



WHAT IS EQUITABLE COMMUNITY SOLAR?





INVITATION

Equitable community solar requires a participatory process and program design that reflects the elements described below. Often, the rules governing community solar programs are defined through formal proceedings led by utility commissions. For this reason, IEJ develops resources to make it easier for advocates to participate in utility regulation and governance. Please reach out to hello@iejusa.org to let us know what materials and workshops would help your community advocate for equitable community solar.

INTRODUCTION

Community solar is a model for sharing the benefits and ownership of a solar energy system. This model allows benefits to be distributed across multiple customers, including those located off-site of the project. In this way, community solar can create access to renewable energy for households that do not own their home and communities where there have been institutional barriers to large upfront capital investments.

The community solar model is increasingly designed for low- and moderate- income households and creates new opportunities to access renewable energy. However, it is still unclear to what extent community solar is substantively impacting equity.¹ Certain community solar models may even exacerbate social and economic disparities if they are developed without consideration of distributive, procedural, recognition, and restorative justice.²

Distributive justice considers the way that rights, liberties, opportunities, means, benefits, and hazards are allocated across populations. When applied to energy policy, distributive justice is a key tool for highlighting the disproportionate impact of pollution from energy infrastructure on poor and other marginalized communities, and for highlighting issues of energy affordability and access based on income and location.

Procedural justice considers whether everyone can participate meaningfully and as equals in decision-making processes.³ Procedural justice is often applied to government engagement efforts or public hearings - for example, community engagement measures, language accessibility, transparency and open records, and facilitation for those with concerns about disability, childcare, uncertain work schedules, etc.

Recognition justice responds to a lack of respect for affected communities and individuals by those with power in decision-making processes, exemplified by “various forms of insults, degradation, and devaluation at both the individual and cultural level.”⁴ Recognition justice in energy policy can highlight the difference in needs across populations based on culture, religion, age, health, and other characteristics.

Restorative justice requires that past harms be remedied through the policy in question. When considering energy policy, restorative justice requires an acknowledgment and remediation or mitigation of “environmental damage caused by heavy intensive industrial activities,” and prioritization of impacted communities through a social process of remediation.⁵ Indigenous scholars have also advanced a holistic understanding of restorative justice as restoring balance in relationships among humans and non-humans alike, and incorporating principles of Indigenous nationhood and self-determination.⁶

To this end, this article summarizes some of the concepts underlying equitable community solar, and distinguishes equitable community solar projects from other types of community solar.

EQUITABLE COMMUNITY SOLAR

IEJ's framework for equitable community solar emerged from IEJ's *Energy Justice Workbook* (2019), Subin DeVar's article *Equitable Community Solar: California & Beyond* (2019), and the Institute for Local Self-Reliance's article *Equitable Community Solar: Policy and Program Guidance for Community Solar Programs that Promote Racial and Economic Equity* (2020).

IEJ defines equitable community solar based on three main criteria:

- Allocating energy and benefits from one solar system to multiple customers;
- Intentionally focusing on benefiting marginalized communities; and
- Prioritizing local community governance and ownership.

A project that checks all three boxes is the ideal equitable community solar project based on IEJ's framework.



Community solar often refers to projects in which multiple households own or subscribe to a shared solar array and receive credit on their utility bill for the value of the electricity generated. There are many ways to structure solar projects so they could be considered “community solar” according to varying definitions. The Department of Energy’s (DOE) illustrations below provide some examples of various forms of community solar.

The community solar model has the potential to offer a range of social, economic and environmental benefits, including, but not limited to: (1) reducing energy costs and liabilities to individual owners and subscribers; (2) generating profit for developers and investors;⁷ and (3) reducing greenhouse gases.

Well designed equitable community solar projects also create additional improvements in quality of life for participants, owners, and members of surrounding communities. This could take the form of social or monetary

investment in community assets, awareness and scrutiny of utility services, greater parity in access to renewable energy, or long term bill savings.

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Shared solar program structures
(US Department of Energy, SunShot Initiative)

(1) Allocating energy and solar benefits from one system to multiple customers

All community solar projects allocate energy and benefits from one solar system to multiple customers. From this unifying characteristic, community solar projects vary significantly in their ability to benefit marginalized communities and increase local community governance and ownership over energy resources.

Some community solar projects are developed for the primary purpose of lowering electric bills of subscribers. Other projects that are referred to as community solar might distribute non-energy benefits as a proxy for utility savings. For example, a community based organization or Tribal agency may redistribute electric savings via grants, goods, and/or services to the neighboring community. Though the latter is a distribution of non-energy benefits, it has been used as a workaround where utility allowances (or lack of virtual net energy metering) make it challenging to directly distribute electric value to individual households/customers.

2) Intentionally focusing on benefitting marginalized communities

The second criteria is also a key strategy for optimizing benefits: designing community solar projects to prioritize energy and non-energy benefits for Black, Indigenous, people of color, and low- and moderate- income households, as well as marginalized communities see definition on page 7, as defined in IEJ's *Justice in 100 Scorecard*.

Certain communities and households bear disproportionate consequences of the current energy system while receiving the fewest benefits. One famous example is the hydropower supplied to the Pacific Northwest by the Bonneville Power Administration, a federal agency.

The forced occupation and inundation of Indian territory facilitated the proliferation of dams throughout the Northwest. While electricity rates are some of the lowest in the nation, Tribes continue to endure the loss of salmon, entire villages, sacred sites, burial grounds, important fishing and gathering areas.⁹ The same Tribes often experience high frequency and long duration of outages in remote reservations and individual allotments.

The concept of marginalized communities is not limited to households directly harmed by energy infrastructure and resulting environmental hazards, but also includes households that are more vulnerable to higher energy costs and lower reliability. Energy insecurity, or energy poverty, refers to a household's struggle to pay energy bills and exposure to inadequate residential energy services.¹⁰ Energy insecurity has a cascading effect on other areas of safety and health. Inability to pay energy bills can cause families to resort to risky coping strategies that exacerbate their financial and physical vulnerability. For example, families may forego other critical expenditures on food and medicine, bear extreme indoor temperatures, or distribute and defer debts across multiple household bills.¹¹

For community solar projects to be considered equitable, communities that face the highest economic, environmental, health, and social burdens must be the first to benefit. Utility credits for electricity generated will also yield the greatest benefit in cases where energy costs constitute a high proportion of household expenditures.

Community solar projects can create far more benefits by prioritizing communities facing significant health and wealth disparities. However, a project can quickly exacerbate existing inequities if it concentrates the flow of community solar benefits to people and communities already affluent by economic, environmental, and health metrics.

(3) Prioritizing local community governance and ownership

The third criteria in the framework is prioritizing governance and ownership by neighboring community members and organizations.

Governance, in this case, refers to structures and procedures that ensure transparency and accountability throughout the life of a project. Similarly, community ownership confers the authority to make direct decisions regarding the development, construction, operation, and maintenance of energy assets. Ownership and governance throughout design, siting, development, and construction often leads to the most control over its benefits.

Some of these benefits may improve quality of life or cultivate economic and political power in ways that can be difficult to predict or quantify.

Anecdotally, community solar participants have relayed that community governance and ownership can contribute to:

- Knowledge about the energy system and project development, financing, operations & maintenance;
- Economic and political influence through ownership of essential energy infrastructure;
- Climate resilience due to reliable access to local renewable energy;
- Mitigation of environmental and social impact due to deeper community participation in siting and local land use research; and
- A reduction in subscribers' energy expenses and energy burden.

Marginalized Communities/ Populations/Peoples:

Vulnerable populations and groups that have been excluded from the power, rights, and prosperities enjoyed by others in a society, including communities at the frontline of pollution and climate change (“frontline environmental justice communities”) as well as those historically and presently disenfranchised on the basis of race (Black, Indigenous, and people of color), economic status (low-wealth and low-income households), or other social identity (e.g., sex, gender, sexual orientation, and ability status).

Spotlight: Equitable Community Solar Projects

Through referrals and research, IEJ identified **thirty-two community solar projects** across the country that have implemented elements of distributed benefits, focus on marginalized communities and community governance. Each project faced barriers unique to their size, jurisdiction and community, and many have since completed their shared solar projects through flexibility and persistence. Below are just a few examples of the different ways that community solar projects have approached these three elements of equitable community solar.



Sunset Park Solar is a project developed by UPROSE and Working Power in the Sunset Park neighborhood of Brooklyn, N .¹²

- 1) **Multiple customers:** This 685 kilowatt (kW) solar project will provide at least twenty percent electricity bill savings to nearly 200 households and small businesses in the Sunset Park neighborhood.
- 2) **Focus on marginalized communities:** Priority for subscriptions is given to residents living in the 11232 and 11220 zip codes to ensure cost savings for Sunset Park residents. Median household income in 2021 was 62,430, about 13 percent less than citywide median household income 72,150 . The poverty rate in Sunset Park was 22.9 percent in 2021 compared to eighteen percent citywide.¹³
- 3) **Community governance:** Sunset Solar Park is a community solar project operated and owned by UPROSE, a grassroots environmental justice organization, and Working Power, a mission aligned solar developer. Together, these organizations own, operate and manage Sunset Park Solar.

Shiloh Temple International Ministries

community solar was developed by Cooperative Energy Futures, Minnesota Interfaith Power and Light, Sierra Club Northstar, Neighborhoods Organizing for Change, and Renewable Energy Partners in Minneapolis, MN.¹⁴

- 1) **Multiple customers:** The 202 kW shared solar array lowers energy bills for Shiloh Temple, Masjid an Noor mosque and twenty nine to forty households from both the Shiloh congregation and the broader community.
- 2) **Focus on marginalized communities:** IPS Solar's install crew consisted of local community members hired through a jobs training program. Congregation members, neighborhood residents, and local businesses were invited to subscribe

first. Their process ensured that the neighboring community, a predominantly Black community in North Minneapolis, receives the bulk of the benefits, including both employment and locally sourced clean energy.

- 3) **Community governance:** Shiloh Temple's community solar project has a mission statement of "working with underserved and low-income communities as well as the general public , to create real community wealth, first by reducing energy demand and then by producing clean, renewable energy." The Temple collaborated with Cooperative Energy Futures to facilitate community involvement throughout project design, development, construction, operation and maintenance.

Leech Lake Band of the Ojibwe

community solar produced by Leech Lake Band of the Ojibwe and Rural Renewable Energy Alliance in Ojibwe territory in Northern Minnesota¹⁵

- 1) **Multiple customers:** The electricity generated from the community solar garden is designated to recipients of Minnesota's Low-Income Home Energy Assistance Program. The 200 kW solar array helps nearly 100 families in the Tribe as an added resource to serve their energy needs. It consists of five ground-mounted, forty kW arrays to make it visible to the community.
- 2) **Focus on marginalized communities:** The federally-recognized Ojibwe Tribe includes over 9,000 members on 865,000 acres, and 42 percent of the tribe members live below the federal poverty line. The community solar program sells power to Tribal buildings and utilities, and uses the revenue generated to fund payments for low-income households on the Leech Lake Reservation. Specifically, the 200 kW capacity system is expected to produce

about 235 megawatt hours MWh per year. While a portion of that electricity will feed directly into Tribal buildings that the Tribe will pay for, the rest will be sold to local utilities. The Tribe receives an average of 0.09 per megawatt (MW) from the utilities approximately 25,000 per year and this money goes directly toward the local energy assistance provider, allowing additional households to use electricity.

It has also provided an educational opportunity for students at Leech Lake Tribal College who received hands-on training in the renewable energy industry and earned professional licenses in the field.

- 3) **Community governance:** The Band owns the community solar garden, which is managed by the Leech Lake Sustainability program. Though there is no community involvement in its operations and maintenance, the visibility of the arrays has spurred interest in the community around solar PV, and the Band is currently exploring opportunities to provide subsidies for residential generation on the Reservation.

Spokane Indian Housing Authority (SIHA)

has installed approximately 650 kW of solar to offset residents' electricity costs. In the next phase of their project, SIHA will install approximately 980 kW of solar PV to power 140 SIHA-owned, -controlled, and -constructed Tribal member homes on the Spokane Indian Reservation.

- 1) **Multiple customers:** The solar installations will serve 140 Tribal member homes. On average, the project will reduce participating Tribal members' utility bills by approximately 540 to 1,000 during the first year, saving an estimated total of 5,366,080 over the anticipated thirty-five year life of the systems.

- 2) **Focus on marginalized communities:** SIHA utilizes HUD income limits to determine eligibility for housing, programs and services. Established in 1971, SIHA assists eligible applicants in finding affordable housing on the Spokane Indian Reservation. They also offer an Advanced Weatherization Program that provides diagnostic testing and ensures the health and safety of residents. SIHA also offers Home Improvement Loan and Down Payment Assistance Programs to support new and existing homeowners.

- 3) **Community governance:** After the 2016 Cayuse Mountain Fire destroyed fourteen homes and thousands of acres of Tribal land, the Spokane Tribe decided to invest in alternative energy and climate resiliency with solar power. The Tribe and SIHA have since developed long-term energy goals and visions rooted in their strong interest in reliable, sustainable energy infrastructure that provides significant Tribal member job opportunities and improves the Reservation economy. SIHA has partnered with a number of other organizations to plan and execute their strategic energy plan, including GRID Alternatives, Northwest Indian College, DOE Office of Indian Energy, Godfrey & Kahn, community members and residents.

CHALLENGES

As evidenced by the few case studies above, projects vary in their ownership structure, billing system and savings, employment and training opportunities, design and development process, customer outreach and more. This diversity is a good indicator that projects are designed to meet a range of needs, circumstances, and collaborators. For the same reason, however, equitable projects are challenging to replicate and scale from a procedural and administrative standpoint. Some of these challenges are outlined below.

Structural barriers: Though best practices are transferable to nearly any context, every municipality, utility, state, commission and Tribe has distinct requirements that may require customization of ownership, subscription, billing structures, or siting procedures. For example, some states require that utilities offer virtual net energy metering, while others do not; these rules determine what billing and subscription options are possible. Similarly, the Department of Housing and Urban Development has regional rules around utility allowances that affect options for crediting residents of public affordable housing. Project developers have overcome these barriers on a case by case basis.

Financing barriers: Financing community-owned projects serving low-income subscribers has been notoriously difficult through traditional banks because of how rates, risk, and liabilities are calculated. There are a growing number of green banks, financing institutions, and cooperatives like People's Solar Energy Fund, Appalachian Solar Finance Fund, and Re-volv that are innovating more ways to invest in community start ups, nonprofits, and cooperatives. Through the Greenhouse Gas Reduction Fund, the Inflation Reduction Act provides the Environmental Protection Agency with twenty seven billion dollars to mobilize financing and private capital for clean energy and climate projects, with an emphasis on projects that benefit low-income and disadvantaged communities.¹⁶

Political barriers: There is a cultural and political resistance to energy projects that disrupt the status

quo distribution of power and profit. In the context of the regulated monopoly of electric utilities, regulators are consistently understaffed, while investor owned utilities may recover lobbying expenses through ratepayers. This results in an imbalance of power in which utilities have a great deal of influence over the community solar options that are available and feasible to construct. Many advocates participate in the regulatory process in order to hold utilities accountable for just and reasonable rates and service, including options for community solar.

Capacity barriers: Place-based organizations that are skilled in outreach, education and advocacy, and have durable relationships with neighboring communities, do not always have sufficient capacity to drive solar project development. Conversely, solar project developers are not always skilled in communications and collaboration, resulting in projects with poor design or credibility. There are a growing number of community-oriented, mission-driven solar developers like Woven Energy and Shake Energy Collaborative that are experienced in collaboration and fair process, and likewise a growing number of place-based organizations that are experienced in energy project development and policy. State and federal funding programs like the National Community Solar Partnership are also increasingly incentivizing or requiring community involvement as an integral part of project development.

As is evident from the diversity of community solar projects that have been constructed, there is no end to the project customizations possible, from ownership structures to fee calculations to outreach strategies. There are now outstanding written guides, webinars, organizations, and developers that have helped to navigate a variety of challenges, but it's clear that no one size fits all.

CONCLUSION

Though community solar projects are sometimes lauded as a solution for fair access to renewable energy, not all community solar is built equal, nor does it promise meaningful impact on racial and social equity. Using previous analyses of various forms of community solar, IEJ identifies three main criteria that make projects more likely to have meaningful impact on racial and social equity:

- 1) Allocating energy and benefits from one solar system to multiple customers;
- 2) Intentionally focusing on benefiting marginalized communities; and
- 3) Prioritizing local community governance and ownership.

Because each utility, Tribe, state, and municipality has unique rules and procedures around distributed renewable energy, there are many ways that community solar can manifest. Correspondingly, the term “community solar” sometimes acts as a catch all for various types of solar projects, such as projects serving nonprofits, low-income service providers or multiple commercial customers. IEJ found thirty two community solar projects across the country that have these elements of equitable community solar, to varying degrees and ways, and this article highlights just a few projects that exemplify these elements.

While equitable community solar projects are an important element of a just transition to a renewable economy, they cannot stand in isolation of the broader movement for social and racial justice. They constitute just part of a much broader suite of tools and energy solutions. Nevertheless, equitable community solar projects remain an important tool to redistribute the economic, political and literal power of our energy system.

ENDNOTES

1. Low- and Moderate-Income Community Solar Policies NREL
2. Schlosberg, Defining Environmental Justice; Fraser, Abnormal Justice; Jenkins et al, Energy Justice; Finley-Brook and Holloman, Empowering Energy Justice; McCauley et al, Advancing Energy Justice: The Triumvirate of Tenets.
3. Jenkins et al., “Energy Justice”; Vega-Araújo and Heffron, “Assessing Elements of Energy Justice in Colombia.”
4. Schlosberg, Defining Environmental Justice; Whyte, “The Recognition Dimensions of Environmental Justice in Indian Country”; Simcock, Frankowski, and Bouzarovski, “Rendered Invisible.”
5. Heffron and McCauley, “The Concept of Energy Justice across the Disciplines”; Hazrati and Heffron, “Conceptualising Restorative Justice in the Energy Transition”; McCauley and Heffron, “Just Transition.”
6. Gilio-Whitaker, As Long as Grass Grows; Sze, Environmental Justice in a Moment of Danger.
7. Not all solar projects are profitable, and may cost or even operate at a loss, due to “soft costs” like permitting and interconnection studies, land prices/leases, tariffs/rates that determine the value of the electricity produced, etc.
8. Energy Justice Workbook, Initiative for Energy Justice; DeVar, Equitable Community Solar: California & Beyond; DenHerder-Thomas et al, Equitable Community Solar Report: Policy and Program Guidance for Community Solar Programs That Promote Racial and Economic Equity.
9. Salmon People: A tribal fishing family’s fight to preserve a way of life ProPublica 2022 Covenant of the Salmon People: is a 60 minute documentary portrait of the Nez Perce Tribe’s ancient agreement with salmon and follows their efforts to uphold this relationship as dams and climate impacts threaten the extinction of species and a cornerstone of culture.
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