a hedge against future retail rate increases and results in cost savings in the long-term. Massachusetts incentivizes LMI subscribers by providing a six cents per kWh adder for projects that incorporate at least 50% LMI subscribers.<sup>22</sup>

When developing community solar programs, states can design program requirements to align with their specific needs and priorities. States will need to consider program size, project size, and subscriber eligibility. In addition, states have crucial decisions to make around low-income provisions, specifically incentives and carveouts—such as a specified percentage of LMI subscribers (ex. Oregon at 10% LMI) or a goal of 100 percent LMI subscribers through pilot projects (ex. Colorado). How state policies structure subscription costs and credits for LMI subscribers is important to the long-term sustainability of the program and the cost savings experienced by the target population.<sup>23</sup> The following project profiles outline how specific state policies work in practice.



iStock.com/adamkaz



## Selected Community Solar Project Profiles

The projects described below are selected from the National Renewable Energy Laboratory’s (NREL) Sharing the Sun Community Solar Project database,<sup>24</sup> which catalogues community solar projects around the country by location, size, and operator.<sup>25</sup> They represent a broad range of the projects in operation around the country and reflect a diversity of project size, geography, LMI policy structure, and operator type. Within each project profile, the “From Policy to Practice” section aims to connect the state-level policy and program characteristics directly to specific project outcomes.

### Selected projects:

1. **Oregon** – Mt Hope Solar Farm (Large, Investor-Owned Utility (IOU))
2. **Connecticut** – Town of Bloomfield Community Solar Program (Medium, IOU)
3. **Colorado** – Delta-Montrose Electric Association (Small, Cooperative Utility) and Fort Collins Utilities (Small, Municipal Utility)

### PROJECT SNAPSHOTS

|  | <b>OREGON<br/>Mt. Hope Solar Farm</b>   | <b>CONNECTICUT<br/>Bloomfield</b>  | <b>COLORADO<br/>Delta-Montrose</b>   | <b>COLORADO<br/>Fort Collins</b>   |
|--|---|--|--|--|
| <b>Size</b>  | 2,500 kW (Large)  | 1,620 kW (Medium)  | 151 kW (Small)   | 64 kW (Small)  |
| <b>Year Established</b>                            | 2021  | 2019   | 2016   | 2015   |
| <b>Operator Type</b>                               | IOU   | IOU  | Cooperative  | Municipal  |
| <b>LMI Definition</b>                              | At or below 80% of SMI <sup>26</sup>  | 175% of the FPL <sup>27</sup> or below, or they are at or below 80% of the greater of AMI <sup>28</sup> / SMI  | At or below 80% of AMI   | At or below 80% of AMI   |
| <b>LMI Policy</b>                                  | <ul style="list-style-type: none"> <li>• 10% of subscribers LMI carveout (capped at 20%)</li> <li>• No upfront costs</li> <li>• No termination fees</li> <li>• Fees will never exceed the value of the bill credit</li> <li>• Assistance in being matched to a project from the program’s Low-Income Facilitator</li> </ul> | <ul style="list-style-type: none"> <li>• 20% of output LMI carveout (any subscriptions made by the account holder of a multi-unit building with at least one LMI tenant count towards the 20%)</li> <li>• LMI households benefit from different credit worthiness standards</li> </ul> | <ul style="list-style-type: none"> <li>• 100% LMI subscribers, pilot funding</li> <li>• In-person workshops for potential subscribers to discuss program details and cost savings</li> </ul> | <ul style="list-style-type: none"> <li>• 100% LMI subscribers, pilot funding</li> <li>• LIHEAP customers received a prequalification letter and program application</li> </ul>   |
| <b>Subscription Provisions</b>                     | <ul style="list-style-type: none"> <li>• Program capped at 2.5% of utility’s 2016 output</li> <li>• Single subscriber cannot make up more than 40% of project capacity</li> </ul>   | <ul style="list-style-type: none"> <li>• Projects between 100kW and 2MW</li> <li>• Project must have at least 10 subscribers</li> <li>• Single subscriber cannot make up more than 40% of project capacity and commercial subscribers cannot make up more than 60%</li> </ul>          | Solar benefit results in low-income households spending a similar percentage (4 percent or less) of their annual income as middle and upper-income households do on energy bills             | Solar benefit results in low-income households spending a similar percentage (4 percent or less) of their annual income as middle and upper-income households do on energy bills |
| <b>Siting Requirements</b>                         | Within service territory of participating utility   | Within service territory of participating utility  | Must be in, or adjacent to the subscriber’s county   | Must be in, or adjacent to the subscriber’s county   |
| <b>Expected Annual LMI Savings, per subscriber</b> | \$324   | \$150  | \$312  | \$300  |



# 1. Oregon – Mt. Hope Solar Farm

## Program Overview and LMI Policy Provisions<sup>29,30</sup>

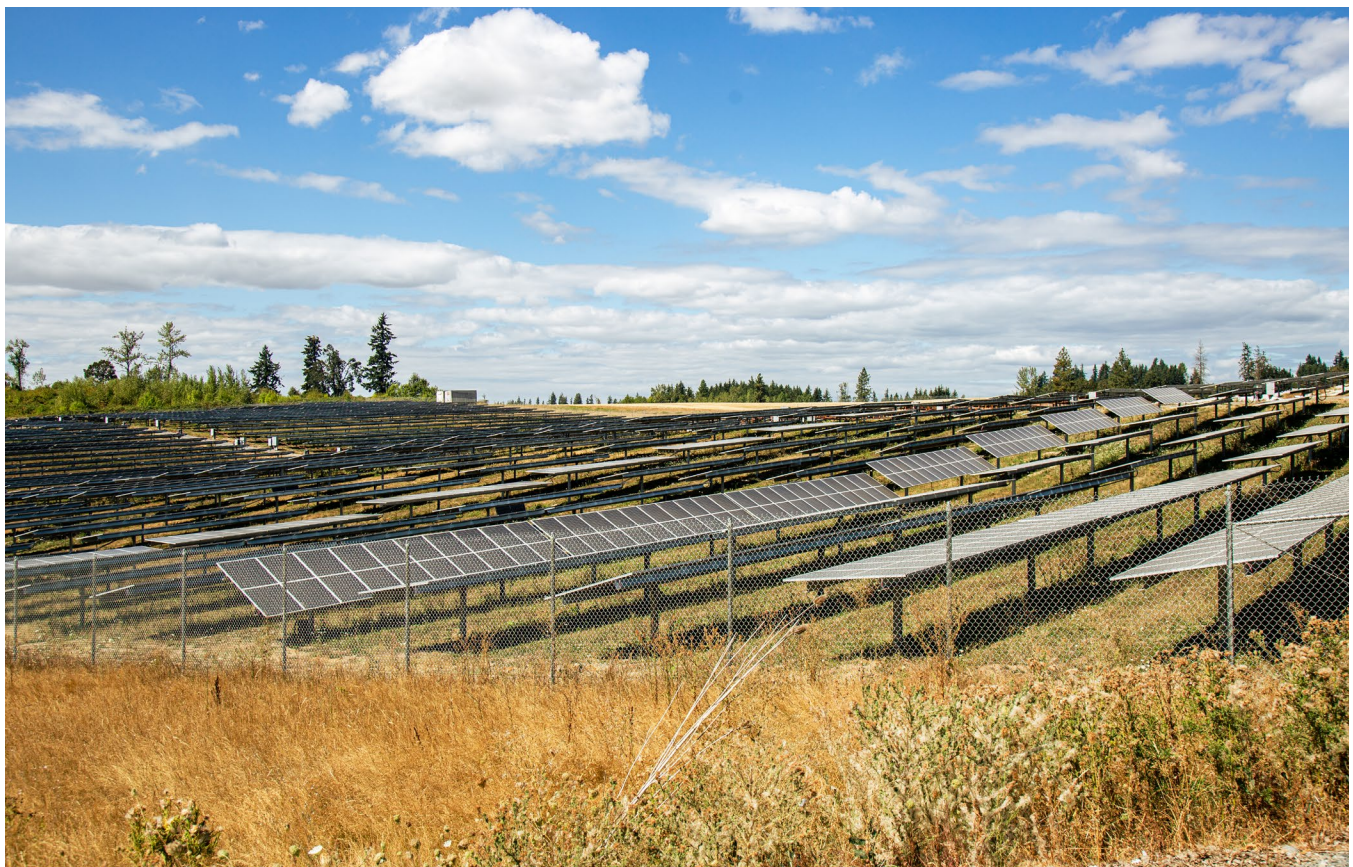
The Oregon Community Solar Program, created by the state legislature and led by the Oregon Public Utility Commission, maintains the goal of increasing the state's renewable energy portfolio and creating opportunities for consumers to participate in solar projects who did not previously have such an opportunity. The initial capacity for the Oregon Community Solar Program as a whole is 2.5 percent of Portland General Electric and Pacific Power's 2016 system peak, with the opportunity for the Oregon PUC to reevaluate and establish successively higher capacity limits at a later date.



Project managers develop, operate, and enroll subscribers in community solar projects. 25 percent of Portland General Electric's and Pacific Power's initial projects must be less than 360 kW or must have a public or non-profit organization as project manager. In addition, a project manager in the Portland General Electric and Pacific Power territories cannot have their combined projects make up more than 25 percent of either of those territories' capacities, respectively. There is no cap on reserving capacity for project managers in the Idaho Power Territory. A single participant's subscription may not be greater than 40 percent of the project's capacity.

The Oregon PUC oversees the program and receives support from Energy Solutions, the Energy Trust of Oregon, and the Community Energy Project. Energy Solutions assists with public reporting, funds management, workshops, utility integration and data security. The Energy Trust of Oregon, an independent nonprofit, assists with project certification, customer support, and application processing. The Community Energy Project supports the program's diversification and acts as the Low-Income Facilitator to help project managers with low-income subscriber recruitment.

LMI households pay lower subscription prices compared to the general market and commercial subscribers to promote program engagement and cost savings among the policy's targeted population.



iStock.com/timnewman

## Project Profile<sup>31</sup>

The Mt. Hope Solar Farm is within Portland General Electric's service territory and was connected to the grid in 2021. The project manager is Neighborhood Power, a local community solar developer. At 2.5 MW it is the largest project among the project profiled here. The project will incorporate farming around the solar array.

**Subscriber Makeup:** 10 – 20% is reserved for LMI subscribers. As the project is new, there is no public information on the percentage of subscribers that are LMI, general market residential, and commercial.

**Contract Duration/Requirements:** Contracts last 20 years. There are no termination fees. The contract is with the project manager.

**LMI Subscription Details/Savings:** Low-income subscribers pay a subscription fee of \$0.0899/kWh for the duration of the contract, whereas general market residential subscribers pay \$0.1014/kWh and small commercial subscribers pay \$0.1010/kWh. Monthly administrative fees are equal for all subscriber types, at \$0.96/kW-month, as is the bill credit value at \$0.1123/kWh. The expected first year net bill savings of LMI participants, for every kilowatt of subscribed capacity, is equal to \$31.70 (\$9.47 for general market and \$10.23 for small commercial). For a low-income family of four living in a single family detached home, Portland General Electric estimates annual savings of around \$324. A low-income couple living in an apartment can expect savings of around \$135 annually.<sup>32</sup>

**Additional LMI Protections/Benefits:** Beyond lower subscription prices, LMI subscribers receive other consumer protections and benefits as well. They pay no upfront costs and no termination fees, and subscription fees will never exceed the value of the bill credit for low-income participants. The program also does not approve subscription managers who require credit cards for payment.<sup>33</sup> Income-qualified customers can receive assistance in being matched to a project from the program's Low-Income Facilitator.

**From Policy to Practice:** As mentioned previously, the maximum allowed total program capacity for each utility is 2.5 percent of the utility's 2016 system peak. For Portland General Electric, this means that it has 93.15 MW of allotted capacity. 10 percent of project capacity must be reserved for LMI subscribers.<sup>34</sup> Beyond the LMI benefits discussed above, Oregon's community solar policy also shaped the subscriber makeup of this project. Neighborhood Power, the project manager, has capped the size of an individual commercial, industrial, or agricultural subscriber at 40 percent of project capacity, and 10 to 20 percent of total project capacity is reserved for LMI subscribers.

## 2. Connecticut – Town of Bloomfield Community Solar Program

### Program Overview and LMI Policy Provisions<sup>35,36</sup>

The State of Connecticut's Department of Energy and Environmental Protection (DEEP), the State Energy Office, established the Shared Clean Energy Facility (SCEF) Pilot Program in 2019 to overcome financial and land use barriers for residents and businesses that would like to invest in or lease a renewable energy system.



Subscribers qualify as LMI if they benefit from any federal, state, or local public assistance programs that limit participant incomes to 175 percent of the federal poverty limit or below (such as LIHEAP), or if they are at or below 80 percent of the greater of area median income or state median income.

### Project Profile<sup>37</sup>

The town of Bloomfield is one of three projects selected for the SCEF Pilot Program and the first to be operational (established in 2019). The Bloomfield project is located on a vacant municipal property. The installation was developed by a third-party group and subscriber organization, Clean Energy Collective, LLC, as part of Eversource Energy's service area.

**Subscriber Makeup:** The project provides 60% of its generation to the Board of Education (the anchor subscriber), 20% to low-income residents, and 20% to general subscribers.

**Contract Duration/Requirements:** The contract length and requirements are specific to the stipulations agreed upon by an individual and the subscriber organization, Clean Energy Collective. If the subscriber does not give 90 days' notice to the subscriber organization, there may be an early cancellation fee of no more than the value of the monthly contract fee for three months.

**LMI Subscription Details/Savings:** Subscribers pay a monthly subscription cost, but in return receive an on-bill credit which reduces the subscriber's electric bill. The on-bill credit comes from the RECs generated by the SCEF project. The project will save participating households \$150 annually.<sup>38</sup>

**Additional LMI Protections/Benefits:** The subscriber organization can use different credit worthiness standards from general market households for LMI households to promote LMI participation. DEEP established a suite of consumer protection rules to accompany the program, including limitations on subscription allocation and cost, subscriber consent requirements, non-discrimination, marketing and sales activities and disclosures, protections on personally identifiable information, and key aspects of the subscriber agreement including fees and credits; subscription downsizing, transferability, and cancellation; and dispute resolution, among others.<sup>39</sup>

**From Policy to Practice:** When DEEP established the SCEF program in response to Public Act No. 16-116,<sup>40</sup> the total program capacity allotted was 6 MW, with no more than 2 to 4 MW allowed per project, depending on the size of the utility. As a result, the Bloomfield project fulfills almost one-third of the program's total capacity at just under 2 MW. The project has met the LMI mandate of 20 percent of subscribers, while keeping costs low with the Bloomfield Board of Education as an anchor subscriber. It also fulfills the SCEF's policy stipulation that it be within the same service territory as the administering utility, specifically Eversource Energy. Last, the project meets SCEF's standards for subscriber savings, that:

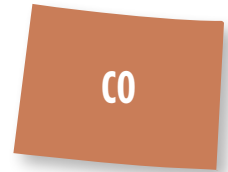
- "The monetary value of the subscribed energy and associated RECs generated by a SCEF to initially flow through the SCEF subscribers' electric bills as on-bill credits;
- Each subscriber's monthly electric bill from the EDC will include an on-bill credit representing the value of the subscribed energy allotment;
- Most of that on-bill credit must be passed through, by the subscriber to the subscriber organization, as the subscription payment; and
- The remaining difference between the on-bill credit and the subscription fee is the subscriber savings... which is retained on the subscriber's account and is used to reduce the subscriber's electric bill."



### 3. Colorado – Delta-Montrose Electric Association and Fort Collins Utilities

#### Program Overview and LMI Policy Provisions<sup>41,42</sup>

Colorado’s 2010 Community Solar Gardens Act mandated that five percent of new shared solar supported by investor-owned utilities (IOU) be carved out for LMI subscribers. However, the thin margins of early LMI-focused community solar projects resulted in the state barely meeting the five percent LMI carveout target.



To rectify this issue, the Colorado Energy Office (CEO) started the 2015 Low-Income Community Solar Demonstration Project to identify successful strategies and potential barriers to further expanding community solar in the state. This time, CEO focused on municipal and cooperative utilities instead of IOUs. The program has a target of 100 percent low-income subscribers for each project, as well as a goal that “low-income households reach bill parity where they spend a similar percentage (4 percent or less) of their annual income as middle and upper-income households do on energy bills.”<sup>43</sup>

Both the Delta-Montrose Electric Association and Fort Collins Utilities (see below) projects were implemented through the 2015 Low-Income Community Solar Demonstration Project. CEO partnered with GRID Alternatives, a nonprofit focused on solar project installations and technical assistance, providing them with a \$1.2 million grant to distribute to participating utilities. GRID Alternatives partnered with seven utilities on the program across the state, two of which are highlighted in this report. All seven utilities participating in the project were distribution utilities, and thus purchased their electricity from a wholesale provider. The utilities were required to provide a 2:1 partner match of CEO funds from the grant to GRID alternatives, which they met with a mix of direct financing and in-kind support. The utility investment was repaid over the long-term through the subscribers’ solar payments.

In addition to general advertising, the program specifically targeted households that had previously benefited from the state’s federally-funded Weatherization Assistance Program (WAP). Subscribers pay a fixed monthly fee to cover the solar array investment and operating costs, as well as usage costs for monthly electricity consumed. In return, the utility issues bill credits to subscribers based on the solar electricity generated by the subscribers’ panels.



iStock.com/grandriver

## Project Profile – Delta-Montrose Electric Association<sup>44</sup>

Delta-Montrose Electric Association (DMEA) is a rural electric cooperative utility in western Colorado with 12,000 members. Connected to the grid in 2016, DMEA's low-income community solar project was the largest of its kind (151 kW) in the United States at the time. The three primary stakeholders—CEO, GRID Alternatives, and DMEA—took on different responsibilities to implement the project. CEO provided funding through the grant to GRID alternatives, project evaluation, and the identification of the demonstration project opportunity. GRID Alternatives designed the 151 kW project, provided operation and management services, and managed community solar subscriptions. DMEA also assisted with funding, provided in-kind support such as land for the project and grid interconnection, oversaw outreach activities, assisted with billing support and bill credit management, and supported operation and management services.

**Subscriber Makeup:** 100% LMI (43 customers)

**Contract Duration/Requirements:** Individual subscriptions last five years, and the project will offer subscriptions for at least 20 years of its lifespan.

**LMI Subscription Details/Savings:** The total project cost was \$315,900. CEO provided \$180,000 through their demonstration grant, and the remaining \$135,900 was covered by DMEA. As DMEA is primarily a distribution utility, their wholesale provider, Tri-State Generation and Transmission Association, will purchase Renewable Energy Credits (RECs) from DMEA to account for Tri-State's Renewable Portfolio Standard requirements. The wholesale contract between Tri-State and DMEA constrains future growth of the program, as DMEA's renewable energy growth is restricted by Tri-State to a five percent capacity limit on cooperative-owned generation.

The subscriber pays DMEA for the electricity consumed along with fixed monthly charges. DMEA then credits the subscriber for the electricity produced by their subscription to the solar array. The monthly fixed charges include a base charge, taxes, and a franchise fee, in total averaging around \$32 in 2017. DMEA's project is estimated to result in annual subscriber savings of \$312 each. The average subscription size was 3.6 kW, with a range of 2.4 kW to 4.8 kW.

**Additional LMI Protections/Benefits:** DMEA and GRID Alternatives partnered on subscriber outreach and conducted two in-person workshops. These events discussed subscription details and the cost savings that potential subscribers would experience.

## Project Profile – Fort Collins Utilities<sup>45</sup>

The City of Fort Collins Utilities is a municipal utility that services over 70,000 households in the Fort Collins area. Fort Collins Utilities partnered with CEO and GRID Alternatives to develop the project through the state's Low-Income Community Solar Demonstration Project. To ensure sustainable energy cost savings over the long-term, the utility collaborated with county-level programs, Energy Outreach Colorado, and CEO to provide energy efficiency education and upgrades. The project is a 64 kW rooftop solar array serving 20 low-income customers. With a total cost of \$195,000, the project was funded partially by CEO (\$65,000) through the grant to GRID alternatives and partially by Fort Collins Utilities (\$130,000).

The different project stakeholders involved contributed in various ways. CEO assisted with project evaluation and funding. GRID Alternatives designed and installed the solar array and will continue supporting the project through operations and maintenance. Fort Collins Utilities helped with project funding, provided the rooftop and interconnection materials, managed outreach channels, and oversaw the project's subscriptions. The LIHEAP office in Larimer County, the location of the project, assisted with outreach by sharing an annual list of LIHEAP-eligible customers.

**Subscriber Makeup:** 100% LMI (20 customers)

**Contract Duration/Requirements:** Fort Collins Utilities has structured their community solar project so that it will last at least 25 years. Each subscriber receives an equal share of solar energy from the project and is limited to a one-year subscription. Assuming 20 subscribers, each subscriber receives 3.2 kW.

**LMI Subscription Details/Savings:** To be eligible for this project, subscribers also must qualify for LIHEAP benefits. Subscribers must participate in energy conservation education and efficiency upgrade opportunities as part of the Solar Affordability Program (SAP). The subscriber pays Fort Collins Utilities the retail rate for electricity consumed, \$0.09733 / kWh in 2017, plus fixed monthly charges. In return, the subscriber receives a bill credit, \$0.0762 / kWh in 2017, for their share of the electricity produced by the project. Subscribers can expect around \$300 in annual energy bill savings through the program.

**Additional LMI Protections/Benefits:** Fort Collins Utilities used existing outreach channels to market the program to potential subscribers, coordinating with local agencies, tabling at community events, and mailing LIHEAP customers a prequalification letter and program application.

**From Policy to Practice:** The catalyst behind these two projects was the somewhat unsuccessful 2010 Community Solar Gardens Act that required IOUs to carve out 5% of community solar projects for LMI residents. This led to the 2015 demonstration program with a mandate of 100% LMI subscribers, of which the DMEA and Fort Collins projects are a part. CEO provided \$245,000 in seed money through GRID alternatives to the two utilities to assist with project outlays. Because the projects were operated by cooperative and municipal utilities, they did not have the same oversight as the projects discussed in Oregon and Connecticut, which are operated by investor-owned utilities strictly regulated by Public Utility Commissions. However, by installing these projects, the utilities met renewable energy mandates created by the federal Public Utility Regulatory Policies Act (PURPA), which states that cooperative and municipal electric utilities must purchase renewable electricity from arrays below 80 MW within their service territory. Additionally, each project successfully met the 100% LMI subscriber mandate, defined as at or below 80% of AMI. Subscribers also benefited from substantial cost savings. This model of direct financial and project management experience from a State Energy Office and an organizational partner such as Grid Alternatives, can be used by states to incentivize municipal and cooperative utilities that traditionally may not have access to the resources necessary to complete LMI-focused community solar projects.



## Conclusion

State policies are critical in shaping community solar development and can help ensure LMI communities can take advantage of the benefits of solar, including energy affordability, enhanced resilience, and economic development. While the project profiles discussed above differ in terms of subscription management, compensation structures, eligibility requirements, and size limits, each project illustrates the ways in which state policies can support expanded access to community solar among LMI populations. Common program elements across the project profiles include a minimum subscription carveout for LMI participants, with LMI often defined as at or below 80% of SMI or AMI. In addition, bill savings for LMI consumers are a focus of all the projects discussed, and outreach tailored to LMI households is central to these projects' success.

The project profiles also highlight the role state agencies play in the development of low-income community solar programs. Projects in Connecticut and Colorado demonstrate how State Energy Offices can bring together stakeholders and shape program design to ensure the bill savings and other benefits reach LMI communities. As exemplified in Colorado, LIHEAP offices can help pre-qualify households and conduct outreach to eligible community members to increase LMI participation. State Energy Offices and LIHEAP offices can both inform policy decisions related to community solar, including: carveouts or incentives for LMI communities, project size limits, subscriber compensation structure, and subscriber location requirements. Thoughtful planning and proactive collaboration between State Energy Offices and LIHEAP offices on each of these decisions can help current and future community solar programs reach households who could benefit most.

## References

- 1 For more information about the Inclusive Shared Solar Initiative, please visit <https://naseo.org/issues/solar/issi>.
- 2 “Low-and-moderate income” typically refers to households that earn at or below a certain percentage of Area Median Income (AMI), State Median Income (SMI), or the Federal Poverty Level (FPL).
- 3 More information about the Inclusive Shared Solar Initiative is available at <https://naseo.org/issues/solar/issi>.
- 4 For more on the current landscape of LMI community solar policies, see the Low-Income Solar Policy Guide, developed by GRID Alternatives, Vote Solar, and the Center for Social Inclusion. GRID Alternatives, Vote Solar, and the Center for Social Inclusion. (2020, December 2). Community solar. Low-Income Solar Policy Guide. <https://www.lowincomesolar.org/best-practices/community-solar/>.
- 5 South Carolina only has two pilot projects currently and is therefore not included in the map. Florida is not included because the LMI community solar provisions are only applicable for Florida Power & Light projects.
- 6 Heeter, Jenny, Kaifeng Xu, Matthew Grimley, Gabriel Chan, and Emily Dalecki. (2022). “Status of State Community Solar Program Caps.” Golden, CO: National Renewable Energy Laboratory. NREL/TP-6A20-84077. <https://www.nrel.gov/docs/fy23osti/84077.pdf>
- 7 *Ibid.*
- 8 In Maryland, 30 percent of projects must include low-income subscribers, but of those projects, only 30 percent of the generation is set aside for low-income subscriptions.
- 9 Solar for All Program. New York State. <https://www.nyserda.ny.gov/solar-for-all>.
- 10 Oregon Community Solar Program. (2021). Oregon Community Solar Program. <https://www.oregoncsp.org/>.
- 11 Maryland Energy Administration. (2021, September 28). FY22 Community Solar LMI-PPA Grant Program. <https://energy.maryland.gov/residential/Pages/CommunitySolarLMI-PPA.aspx>
- 12 District of Columbia Department of Energy and Environment. Solar for All. <https://doee.dc.gov/solarforall>.
- 13 State of Hawaii Department of Commerce and Consumer Affairs. (2020). Community-Based Renewable Energy. <https://cca.hawaii.gov/dca/community-based-renewable-energy/>.
- 14 Cook, Jeffrey J., and Monisha Shah. (2018). Focusing the Sun: State Considerations for Designing Community Solar Policy. Golden, CO: National Renewable Energy Laboratory. NREL/TP-6A20-70663. <https://www.nrel.gov/docs/fy18osti/70663.pdf>.
- 15 *Ibid.*
- 16 Heeter, Jenny, Kaifeng Xu, Matthew Grimley, Gabriel Chan, and Emily Dalecki. (2022). “Status of State Community Solar Program Caps.” Golden, CO: National Renewable Energy Laboratory. NREL/TP-6A20-84077. <https://www.nrel.gov/docs/fy23osti/84077.pdf>
- 17 Cook, Jeffrey J., and Monisha Shah. (2018). Focusing the Sun: State Considerations for Designing Community Solar Policy. Golden, CO: National Renewable Energy Laboratory. NREL/TP-6A20-70663. <https://www.nrel.gov/docs/fy18osti/70663.pdf>.
- 18 *Ibid.*
- 19 For an explanation and example recommendations of the grid value of solar methodology, see [Grow Solar](#).
- 20 <https://mn.gov/commerce-stat/pdfs/vos-methodology.pdf>
- 21 For additional background on California’s green tariff program, see the National Renewable Energy Laboratory’s report, Focusing on the Sun: State Considerations for Designing Community Solar Policy. <https://www.nrel.gov/docs/fy18osti/70663.pdf>
- 22 For more about solar financing and ways to incentivize LMI participation, see ISSI’s primer, “[Community Solar Funding and Financing Options](#),” as well as Cook and Shah, 2018, pgs. 15 – 18
- 23 For State Energy Offices and Low-Income Home Energy Assistance Program agencies that wish to design a LMI community solar program, ISSI has also published a checklist of “Key Elements to Consider for a Low- and Moderate-Income Community Solar Project.”
- 24 <https://data.nrel.gov/submissions/167>
- 25 Publicly available information on LMI community solar projects varies widely, making it difficult to provide a comprehensive analysis of the existing landscape of projects. Instead, the following project profiles were selected from a group of projects with rich data available. Due to the lack of comprehensive data on LMI community solar projects, particularly in states with no LMI policy requirements, the NREL Sharing the Sun database may not fully account for all existing LMI community solar projects. If a project could not be found in the NREL Sharing the Sun database, websites for state community solar programs were utilized to identify potential project candidates.
- 26 State Median Income
- 27 Federal Poverty Level
- 28 Area Median Income
- 29 Oregon Community Solar Program. (2021a, March 12). Program history. Oregon Community Solar Program. <https://www.oregoncsp.org/history/>.
- 30 Oregon Public Utility Commission. OAR 860-088-0005 - 860-088-0190.
- 31 Oregon Community Solar Program. (2021b). Project Information - Mt Hope Solar. Oregon Community Solar Program. <https://portal.oregoncsp.org/p/ProjectFinder/Info/23080948090274402>.
- 32 Oregon Community Solar Program. (n.d.). Subscription Sizing and Expected Annual Savings - Portland General Electric Customers. Oregon Community Solar Program. <https://www.oregoncsp.org/wp-content/uploads/2020/11/LI-PGE-Solar-Savings.pdf>.
- 33 Oregon Public Utility Commission. (October 6, 2022.) Order No. 22-363: “Use of the Agent Subscription Model in Project Eligibility for the Community Solar Program.” <https://apps.puc.state.or.us/orders/2022ords/22-363.pdf>
- 34 Oregon Community Solar Program. (n.d.). Program Implementation Manual. Oregon Community Solar Program. <https://www.oregoncsp.org/pim/>.
- 35 Connecticut Department of Energy and Environmental Protection. (2020, January 16). Shared Clean Energy Facilities Pilot program. CT.gov. <https://portal.ct.gov/DEEP/Energy/Shared-Clean-Energy-Facilities/Shared-Clean-Energy-Facilities-Pilot-Program>.
- 36 Connecticut General Statutes §16-244x: Report to the Energy and Technology Committee on the Shared Clean Energy Facilities Pilot Program (2018).
- 37 Town of Bloomfield, Connecticut. (2020). Clean Renewable Energy. Town of Bloomfield, Connecticut. <https://www.bloomfieldct.gov/conservation-energy-environment-committee/pages/clean-renewable-energy>.
- 38 *Ibid.*
- 39 <https://portal.ct.gov/-/media/DEEP/energy/SCEF/CustomerProtectionRulesSCEFPilotProgrampdf.pdf>
- 40 <https://www.cga.ct.gov/2016/ACT/pa/pdf/2016PA-00116-R00HB-05427-PA.pdf>
- 41 Colorado Energy Office. (n.d.). Community solar. Colorado Energy Office. <https://energyoffice.colorado.gov/community-solar-0>.
- 42 Dobos, H., & Artale, E., Insights from the Colorado Energy Office Low-Income Community Solar Demonstration Project (2017).
- 43 *Ibid.*
- 44 *Ibid.*
- 45 *Ibid.*



**NEADA**  
NATIONAL ENERGY ASSISTANCE DIRECTORS' ASSOCIATION

**NASEO**  
National Association of  
State Energy Officials

