

State Recommendations for Bringing Solar to Low- and Moderate-Income Residents

Virginia Clean Energy Advisory Board

Department of Mines, Minerals and Energy

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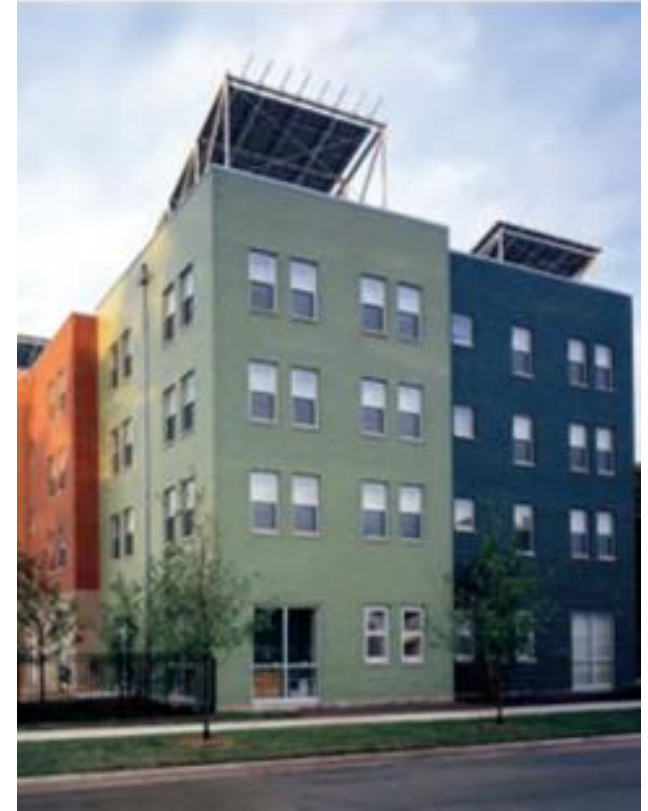


CleanEnergy States Alliance



Presentation Overview

1. Share state approaches for bringing the benefits of solar to low- and moderate-income customers
2. Provide recommendations on state LMI solar program design and implementation
3. Offer information about an opportunity for Virginia to receive support for implementing a state solar program for LMI single-family homeowners.
4. Suggest additional resources on LMI solar



California's Single-family and Multifamily Affordable Solar Programs

Single-Family Affordable Solar Homes (SASH)

- Provides capacity-based incentives to help offset the upfront cost of going solar for single-family California homeowners
- Set at \$3 per watt, the incentive is available to single-family homeowners who have a household income 80% or below the area median income and live in one of the state's investor-owned utilities' service territories
- Integrates energy efficiency and solar workforce development opportunities

Solar on Multifamily Affordable Housing (SOMAH) program

- Provides upfront, capacity-based financial incentives for installing solar systems on multifamily affordable housing properties
- Over half of a project's electric output must directly offset tenant load and be provided to tenants in the form of virtual net metering bill credits
- Includes job training and local hiring requirements for contractors and offers various no-cost services to participating property owners, including project technical assistance

Colorado's Inclusion of Rooftop Solar as an Eligible Measure for its Weatherization Assistance Program

- In 2015, the Colorado became the first state to receive approval from the US Department of Energy to integrate rooftop solar into its Weatherization Assistance Program (WAP)
- Colorado had to demonstrate that solar was likely to be a cost-effective measure
- As part of a 2016 settlement, Colorado's largest electricity provider, Xcel Energy agreed to use WAP funds to offer both an upfront and a per kilowatt-hour solar incentive for up to 300 low-income households



State Approaches for LMI Solar:

Connecticut's Solar for All Program

- A partnership between the Connecticut Green Bank and PosiGen Solar that has resulted in the installation of more than 2,500 solar projects on single-family homes in Connecticut, with about 60 percent qualifying for special LMI incentives
- The average PosiGen customer in Connecticut receives a net annual financial benefit of \$450
- Incentive levels and program marketing materials are specifically designed for LMI single-family homeowners
- The program allows for alternative methods to credit scores for evaluating the eligibility of LMI households
- The model relies on a third-party ownership structure to monetize the federal tax credit, reduce capital investment burdens on customers, and increase affordability
- The program allows for solar to be combined with energy efficiency upgrades to increase LMI participant benefits
- The program guarantees that solar contracts are cash-flow positive for participants with no upfront costs, escalators, or hidden fees for customers

Hawaii's Green Energy Money \$aver Program

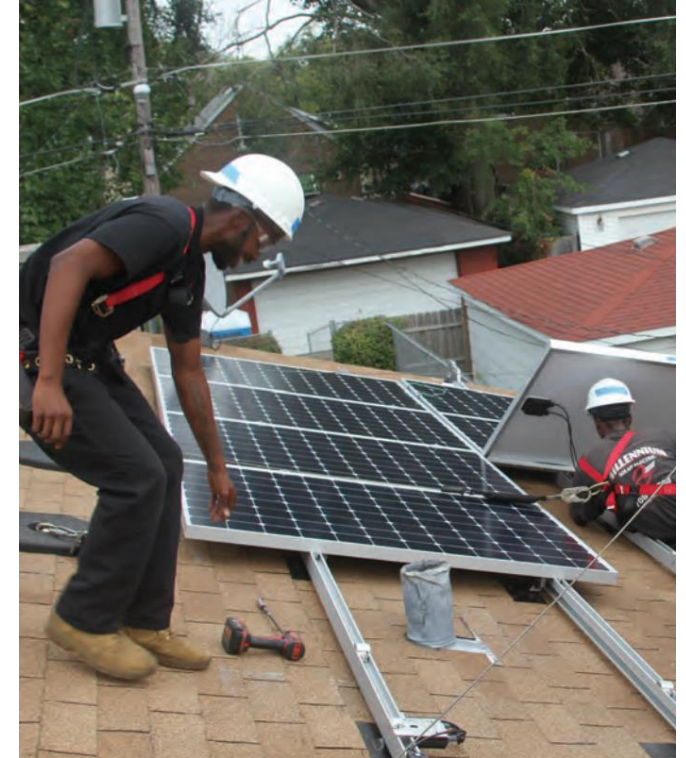


- A solar and energy efficiency on-bill financing program, enabling clean energy investments to be repaid over time through a line item on a customer's monthly electric bill
- Does not require upfront participant costs
- Only finances investments where the average monthly savings exceed the cost of a participant's monthly bill repayment
- Program eligibility is conditioned upon a participant's history of bill repayment (rather than a traditional credit score)
- Repayment is tied to the electric meter so it can be transferred from one tenant to another

State Approaches for LMI Solar:

Illinois' Solar for All Program

- Incentives are offered through approved vendors, who agree to all the consumer protection standards in the state's general Illinois Shines solar initiative, as well as special measures that guarantee benefits and reduce risks for participating LMI customers
- No upfront costs for participants and any ongoing costs or fees must not exceed more than half the value of the energy produced
- The program also offers solar job training and connects graduates of the training with approved vendors, who are required to use qualified trainees on a percentage of their projects



Maryland's Resiliency Hubs Program

- Maryland Energy Administration provides grants to microgrid developers to offset costs for resiliency hub projects in high-density, LMI communities
- Resiliency hubs are defined as facilities within walking distance of economically disadvantaged communities that, in an emergency, can provide refrigeration for medications, allow for the charging of small personal devices, and serve as a heating, cooling, and lighting center
- The program ranks applications based upon the ratio of LMI residents served and is open to local government agencies, nonprofits, and businesses



State Approaches for LMI Solar:

Massachusetts' Solar Loan Program

- The Mass Solar Loan program connects homeowners interested in installing solar systems with financing opportunities through low-interest loans
- Massachusetts offers loan support in three ways:
 - 1) An interest rate buy-down, which reduces the interest rate paid by customers as compared to a traditional market-rate loan
 - 2) A loan loss reserve, which serves as a guarantee against default and encourages lenders to loan to less creditworthy customers
 - 3) An additional income-sensitive incentive, which is applied directly to the loan principal to reduce an LMI customer's overall repayment obligation
- The program initially provided loan support for customers without any income limitations, but since 2017 provides loan support for LMI customers only

New Hampshire's Low- and Moderate-Income Community Solar Grant Program

- The New Hampshire Public Utilities Commission, which administers the state's Renewable Energy Fund, is required by law to allocate 15 percent or more of the fund annually to benefit LMI income residential customers
- Stemming from this requirement, New Hampshire offers grants for community solar projects that provide direct benefits to LMI residents
- Applicants must use the grant funding for shared solar projects that will result in a direct benefit to at least five residential customers and a majority of them must be LMI customers
- Benefits must flow to the LMI customers for 20 years or until the end of the solar project's operational life, whichever is earlier

New York's Solar for All Program

- Administered by the New York State Energy Research and Development Authority (NYSERDA), the program offers low-income households the opportunity to subscribe to a shared solar at no cost.
- The program operates like a utility bill assistance program with monthly credits being applied directly to participating customers' electricity bills.
- NYSERDA provides funding for the shared solar arrays to be built, manages the subscription process, matches income-qualified customers with shared solar projects, and works with project developers and electricity providers to ensure subscribers are credited for their subscription in a project.
- Low-income households pay no fees to participate and typically save between \$5-\$15 dollars a month.

State Approaches for LMI Solar:

Oregon's Seed-Funding Model



- The Energy Trust of Oregon conducted extensive outreach about solar to LMI communities and in the process, determined that the communities they were engaging with had distinct needs and ideas about solar, requiring community-specific solutions.
- In 2018, Energy Trust created an innovation grant program to seed LMI solar funding models designed and led by local organizations.
- Nine community-based projects received grants from Energy Trust with participants in one funded project expected to save \$300-\$400 annually and participants in another project expected to save 25 percent on their energy bills.

Measure Progress toward Energy Equity

- To help stakeholders know where and how to target their efforts, Virginia could collect quantifiable data aimed at understanding how solar installations are currently spread among different population groups.
- Measuring and evaluating solar equity progress need not be costly, and it is a good first step towards formulating effective policies and programs.
- Virginia could start by gathering state-specific information that has been compiled by other research organizations:
 - Lawrence Berkeley National Laboratory's [*Income Trends of Residential PV Adopters*](#)
 - US Department of Energy's [*Low-Income Energy Affordability Data \(LEAD\) tool*](#)
 - The National Renewable Energy Laboratory's [*Solar for All map*](#),
 - Stanford University [*DeepSolar Project*](#)
 - Solar Foundation's [*National Solar Jobs Census*](#)

Ensure Pro-Solar State Policies Are in Place

- If a state does not have policies in place that make it easy for solar projects to flourish, it will be difficult to install significant solar for LMI customers. Types of policies favorable to overall solar development include:
 - *Avoiding high demand charges or monthly fixed charges* on electricity bills that make solar uneconomical
 - Ensuring that there are *favorable solar compensation policies*
 - Creating *property and/or sales tax exemptions* for solar installations
 - Allowing for *property-assessed clean energy* (PACE) or requiring utilities to allow for *on-bill financing*
 - Establishing *quick and easy permitting* for solar projects
 - Offering *rebates or grants* from the state or utilities for solar installations
 - Enacting a *renewable portfolio standard* (RPS), especially one with a solar carve-out
 - Enabling output from *shared solar installations* to be valued using “virtual” net metering or as on-bill credits
 - Implementing *statewide interconnection standards* that make it easy to hook up solar installations to the grid
 - Sanctioning *third-party ownership* through leases and power purchase agreements (PPAs)

Adopt Special Incentives and Policies

- Special incentives and policies are needed to overcome barriers for LMI customers.
- Possible approaches that Virginia could take to support LMI solar goals include:
 - Targeted grant or loan programs
 - Higher rebates or lower interest rates for LMI program participants
 - Incentives to attract solar companies, investors, or lenders to become active in under-resourced communities

LMI Solar Recommendations: **Leverage Private Capital**

- Most states do not have sufficient financial resources to reach a large share of the LMI population if the only source of capital is public funding so fully funding solar systems for LMI households may not be a practical solution
- Loan-loss reserve funds, green banks, and other financial partnerships can help to leverage private capital and enable solar projects



Work with Community Organizations

- Partnering with community organizations can help ensure that programs are responsive to the needs of under-resourced communities
- Grassroots outreach with trusted partners can be more effective than advertising
- States can bring representatives of community organizations into the program design process when developing LMI solar programs and provide community groups with training and funding to help them put together plans for solar projects



Bring LMI Issues into Regulatory Proceedings

- Virginia has considerable leverage over utilities through the regulatory activities of the State Corporation Commission (SCC).
- To promote LMI solar, Virginia regulators and policymakers could:
 - Require the SCC to integrate equity considerations into its proceedings or to include special LMI provisions and programs as part of utilities' integrated resource planning (IRP) processes.
 - Consider opportunities within rate design to support LMI solar adoption.
 - Analyze the current electricity rate structures that LMI households face and determine whether those rate structures should be altered in ways that make solar adoption more advantageous.
 - Scrutinize utilities' claims that changing their billing software or serving low-income households more aggressively would be too costly or require too much administrative change.
 - Work with utilities to identify creative ways in which they can build solar installations that have community benefits.
 - Integrate solar into existing utility rate discount programs for low-income customers or other low-income bill assistance programs.

Design Programs for Specific Market Segments

- The LMI market is diverse and a single program will not reach or impact all segments of the market in the same way
- State solar programs will generally be most successful if they explicitly target specific market segments and are tailored to their particular needs
- A clear understanding of the demographics and housing stock of the LMI population in the state can help a state like Virginia figure out which market segments to target



Ensure Financial Benefits Reach LMI Households

- When designing any program for the LMI market, states should assess to whom the financial benefits will flow:
 - Are there mechanisms in place to ensure that LMI households or community institutions are not taking on unreasonable financial risks?
 - Will the reduction in electricity bills represent a meaningful financial benefit to the LMI households?
 - Are there other benefits that can be conferred to LMI households through solar adoption, such as energy resilience?
 - For projects done in conjunction with affordable housing, what will be the tangible benefits for tenants?
 - For projects involving households that receive HUD housing assistance, will savings on tenants' electricity bills require them to pay more for rent? Will households' support through LIHEAP be reduced?
- Strategies Virginia could adopt measures to ensure that benefits reach LMI households including:
 - Require solar contractors to guarantee financial benefits to LMI households to participate in a program
 - Require affordable housing developments to provide tangible benefits to tenants to receive state solar incentives
 - Avoid designing programs that reduce households' HUD housing subsidies

Impose High Consumer Protection Standards

- Strong consumer protection benefits all solar customers, but it is especially important for LMI consumers who have limited ability to absorb an unexpected financial loss
- States can create regulations related to solar contracts to protect consumers who are considering whether to go solar:
 - States can require that certain performance guarantees, warranties, service statements, or other consumer protection information be included in all executed solar contracts
 - States can allow consumers to have a grace period for withdrawing from a solar contract
 - States can make sure that there are clear, well-publicized avenues for consumers to report problems they are having with a solar contractor



Consider Programs that Support Solar for Community Institutions

- States should give attention to solar installations for community institutions, including houses of worship, businesses, community service organizations, and public buildings
- Because solar projects for community institutions are often highly visible, a large number of people learn about them, which can make it easier to develop additional projects
- Solar projects for community institutions can create a broad sense of community participation in the solar economy
- Solar paired with battery storage when sited at a community institution can support resiliency by enabling communities to have electricity to power critical services during a grid outage

Consider Solar Training and Workforce Development

- One strategy for using solar development to build wealth in under-resourced communities is to build in training and workforce requirements into LMI solar programs
- Having members of an under-resourced community represented in the solar industry can increase community support for solar and build support for a program
- States can require a certain share of the jobs for a solar project go to members of the community in order for it to be eligible for an incentive
- States should be careful to ensure that there are ongoing jobs for those who receive the solar training under a program



LMI Solar Recommendations:

Education Is Important

- Easily accessible information that focuses on the issues customers need to consider when deciding whether to go solar can help ensure they make sound solar decisions
- Since LMI households are less able to withstand financial setbacks than wealthier households, it is especially important for LMI customers to understand the risks and obligations they are taking on when entering a solar contract
- State agencies are well positioned to provide accurate, even-handed solar information and if they do not provide solar information consumers proactively, they may expend more resources responding to individual inquiries about solar or redressing problems concerning solar purchases
- A different type of education is needed for project developers and solar installation companies so that they understand the specific needs and perspectives of residents of under-resourced communities and the financial risks that LMI households face

Technical Assistance and Support Opportunity

- Supported by a three-year funding award from the US Department of Energy Solar Energy Technologies Office, CESA is leading a wide-ranging initiative to accelerate the development of solar projects that benefit LMI households and communities.
- The project focuses on three distinct subsets of the LMI solar market: single-family homes, manufactured homes, and multifamily affordable housing.
- To scale the deployment of LMI solar for single-family homes CESA is working with Connecticut Green Bank, Inclusive Prosperity Capital, Lawrence Berkeley National Laboratory, and PosiGen Solar to evaluate and promote the model that Connecticut has piloted with PosiGen.
- Under our project, states like Virginia will have the opportunity to join a working group where they will receive technical assistance and other support when considering adopting and designing similar programs for their states.

Additional Resources

- [A Guidebook on Equitable Clean Energy Program Design for Local Governments and Partners](#) (Cadmus Group & the Urban Sustainability Directors' Network, 2018)
- [Breaking Ground: New Models that Deliver Energy Solutions to Low-Income Customers](#) (Rocky Mountain Institute, 2016)
- [Bringing the Benefits of Solar Energy to Low-Income Consumers](#) (CESA, 2017)
- [Clean Energy for Low-Income Communities Accelerator Toolkit](#) (US Department of Energy Better Buildings, 2019)
- [Directory of State Clean Energy Programs and Policies for Low- and Moderate-Income Residents](#) (CESA, 2018)



More Resources

- [*Inclusive Solar Finance Framework*](#) (Sustainable Capital Advisors & Vote Solar, 2018).
- [*Low-Income Solar Policy Guide*](#) (Vote Solar, GRID Alternatives, and the Center for Social Inclusion, originally published in 2016 but updated in subsequent years)
- [*Owning the Benefits of Solar+Storage: New Ownership and Investment Models for Affordable Housing and Community Facilities*](#) (Clean Energy Group, 2018).
- [*Unlocking Solar for Low-and Moderate-Income Residents: A Matrix of Financing Options by Resident, Provider, and Housing Type*](#) (National Renewable Energy Laboratory, 2018)



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