

THE WILDLIFE-FRIENDLY COMMUNITY POWER TOOLKIT

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THE CASE FOR EQUITABLE AND WILDLIFE-FRIENDLY COMMUNITY POWER

Each year the United States uses the equivalent of 7 trillion pounds of coal to heat and light our homes, fuel our cars and power industry. Our dependence on dirty fossil fuels drives climate disruption, destroys habitat, endangers wildlife, and causes toxic air and water pollution.

We need an alternative to burning away our land, biodiversity and future, and we need it today. The shift to 100 percent renewable energy by mid-century is critical to avoid greater than 1.5 degrees Celsius of warming. We also need an energy system that combines wildlife-friendly renewable energy with the principles of energy democracy to provide healthy, affordable and equitable energy for everyone.

A just transition off fossil fuels must consider the vastly different impacts of various renewable energy technologies to wildlife and the environment as well as the economic and social impacts to people and communities from shifting our power system.

The Role of Distributed Solar

Distributed solar, including rooftop and locally-sited community solar, produces magnitudes less lifecycle greenhouse gas emissions than fossil fuels. In addition, distributed solar reduces water use required for energy generation, decreases the need for inefficient, harmful and expensive high-voltage transmission lines and prevents habitat loss by generating power on already-built or degraded areas — ultimately resulting in less harm to wildlife and the environment ([Wild Energy Factsheet](#)).

Furthermore, distributed solar generation allows communities to gain local control over their energy system rather than leaving that control in the hands of monopoly utilities that are often investor-owned. This shift empowers communities to make their own energy choices and gives them access to cheaper and cleaner energy, driving energy democracy. Progressive distributed solar energy policy choices can also enable renters and individuals who cannot afford to purchase solar energy systems to invest in renewable energy, which in turn creates economic growth and local employment opportunities.

While the cost of solar energy has fallen dramatically, distributed solar still faces numerous barriers. These obstacles often take the form of federal and state regulations and legislation sponsored by utilities and fossil fuel lobbies. In addition, recent efforts by the Trump administration to impose high tariffs on solar panels and steel from China could slow or undermine the expansion of distributed solar across the United States.

Wide deployment of distributed solar will also require restructuring of the electric grid and increased storage capacity. These factors are also dependent — at least in part — on policy changes that have been widely opposed by utilities.

The Role of Energy Democracy

As defined by the Local Clean Energy Alliance, “Energy democracy is a way to frame the struggle of working people, low-income communities and communities of color, along with their allies, to take control of energy resources and decision-making from the corporate energy establishment and use those resources to empower their communities.” This translates to an energy transition defined by core features such as community-based control and ownership, led by the most affected and frontline communities. Democratizing energy represents a significant opportunity to make a just transition from a fossil-fuel-based economy to a new clean energy economy grounded in principles of economic and social justice.

About this Toolkit

This document provides an overview of equitable and wildlife-friendly community power principles, policies and programs, and case studies from different regions within the U.S. Its intended audience is community organizers, activists, advocates and their affiliated environmental, conservation and wildlife-focused community organizations.

The purpose is to serve as an introduction to these issues, as well to highlight the intersection of equity and conservation in the context of an urgent energy transition. Further addendums to this document will provide more specific resources to help individuals and communities take action in implementing strategies towards a wildlife-friendly and equitable energy future.

EQUITABLE AND WILDLIFE-FRIENDLY COMMUNITY POWER PRINCIPLES

1 Wildlife-friendly power includes only those renewable energy sources that have a minimal impact on wildlife and the environment — including solar installations built on existing structures and well-sited, well-managed wind and solar installations built on already-degraded environments.

2 The value of renewable energy beyond reducing reliance on fossil fuels should be recognized by policymakers, utilities, regulators and ratepayers:

This includes benefits to technological, ecological and social systems beyond those traditionally valued, including but not limited to: local jobs, lower electric bills, climate resiliency, avoided land use, avoided water use and increased pollinator habitat.

3 Projects should strive to achieve social inclusion*, which includes but is not limited to the following characteristics:

- Include leadership by members of frontline communities and other impacted communities, and incorporates the wisdom of people from these communities. These communities include, but are not limited to, indigenous communities, people of color, people with disabilities, youth and elders.
- Provide culturally relevant and accessible education to community members.
- Long-term residents should have a strong say in the decisions made about the project. Resident engagement is at the heart of stopping displacement, and more broadly, ensuring self-determination.

** The principles and concepts behind “economic equity” and “social inclusion” were adapted from the Oakland Climate Action Coalition equity checklist, which was developed through extensive community engagement with a diverse group of residents and community leaders.*

EQUITABLE AND WILDLIFE-FRIENDLY COMMUNITY POWER PRINCIPLES

4 Projects should strive to achieve economic equity*, which includes but is not limited to the following characteristics:

- Workforce development where public funding is directed to strategies that alleviate poverty through developing and supporting livelihood opportunities.
- Training: projects that include job/skills training, particularly for parolees and youth ages 16-24.
- Local employment, such as hiring for workers, planners, designers, developers, contractors, consultants, etc. that gives preference to immediate neighbors of the project or residents within city limits.
- Benefit to residents of low-income housing with projects that serve existing affordable housing communities, defined as serving extremely low (10 to 20 percent of average median income), very low (20 to 40 percent of average median income) and low (40 to 60 percent of average median income) income individuals.
- Support to Community Land Trusts (CLTs), where projects that further the mission of CLTs, or serve the low-income residents and beneficiaries of CLT properties.
- Projects that employ anti-displacement measures to address both indirect and direct displacement, such as requiring tenants' rights education and outreach in the project area(s).
- Benefit to impacted Environmental Justice communities, such as projects that improve the health, livelihood and welfare of priority areas. These areas include communities that are most affected by multiple sources of pollution, and where people are often especially vulnerable to pollution's effects.

** The principles and concepts behind "economic equity" and "social inclusion" were adapted from the Oakland Climate Action Coalition equity checklist, which was developed through extensive community engagement with a diverse group of residents and community leaders.*

RELEVANT POLICIES AND PROGRAMS

Community Solar

Community or shared solar programs allow multiple utility customers to connect to one shared solar installation, benefiting from the power provided and financial savings. Customers who otherwise wouldn't be able to install solar panels on their homes — either because they're renters, they can't afford panels on their own or due to structural or shading issues — are able to access clean solar energy through these programs.

According to an assessment by GTM Research, between 50 and 75 percent of residential rooftops are unsuitable for solar systems. Community-based solar energy systems are a promising way to give those customers access to renewable energy (GTM Research 2018).

Community solar projects can share similarities with utility-scale solar projects (e.g. large capacity size and frequently ground-mounted systems). However, they are generally considered distributed solar due to the direct benefits they provide communities and their proximity to where electricity is used.

States can encourage community solar installations through a variety of policies, including virtual net metering and specific community solar legislation. Virtual net metering is a type of aggregate net metering, where credits from one solar system are used to offset multiple customers' electricity bills. Eighteen states and Washington, D.C. currently have community solar or virtual net-metering policies in place, but some of these policies are limited to pilot projects or only certain utilities.

The growth of distributed solar in the United States has so far been built on customer-owned and third-party-owned solar energy system models. Utilities and local governments have generally not taken a central role in distributed solar deployment, but often have inherent involvement through owning and operating the overall electricity system through which these solar systems are connected. Through certain community solar business models, municipalities and utilities tend to play a more central role.

Two common examples of community solar models are community-shared solar and community choice aggregation (CCA).

Community-shared Solar Basics

Shared solar projects are those that allow individual or group participants to buy or lease a portion of a large distributed solar system that is generally not on their property. Participants use the energy created by that system against the demand on their electricity bill, as if their share of the system were on their rooftop (GTM Research 2018).

There are a wide variety of program structures and business agreements for this shared model. Some community solar programs include aggregated or group purchasing of solar systems in order to take advantage of bulk pricing, either directly or indirectly through their city or utility. (Note that this is different from the aggregation element in Community Choice Aggregation, discussed below.)

Participants in shared solar projects usually lease the solar equipment or purchase the electricity produced by the system, often located remotely. There are a wide variety of program structures and business agreements, which impact how the participants and utilities derive benefits from the program. These programs and their effectiveness vary by state and local utility.

Community-shared Solar Models

Publicly-owned utilities have in general taken the lead in developing shared solar projects, but projects can also be hosted by a third party organization, non-profit or investor-owned utility. Financing comes out the customers' pockets, through utility or ratepayer subscriptions, or from grants or donations (SEIA 2019).

Utility-sponsored: In general, public utilities have taken the lead in implementing community solar projects, however investor-owned utilities and cooperative utilities can also do so (Coughlin et al). In utility-sponsored programs, customers can contribute either an upfront or ongoing payment to support a specific solar project. The customers then receive a credit on their utility bill that is proportional to their contribution to the energy produced by the solar system. Generally the utility is the owner of the system itself. Community solar programs differ from more common utility-led "green power" programs in that they are for a specific solar installation, rather than a variety of renewable energy resources (Coughlin et al). For ongoing payment schemes, the customer generally signs an agreement to purchase electricity from the solar system at a fixed rate over a set period of time, such as 20 years. This agreement protects the customer from potential rises in electricity cost over time (Coughlin et al).

On-bill Crediting: Residents and businesses individually have to invest in a portion of a shared renewable farm under this model, and they receive a credit for the energy produced by their portion of the investment on their bill.

Special Purpose Entity: Through a special purpose entity, individuals join together to develop a shared energy project under a new business enterprise. They are able to take advantage of tax incentives and bulk pricing through this model, but need the technical savvy and capital to begin the process. This model does not seem to be widely used.

Non-profit Model: In this model, individuals or businesses can act as donors to a nonprofit that owns a shared renewable energy installation, essentially buying in to a shared solar farm by way of donation.

Primary Policies that Support Community-shared Solar Models

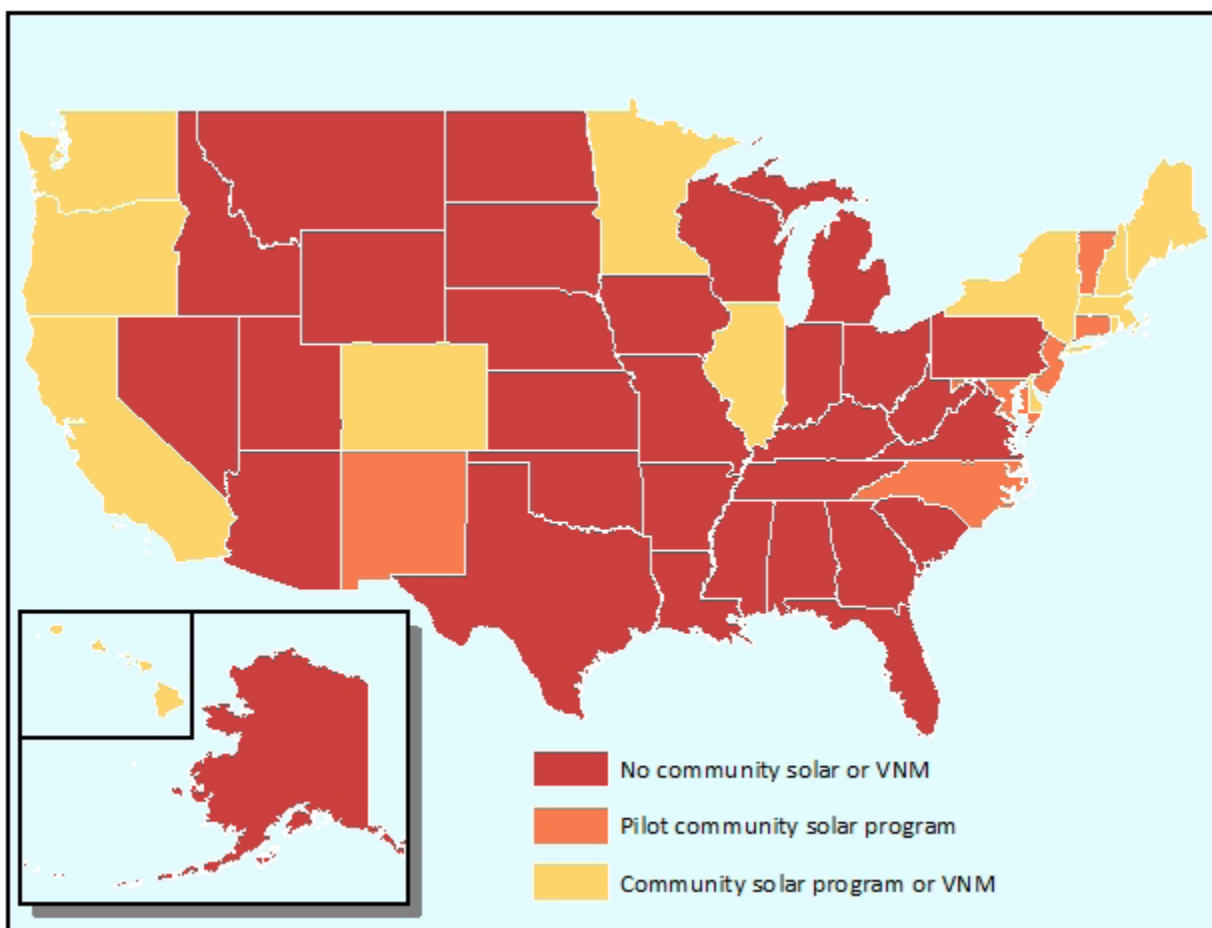
Group Billing: Utilities produce group bills showing all participants' energy consumption and relevant charges. Generation from a shared system is counted against the group bill. The remaining costs are divided amongst the participants, depending on previously determined rules.

Virtual Net Metering: This program allows residential and commercial groups to share generation from a shared solar system. The owner or property manager determines how much of this shared energy will be delivered to each resident.

Community-solar Rules: In some states, these policies explicitly allow for utility-sponsored and group and individual owned shared solar installations.

Other policies that affect community solar include caps on community solar installation size, restrictions to ownership of community solar, joint ownership policies, and tax policies and incentives.

Community solar programs are expanding into new states and utility service areas every year. Besides net metering policies, community solar policies are the fastest developing and changing distributed solar policies at the state level (NC Clean Energy Technology Center 2018). As of 2019, there are 20 states with community solar legislation either enacted or proposed. The map below shows state-wide community solar programs enacted in yellow and state-wide pilot community solar programs in orange.



Map of Community Solar Policies, created by Kara Kara Clauser with data collected by Greer Ryan.

Community Choice Aggregation Basics

Community choice aggregation refers to a system in which a local government or other representative organization contracts with a solar electric supplier for a pre-specified amount of electricity on behalf of their residents. CCA programs work in partnership with utilities, which continue to own and operate the electrical system and manage the load. CCA programs are similar to the aggregated group purchasing discussed above in that the local governments can still take advantage of the bulk pricing for the solar generated electricity, and individuals benefit from shared systems off of their property, with their share considered against the electricity they use in their homes. However, CCA systems are generally “opt-out” systems, in which individuals within a local area are included in the system unless they actively decide not to be. At this point, eight states allow for Community Choice Aggregation: California, Illinois, Massachusetts, New Jersey, New York, Ohio, Rhode Island and Virginia (DOE 2018).

Authorized in 8 States:

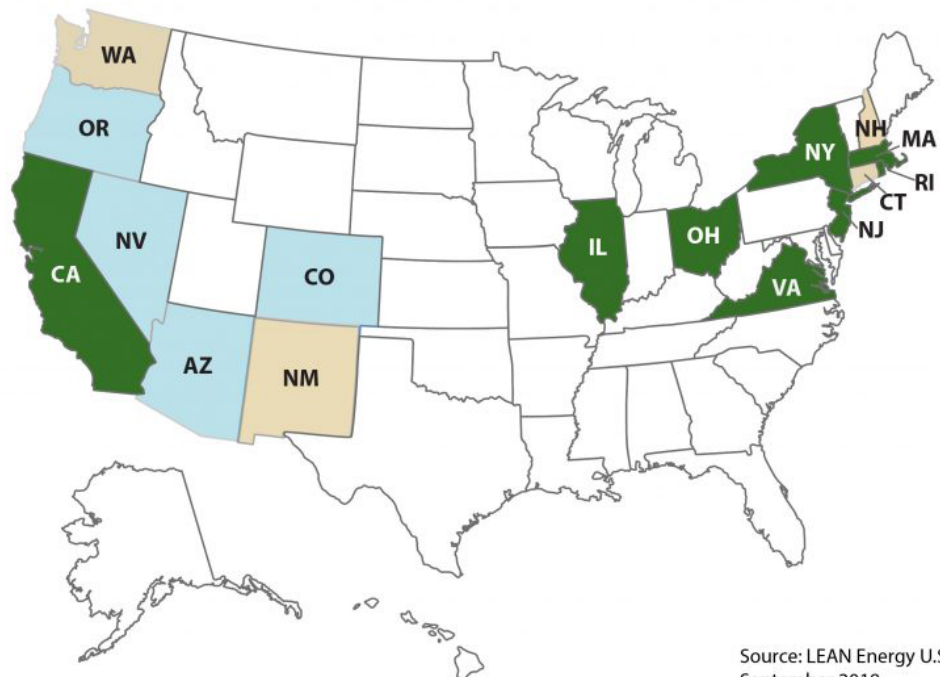
- California
- Illinois
- Massachusetts
- New Jersey
- New York
- Ohio
- Rhode Island
- Virginia

Watch List/Potential:

- Arizona
- Colorado
- Nevada
- Oregon

Inquiries Received:

- Connecticut
- New Hampshire
- New Mexico
- Washington



Source: LEAN Energy U.S.
September 2018

Map of Community Choice Aggregation Policies, courtesy of LEAN Energy US.

In the eight states that allow for community choice energy, local governments or trade organizations are able to develop a contract with an energy supplier to purchase a specified amount of generated electricity, which either could include or be entirely distributed solar. Under the most common and successful version of the CCA model, this electricity would then be delivered to all residents or customers, unless they choose to opt out of receiving this energy. For example, In Illinois and Ohio, customers are automatically enrolled after a public referendum period. In California consumers are enrolled when their local elected representatives vote to develop or join an existing CCA program. They always have the option to return to normal utility service, however.

CCA Program Models

To date, CCA programs have mostly pursued traditional procurement strategies. They buy wholesale power and entering into power purchase agreements with large-scale remote renewable power plants or, less beneficially, purchase unbundled renewable energy credits from afar to “green up” their supply portfolios on a year-to-year, “rented” basis. In order to achieve more enduring and transformative results, CCAs must prioritize the integration of distributed energy resources, by building new local generation and demand response resources, whether financed by local government bonds, commercial investment/credit, and using community shared solar and targeted efficiency products to open up participation to all customers.

This horizontal integration is possible. For example, the most widespread CCA commitments so far come from California. Local Power Inc.’s analyses of CCAs in Marin, Sonoma and San Francisco between 2009 and 2013 indicated that 60 to 80 percent of electricity could be provided by in-county resources at or below utility rates.

Sonoma’s Clean Power program and Marin’s Clean Energy program are two model examples of CCA programs already underway. Sonoma’s service includes a mix of geothermal and distributed solar generation. It emphasizes customer-owned resources, whereas Marin’s program focuses on local solar.

Other examples of CCAs include:

- Illinois communities have taken part in the state’s “municipal aggregation” program, but not all of them opted to support renewable projects.
- Lowell, Mass., began offering its residents 100 percent green power in 2014.
- Cleveland, Ohio, offers its residents 100 percent green power; this started in 2013.
- Lancaster, Mass., has incorporated local solar into their mix of energy sources.

CASE STUDIES

Organizing for Energy Democracy in Rural Electric Cooperatives

Region: South

Key Model: Rural Electric Cooperatives

What it does:

Best said by the Partnership for Southern Equity “against the backdrop of global climate change, ‘energy equity’ translates into the fair distribution of benefits and burdens from energy production and consumption” (PSE). In the rural South, individuals and communities are working to reclaim control of existing energy cooperatives — the rural electric co-ops — and transform them into authentic community-owned and controlled energy service providers. Community groups like One Voice Mississippi and the Partnership for Southern Equity are focusing on educational campaigns and community organizing with the goal of empowering marginalized residents to run for open board seats to influence the major decisions of their electric co-op. These campaigns are focused specifically on increasing and institutionalizing equity and justice within electric co-ops. Board elections are critical in demonstrating the result of democratic participation and community-led, community-driven efforts to take back control of local energy.

Key takeaways:

Rural electric co-ops hold a key to the economic revitalization of low-income communities in the South, and organizing for energy equity has significant implications for the hundreds of rural electric co-ops around the country. It is an ongoing fight between existing power structures and the autonomy and self-determination of African American as well as other disenfranchised communities. If we can fundamentally shift these power structures, beginning with leadership change and continuing with programmatic and policy changes, we have an opportunity to truly transform the role of rural electric co-ops toward a more equitable and just future.

Why it works:

Unlike traditional investor-owned utilities, rural electric co-ops are technically owned and governed by the residents they serve. This means that electric co-ops should prioritize local needs and be held accountable to the community. Unfortunately, a large number of these institutions are un-democratic and are governed by boards predominantly made up of older white males – rarely a true representation of the demographics and interests they are supposed to serve. Imagine if individuals came together to assert their rights and demand change in the way electric co-ops are governed: The governing boards of these institutions could look like the communities they serve and local residents could be in charge of setting electricity rates and deciding where to source their electricity from.

Featured Organizations: *One Voice, Partnership for Southern Equity*

Municipal Controlled and Owned Renewable Energy

Region: West; California

Key Model: Community Choice Energy Program

What it does:

This story is about how people from different backgrounds came together to stand up to their investor-owned utility and create an alternative, non-profit public energy agency. The East Bay Clean Power Alliance was comprised of environmental and social justice groups, labor organizations, businesses and policy advocates. The alliance advocated for a community choice energy program in the East Bay that would spur equitable economic development and family-sustaining clean energy jobs, reduce greenhouse gas emissions, stabilize or lower the cost of electricity, improve community health and social equity and provide other community benefits.

In October 2016, the coalition won a chartered commitment for a local clean energy build-out investment for Alameda County. It was the first community choice program to have this commitment. In addition they won community participation in the design of the program; a community advisory committee of nine members with a chair to represent the community on the East Bay Community Energy Board alongside elected officials.

In June of 2018 the East Bay Community Energy program started providing energy to 100 residents, commercial and municipal accounts as a pilot in Alameda County. In November 2018, it was launched for all county residents.

Why it works:

Community choice energy enables cities and counties to choose where the electricity will come from for their residents and businesses. A newly formed non-profit public agency empowers the local community to bypass their investor-owned utility to ensure a more rapid and just transition to a clean energy future. They are given an alternative option to support the development of clean energy resources, either by purchasing clean electricity on the market, or by developing local clean energy resources in the community. Under this model, the incumbent investor-owned utility continues to manage and maintain the grid and transmission infrastructure.

Featured Organization: *East Bay Clean Power Alliance*

Key takeaways:

The collective motivation to develop local renewable energy resources (including reduced consumption) spans beyond creating a countywide climate solution. It is about addressing questions of historic discrimination to create a new community-based energy model. This collaboration highlights the benefit of community-scale solar over individual rooftop solar projects to stakeholders throughout the community.

A New Business Model of Energy Cooperatives

Region: Northeast and Midwest; New England, New York, Minnesota

Key Model: New Energy Cooperatives

What it does:

“While one person can only influence their own energy bills, many people acting collectively can change the face of the energy system,” according to Cooperative Energy Futures. By working in underserved and low-income communities, organizations like Cooperative Energy Futures and Co-op Power create a virtuous cycle of local economic and community benefits, initially focused on increasing energy efficiency, then collectively producing their own clean energy. They reframe the debate by demonstrating how communities are central to building and implementing solutions. These energy cooperatives are building toward a future where groups of individuals in every community are collaborating to design, develop and manage the energy resources that they need to meet both the community and Earth’s needs.

Why it works:

This new type of business model is about systems change, not climate change. Recognizing the immense opportunity of making a just transition from fossil fuels to renewables, communities are leveraging the chance to significantly alter economic structures. By challenging the root of climate change – capitalism – new energy cooperatives present an alternative economic development model for advancing a new renewable energy economy. In addition, they highlight the economic, social and environmental benefits being made available to low-income communities and communities of color.

Featured Organizations: *Co-op Power, Cooperative Energy Futures*

Key takeaways:

While the cost of clean energy continues to decrease significantly, and solutions become more widespread, it is crucial to ensure these solutions are equitable and accessible. Moreover, the clean energy transition necessitates some fundamental changes to our economic structure. We must leverage this opportunity to push the needle further and develop and promote models that address the underlying issue of neoliberal economics. This is a future where “people and communities have agency, power and decision-making authority over the energy systems that sustain their homes, their communities and their economy. They own, manage and use this system for their own collective benefit” (CEF).

Bringing Solar to Affordable Housing

Region: West; California

Key Model: Solar on affordable housing

What it does:

The Solar on Multifamily Affordable Housing program (SOMAH) is a key part of California's energy equity efforts that prioritizes access to renewable energy for those who have been on the frontlines of pollution and environmental injustice. The bill provides financial incentives for the installation of solar energy photovoltaic systems on multifamily affordable housing properties throughout the state. The statute sets ambitious targets for solar installations, establishes criteria for program participation, and provides guidance to the California Public Utilities Commission on how to administer the program (CPUC). SOMAH has an overall target to install 300 megawatts of generating capacity by 2030, making solar energy accessible to low-income ratepayers in California.

Key takeaways:

Grassroots environmental justice leadership has been key to the state-run program's strength. SOMAH is the largest investment in low-income solar in the country. The program ensures the majority of benefits and bill savings go to residents, mandates that properties with solar installations remain affordable for the next 10 years and prioritizes local green job hiring. Layered with programs that address other aspects of the "solar divide," communities are fighting for clean energy for low-income renters and immigrant and refugee families, and to help communities stay in place.

Why it works:

By investing \$1 billion over 10 years in rooftop solar for deed-restricted multifamily affordable housing buildings, California is knocking down barriers to working-class communities accessing the benefits of distributed solar.

Featured Organization: *California Environmental Justice Alliance*

Pollinator-friendly Solar Act

Region: Northeast; New York

Type of model: Pollinator-friendly solar

What it does:

The New York state legislative bodies unanimously passed an agricultural bill that establishes a statewide vegetation standard for solar arrays. The Pollinator-Friendly Solar Act is a bipartisan bill sponsored by Senator Patty Ritchie and Assemblyman Bill Magee. “The legislation establishes a clear path forward for the ground under and around a growing number of solar arrays to be with planted low-growing flowering plants and native grasses—instead of traditional turf grass or gravel—that provide urgently needed habitat for pollinators and birds” (NYLCV).

Key takeaways:

This legislation ensures that the land around solar installations supports pollinators, communities, farmers and wildlife so that all can enjoy benefits beyond clean, renewable energy.

Why it works:

There are a variety of benefits that come with pollinator-friendly landscapes. The increased levels of appropriate habitat tend to be more resilient to intense downpours and severe droughts. This in turn provides numerous benefits to pollinators and plant species, while also having positive repercussions for agricultural soils. In addition, pollinator-friendly solar allows for a more efficient and productive use of land that otherwise might sit idle for decades. A recent peer-reviewed study published in *Environmental Science & Technology* identified more than 6,400 acres of pollinator-dependent crops close to 166 megawatts of solar arrays throughout New York state (Walston et al).

Featured Organization: *Fresh Energy*

COMMUNITY POWER RELATED RESOURCES

The resources listed below are a collection of educational videos, webinars, articles, public engagement materials and project development tools. They serve to provide insight into community power models and projects, as well materials to help spur the development of new initiatives.

The resources have been categorized by a “challenge tier,” which refers to the level of complexity. If you are relatively new to this subject area, start with the “easy” level resources. As you become familiar with the topics or if you already have a basic background, the “medium” level resources will become more relevant. Once you and or your organization are committed to moving forward with a community power project, the “hard” level resources will become highly valuable.

Category	Resource	Source	Description	Challenge Tier	Implementation vs Knowledge
Public Engagement Tools	To Allow Lots of Renewables, Baseload Coal & Nuclear Must Go	EnergyShouldBe.org (Ken Regelson)	A short video explaining the incompatibility of coal and nuclear plants with renewable energy	Easy	Knowledge
Energy Democracy	What Is The Energy Democracy Project	Energy Democracy Project	A 2-page outline of the role and purpose of the energy democracy project	Easy	Knowledge
Energy Democracy	Resources on Energy Democracy	Local Clean Energy Alliance	A growing page of energy democracy resources	Easy	Both
Inspiring Case Studies	Campaign for Local Power	New Era Colorado	A short inspiring video about the municipalization campaign in Boulder, Colo.	Easy	Implementation
Inspiring Case Studies	Just Community Solar: A Story of Faith In Action	Minnesota Interfaith Power and Light	A short inspiring video about just community solar gardens in Minnesota with a focus on faith communities	Easy	Implementation
Energy System Info	The World Nears Peak Fossil Fuels for Electricity	Bloomberg	A business article on what is driving the growth of renewables and the fall of fossil fuels	Medium	Knowledge
Energy System Info	Utilities for Dummies	David Roberts (Grist)	An article series explaining how energy utilities work and how to change them	Medium	Knowledge
Energy Democracy	From Power to Empowerment	Patrick Sabol (Groundswell)	Summary report on low-income access to the Clean Energy Economy	Medium	Mostly knowledge, some implementation at the end

Category	Resource	Source	Description	Challenge Tier	Implementation vs Knowledge
Organizer Training	Energy Poverty Map	Jackson Koepf (PSN Action Team)	A map, by US county, of what percentage of annual income households below 50 percent of the poverty line spend on energy.	Medium	Knowledge
Public Engagement Tools	Powerful Conversations Facilitation Guide	Powerful Conversations Template Training team (Alice Madden, Eric Immler, Jackson Koepf, Lee Samelson, Timothy DenHerder-Thomas)	A facilitation guide for an in-depth pop-ed training on energy utility systems and energy democracy organizing designed for community groups. It accompanies the template presentation listed next.	Hard (Leadership material)	Mostly knowledge
Public Engagement Tools	Powerful Conversations Template Presentation	Powerful Conversations Template Training team (Alice Madden, Eric Immler, Jackson Koepf, Lee Samelson, Timothy DenHerder-Thomas)	A template presentation for an in-depth pop-ed training on energy utility systems and energy democracy organizing designed for community groups. It accompanies the facilitation guide listed previously.	Hard (Leadership material)	Knowledge
Energy Democracy	Beyond Sharing: How Communities Can Take Ownership of Renewable Power	John Farrell (Institute for Local Self-Reliance)	Broad analysis of the opportunities and barriers to ownership in clean energy	Hard	Implementation
Energy Democracy	Democratizing Our Energy Future	Al Weinrub (Local Clean Energy Alliance), and Anthony Giancattarino (Center for Social Inclusion)	A white paper defining energy democracy and outlining major principles, strategies, and tools for implementing it	Hard	Knowledge
Energy Democracy	What Is Energy Democracy and Why Does it Matter	New Economy Coalition	A video webinar hosted by the New Economy Coalition on Energy Democracy	Hard	Both
Organizer Training	Utilities Training #1: Why Energy Matters	Timothy DenHerder-Thomas (PSN Action Team)	Webinar introducing why energy matters for social change and highlighting the evolution and history of energy utilities (recorded 4/26/2016)	Hard	Implementation

Category	Resource	Source	Description	Challenge Tier	Implementation vs Knowledge
Organizer Training	Utilities Training #2: How to Drive the Utility Death Spiral	Timothy DenHerder-Thomas (PSN Action Team)	Webinar building off session #1 to highlight strategic levers for utility systems change (recorded 5/17/2016)	Hard	Implementation
Organizer Training	Utilities Training #3: Community Wealth Building	Timothy DenHerder-Thomas (PSN Action Team)	Webinar focusing on community wealth building strategies (recorded 5/31/2016)	Hard	Implementation
Organizer Training	Utilities Training #4: Energy Democracy Wealth Building	Timothy DenHerder-Thomas (PSN Action Team)	Webinar focusing on community wealth building for energy democracy (recorded 6/14/2016)	Hard	Implementation
Organizer Training	Research Guidelines	Jackson Koeppell (PSN Action Team)	A research outline on how organizers can learn more about the utility situation in their local area	Hard	Knowledge
Business Modelling	Community Solar Business Case Tool	Elevate Energy	A great resource for financial modelling of community solar projects	Hard	Implementation

CITATIONS

- Cooperative Energy Futures (CEF). <https://cooperativeenergyfutures.com/about/vision/>
- Coughlin et al. 2012. A Guide to Community Shared Solar: Utility, Private, and Nonprofit Project Development. SunShot Initiative: Department of Energy. Accessed: <http://www.nrel.gov/docs/fy12osti/54570.pdf>
- Department of Energy (DOE). 2018. Community Choice Aggregation. Accessed: http://apps3.eere.energy.gov/greenpower/markets/community_choice.shtml
- Examining the Potential for Agricultural Benefits from Pollinator Habitat at Solar Facilities in the United States. Leroy J. Walston, Shruti K. Mishra, Heidi M. Hartmann, Ihor Hlohowskyj, James McCall, and Jordan Macknick. Environmental Science & Technology 2018 52 (13), 7566-7576. DOI: 10.1021/acs.est.8b00020
- GTM Research. 2018. The Vision for U.S. Community Solar. Accessed: <https://votesolar.org/policy/policy-guides/shared-renewables-policy/csvisionstudy/#reportdownload>
- Implementation of AB 693 - California Public Utilities Commission (CPUC) <http://www.cpuc.ca.gov/General.aspx?id=6442454736>
- Local Clean Energy Alliance (LCEA). <http://www.localcleanenergy.org/EnergyDemocracy>
- Local Clean Energy Alliance (LCEA). <http://www.localcleanenergy.org/policy-platform/eastbaycommchoice>
- NC Clean Energy Technology Center. 2018. 50 States of Solar. <https://nccleantech.ncsu.edu/our-work/policy/the-50-states-reports/>
- New York Pollinator-Friendly Solar Bill Unanimously Passes (NYLCV) <http://nylcv.org/press-item/5128/>
- Oakland Climate Action Coalition (LCEA). <http://oaklandclimateaction.org/>
- Partnership for Southern Equity (PSE). <http://psequity.org/just-energy/>
- Solar Energy Industries Association (SEIA). 2019. Community Solar. Accessed: <https://www.seia.org/initiatives/community-solar>