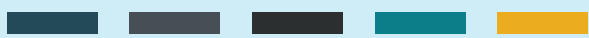


# Empowering Communities with Solar



**A guide to designing and deploying  
transformative, community-centric  
solar projects**

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April 2023

Masters project submitted in partial fulfillment of the requirements for the Master  
of Environmental Management degree in the Nicholas School of the Environment  
of Duke University

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# Acknowledgements

I would like to acknowledge the many people who supported me throughout this project and who offered invaluable insight and wisdom that shaped this resource.

First, I'd like to thank each expert contributor that participated in my research. I had the incredible honor and privilege of interviewing 26 people whose work inspires me and whose insight has not only informed this guide but will have a lasting impression on my career.

Next, I'd like to thank my Master's Project Advisors, Dr. Tim Johnson and Dr. Liz Kalies. I have so appreciated your mentorship and cheerleading throughout the effort. You have encouraged me to stay focused on the questions that I am most motivated by and to color outside the lines where needed.

Next, I'd like to thank Stacy Peterson, Danielle Decatur, and Jenny Carney for their help connecting with experts for this project. You were so generous in helping me find the best people to speak with and learn from. I'm also grateful to the many Duke professors who I consulted early in the project process to shape my thinking –in particular, Dr. Ryan Emanuel and Sherri White-Williamson, whose expertise in environmental justice has profoundly impacted me, both personally and professionally.

Finally, I'd like to thank my partner Emma, whose loving but tough feedback has helped me sharpen my work, and my friends, family members, and dogs (Bertha and Billi) who have supported me throughout my time at Duke.

# Executive Summary

Around the world and across the United States, the energy system is undergoing an unprecedented period of transformation – shifting away from a centralized system dominated by large, polluting fossil fuel plants to a system with large- and small-scale renewable energy projects. This transition creates a once-in-several-generations opportunity to redesign the energy system in partnership with historically excluded communities so they can be active drivers and owners of a better future, not overlooked casualties of a harmful system.

Distributed solar projects, which operate close to the site of energy use, can be a powerful way to empower communities and build a strong, beneficial relationship between communities and energy production and use. The purpose of this study was to explore how distributed solar projects can be designed to maximize the positive impact on the communities they serve, with a particular focus on how to shift power, remove barriers, and provide social and economic benefits to historically excluded communities.

To conduct this research, 26 experts from across the energy industry – including impact and justice-oriented energy professionals, energy and environmental justice community advocates and organizers, energy policy experts, and energy project financiers – were interviewed to unpack their

first-hand experiences advocating for communities and building and supporting solar projects. Their personal and professional experiences – the projects they have worked on, the trends they see in their community and industry, their motivations to work on energy justice issues – offered practical insights and creative solutions. This research yielded five overarching learnings and accompanying recommendations intended to support stakeholders across the energy industry in promoting a community-centric approach to solar project design and development.

☀️ **Learning #1: Safe and efficient buildings are an important prerequisite to “going solar.”** Despite the appeal of “going solar”, a community-centric approach to clean power starts by ensuring homes and buildings are in good condition and efficient. From repairing windows to insulating attics to replacing appliances, these steps can not only make solar power go further but can help introduce historically excluded communities to the energy industry and help build a bridge to solar. The energy efficiency sector is also a strong job creator, and can help employ community members in long-term, sustainable work.

☀️ **Learning #2: Community-centric solar is held back by a lack of relatability and trust between communities and the industry.** A legacy of harmful interactions with the energy system – largely driven by the 20<sup>th</sup> century centralized, fossil-fuel powered model – has led to distrust amongst communities that has impacted their willingness to engage with solar energy projects. The renewable energy industry has not succeeded in rebuilding trust, and in some cases has developed a reputation for pushing communities without making sure they understand and relate to their projects. Communities have also been removed from the act of generating energy for over a century. Trust and relatability can be

rebuilt by offering culturally-relevant information delivered by relatable messengers.

☀️ **Learning #3: Community-centric projects can offer transformative benefits that go beyond cheap power.** Bill savings and emissions reductions are important benefits of solar projects, but transformative, community-centric projects can be designed to create even greater value for communities. Some of these benefits are tangible – like educational and professional opportunities, new revenue streams, resilience in extreme weather, and co-location of community sustainability services – while others are more intangible – like community building, participation in climate action and the energy industry, and serving as a model for other communities. These benefits can be intentionally designed into projects based on need and appetite and can put power (literally and figuratively) into the hands of communities.

☀️ **Learning #4: Community-centric projects face significant funding gaps, even with more supportive federal policy.** Despite a supportive federal policy environment, projects designed to benefit historically excluded communities face financing barriers. While the Inflation Reduction Act offers direct payments that allow community-serving entities to build solar projects, significant up-front capital is still needed until the payments from the IRS come through. Risk perception means that projects serving low-income communities face less favorable financing terms, and projects may already be more expensive to begin with due to repairs needed and the cost of community benefits (explored in Learning #3). Corporate partners and philanthropy can play an important role in addressing these issues, providing short-term capital, using their credit-worthiness to secure more favorable financing terms for projects, and subsidizing or funding repairs and benefits.

☀️ **Learning #5: Organizing and advocacy can help build a movement for community-centric solar with impact beyond individual projects.** Making community-centric solar projects the norm requires intentional movement-building activities that can help connect communities and leverage successes in one region to make change in another. The energy democracy movement has laid a strong foundation and works to connect community-centric projects and advocate and organize for policy changes and education efforts that can enable more communities to benefit from solar. Advocacy goals are often regionally dependent based on the political and regulatory environment, but the national movement offers strength, legitimacy, and best practices that can be tailored for context.

It is important to note that promoting solar projects that are based in and designed to serve communities is not the only way to achieve a more just and equitable energy system. Utility scale clean energy projects are necessary to meet growing power demand and ensure reliable power service and can benefit from many of the learnings described here. Without a far-reaching overhaul of the energy system, the centralized grid will continue to play an important role, and distributed generation can both support grid strength and help achieve community empowerment goals.

Ultimately, creating a more just and equitable energy system will not happen by default – it takes intentional action on the part of all the key stakeholders in the energy industry. This work adds support to the tireless efforts that energy and environmental justice advocates undertake daily and to help aligned stakeholders in the energy industry transform from passive allies to active co-conspirators in shaping a more just and equitable energy future.

# Introduction

Forty years after the launch of the Environmental Justice movement in the United States, the outlook for a more just, equitable, and sustainable future is hazy, with compelling arguments for both hope and despair.

Climate change is no longer a looming threat, but a distinct and calamitous reality, with a disproportionate impact on low-income communities and communities of color.<sup>1</sup> At the same time, the transition to clean, renewable energy is well underway, with renewable power as the second-most prevalent U.S. electricity source after natural gas and on pace to overtake the fossil source in the coming decades.<sup>2</sup> Despite this effort, the pace of renewable adoption is still not fast enough to keep warming below dangerous levels<sup>3</sup>, and a fast transition does not guarantee a just and equitable transition. Under the Biden Administration, though, there has never been a stronger national commitment to a just climate response, with initiatives like Justice40<sup>4</sup> requiring that federal funding specifically support historically excluded communities to ensure that their needs are prioritized, particularly when it comes to new energy infrastructure. But whether utilities, solar developers, financiers, corporations, and state and

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<sup>1</sup> IPCC, 2022: Climate Change 2022: Impacts, Adaptation, and Vulnerability. Contribution of Working Group II to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change [H.-O. Pörtner, D.C. Roberts, M. Tignor, E.S. Poloczanska, K. Mintenbeck, A. Alegría, M. Craig, S. Langsdorf, S. Löschke, V. Möller, A. Okem, B. Rama (eds.)]. Cambridge University Press. Cambridge University Press, Cambridge, UK and New York, NY, USA, 3056 pp., doi:10.1017/9781009325844.

<sup>2</sup> "Renewables Became the Second-Most Prevalent U.S. Electricity Source in 2020," Today in Energy (U.S. Energy Information Administration (EIA), July 28, 2021), <https://www.eia.gov/todayinenergy/detail.php?id=48896>.

<sup>3</sup> "Renewable Energy," Center for Climate and Energy Solutions, November 10, 2021, <https://www.c2es.org/content/renewable-energy/>.

<sup>4</sup> "Justice40 Initiative - Environmental Justice," The White House (The United States Government, August 30, 2022), <https://www.whitehouse.gov/environmentaljustice/justice40/>.



local policymakers are able to work with communities to make good on this promise, however, remains very much in question.

This guide and its underlying research are intended to provide insight and recommendations for the energy industry to ensure that this once-in-several generations opportunity to redesign the energy system to be more just and equitable is not squandered. The learnings, recommendations, and case studies provided focus on how distributed solar generation can be an important tool for empowering historically excluded communities in the energy transition – and can offer pathways to action to help hope win out over despair in the race to address climate change and build the energy infrastructure of the future.

## Context: Decentralized Energy Resources and a Just and Equitable Transition

Director of the Office of Economic Impact and Diversity at the U.S. Department of Energy Shalanda Baker wrote, “for those on the front lines of climate change—low-income communities, communities of color, and Indigenous communities—justice actually *requires* access to decentralized energy, as well as a mechanism, like batteries, to store it.”<sup>5</sup> Decentralized energy – also called Distributed Energy Resources (DER) or Distributed Generation (DG) – refers to energy resources (often renewable) that generate power “at or near where it will be used”, connected to the local energy distribution system, as opposed to utility scale generators that connect to transmission lines.<sup>6</sup>

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<sup>5</sup> Shalanda H. Baker, *Revolutionary Power: An Activist's Guide to the Energy Transition* (Washington, DC: Island Press, 2021), 97.

<sup>6</sup> “Distributed Generation of Electricity and Its Environmental Impacts,” EPA (Environmental Protection Agency, June 23, 2022), <https://www.epa.gov/energy/distributed-generation-electricity-and-its-environmental-impacts>.

DG offers significant benefits for both the power grid and customers. At a system level, DG offers improved reliability, reduced system losses, increased efficiency, and improved power quality (meaning more of the energy can be used to do work) because power does not have to travel as far to reach its destination, helping to strengthen the overall grid. For customers, DG offers many of the same benefits – higher reliability, higher power quality, higher efficiency – but also can provide power at lower cost and provide them with energy independence in the case of grid outages.<sup>7</sup> These factors are particularly important for vulnerable communities, who may be at higher risk of climate induced disruptions to energy access. This “distinct compatibility between distributed generation and environmental justice”<sup>8</sup> has made expanding DG a cornerstone of the energy equity agenda.<sup>9</sup>

In the U.S., the solar industry has been explosively growing, and distributed generation has been integral to this expansion.<sup>10</sup> Yet while DG is a promising equity solution, distributed solar resources are not inherently equitable. One of the common distributed generation solutions is rooftop solar, which allows individuals to buy (or lease) solar arrays for their homes, generating their own power and even selling excess power back to their utilities. However, many low-income customers face significant barriers to accessing rooftop solar – from not having enough cash for down payments for the systems, to not qualifying for federal tax credits designed to incentivize adoption, to having credit scores too low to qualify for financing, to not owning their homes or simply not having access to usable roof space.<sup>11</sup>

<sup>7</sup> Anuradha Tomar et al., “Chapter 1: Integration of Distributed Energy Resources in Power Systems: Issues, Challenges, Technology Options, and the Need for Resilience,” in *Control of Standalone Microgrid* (London: Academic Press, 2021), pp. 3-24.

<sup>8</sup> Uma Outka, “Environmental Justice Issues in Sustainable Development: Environmental Justice in the Renewable Energy Transition,” *Journal of Environmental and Sustainability Law* 19, no. 1 (2012): pp. 62-122, <https://scholarship.law.missouri.edu/jesl/vol19/iss1/5>.

<sup>9</sup> Matthew J. Burke and Jennie C. Stephens, “Energy Democracy: Goals and Policy Instruments for Sociotechnical Transitions,” *Energy Research & Social Science* 33 (November 2017): pp. 35-48, <https://doi.org/https://doi.org/10.1016/j.erss.2017.09.024>.

<sup>10</sup> “Solar Industry Research Data,” Solar Industry Research Data (SEIA), accessed March 22, 2023, <https://www.seia.org/solar-industry-research-data>.

Community solar is an alternative which can address many of these barriers to entry. The U.S. Department of Energy defines Community Solar as “any solar project or purchasing program, within a geographic area, in which the benefits of a solar project flow to multiple customers such as individuals, businesses, nonprofits, and other groups.” Typically, these programs operate through a subscription model, where members can purchase a subscription to a portion of a DG project and receive bill credits for the power generated.<sup>12</sup> There are three general ownership structures for community solar projects – utility-sponsored, special purpose entity, and nonprofit – which differ in terms of their financing approach and goals. Figure 1 offers a comparison of these three models.<sup>13</sup> Further, each state has its own set of rules about how community solar works, with explicit legislation in 22 states.<sup>14</sup> The variability in these laws and the models they enable can lead to unequal benefits to community members – at the risk of prioritizing the utility industry and the solar industry over the marginalized communities that have been impacted by fossil fuel development and stand to gain significantly from a just energy transition.<sup>15</sup>

<sup>11</sup> Bentham Paulos, “Bringing the Benefits of Solar Energy to Low-Income Consumers: A Guide for States & Municipalities” (SunShot, Clean Energy States Alliance, May 2017), <https://www.cesa.org/wp-content/uploads/Bringing-the-Benefits-of-Solar-to-Low-Income-Consumers.pdf>.

<sup>12</sup> “Community Solar Basics,” Energy.gov (Office of Energy Efficiency & Renewable Energy), accessed March 22, 2023, <https://www.energy.gov/eere/solar/community-solar-basics>.

<sup>13</sup> Jason Coughlin et al., “A guide to Community Shared Solar: Utility, Private, and Nonprofit Project Development” (SunShot, U.S. Department of Energy, NREL, May 2012), <https://www.nrel.gov/docs/fy12osti/54570.pdf>.

<sup>14</sup> “Shared Renewables” (Environmental Protection Agency, November 21, 2022), <https://www.epa.gov/green-power-markets/shared-renewables>.

<sup>15</sup> Shalanda H. Baker, *Revolutionary Power: An Activist's Guide to the Energy Transition* (Washington, DC: Island Press, 2021), 97.

### COMPARISON OF MODELS

	Utility	Special Purpose Entity	Nonprofit
Owned By	Utility or third party	SPE members	Nonprofit
Financed By	Utility, grants, ratepayer subscriptions	Member investments, grants, incentives	Memberships, donor contributions, grants
Hosted By	Utility or third party	Third party	Nonprofit
Subscriber Profile	Electric rate payers of the utility	Community investors	Donors, members
Subscriber Motive	Offset personal electricity use	Return on investment; offset personal electricity use	Return on investment; philanthropy
Long-term Strategy of Sponsor	Offer solar options; add solar generation (possibly for Renewable Portfolio Standard)	Sell system to host; retain for electricity production	Retain for electricity production for life of system
Examples	<ul style="list-style-type: none"> <li>• Sacramento Municipal Utility District – SolarShares Program</li> <li>• Tucson Electric Power – Bright Tucson Program</li> </ul>	<ul style="list-style-type: none"> <li>• University Park Community Solar, LLC</li> <li>• Clean Energy Collective, LLC</li> <li>• Island Community Solar, LLC</li> </ul>	<ul style="list-style-type: none"> <li>• Winthrop Community Solar Project</li> <li>• Solar for Sakai</li> </ul>

Figure 1. Comparison of Community Solar Models by Coughlin et. al., May 2012.

Though only 22 states have explicit community solar legislation, there are community solar projects of all types in 39 states, plus Washington D.C.<sup>16</sup> Policies that are designed to specifically ensure participation from low-income and communities of color, or Environmental Justice communities, are less common. As of a May 2018 study, 11 states, plus Washington D.C., have some specific provision in their policy to ensure consideration of low- and middle-income customers. These provisions vary from state to state but include offering incentives or specifying a percentage of each project that must be set aside for low and middle income (LMI) participants.<sup>17</sup> Notably, none of these LMI policies are located in the Southeast, despite the significant proportion of LMI residents located in the region and the moderate solar resource available.<sup>18</sup>

<sup>16</sup> “Community Solar,” State, Local, & Tribal Governments (NREL.gov) accessed March 22, 2023, <https://www.nrel.gov/state-local-tribal/community-solar.html>.

<sup>17</sup> Jenny Heeter et al., “Design and Implementation of Community Solar Programs for Low- and Moderate-Income Customers” (NREL, December 2018), <https://www.nrel.gov/docs/fy19osti/71652.pdf>.

Ultimately, there is tremendous variability across community solar initiatives, and distributed solar generation more broadly, in terms of their ability to meaningfully benefit historically excluded communities. Baker, who highlighted the importance of distributed generation to achieving energy equity, emphasized this variability, and wrote that “we desperately need more research on the...community energy projects that currently exist in the United States to determine what actually works for marginalized communities and which models offer true economic and ownership benefits.” This study – and the findings documented in this guide – attempts to answer this call and find out what really works when it comes to designing distributed solar projects that benefit communities.

## Study Goals and Methodology

This study set out to answer the following research questions:

1. How can distributed solar projects be designed to maximize their positive impact on the communities they serve?
2. Specifically, how can these projects be designed to shift power and provide social and economic benefits to historically excluded communities?
3. What are the main barriers to creating such projects, and what can be done to address them?
4. What role can key stakeholders in the energy industry – specifically, corporate energy purchasers (oftakers) and investors, solar developers, and clean energy advocates – play in actualizing these benefit-driven projects?

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<sup>18</sup> “Solar Explained: Where Solar is Found,” U.S. Energy Information Administration (eia.gov) accessed March 22, 2023, <https://www.eia.gov/energyexplained/solar/where-solar-is-found.php>

These questions were explored through in-depth interviews of stakeholders representing the diversity of communities and the energy industry. An interview-centric approach was taken because these research questions are based on the lived experience of communities (how they relate to the energy industry, what benefits they want from it, what gets in the way) and of players in the energy industry who are either working to make their industry more just and equitable, or who have insight into how the system currently works, and what changes would be needed to make it work better. Their personal and professional experiences – the projects they have worked on, the trends they see in their community and industry, their motivations to work on energy justice issues – highlighted practical insights and creative solutions.

Each interview started with an exploration of the interviewee’s background and career trajectory before discussing benefits of and barriers to community-scale solar projects from their vantage point and specific questions related to their roles. The project and research protocol has received approval from Duke University’s Internal Review Board.

Twenty-six stakeholders were interviewed for this project representing the following categories:

- *Impact/Justice-oriented energy professionals.* Individuals that build community solar and utility scale projects, or that work in the energy industry through an impact and justice lens
- *Energy and Environmental Justice community advocates/organizers.* Individuals that either run organizations or work at organizations focused on energy and environmental justice
- *Energy Policy Experts.* Individuals who have expertise in energy policy, with a specific focus on energy justice

- *Energy project financiers.* Individuals who work for financial institutions that provide debt and equity capital for solar project development, and specifically have worked on community solar projects

These individuals were sourced largely through network-based referrals – first, leveraging existing professional network members that work on energy justice issues or solar energy development. Second, these individuals provided references to other potential interviewees. The findings presented here do not represent every possible viewpoint, but rather offer a best attempt at synthesis of diverse perspectives involved in solar projects that impact communities. A limitation of this research is that all participants expressed an interest in, and orientation toward, integrating community voice and perspective into projects; their opinions and experiences, therefore, are likely not generalizable to all stakeholders in the energy sector. While the interviewees’ voices are referenced throughout the text, apart from case studies, quotes from individuals were anonymized so that interviewees could feel comfortable sharing their candid experiences and impressions.

Throughout this resource, distributed generation projects that are designed to explicitly benefit communities will be referred to as “community-centric.” The guide explores five key learnings that cover a range of topics, from the pre-requisites for community-centric solar projects (Learnings #1 and 2), to the benefits that can be designed into a project (Learning #3), to the financial considerations required to bring a project to life (Learning #4), to how individual community-centric projects can join together to shift the energy system as a whole (Learning #5). This work adds support to the tireless efforts that energy and environmental justice advocates undertake daily and to help aligned stakeholders in the energy industry transform from passive allies to active co-conspirators in shaping a more just and equitable energy future.



## Learning #1: Safe and efficient buildings are an important prerequisite to "going solar."

"On the path to solarization...where do we need to start?"

Imagine this scenario: a well-meaning corporation wants to help their local community take advantage of the clean energy transition. What do they do? Announce a bold proposal to invest millions of dollars to install solar panels on every public school in the city. It is a splashy action with terrific optics for the company. But after the press conference, once the work begins, it becomes clear that the project is doomed to fail. Why?

First, many of the school buildings are old and poorly insulated – they consume significantly more energy than they would if optimized. An inefficient building makes it difficult to understand how much energy the building actually needs, and therefore makes it hard to appropriately size a solar system. A system sized for an inefficient property will be too large – or will simply not meet the building or household's energy consumption. "If you want to put the panels on someone's roof, but the home is inefficient, you're not going to get as much as offset as you want. It's going to be significantly lower," according to the owner of an energy efficiency company.



Second, many of the rooftops are damaged and weak – they could not physically support a heavy solar array. Physical damage makes it impossible to actually put solar on a building. Before solar can be installed, damaged roofs, broken windows, and other repairs – such as air duct sealing, fixing weather stripping on doors – that impact both efficiency and building integrity must be addressed. “We need to start on housing, we need to look at critical home repairs,” according to the head of social impact for a leading renewable development firm. “If you’re going to put solar on an office building or community building that is not physically, structurally sound, well then you have to go backwards to fix those things.”

Finally, many of the appliances and systems (in particular, the HVAC) in the buildings are old and inefficient too. Repairs can help, but replacements may be necessary. As one energy equity researcher said, “efficiency and weatherization are just way less interesting than solar” – but in order to optimize the benefits of solar, they are a necessary first step.

Efficiency issues have a disproportionate impact on low-income communities that may live in older or poor-quality housing stock as both renters or owners, where the costs of inefficiency are passed along to them by landlords or developers. A community-focused energy consultant shared that “developers, when they’re building a [housing] project, build it to the cheapest specifications. And so poor people in a housing project are paying more for their electricity...and they can’t afford their energy bills.” For households that pay a disproportionate amount of their income to meet their energy bills – also known as high energy-burden households – “making sure our buildings are enclosed and we’re not wasting energy...is incredibly complimentary, if not the most important thing we can do from an energy equity standpoint,” according to the head of a global energy access organization. In fact, a study by the American Council for an

Energy-Efficiency Economy found that energy efficiency efforts can reduce energy burden by up to 25% for low-income households.<sup>19</sup> Starting with efficiency and repairs before considering solar can be a powerful tool for trust-building and to introduce communities to the energy industry in a personalized way and demonstrate how they can have agency over their energy usage and bills. It is also much lower cost – approximately \$2,500 - \$4,500<sup>20</sup>, compared to about \$16,000 for a home solar system<sup>21</sup>– and they can experience the benefits quickly without a massive up front capital expenditure. Lumeco Energy, featured in the following case study, demonstrates this approach as they work with households across Maryland to increase efficiency. For households that want to opt in to solar – whether on their rooftop, or through a community-solar model – repairs must first be done, which makes an investment in solar even more expensive. But because many utilities have energy efficiency programs, this can be a way to create goodwill – when programs are well-executed – and can increase willingness to participate in solar programs later on. The head of an income qualified community solar program at a major southeastern utility echoed this, saying “we already have several income qualified customer programs within our energy efficiency organization. So, we have a bank of customers already that we can market [community solar] to.”

Starting with energy efficiency and repairs can create a virtuous cycle for solar – the more homes and buildings that become efficient, the more solar that can be installed, which can help make solar feel more accessible and lower the barrier to entry for more households. Key to sustaining this cycle, though, is growing the workforce of individuals trained to make efficiency upgrades and repairs. Fortunately, this is a sector with

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<sup>19</sup> Ariel Dreihobl, Lauren Ross, and Roxana Ayala, “How High are Household Energy Burdens?” (American Council for an Energy Efficient Economy, September 2020), <https://www.aceee.org/research-report/u1602>.

<sup>20</sup> Jon Gorey, “What It Takes, and Costs, to Make an Old Home Energy-Efficient,” Boston.com (The Boston Globe, June 8, 2022), <https://www.boston.com/real-estate/home-improvement/2022/06/08/steps-costs-make-old-home-energy-efficient/>.

<sup>21</sup> Rebecca Brill, “How Much Do Solar Panels Cost?” Forbes (Forbes Magazine, March 16, 2023), <https://www.forbes.com/home-improvement/solar/cost-of-solar-panels/>.

tremendous promise for local communities. “Energy efficiency creates more local jobs than any other industry. It’s not solar, it’s not batteries. It’s not wind. It’s energy efficiency, and it’s all very, very local,” said the community-focused energy consultant. A 2021 report by the US Department of Energy demonstrated this point – the Energy Efficiency sector employed over 2.1 million people, while the entire Electric Power Generation sector employed just over 850,000, with only about 20,000 coming from Solar and Wind.<sup>22</sup> By meeting communities where they are and prioritizing home-efficiency basics the benefits of a clean, local energy system become more accessible.

## Learning in Action: Lumeco Energy

When Damola Ademiluyi started Lumeco Energy in Maryland, he saw an opportunity to do well and do good by his community. “It was really just about the opportunity to make money in an up-and-coming market where the majority of the contractors and participants are not black or not African American,” he said. “And yet, it is a lot of our communities that are affected by inefficient use of energy, health and safety issues are minorities. I figured if they saw a face that they are familiar with, I would take most of the market share.” Lumeco does energy efficiency upgrades in predominantly minority communities, and partners with major utilities to conduct audits and improvements. While Lumeco offers solar options, they know that focusing on services like air leakage reduction, insulation, HVAC, plumbing, and overall repairs are the most urgent and foundational needs for their community – and address costly challenges that make solar more viable. “The barrier to [going solar] is the financial

<sup>22</sup> “2022 U.S. Energy and Employment Report Fact Sheet,” U.S. Department of Energy, 2022, [https://www.energy.gov/sites/default/files/2022-06/USEER%202022%20Fact%20Sheet\\_0.pdf](https://www.energy.gov/sites/default/files/2022-06/USEER%202022%20Fact%20Sheet_0.pdf)

implications of converting your house and making it more energy efficient,” Ademiluyi said.

Ademiluyi and his team seek out grant programs that can help cover costs as much as possible – “the utilities cover a portion of it, but out-of-pocket cost that come from the homeowner, we try to get that from grants.” He is even setting up a non-profit which can help close the funding gap for customers. In order to serve as much of his community as possible, he said, “we charge as little as possible to make a profit.” By partnering with community organizations and homeowner’s associations that already have trust, Lumeco can “go in like a family member” – making energy efficiency accessible for households that may not otherwise participate.

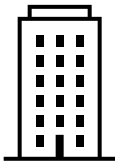
## Learning Summary

Despite the appeal of “going solar”, a community-centric approach to clean power starts by ensuring homes and buildings are in good condition and efficient. From repairing windows to insulating attics to replacing appliances, these steps can not only make solar power go further but can help introduce historically excluded communities to the energy industry and help build a bridge to solar. The energy efficiency sector is also a strong job creator, and can help employ community members in long-term, sustainable work.

## Recommendations

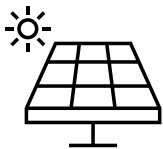
What can stakeholders in the energy industry do to put this learning into practice?

**Support basic improvement of building stock before investing in major community-centric energy projects.**



Corporations

- ☀️ Be willing to forgo – or delay – high-profile solar projects, and instead invest money to make facility repairs and improve efficiency.
- ☀️ Contribute to existing organizations and utility programs focused on repairs and efficiency and help capitalize new 501c3s or other projects dedicated to addressing these major barriers to solar adoption.



Developers

- ☀️ Partner with entities (utilities, companies, non-profits) that focus on repairs and efficiency before starting a community-based solar development to ensure appropriate sizing, minimize costs, and maximize benefits to the community.



Advocates

- ☀️ Continue raising awareness amongst corporates and developers about the issue and the importance of focusing first on foundational repairs and efficiency.

- ☀ Advocate for utilities to create or expand their efficiency and repair programs to deepen reach.
  - ☀ Raise awareness amongst low-income communities about the programs and services that exist to improve their homes and community buildings (such as the Weatherization Assistance Program).
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## **Learning #2: Community-centric solar is held back by a lack of relatability and trust between communities and the industry.**

“[Our energy system] is behind a curtain that hasn’t been pulled back in this century.”

Before communities can meaningfully benefit from solar (see Learning #3 for a look into the various types of benefits), they have to want it and believe it is safe and worthy of trust and investment. Yet for at least the past 100 years, the energy industry has failed to make the case for trust – and it is a trend that has continued with the rise of renewable energy. But where does this distrust stem from?

The energy industry has a poor track record when it comes to low-income communities and communities of color in the U.S. The 1879 invention of the lightbulb launched the development of the modern power system – and because alternating current (AC) power can be transmitted at high voltage and low current to reduce power losses, the grid was made of large, centralized power plants (fueled by fossil sources and disproportionately sited in communities of color) that sent power through

transmission and distribution lines to households.<sup>23</sup> Because of the high cost of this infrastructure and the economies of scale offered through large, centrally operated plants, utility companies arose as “natural monopolies”, with complete market ownership over regions, owning the generation, transmission, and distribution assets.<sup>24</sup> A push to electrify the nation at the turn of the 20<sup>th</sup> century led to an agreement with government where utilities could have complete control over a region but would be required to provide reliable power to anyone (regardless of race, income, gender) at the “lowest cost” possible. Utilities were allowed to set their rates to cover their own cost of infrastructure and fuel, and, if privately owned, to offer their investors a return.<sup>25</sup> This incentivized growth, as the more plants built, the more costs that could be integrated into the rate base and recouped by the utilities. Rapidly expanding power plants were often placed in low income and communities of color (likely due to lower land prices resulting from practices like redlining), leading to disproportionate health and economic harms today.<sup>26</sup> These impacts have compounded, creating, as one energy justice called it, “a historical legacy of exploitation” for certain communities in the United States.

With the rise of distributed generation, the imperative of a highly centralized power system has evolved – yet utilities maintain monopoly power over the power system, and state legislatures and utility commissions have not significantly restructured the system to reflect this changing reality. The result, as advocate put it, is that “utilities are institutions that have more money than God and the legal and regulatory backing that agrees with the idea that they should control everything.”

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<sup>23</sup> “Power Plants and Neighboring Communities,” Clean Air Power Sector Programs (Environmental Protection Agency, February 16, 2023), <https://www.epa.gov/airmarkets/power-plants-and-neighboring-communities>.

<sup>24</sup> David P. Tuttle, et. al., “The History and Evolution of the U.S. Electricity Industry, (University of Texas at Austin, July 2016), [https://energy.utexas.edu/sites/default/files/UTAustin\\_FCe\\_History\\_2016.pdf](https://energy.utexas.edu/sites/default/files/UTAustin_FCe_History_2016.pdf)

<sup>25</sup> David Roberts, “Power Utilities Are Built for the 20th Century. That’s Why They’re Flailing in the 21st.” (Vox, September 9, 2015), <https://www.vox.com/2015/9/9/9287719/utilities-monopoly>.

<sup>26</sup> Brett Israel, “Coal Plants Smother Communities of Color,” (Scientific American, November 16, 2012), <https://www.scientificamerican.com/article/coal-plants-smother-communities-of-color/>.



This centralized model has left communities with limited opportunities to advocate for their interests, but there are pathways – primarily, advocating at hearings held by utilities or public utility commissions (more on this in Learning #5). But as a leader of the energy democracy movement shared, these hearings are complicated, and require skilled lawyers and finance experts to advocate on their behalf. She remarked, “[expert support] is the only thing that’s going to help us have a voice and influence the outcomes of these regulatory proceedings.”

The renewable energy industry has not done a much better job in meaningfully involving and engaging communities, and dismantling the perception that the energy system is exploitative. As one former renewable developer shared, “developer’s diligence will often come from a perspective of...is there public outrage about this project that makes it not welcome” – instead of how to make the project a real asset to the community. Community solar subscriptions, an important way that communities can directly participate in solar, have developed a reputation in some places due to bad actors who, according to an energy efficiency professional, try and take advantage of low-income communities “because they’re not educated in terms of what programs and what opportunities are out there.” But there are examples of developers and community solar providers that have been intentional about working with communities – Solstice, a community solar company featured in this section’s case study, does a good job prioritizing the needs of low-income customers.

Whether intentional or ancillary, the energy industry also does not have a reputation for cultural competence or relatability. The former head of resiliency efforts for a major U.S. city shared that the “people who are often behind the programs aren’t socialized with [community] values and don’t see things the same way...there is a disconnect in the language, and about the benefits...that for someone who is ‘on the margins’ or living day to day is not going to care about.” These disconnects may be because energy industry representatives are not from the community they serve or

because they simply are not engaging with the community enough to understand the most effective and resonant messages. A youth energy justice activist reinforced this idea, saying “information needs to be translated to folk on the ground...making sure folks feel comfortable and confident in the product they’re getting.” By putting the benefits of solar in terms that communities can embrace, and by having relatable messengers, the industry can strengthen their perception and relationship to the communities they serve.

Finally, distrust of the energy industry stems from the fact that communities are largely disconnected from it in their daily lives. As one advocate put it, “Communities have been divorced from the practice and experience of building and managing energy for a century or more. And so, there just literally isn't a fundamental understanding of how this works, or how do you do it?” This leads to a transactional relationship with the energy industry instead of a generative, collaborative one. As one energy justice activist shared, “for more than 100 years, we’ve been told that our relationship to energy is paying your bills...that story pigeonholes our role as a powerless consumer that has to wait for the corporation or the government or some smart elites to help and save us...our relationship with power is someone having power over us.” Community education initiatives – from STEM programs for young people, to information sessions at community centers or places of worship – can help demystify the power sector. Greater visibility of solar can itself be a powerful benefit of community-centric projects (more on this in Learning #3).

The result of this distrust is that communities are less likely to seek out solar energy projects that, if co-designed with them to intentionally address their needs and honor their experiences, could have a powerful impact on their communities. This, in turn, maintains the existing paradigm that foster distrust in the first place. The good news, though, is that by creating channels for authentic communications and understanding with communities and supporting them in understanding

where there are opportunities to reclaim power and shift the paradigm, real benefits are possible through solar.

## Learning in Action: Solstice

Steph Speirs started Solstice, a leading community solar company, with a simple founding belief: that community is the most scalable force on the planet. “I always have to show people the snowflake model for community organizing...where you’re empowering others to take action on climate in their own communities. It’s a flywheel effect, if you can organize well.” Speirs has long understood that mobilizing community means connecting with them and helping them trust that participating in community solar is in their interest – and Solstice’s mission “to organize, educate, and innovate to make solar accessible for every American” positions communities as true partners in their work. Speirs and her team have actively designed their engagement model to prioritize trust: “Instead of using door to door canvassers can be pretty extractive and exploitative, often in the energy industry specifically, we go through a community partnership model where we partner with local organizations, whether they be an employer or real estate aggregator or a municipality or nonprofit, to expand access to a clean energy for their community.”

To further build trust – and help mitigate exclusionary practices that have kept low-income customers out of participation in energy programs that require strong credit – Speirs has pioneered a new tool called the “EnergyScore” as an alternative qualification metric for low-income customers. “FICO is our destiny in this country...but it doesn’t consider rental history, cell phone history, utility bill history, and so our destiny is based on this archaic measure that rules our entire lives.

And so, the EnergyScore is an improvement...it uses utility repayment history as a better proxy for determining whether people pay their energy bills on time.”

Speirs recognizes that in order to make her community-centric model viable in the energy industry, she and her team play an important role in helping communities connect with developers, utilities, and financiers. “They don’t speak the same language...so a lot of our work has been good cultural translation between those worlds.” To date, Speirs and Solstice have been effective at navigating these differences and building trust across the industry – and have consistently offered customers meaningful savings on their energy bills.

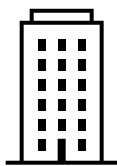
## Learning Summary

A legacy of harmful interactions with the energy system – largely driven by the 20<sup>th</sup> century centralized, fossil-fuel powered model – has led to distrust amongst communities that has impacted willingness to engage with solar energy projects. The renewable energy industry has not succeeded in rebuilding trust, and in some cases has developed a reputation for pushing communities without making sure they understand and relate to their projects. Communities have also been removed from the act of generating energy for over a century. Trust and relatability can be rebuilt by offering culturally-relevant information delivered by relatable messengers.

## Recommendations

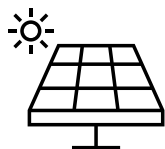
What can stakeholders in the energy industry do to put this learning into practice?

**Work *with* communities to rebuild trust by unpacking their needs and concerns, understanding how solar can benefit them, and advocating for their goals in projects.**



Corporations

- ☀️ Create funding opportunities to hire experts that can advocate on behalf of communities at rate cases, hearings, or other engagements with public utility commissions (PUC) and utilities to push for more community leadership and ownership of renewable generation assets.
- ☀️ Leverage existing scorecards<sup>27</sup> and/or partner with experts in community development and EJ to co-design community-impact projects with communities, and to hold developers accountable for these practices.



Developers

- ☀️ Work with experts in energy/environmental justice and social impact strategy to facilitate collaboration with communities.

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<sup>27</sup> The Just Transitions Power Force has created a scorecard for assessing clean energy projects, accessible at <https://emeraldcities.org/our-work/just-transition-powerforce/>.

- ☀️ Design a playbook for your firm that documents a community-centric approach to engagement in partnership with community experts.
- 



### Advocates

- ☀️ Develop simple, digestible language and resources to demystify the energy industry and the solar options available to communities.
  - ☀️ Train and support community influencers (educators, faith leaders, community elders) to use these resources to communicate effectively about energy and solar opportunities.
-



## Learning #3: Community-centric projects can offer transformative benefits that go beyond cheap power.

“You’re not going to save your way out of poverty.”

Whether it is a rooftop solar installation or a subscription to a community solar program, customers are usually pitched on two main benefits from “going solar”. First, they are helping to fight climate change (a strong motivator for some). Second – a much more immediate reward – they can save money on their electricity bills.

These benefits matter tremendously and cannot be discounted. As the head of an environmental justice organization warned, “don’t underestimate the \$10 savings. There are people who would really appreciate a consistent \$10 reduction in their energy bills, in the context of every other bill they have.” But she continued by saying “\$10 alone, jumping through all the hoops to get it doesn’t seem worth the squeeze, which is why I think you have to do the community solar projects in the context of other sustainability efforts.” Indeed, bill savings are a vitally important benefit to solar – but at the community level, solar projects

have the potential to go beyond incremental change and offer transformational improvements when other benefits are incorporated.

Community-centric solar projects are designed with community needs at the forefront and can serve as a hub for benefits and investments in the community. As one renewable energy leader shared, projects can be “like a beacon” that offer value and pride to a community. So, what are the possible benefits that such a project can offer? Some of these benefits are tangible – and bankable – for a community. These include:

1. **Jobs and career pathways.** As one clean energy consultant shared, “First and foremost is jobs. If you can package the clean energy conversation in jobs, then people will listen.” Intentionally including workforce development programs alongside community projects not only allows for better maintenance of the installations but equips community members to access employment opportunities beyond the project. There is also an opportunity for new solar businesses that center women and minority owners to occupy the community-centric project space, creating wealth through “white collar” career paths. The head of impact at a solar developer shared, “If we want to get people to a higher pay career path, then we have to also be thinking about corporate jobs.” This may require apprenticeship or other formal and informal mechanisms of support from existing developers.
2. **Resilience.** In a world increasingly subject to climate-induced disasters, installing solar on existing locations (schools, churches, community centers) can turn them into “resilience hubs” to access heating, cooling, and electricity during times of crisis. This could look like building community microgrids that can fully disconnect from the grid during out events or having solar and storage for backup power. As one energy policy expert shared, “You can never have [a local system] be fully resilient, but there should be accessible community infrastructure available to all, especially in



those places that have the least resources to act on their own.” Another energy justice leader echoed this sentiment, noting that “the whole idea of grid modernization should be one of resilience and resilience means redundancy”, and calls for “a distributed energy infrastructure that is going to allow for backup energy and access for communities.”

3. **Longer-term financial stability.** Models where communities have ownership over the assets – often through a cooperative model where individuals in a community come together to purchase an asset, or where a central body like a non-profit does – have the potential to build wealth for that group or community. As one energy consultant noted, “if it is truly community owned, and not third party owned and subscribed, you're building generational wealth, right? Because you're increasing property values, and that value goes back directly to the homeowner. If it's community owned, there's no one trying to make a profit here, there's no one taking a haircut off the top.” Communities who own the assets can also choose to monetize them by selling the renewable energy credits associated with the projects (see case study on Solar Stewards). That said, wealth creation is not a guarantee – in reflecting on a recent community-centric project, the founder of a green bank shared that “we collectively came to the conclusion that low-income families would rather have an increased bill discount than an equity share in an asset that's going to depreciate over time.”
4. **Educational opportunities.** Beyond skills training and support for minority and women-owned energy businesses, solar located in a community can provide meaningful educational opportunities for young people, whether through STEM programming in school or through other forms of programming. For example, if solar is installed on the roof of a school, community center, or church,

students can engage hands-on with the technology. The financial savings from clean power could also be used to subsidize educational programming. As an environmental justice leader imagined, “Your kid could potentially be a part of this fellowship program to better their themselves in the clean energy sector or become a clean energy entrepreneur.”

5. **Co-location of community services.** While this is not as common of a benefit, some advocates imagine a future where renewable energy projects are the anchor for a community’s sustainability journey. One leader expanded on this vision, saying: “I think about renewable energy in the context of a justice oriented, healthy circular economy...it can become this collectively beneficial resource that can co-exist with other collectively beneficial resources.” This could look like siting community projects in significant community spaces, like schools, or like launching new cooperatives where other sustainability services that benefit low-income communities – composting, glass recovery and recycling, and more – can be powered by clean energy, creating jobs and reducing waste.

Some of the most important benefits, though, are less tangible – and focus more on building agency and independence for historically excluded communities. These include:

1. **Community building.** Meaningfully engaging communities in projects – whether the project is owned and led by a community, or intentionally designing the benefit structure with them – can lead to an increased sense of belong and community. As one advocate put it, “when people undertake a project together, it builds closeness and identity...building community is huge.”
2. **Participation in building a climate safe future.** For communities, and particularly through engagement with young

people, solar projects can be a powerful reminder of the relationship between the planet and humanity. One environmental justice and community arts advocate who works with young people shared that “their eyes light up when they understand that connection between taking care of Earth and their responsibility and preparing for their future as well as their children's future.”

3. **Demystification of the energy system.** Per Learning #2, community-centric solar projects offer the opportunity to develop agency and expertise when it comes to the energy system. One energy democracy activist explored this idea, saying: “we actually can create a space where someone like a grandma or a teacher or a plumber could come together and believe that they're an energy expert, and then actually design what they want to see in their own community to maximize their livelihood. So, they're not just trying to survive, but they can actually thrive.”
  
4. **Becoming a model for other communities.** Low-income and communities of color have historically been excluded from the energy system – and from the benefits of the clean energy transition. As one resiliency and environmental advocate put it, “I think there's tremendous opportunity in black-led and other under-resourced communities to be hubs and models for clean energy and resilience...because they're so heavily impacted by it, but I think because the sense of community, the values which people already operate on about taking care of each other, it bodes well for community-based energy.”

It is essential to remember that one community is just that – one community. As a prominent energy justice leader shared, a model that can be replicated over and over again simply does not exist; these benefits have to be tailored to the needs of an individual community. In communities with more restrictive regulatory environments, for example,

these benefits may need to be integrated into utility programs and advocated for through the Integrated Resource Plan (IRP) process (the process through which utilities decide which new generation assets they will build and which programs they will run in the following years). In other locations, communities can work directly with developers to build community-centric projects. The benefits here are a menu of what is possible – and represent some of what is being pursued by visionary community advocates and solar professionals. Scaling these benefits to more locations requires organizing and movement building (more on this in Learning #5).

## Learning in Action

### *Clearloop*

Laura Zapata, the CEO of Clearloop, is committed to communities that are often overlooked in the Southeast. Because of the region's strict regulatory environment that limits the ways that communities can directly get involved in the energy system, she and her team have pioneered a model to build grid-connected, distribution-scale solar projects in underinvested locations in the South that draw attention to and investment in the communities. They identify communities where the grids are the dirtiest by evaluating carbon-intensity, and which are characterized as “distressed”, using a distressed community index.<sup>28</sup> “These communities have not seen any investment, let alone clean energy investments...these communities we’re identifying are often faced with, if they want some infusion of capital, some sort of false

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<sup>28</sup> Clearloop uses the Distressed Community Index by the Economic Innovation Group. More information on the index available at <https://eig.org/distressed-communities/>.

choice between their health and investment.” Clearloop builds distribution-scale renewables projects in these communities and sells the power to the local utilities at the brown power rate (i.e., the rate from non-renewable sources). Part of Clearloop’s thesis is that the visibility of the project can not only spark pride and hope for a community but can provide educational and professional development opportunities. The projects are capitalized through corporate partnerships, which can involve intentionally bringing corporate training programs or social responsibility efforts into a new community. As Zapata said, “if you can’t see it, you can’t be it” – and Clearloop’s projects may just help communities be part of a revitalizing clean energy future.

### *Solar Stewards*

The way Dana Claire Redden describes it, the goal of her company Solar Stewards is deceptively simple: “It’s just monetizing an asset.” But Atlanta-based Solar Stewards offers a revolutionary benefit to communities that it works with – unrestricted cash. Redden’s company aggregates distributed generation projects in historically excluded communities and sells the renewable energy credits, or RECs, to corporate offtakers. The “Social RECs” come at a premium that socially conscious corporates are willing to pay so that their credits go further than simply helping them meet their sustainability commitments. Communities get paid the revenue off of the RECs, and that unrestricted money can be used by communities to invest in projects that matter to them. Redden provided an example of a community partner that wanted to use their funding for non-energy related needs: “One of them said there’s a lot of funding for STEM, but what we don’t have funding for is mental health. So, could we use the social REC revenue for mental health? And I said, of course. You might think to yourself – what does that have to do with energy? But let’s think

[instead], what does that have to do with equity?” Communities are free to use the revenue to invest in the highest-need areas for them and shifts the dynamic from passive recipients of energy to active beneficiaries of the system.

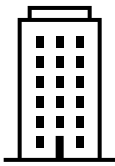
## Learning Summary

Bill savings and emissions reductions are important benefits of solar projects, but transformative, community-centric projects can be designed to create even greater value for communities. Some of these benefits are tangible – like educational and professional opportunities, new revenue streams, resilience in extreme weather, and co-location of community sustainability services – while others are more intangible – like community building, participation in climate action and the energy industry, and serving as a model for other communities. These benefits can be intentionally designed into projects based on need and appetite and can put power (literally and figuratively) into the hands of communities.

## Recommendations

What can stakeholders in the energy industry do to put this learning into practice?

**Intentionally design community-centric projects that maximize the number of benefits possible and desired by a community.**

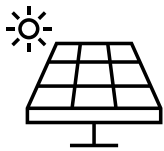


Corporations

- ☀️ Seek out Power Purchase Agreements (PPAs)/energy contracts where you can explicitly require co-benefits to communities through some of the mechanisms explored here.<sup>29</sup>
- ☀️ Support the development DG projects that serve historically excluded communities – whether through an aggregated distributed generation PPA or philanthropic investment.
- ☀️ Develop direct relationships with energy justice and community advocates to co-design the specific benefits that optimize value for the communities you work in.
- ☀️ Commit to partnering with renewable project developers who share your commitment to embedding these practices into projects.

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<sup>29</sup> There is precedent for this type of PPA. Microsoft and Volt Energy Utility, a renewable development, published a paper documenting how they pioneered the Environmental Justice PPA: <https://query.prod.cms.rt.microsoft.com/cms/api/am/binary/RE5cgC0>.



### Developers

- ☀️ Develop meaningful relationships with community-based organizations to explore how a particular project could benefit their community, and to determine which benefits to incorporate into the project design based on needs.
- ☀️ Seek out corporate off takers who are willing to pay a premium to embed community benefits into their projects.
- ☀️ Actively hire – and train – local talent to build and maintain projects (and do efficiency retrofits ahead of solar development).
- ☀️ Embed co-benefits language into contracts with utilities, corporates, and community organizations so that all community-scale projects include more value for communities than bill savings exclusively. This could include dedicated funds allocated for training and education programs, or requirements that diversify the project workforce.



### Advocates

- ☀️ Work with community organizations to help them understand the types of benefits that are possible through a renewable energy project.
- ☀️ Help communities unpack which benefits are best suited and suitable for community needs and the regulatory environment.





## Learning #4: Community-centric projects face significant funding gaps, even with more supportive federal policy.

“We can accelerate if we are invested in.”

The good news first – there has never been a more supportive time in U.S. history to build renewable energy projects thanks to the 2022 Inflation Reduction Act (IRA). The IRA not only incentivizes renewable development, but it offers additional benefit if those projects impact historically excluded communities – and provides an opportunity for non-profits and community serving organizations without a tax burden to take advantage of the investment tax credit through direct payments.<sup>30</sup> This can be huge for the proliferation of distributed generation, and specifically, community-centric solar projects.

Yet despite this promising moment, proponents of community-centric power still face an uphill battle when it comes to securing the financing

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<sup>30</sup> “Fact Sheet: Inflation Reduction Act Advances Environmental Justice,” The White House (The United States Government, August 17, 2022), <https://www.whitehouse.gov/briefing-room/statements-releases/2022/08/17/fact-sheet-inflation-reduction-act-advances-environmental-justice/>.

needed to develop projects. One pressing issue for communities hoping to secure funding is liquidity – having the upfront capital to pay for a solar project until they are reimbursed by the Internal Revenue Service (IRS). A senior leader at a major U.S. bank that works on renewable investment shared that “you could be waiting up to 18 months to receive that direct pay payment from the IRS. It’s not instantaneous. And that creates a situation where there’s a very limited market for direct pay, but the market is really important in terms of impact... It’s going to be interesting to see how many banks are able to quickly scale up a sort of bridge to direct pay loan product, in which they are essentially underwriting the IRS’s ability to deliver and the project’s ability to qualify for the direct pay.” Banks – or other private sector entities – will need to step in to ensure that communities can actually benefit from these provisions.

This leads to another challenge where projects that serve low-income communities may be perceived as riskier by financing institutions, which then offer costlier capital to finance the projects. As the head of a green bank shared, “Commercial banks do not have much tolerance for risk. They have to get paid back. When a project is riskier there is probably going to be more turnover. You have to have certainty that you’re going to get paid back. The way you’re going to accommodate the risks is by increasing your interest rate and making your terms less flexible. So, your debt is not going to be as long term. It’s going to be a higher interest rate.” This results in community-centric projects – particularly ones that are owned and operated by the community – potentially facing costs of capital that meaningfully cut into the direct pay benefits and make an already financially difficult project all the more so. This is especially challenging with smaller projects, where, according to the head of policy and impact at a renewable developer, “it’s a hard thing to make a lot of money if you’re doing it at a very small scale.”

On top of more expensive financing terms, per Learning #1, there are often repairs that need to be addressed first before a solar project can be installed, which further increases the costs of a renewable project.

While the IRA is a major step forward, as one prominent energy justice advocate shared, there is still a perception in the community that the investments are largely in “keeping the dinosaur” – the centralized energy grid – alive. Billions of dollars are flowing to utilities to “subsidize the existing centralized grid,” while there is “very, very little money for distributed generation” – and at the same time, creating room for “the fossil fuel industry to live and breathe another life.” While the centralized grid plays an important role in reliable access to energy, and while utility scale solar projects can replace fossil plants in a centralized system, there is perception that distributed generation, which can help strengthen the grid while empowering communities, is not as much of a priority.

Finally, embedding above-and-beyond benefits into projects, like those explored in Learning #4, add cost to already capital-intensive projects. Many advocates see a potential financing solution with corporate partners – according to an impact specialist at a renewable development company, “corporates are showing up both like allies and truly financial unlocks...the corporate lens opens a lot of creativity.” The challenge, however, remains in expansion – while corporates can enable meaningful projects by working directly with communities, the funding landscape is currently not well-suited for community-centric projects at scale. But some advocates argue that it is a matter of will – “if we just take money from subsidizing utilities and other folks in this space and just move that money, we can do it. We’ve got the resources to do it.”

## Learning in Action: Climate Access Fund

When Lynn Heller started working on how to address climate change, she was determined to make sure that history did not repeat itself: “we have this transition to clean energy...how can we make sure at this exciting time of transition with new industries developing and emerging that low-income households aren’t left out, just like they always are?” The key to low-income inclusion, she discovered, was a scalable, affordable financing model – but she was unable to find one. She realized that “there’s this financing gap where solar developers are used to serving one kind of clientele...What if we raise social impact capital to fill this financing gap?” In 2018, she started the Climate Access Fund (CAF); in her words, an “unusual green bank.” While green banks are typically government-sponsored, CAF was not, and is primarily capitalized by philanthropic grants. They are focused on a relatively niche market – low-income communities-in Maryland – and are working with communities to design high-impact community solar projects.

In addition to the financing gap, Heller identified another challenge to developing these projects: “what we did notice is that few, if any, solar developers were developing projects in under-resourced communities where the benefits were really specifically for those communities.” Because of this, Climate Access Fund has grown a project development arm to complement its financing activities. Currently, they are working on a complex community solar project – Heller shared that “our role is to push the envelope and so we’ve created this project that uses innovative financing to maximize benefits to the community.” The installation, located on a school rooftop in Baltimore, will provide a 25% electricity bill discount to households in the neighborhood; will offer an after-school program for students; a job training program for

adults; and will offer households an opportunity to share the benefits of ownership in the project through increased bill discounts. To finance the \$2.4 million project, Climate Access Fund hopes to leverage the direct pay provision from the IRA – and will get a zero-interest bridge loan from a high net worth individual until the money comes in. The rest of the capital stack comes from philanthropic institutions (in the form of low-cost loans and a grant), crowd-funded debt, and revenue guaranties from both the Maryland Energy Administration and a corporate Solar Renewable Energy Certificate (SREC) purchaser. Heller sees herself and her organization as playing an “initiator” role; showing communities – and developers and banks – what is possible with creative financing and patience.

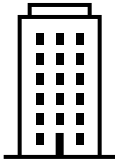
## Learning Summary

Despite a supportive federal policy environment, projects designed to benefit historically excluded communities face financing barriers. While the Inflation Reduction Act offers direct payments that allow community-serving entities to build solar projects, significant up-front capital is still needed until the payments from the IRS come through. Risk perception means that projects serving low-income communities face less favorable financing terms, and projects may already be more expensive to begin with due to repairs needed and the cost of community benefits (explored in Learning #3). Corporate partners and philanthropy can play an important role in addressing these issues, providing short-term capital, using their credit-worthiness to secure more favorable financing terms for projects, and subsidizing or funding repairs and benefits.

## Recommendations

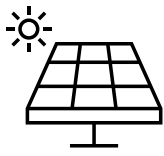
What can stakeholders in the energy industry do to put this learning into practice?

**Make it easier for community-centric solar projects to secure the financing they need to be built.**



Corporations  
(including  
Financial  
Institutions)

- ☀️ Establish zero/low-interest bridge loan products to help community partners with short-term liquidity until the IRS can provide direct payment for projects.
- ☀️ Leverage philanthropic/other energy-specific funding sources to pay for foundational repairs and efficiency to reduce the cost burden of solar (see Learning #1 for more).
- ☀️ Prioritize community-centric projects for tax equity deals in which a high rate of return is not one of the primary goals.
- ☀️ Serve as a guarantor for loans for low-income communities seeking to install solar projects to reduce the risk profile and access more favorable financing terms.
- ☀️ Capitalize organizations that support communities in accessing creative sources of energy funding, whether through non-profits or structures like Green Banks.



## Developers

- ☀️ Prioritize community-centric projects to maximize IRA investment tax credit benefits – while intentionally co-designing benefits for community (per Learning #3).
  - ☀️ Leverage connections with investors and financial institutions to help community secure short term bridge funding to address liquidity challenges.
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## Advocates

- ☀️ Support community members in identifying funding sources available, whether through IRA, corporates, grants, existing federal/state programs (for example, the Low Income Home Energy Assistance Program (LIHEAP)<sup>31</sup> or Weatherization Assistance Program<sup>32</sup>), or Green Banks.
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<sup>31</sup> Information on federal LIHEAP programs here: <https://www.acf.hhs.gov/ocs/low-income-home-energy-assistance-program-liheap>

<sup>32</sup> Information on Weatherization Assistance Program here: <https://www.energy.gov/scep/wap/weatherization-assistance-program>



## **Learning #5: Organizing and advocacy can help build a movement for community-centric solar with impact beyond individual projects.**

**“Community is the most scalable force in the world.”**

Across the country, there are individual projects designed to offer communities the types of benefits explored in Learning #3. These projects put power and agency into the hands of communities and are transformative in their own right. But making community-centric solar the norm, instead of an inspiring exception, requires intentional movement building. And like any movement for justice, achieving a just, equitable, and community-centric energy system involves organizing people around a shared vision, set of values, and best practices, and identifying the best leverage points in the existing system to dismantle and/or reshape.

Energy democracy is a growing movement in the climate, sustainability, and energy space that aims to “replace our current corporate fossil fuel economy with one that puts racial, social, and economic justice at the



forefront of the transition to a 100% renewable energy future.”<sup>33</sup> Promoting community-centric energy is central to realizing this mission. One of the founders of the movement shared that: “At the core of energy democracy is the organizing work, and helping communities be at the table to find their voice, to find how energy relates to their day-to-day life, how they need to see it, analogous to their basic needs of food and housing and clothing.” In the movement for energy democracy, there is no one best model to replicate – but instead hundreds of individual efforts linking arms to help shift the existing energy paradigm. For community-centric solar projects, actively affiliating with the energy democracy movement can help provide a shared north star and create a network of support and context for their individual, local work. Cooperative Energy Futures, a community-led co-op in Minnesota, is a good example of this, and is featured in the case study.

In some parts of the country – in particular, the southeastern United States – the combination of the regulatory and political environments significantly limits how communities can participate in the energy system. In many parts of the Southeast, apart from residential rooftop solar, communities have to work through regulated utility programs to access solar benefits. As one solar advocate shared, “it’s been a challenge on a very basic level of advocacy.” Across the Southeast, though, there are pockets (typically rural areas) where large, investor-owned utilities do not have monopoly rights – in these places, municipal utilities and rural electric cooperatives offer potential advocacy avenues with lower barriers to entry as they are locally run and lack the large institutional power of IOUs. The same solar advocate shared that she thinks “it’s these electrical munis that will be our saving grace” because of the potential to advocate for more innovative, decentralized energy projects, which can then serve as exemplars and move the larger utilities. Organizing can help realize this

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<sup>33</sup> Denise Fairchild and Al Weinrub, eds., *Energy Democracy: Advancing Equity in Clean Energy Solutions* (Washington (D.C.): Island press, 2018), 6.

possibility by promoting innovation in markets where it is possible and mobilizing community members to leverage those examples to create change in their own regions.

Successful energy organizing is often incorporated into civic engagement and political organizing efforts – helping bridge the relatability gap for communities (Learning #2). One advocate shared the example of a political activism organization in rural Mississippi that worked on getting community members to participate in their local energy cooperative. She described their process: “They’ll knock on doors and say, do you know you own an energy company? No? Let me tell you, you do, and there’s nobody on that commission that represents you. And so, they’re training folks on energy and the bylaws of their co-op and training them to actually run for office.”

Amongst energy justice advocates, there was some disagreement about the extent to which communities should try to find shared ground with utilities and corporations in order to advance their goals. But as one justice-driven renewables professional described it, it can be a necessary step to create an environment that is more favorable for community voice and impact: “The reason we long lock arms with [utilities] and do work with them is because they have the ability to make change at scale.”

Whatever the specific pathway, organizing and advocacy at scale is critical to realizing an energy system where historically communities create, and have access to, solar projects that bring transformative benefits to their lives. As one energy democracy advocate put it, the stakes are high: “The outcome of energy democracy means community wealth, building more than cash. We’re talking about as the care economy being built...we were really talking about people’s mental health being taken care of.” Without a broader unifying movement, individual community-centric projects may be able to offer benefits to their communities. But the broader context

makes it easier for these projects to become a norm, rather than on-off exceptions.

## Learning in Action: Cooperative Energy Futures

Timothy DenHerder-Thomas, one of the co-founders of Minnesota-based Cooperative Energy Futures, describes his work in three ways: “I help people shift the way they think about the world through training, organizing and transformational conversation; I build local clean energy coops that are directly implementing shared ownership of renewable energy; and I support and organize movement work that is challenging the power of utilities – and those three things are in very tight synergy.” Given DenHerder-Thomas’ priorities, it is no surprise that Cooperative Energy Futures is not an ordinary energy company; it is animated by its social justice focus and situates itself as a player in building the energy democracy movement “through solutions that are clean, local, and ours.”

DenHerder-Thomas helped start the company in college, when he realized that there is “a massive amount of pure economic waste that is happening in our current system” when it comes to financing energy improvements and clean energy projects for communities. Initially, the company focused on bulk buying for energy efficiency which created savings for individual households, and over time, they shifted focus to bulk buying for rooftop solar. Recognizing that many of the communities they serve do not own their homes (and by extension, roofs), the company evolved their model and started to develop community-owned community solar projects with the goal of building

wealth that can be distributed back to the collective. Beyond solar projects, though, education and organizing support is a vital part of the work to, as DenHerder-Thomas puts it, “enable no cost and low-cost energy changes and practices that help people improve their quality of life and save money.” At a time when, according to DenHerder-Thomas, “we have a scorched earth development approach to renewable energy” where meaningful investment in community and community capacity feels counter to fast project build up, Cooperative Energy Futures is instead fully investing in the local community and helping to enact a new energy paradigm.

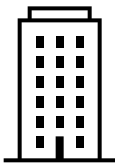
## Learning Summary

Making community-centric solar projects the norm requires intentional movement-building activities that can help connect communities and leverage successes in one region to make change in another. The energy democracy movement has laid a strong foundation and works to connect community-centric projects and advocate and organize for policy changes and education efforts that can enable more communities to benefit from solar. Advocacy goals are often regionally dependent based on the political and regulatory environment, but the national movement offers strength, legitimacy, and best practices that can be tailored for context.

## Recommendations

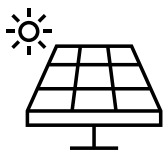
What can stakeholders in the energy industry do to put this learning into practice?

**Leverage positions of power and influence to advocate for change that enables communities across the country to benefit from community-centric solar.**



Corporations

- ☼ Use position of influence as major energy buyers with utilities to advocate for, and create space for advocates of, policy changes that decentralize power generation and enable community ownership and other project benefits.
- ☼ Leverage national – and global – energy and sustainability platforms to advocate for a shift in the renewable energy paradigm toward a more just, equitable, and decentralized system.



Developers

- ☼ Intentionally partner with utilities and corporates that have a demonstrated track record of supporting and enabling community-centric projects.
- ☼ Use platform at public utility commission hearings and audience with utilities to advocate for change, and to highlight how community-centric project development creates goodwill and improves trust for all stakeholders.



## Advocates

- ☀️ Help communities understand what avenues for advocacy (political and regulatory) exist to change rules and regulations in their regions.
  - ☀️ Work with the energy democracy movement – and other energy justice networks – to help communities connect with others who are pursuing community-centric energy projects.
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# Conclusion

As clean energy infrastructure is rapidly built across the country and around the world, the window of opportunity to build a more just and equitable energy system is now – if we do not act, it may be generations before we have another chance.

Getting it right will require all the stakeholders that currently shape the energy system – from corporate energy buyers and sustainability practitioners, to utilities, to developers, to policy makers and experts – to take deliberate steps to put power and agency into the hands of historically excluded communities. Supporting community-centric solar development is a promising way to do this.

Before a solar project should be pursued, there are repairs – literal and metaphorical – that must be made. First, communities must have access to homes and buildings that are not damaged and that are energy efficient to ensure that they are not continually burdened by high energy costs and that render clean energy projects less effective. Second, the energy industry must take measures to repair trust and build a foundation of reliability with communities such that they feel safe and invited to participate in the clean energy future.

Once the pre-requisites are met, projects can – and must – be designed to incorporate the social and economic benefits that are most needed and desired by a community. While bill savings is an important benefit, transformative solar projects can usher in new investment and opportunity for the communities they serve. This is an opportunity to

dream expansively, and tailor strategically with communities to reflect their unique and diverse needs.

Without supportive financing, though, it is impossible to bring a project into being. Energy stakeholders can help offer creative financing and can help mitigate some of the investment risk by standing in for communities that may have difficulty getting affordable capital.

Finally, communities and other stakeholders can come together to connect the dots across projects, enabling progress in one community to create possibility in another. This is particularly important in regions like the Southeast, where a challenging regulatory and political environment limit the ability for communities to create their own solar projects. Advocacy and organizing can not only raise awareness but can help change the rules of the game in favor of communities.

It is important to note that promoting solar projects that are based in and designed to serve communities is not the only way to achieve a more just and equitable energy system. Utility scale clean energy projects are necessary to meet growing power demand and ensure reliable power service and can benefit from many of the learnings described here. Without far-reaching system redesign, the centralized grid will continue to play an important role, and distributed generation can both support grid strength and help achieve community empowerment goals.

Progress may require some sacrifices from existing stakeholders in the energy industry – whether by decreasing investor profit or adding more involved steps in an already complex solar development process. But such sacrifices pale in comparison to the alternative, wherein communities are further relegated into the margins by an energy system that concentrates power and wealth into the hands of a few.



We have the knowledge to act, and the resources to do so. We have courageous communities standing up for themselves and for a more just and equitable future. We now must translate goodwill and good intention into bold change so that we can safeguard not just our planet, but every community that makes our country and world extraordinary.