

Appendix G: Review of Approaches to Energy Sovereignty



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Summary

Public Act 102-0662, known as the Climate and Equitable Jobs Act (“CEJA”), raises a new concept for the Illinois Solar for All Program (“Program”), that of “energy sovereignty.” In this analysis, we seek to assess potential models for incorporating the concept into the Program. This study defines “sovereignty” as primary ownership by low-income and other eligible customers, which will capture many of the other meanings of sovereignty, such as control by and wealth-building for local people and communities.

The Illinois Solar for All (“ILSFA”) program promotes on-site and community solar development for low-income residential customers and non-profit and public sector customers, particularly within environmental justice communities.¹ The Illinois Power Agency is exploring the significant obstacles to ownership by these customers for on-site and community solar, and analyzing different ownership models that are being tried in the United States.

One obstacle to ownership by low-income communities is the structure of federal tax incentives, which are difficult or impossible to capture for low-income or non-profit and public sector customers. The industry response is to rely on “tax equity partners” that can monetize incentives efficiently over the first five to seven years of project operation.

We have considered successful models from other states and have considered how they could be applied to the ILSFA program and how to resolve constraints in the program. We find that there are some potentially viable pathways to ownership.

For on-site solar, we propose adding an early buyout option to a third-party lease or power purchase agreement. In this model, a customer leases or buys power from a rooftop solar system. A tax equity partner owns the system until tax incentives are fully captured, then the customer buys out the system at a greatly reduced rate.

For community solar, we propose two options. In the first, ownership of the community solar project is divided into many parts, with individual households owning each part and receiving the benefits through bill credits – essentially owning a rooftop solar system but putting it somewhere else. To capture federal tax incentives, a third party is the initial owner, as in the case of on-site solar. After tax benefits are captured, the customer exercises a buyout clause to take ownership.

In the second option, the community solar project is owned by a cooperative that sells subscriptions to customer/owners of the co-op. The customer gets a subscription at a low cost and, as an owner of shares in the co-op, receives any potential financial benefits of ownership.

The Illinois Solar for All Program supports low-income solar customers by buying 15 years of renewable energy credits (RECs) generated from solar projects upon initial approval and energization of a solar project, providing an up-front incentive. Under current law, any action taken to facilitate ownership must be compatible with that model.

¹ In addition to the Illinois Solar for All Program the IPA also administers the Adjustable Block Program, which supports the development of distributed generation and community solar. The Adjustable Block Program does not contain income-qualifications, nor does it contain requirements related to energy sovereignty.

We conclude that the most viable strategy is to offer an “energy sovereignty” bonus and standard contract for Approved Vendors that result in early buyout options and ownership shares in community solar cooperatives.

We also recommend close coordination with other state agencies that could have a large impact on the success of energy sovereignty goals, ongoing research and education for stakeholders to study and explore business models, incorporating business training into the job training programs created by CEJA, and outreach to other institutions that could play a role in energy sovereignty.

I. Energy Sovereignty in Illinois Solar for All

Public Act 102-0662, colloquially known as the Climate and Equitable Jobs Act (“CEJA”), raises a new concept for the Illinois Solar for All (“ILSFA”) program, that of energy sovereignty.

First, Section 1-56 (b)(2)(A)(i) of the Illinois Power Agency Act now requires the Illinois Power Agency to reserve “a portion” of Illinois Solar for All “for projects that promote energy sovereignty through ownership of projects by low-income households, not-for-profit organizations providing services to low-income households, affordable housing owners, community cooperatives, or community-based limited liability companies providing services to low-income households.”²

CEJA applies the concept to all four sub-programs:

- (A) Low-income single-family and small multifamily solar incentive
- (B) Low-Income Community Solar Project Initiative
- (C) Incentives for non-profits and public facilities
- (D) Low-income large multifamily solar incentive

It further says that “Projects that feature energy ownership should ensure that local people have control of the project and reap benefits from the project over and above energy bill savings.” Eligible energy sovereignty projects can “promote ownership over time” or “involve partial project ownership by communities.” Lastly, “Incentives for projects that promote energy sovereignty may be higher than incentives for equivalent projects that do not promote energy sovereignty under this same program.”³

CEJA’s second approach to promoting energy sovereignty is the Community Solar Energy Sovereignty Grant Program, a subprogram of the Jobs and Environmental Justice Grant Program.⁴ The budget can be up to \$8.5 million per year. This program is administered by the Department of Commerce and Economic Opportunity (DCEO).

The Community Solar Energy Sovereignty Grant Program shall support “applicants that best demonstrate the ability and intent to create community ownership and other local community benefits, including local community wealth building via community renewable generation projects.”⁵ It further says:

Grants shall be prioritized to applicants for whom:

- (i) the proposed project is located in and supporting an equity investment eligible community or communities; and
- (ii) the proposed project provides additional benefits for participating low-income households.

Grant funds shall be awarded to support project pre-development work and may also be awarded to support the development of programs and entities to assist in the long-term

² 20 ILCS 3855/1-56 (b)(2)(A)(i).

³ Id.

⁴ Energy Transition Act sec. 5-60 (P.A. 102-0662, eff. Sept. 15, 2021).

⁵ Id. at (e)(1).

governance, management, and maintenance of community solar projects, such as community solar cooperatives.⁶

While CEJA does not define “energy sovereignty,” it refers to two specific concepts. First, it envisions “ownership” by eligible parties; second it seeks that “local people have control of the project and reap benefits from the project over and above energy bill savings.” One of these over-and-above benefits is mentioned – “local community wealth building.”⁷ The following sections examine these concepts further.

Ownership

Ownership is a fairly straightforward concept, though the details of ownership can vary widely.

The Section 1-56(b)(2) of the IPA Act, which sets out the parameters for ILSFA, does not define “ownership,” but Section 1-75(c)(1)(K)(v) of the IPA Act, which establishes the Adjustable Block Program, defines “community ownership” as “an arrangement in which an electric generating facility is, or over time will be, in significant part, owned collectively by members of the community to which an electric generating facility provides benefits; members of that community participate in decisions regarding the governance, operation, maintenance, and upgrades of and to that facility; and members of that community benefit from regular use of that facility.”⁸

For the purposes of considering ownership, we can separate the four ILSFA sub-programs into two categories: on-site systems and remote “community” solar systems. On-site systems can most simply be owned by the building owner, whether the owner-occupant of a single-family home, the corporate owner of a retail complex, or the myriad other forms of building ownership. Often on-site solar systems are owned by a third party and leased to the customer, or power is sold to the customer through a power purchase agreement (PPA). Community solar projects are almost always owned by a for-profit corporate entity or partnership, which sells subscriptions to customers. In rare cases, as we will discuss, customers are able to buy portions or shares of a community solar project.

On November 12, 2021, the Illinois Power Agency released Requests for Stakeholder Feedback in preparation of development of the 2022 Revised Long-Term Renewable Resources Plan (“LTRRPP” or “the Plan”).⁹ The Illinois Solar for All section included questions seeking input on energy sovereignty and how that may be promoted through Illinois Solar for All. Most public comments from stakeholders regarding ownership focused on timing and the degree of ownership by eligible entities.

Parties argued that “majority ownership should be required as a minimum.” Some suggested striving for “as close to full community ownership as feasible,” possibly by offering preference “for projects that have full ownership by the qualifying entities.”¹⁰ The Joint Solar Parties suggested that an ongoing partnership between the developer and the community owner would be prudent, since operation and maintenance of a community solar project “greatly benefits from professional management, which is not easily available via contract for the low-income community.”

⁶ Id. at (e)(1) and (e)(2).

⁷ 20 ILCS 3855/1-56 (b)(2)(A)(i).

⁸ 20 ILCS 3855/1-75(c)(1)(K)(v).

⁹ Illinois Power Agency, [Requests for Stakeholder Feedback](#), November 12, 2021.

¹⁰ Comments by Greater Chicago Legal Clinic and the ILSFA Working Group.

Control by Local People

The second concept of energy sovereignty in CEJA is less straightforward: “[p]rojects that feature energy ownership should ensure that **local people** have **control** of the project and reap benefits from the project **over and above** energy bill savings”¹¹ (emphasis added). CEJA does not explicitly define these terms.

People could be considered “local” if they live or work near the on-site or community solar project, or within a defined community, such as a nearby Environmental Justice community. To be flexible, the term “people” could also include local businesses or organizations. The simplest interpretation of the term “control” would be the control that comes from ownership, such as making decisions about operations and maintenance, finance and revenues, and other management decisions.

A review of the literature on energy sovereignty provides more perspective on the issue of control. Schelly et al. conclude that “energy sovereignty centers the rights of communities and individuals to make their own choices regarding the forms, scales, and sources of energy as well as the patterning and organization of energy usage.”¹² They add that “[e]nergy policy that centers energy sovereignty would promote community level decision making about the sources, scales, and forms of ownership that characterize the energy services system. Promotion of community solar is one example of a technological configuration that could align with principles of energy sovereignty, if they are designed as community-owned solar energy systems for the purpose of community use.”

Other scholarship examines the related concept of “energy democracy.” The Center for Social Inclusion says “[t]he goal of Energy Democracy is to create community-owned or controlled renewable energy and invest that capacity with democratic principles that foster interdependence, conservation, wealth-building, political autonomy, and economic opportunity.”¹³

Similarly, the Center for Earth, Energy, and Democracy (CEED) defines it as “a shift from the corporate, centralized fossil fuel economy to one that is governed by communities; designed on the principle of no harm to the environment; that will support local economies; and contributes to [the] health and well-being [of] all peoples.”¹⁴

The Greater Chicago Legal Clinic echoed these ideas in their comments to the IPA Request for Stakeholder Feedback: “Energy sovereignty centers the right to make decisions regarding energy generation, distribution, and consumption with local organizations, communities, and individuals.” It “can reduce reliance on fossil fuels and the main grid, create revenue, lead to more renewable energy-specific jobs, and provide energy bill savings.”

While some of these aspects of sovereignty and democracy are somewhat abstract, many can be an outcome of ownership and local control. The Agency actively encourages public participation in the program design process, including workshops, webinars, and public comment periods. The ILSFA Program Administrator likewise encourages community engagement, such as by funding grassroots educators. A number of new programs have been created in CEJA to encourage community benefits,

¹¹ Section 1-56 (b)(2)(A)(i) of the Illinois Power Agency Act

¹² Chelsea Schelly, et al, “[Energy policy for energy sovereignty: Can policy tools enhance energy sovereignty?](#)” *Solar Energy* 205 (2020) 109–112.

¹³ CSI, “[Energy Democracy: Community-Scale Green Energy Solutions](#),” 2010.

¹⁴ Center for Earth, Energy, and Democracy (CEED), “[Energy Democracy](#),” accessed January 2022.

largely to be executed by sister agencies like DCEO. We believe that ILSFA’s support of the concepts of control and democracy will be best realized through policies that encourage ownership of solar projects by eligible entities.

“Over and Above” Benefits to Ownership

CEJA also states that local people should “reap benefits from the project **over and above** energy bill savings”¹⁵ (emphasis added). The most obvious “over and above” benefit would be the earnings and equity value from owning an ILSFA solar project. This is true for all four types of ILSFA development, though the exact implications vary widely (see section IV below).

A short analysis by the Institute for Local Self Reliance (ILSR) found that local ownership of a one megawatt community solar project would provide nearly twice the dollar flows to the local community, compared to a TPO lease model, amounting to nearly \$5.7 million in net present value over the 25-year project life.¹⁶

Additional benefits could come from jobs, increased property value, and the multiplier effect of keeping wealth within a community. Some benefits would accrue to the community regardless of ownership, such as clean air and tax revenues.

¹⁵ 20 ILCS 3855/1-56 (b)(2)(A)(i).

¹⁶ John Farrell, Institute for Local Self Reliance, [Advantage Local: Why Local Energy Ownership Matters](#), September 2014.

II. Barriers to Ownership

Low-income households and other eligible entities under ILSFA may encounter a number of barriers to ownership of both distributed generation and community solar projects. Low-income households may lack savings to buy systems outright, they may not have a credit score high enough to enable financing, they may not own their dwelling, and their home may need electrical or structural upgrades to enable installation of solar.

A further impediment—for individuals, non-profits, public agencies, schools, and others—is the structure of federal tax incentives. Investments in community solar are eligible for the section 48 investment tax credit and accelerated depreciation,¹⁷ which can only be applied against taxes on passive (investment) income.¹⁸ The Section 25D residential solar tax credit,¹⁹ for rooftop solar panels, is claimed against income tax, but cannot be refunded to taxpayers with insufficient taxable income. Since low-income individuals, non-profit and community organizations, and local governments don't have sufficient taxable passive income (or are not taxed), they are unable to monetize the tax credits. Additional tax benefits come from the ability to use the Modified Accelerated Cost Recovery System (MACRS) for depreciation, plus bonus depreciation options.

According to Keith Martin of Norton Rose Fulbright, if federal tax credits and depreciation are correctly monetized, “they amount to 44¢ to 49¢ per dollar of capital cost for the typical wind or solar project... Few developers can use the tax benefits efficiently. Therefore, finding value for them is the core financing strategy for many US renewable energy companies. Tax equity accounts for 65% of the capital stack for a typical wind farm, plus or minus 10%. It accounts for 35% for a typical solar project, plus or minus 5%.”²⁰

John Farrell of the Institute for Local Self Reliance (“ILSR”) points to some additional barriers.²¹

- **Capital:** collectively raising capital for a locally owned renewable energy project tends to run afoul of Securities and Exchange Commission rules for investment that are unduly onerous for the size and scale of community-based projects.
- **Cash Flow:** revenue sources for renewable energy projects may come from four or more sources, complicating the challenge of making finance payments and recovering the initial investment. These include energy savings from the utility, a state or utility rebate, federal tax credits, and federal accelerated depreciation.
- **Legal:** the most logical legal structures for local ownership, e.g., non-profits or cooperatives, are often ineligible for federal tax incentives. Third-party arrangements lower the cost to non-taxable organizations, but involve significant transaction costs and are not competitive with projects owned by taxable private-sector entities.

¹⁷ 26 U.S.C. §48.

¹⁸ Congressional Research Service, [Tax Equity Financing: An Introduction and Policy Considerations](#), report number R45693, April 17, 2019.

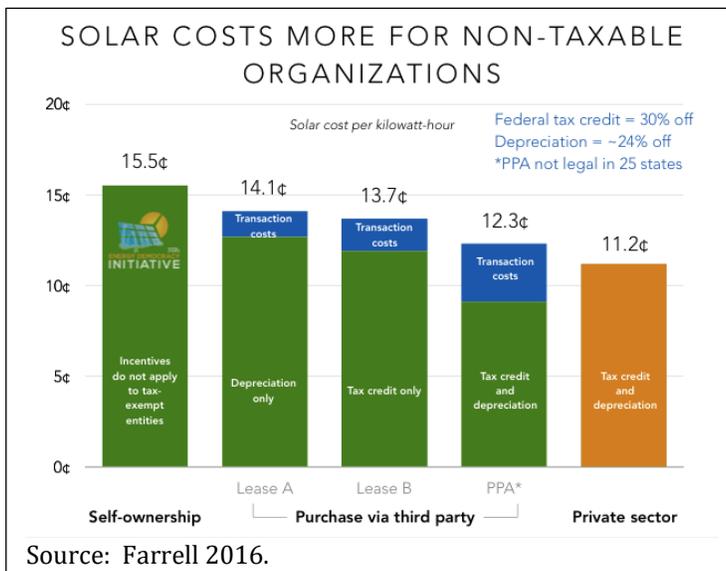
¹⁹ 26 U.S.C. §25D.

²⁰ Keith Martin, Norton Rose Fulbright, [“Partnership flips: Structures and issues,”](#) February 18, 2021.

²¹ Farrell, 2014.

The compliance costs due to SEC and state regulation of securities can be a significant portion of project costs. ILSR cited a proposed 25 kilowatt community-owned solar project that faced compliance costs amounting to 75% of the project's entire installed cost.²² A larger one megawatt project saw annual compliance costs make up 10% of project costs. There are additional limitations when low-wealth "non-accredited" investors participate.

The standard workaround to capture federal incentives has been for a developer or community partner to join with a tax equity partner who can capture the benefits of the tax credits and accelerated depreciation before transferring ownership to the community partner. This "partnership flip" model is common in wind and solar project development.²³



However, federal tax law requires that the party claiming the credit own the project for at least five years, subject to a claw back of the incentives. MACRS is typically taken over six years. Thus, in a flip, majority ownership is commonly transferred in year seven or beyond, with the tax equity partner taking a minority stake or exiting.

A similar approach can be used for distributed solar systems. In many cases, the system is leased by a third-party owner (TPO) to the end customer, or the customer buys electricity from the TPO through a power purchase agreement (PPA). To transfer ownership, the lease or PPA contract can include an early buyout (EBO) clause, allowing the customer to buy the system at a certain price at a certain time.

²² John Farrell, ILSR, [Beyond Sharing: How Communities Can Take Ownership of Renewable Power](#), April 2016.

²³ Martin, 2021.

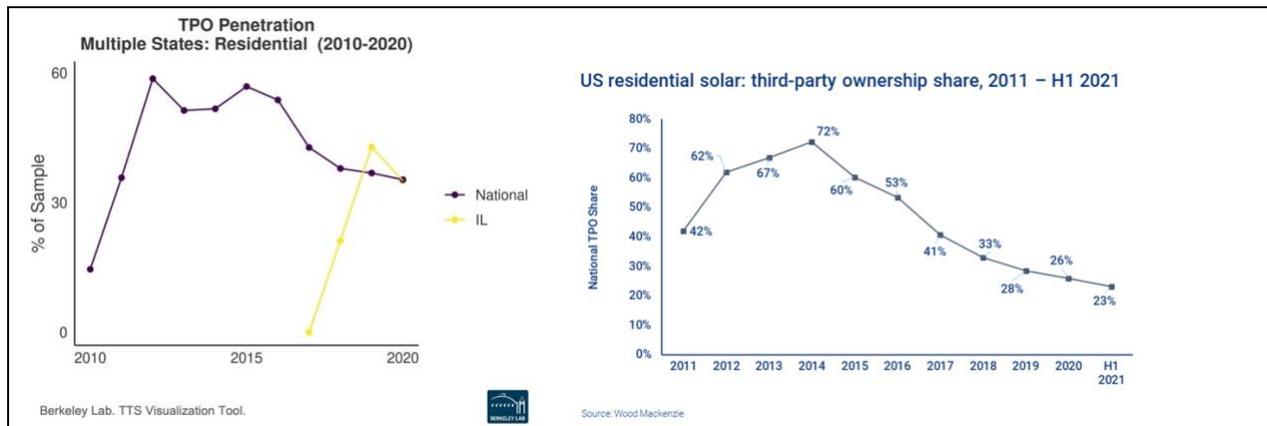
III. Examples of LMI Solar Ownership Business Models

Various business models for ownership of solar by low- and moderate-income (LMI) households have been attempted or proposed. We divide them here by on-site (or distributed, behind-the-meter) systems, and community solar systems.

On-Site Systems

Nationally, ownership of residential on-site solar is becoming more common, with loans accounting for 60% of new installations in 2021, according to research by Wood Mackenzie.²⁴ They attribute this to the lower cost of solar installations, low interest rates, and the rise of a solar lending industry.

Loans are replacing third-party ownership (TPO) arrangements, where the customer buys electricity or **leases** the system from a third party. TPO share has fallen to 23% of new systems, according to Wood Mackenzie. Data from Lawrence Berkeley National Lab puts the TPO share at 35% of the national market in 2020, with the same portion in Illinois²⁵ (see figure).



Source: Berkeley Lab (left) and Wood Mackenzie (right)

Low-income homeowners are more likely to rely on leases and Property Assessed Clean Energy (PACE) financing, according to Berkeley Lab. This trend has become more pronounced as the overall market has shifted to loans and direct ownership.²⁶

The largest low-income solar program in the US, the Single Family Affordable Solar Home (SASH) program in California, initially avoided approaches that could monetize federal incentives. They instead used up-front rebates funded by ratepayers combined with donations from foundations, corporations, and others – plus donated equipment and volunteer labor to lower costs – to cover

²⁴ Wood Mackenzie, “[Major financiers capitalise on a growing US residential solar market](#),” October 27, 2021.

²⁵ Berkeley Lab, [Tracking the Sun](#), data tool and report, September 2021.

²⁶ Berkeley Lab, [The impact of policies and business models on income equity in rooftop solar adoption](#), November 2020; and [Residential Solar-Adopter Income and Demographic Trends: 2021 Update](#), April 2021.

the full cost of customer-owned solar systems. Third-party owners (TPOs) had been forbidden for use in the SASH program over consumer protection fears.²⁷

Starting in 2015 with SASH 2.0, the program administrator GRID Alternatives moved to what they call a “families-first lease” model. In that arrangement, GRID works with approved vendors to act as TPOs, including Clean Power Finance and Sunrun. Approved TPOs must follow 12 customer-protection standards, including customer bill savings of at least 50%; no review of credit scores; coverage of maintenance, operations, inverter replacement, and monitoring; and no liens on homes.²⁸ TPOs have accounted for 75% of systems installed since 2015, helping stretch the program budget to serve more customers. SASH 2.0 has served almost as many homes as SASH 1.0, but with half the budget.²⁹

In short, SASH gave up on customer ownership in favor of a model that provided bill savings to more customers.

PACE financing for low-income households has proven to be controversial, due to consumer abuses in some states.³⁰ Illinois does not currently allow PACE for residential customers, but does for commercial customers.

A related approach that has proven less controversial is **on-bill financing**, where a utility finances an energy measure for a customer and collects repayment on the utility bill. Since the savings are set to be larger than the cost, the total utility bill is smaller. The repayment obligation is attached to the meter, so any tenant in that home is obliged to pay for the improvement.

CEJA directs the Illinois Commerce Commission (ICC) to establish the Equitable Energy Upgrade Program, which “permits customers to finance the construction of energy projects through an optional tariff payable directly through their utility bill, modeled after the Pay As You Save system, developed by the Energy Efficiency Institute.”³¹ Funds could be used for solar installations and other energy improvements. The law says the program “shall enable utilities to offer to make investments” or arrange financing from third parties or from the Illinois Clean Energy Jobs and Justice Fund.

CEJA says the program guidelines should follow the “Pay As You Save Essential Elements and Minimum Program Requirements,” which requires a minimum of 20% savings, consumer protections, and other measures.³² The law requires that “[e]ligible projects shall not create personal debt for the customer, result in a lien in the event of nonpayment, or require customers to pay monthly charges for any upgrade that fails and is not repaired within 21 days.”³³

²⁷ GRID Alternatives, [Single-family Affordable Solar Homes \(SASH\) Program: Semi-annual Progress Report](#), July 2021. Interview with Tom Figel and Daniel Ponton, Grid Alternatives, December 2021.

²⁸ Frank Andorka, *PV Magazine*, [“GRID Alternatives adds Sunrun as another option for third-party ownership,”](#) March 6, 2017.

²⁹ GRID Alternatives, December 2021.

³⁰ Ethan Beaulieu, *DSIRE Insight*, [“What Happened to PACE Financing?”](#) October 26, 2021.

³¹ 220 ILCS 5/16-111.10 new

³² Energy Efficiency Institute, [PAYS Essential Elements and Minimum Program Requirements](#), updated July 20, 2021.

³³ 220 ILCS 5/16-111.10(k)

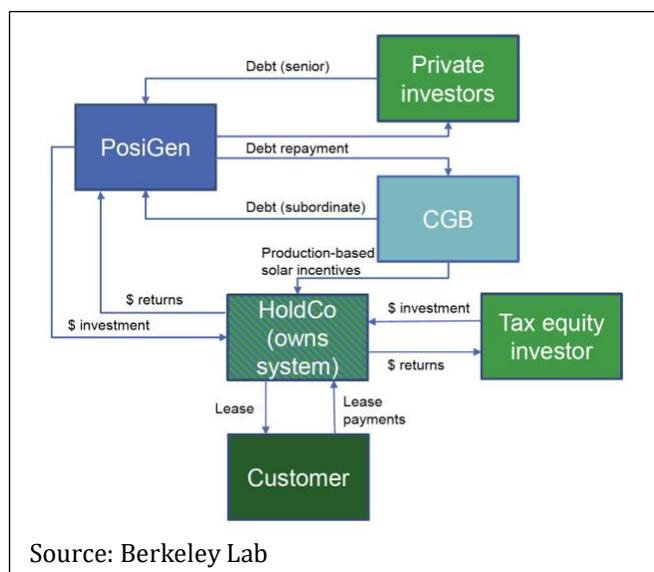
The budget for the program is set at \$20 million in the first year, \$40 million in the second year, and enough for as “many systems as customers demand” in subsequent years.

CEJA also directs the Illinois Finance Authority to create a **Climate Bank**.³⁴ While that program has not been established yet, green banks in other states have played an active role in financing distributed and low-income solar.

The Connecticut Green Bank, for example, works with PosiGen to install solar on eligible homes, combined with energy efficiency measures. About 95% of residential solar projects under that program are 20-year TPO leases. After 20 years customers can re-enroll in the program with a new system, or buy the system at the “fair market value” (which PosiGen estimates at \$2,000-\$3,000), or they can remove the panels for a \$500 fee. Customers can also prepay the lease and roll the cost into their mortgage, or buy it out earlier than 20 years.³⁵

The Connecticut Green Bank provides a production-based incentive of 8.1¢ per kWh plus below market-rate debt to PosiGen to facilitate lower pricing for customers and encourage the participation of market-rate capital providers. PosiGen created a holding company to own the leases and taps private investors and a tax equity investor³⁶ (see figure).

Another way to raise capital is through **crowdfunding**. Small investors (or donors) provide cash to finance solar installations on a customer’s premises, receiving a rate of return on their investment.



The Securities and Exchange Commission (SEC) issued rules in 2015 allowing crowdfunding.³⁷ Solar Mosaic, based in Oakland, was a leading early proponent, organizing about \$5 million in financing for a few dozen projects. Mosaic later switched to financing residential solar projects through large institutional investors, due to the higher efficiency of raising a large amount of capital from one source rather than from many sources.³⁸

Some energy-related ventures are still trying to use crowdfunding, though they are generally small. Through the Start Engine crowdfunding platform, a Chicago firm called Affordable Community Energy (ACE) Services raised \$22,500 from 34 investors for energy improvements on low-income

³⁴ 20 ILCS 3501/850-5.

³⁵ Beth Galante, Posigen, interview, December 2021.

³⁶ Jeff Deason, Greg Leventis and Sean Murphy, Berkeley Lab, [Performance of solar leasing for low- and middle-income customers in Connecticut](#), May 2021.

³⁷ Securities and Exchange Commission, Press release: [“SEC Adopts Rules to Permit Crowdfunding,”](#) October 30, 2015.

³⁸ Bentham Paulos, [Bringing the Benefits of Solar Energy to Low-Income Consumers: A Guide for States & Municipalities](#), May 2017.

housing.³⁹ The Connecticut Green Bank is currently attempting to raise between \$100,000 and \$250,000 through the RaiseGreen crowdsourcing platform.⁴⁰ They are offering a one-year return of 1% interest on a bond that will be used to finance energy efficiency improvements for small business, municipal and state customers. RaiseGreen is also hosting the National Energy Improvement Fund (NEIF), which provides fixed, guaranteed monthly payment financing programs for energy and resilience improvements on buildings. They are seeking to sell \$2 million of “Climate Action Preferred Investment Certificates” that have a seven-year maturity paid at 7% annual interest.⁴¹

Collective Sun offers a one-stop shop for non-profit organizations and investors or donors. They serve as the project manager and tax equity partner for a six-year flip; they offer a “solar power agreement,” which is a “prepaid 20-year service agreement”; and they operate a crowdfunding platform that can accept either donations or investments paid at an interest rate set by the NGO. They offer a “12% discount” to the NGO, meaning they retain the value of the tax credit and depreciation above and beyond 12%. They have so far done 91 churches, 18 schools, 11 health care organizations, and four museums.⁴²

One final approach to on-site ownership is **TPO by a cooperative**. The People’s Power Cooperative in California recruits community members to own shares in a cooperative that then owns rooftop solar systems. The host customer pays the coop for power, at a rate lower than the local utility. Coop owners get a “modest dividend” annually. To date, they have finished one project with 50 investors.⁴³

Community solar

Extensive research has been done on financing and ownership models for community solar, and a variety of models are being tried.

An important challenge of community-owned community solar projects, just as with distributed solar, is to find a way to monetize government incentives efficiently and effectively. Most ownership models rely on a tax equity partner, with a transfer of ownership coming from the following strategies:

- **Partnership flip:** A tax equity partner will own nearly all of a project until they can take full advantage of tax credits and accelerated depreciation, typically around six years. After that time, ownership can flip to another party.
- **Sale leaseback:** A project developer will sell the project to a third-party owner, then lease it back and sell the electricity to the end customer. The third-party owner is typically better suited to capture tax credits and accelerated depreciation.⁴⁴

³⁹ Affordable Community Energy Services Company, on the [Start Engine](#) platform.

⁴⁰ Connecticut Green Bank, [CGB Green Liberty Notes LLC](#).

⁴¹ National Energy Improvement Fund, [Climate Action Preferred Investment Certificates](#).

⁴² Collective Sun, “[FAQ](#),” (accessed January 2022).

⁴³ People Power Cooperative, “[Projects](#),” (accessed January 2022).

⁴⁴ Warren and Selbert, [Solar Sale/Leaseback Structure](#).

- **Pass-through lease or Inverted lease:** A project developer owns a system and takes accelerated depreciation benefits, but rents it to a tax equity partner, who can claim tax credits.⁴⁵

These strategies are used by for-profit community solar companies, but could also be used by non-profit and thus non-taxed entities like community-based organizations or cooperatives. More complex arrangements could include a C-corporation or S-corporation, a partnership or a non-profit mutual benefit corporation.

UMass Amherst, with funding from DOE’s Solar Energy Innovation Network, is studying “community-informed” financing and ownership options for community solar.⁴⁶ (See table below.) They split ownership and financing options between third parties and various taxable and non-taxable community entities, with a third-party flip connecting the two.

Community-Informed Solar Financing and Ownership Options Local Benefits and Risks				
	Third Party Ownership	Third Party Flip	Community Owned	
			Taxable Entity	Non-taxable Entity
Description	Developer or third party investor provides investment capital and own solar assets with negotiated agreement with the local host. Investor receives a rate of return sufficient to meet their corporate financial hurdle rate.	Third party investor provides the investment capital and owns solar assets to take advantage of federal tax benefits and project revenues to gain a rate of return. Ownership transfers (i.e., "flips") after 6-10 years to non-profit, community choice aggregation, or municipal partner at fair market value.	Solar assets are wholly financed by and owned by local entities. Local owners may or may not be able to access federal tax benefits. Projects may be financially acceptable at lower rates of return. Federal tax benefits are accessible. Characteristic Owners: Local businesses, ratepayer equity, individuals with tax appetite, etc.	Federal tax benefits are not accessible. Characteristic Owners: Municipality, Community Choice Aggregation, cooperative, non-profit businesses, low income individuals
Increasing Local Benefits				
Local Economic Benefits	Limited Economic Benefits Lease Payment, Payment in Lieu of Taxes (PILOT), or Power Purchase Agreement or Net Metering with marginal Energy Discount.	Delayed Economic Benefits Similar benefits for Third Party Ownership for first 6-10 years, followed by full benefits of Community Ownership.	Maximum Economic Benefits Ownership investment leads to full project cash flows accruing within the local economy and associated economic multiplier.	
Other Benefits	No investment costs. Transactional simplicity for community.	No initial investment cost, and reduced investment for buy-out. May provide community with more decisionmaking in project development.	Ownership provides more local control over siting decisions, site design, job creation opportunities, and electricity offtakers.	
Risk Allocations	Risk of project development and asset ownership is on third party for full project life. Local constituents risk the opportunity cost of the site alternative usage.	Asset ownership risk transfers from original third party owner to second owner when ownership changes. Local constituents may lose any costs associated with financial negotiations if project does not go forward. Local constituents risk opportunity cost of lost benefits during initial ownership period.	Risk of project development and asset ownership, including operation and maintenance, is on local constituents for full project life. May require incentive-based contracts to assure system cost/performance metrics.	

⁴⁵ Warren and Selbert, [Solar Lease Pass-Through Structures](#).

⁴⁶ Zara Dowling, UMass Amherst, [Solar Financing and Ownership Guideline](#), forthcoming.

Additional Considerations			
Alternative Structures	As federal Investment Tax Credit value decreases or expires, financial advantages of third-party ownership will diminish.	Mission-aligned tax equity investors can lower third-party rates of return to support more local benefits. Financial/Legal structures include: Partnership Flip; Sale-Leaseback; and Buy Out Option.	Solar asset can be wholly owned by singular entity such as a municipality or local non-profit organization. Alternatively: 1) community members can co-locate their individually owned solar panels in an array organized and managed by a cooperative; 2) community members can organize a business entity, typically an LLC, to own solar assets; 3) a community choice aggregation entity owns the asset on behalf of its ratepayers.
Source of Equity	Third party owner, typically nationally based tax equity financial institutions.	Third party owner, potentially mission-aligned tax equity investor. Local equity replaces third party as part of ownership flip financing.	Local investment capital must be raised - municipal government, firms, or constituents.
Source of Debt	Commercial national banks.	Commercial national banks; followed by local banks, credit unions, or municipal bonds as part of ownership flip financing.	Local banks, credit unions, or municipal bonds.
Tax Treatment	Investment Tax Credit, accelerated depreciation and other tax benefits accrue to tax equity investor.	Investment Tax Credit, accelerated depreciation and other tax benefits accrue to tax equity investor, prior to ownership flip.	Tax benefits remain unavailable to non-tax paying entities engaged in ownership. Local for-profit corporate owners may be able to take advantage of Investment Tax Credit, accelerated depreciation, and other tax benefits. Local individual owners may access ITC with earned income or passive income, depending on financing structure.
Electricity or Net Metering Off-Takers	Electricity flows to the grid through net metering, with virtual net metering credits assigned and bought by off-takers spread throughout utility territory. For on-site loads, host may enter Power Purchase Agreement.	Electricity is often sold to future local owner of array through a PPA or as credits through virtual net metering.	Electricity sold to a on-site host through a Power Purchase Agreement, or through virtual net metering credits to municipality, non-profit, local private owners, or as a supply for a community choice aggregation.
Legal/Financial Status and Challenges	Established market with ample precedent.	Established model with growing precedent, introduces contractual complexity.	Limited examples and precedent, though inherently simpler than tax equity financing. Recent increased attention in this area is reducing barriers, but higher risks remain.

Source: University of Massachusetts at Amherst

The most common method of ownership for the ILSFA community solar projects has been by a developer or third-party investor, who is typically most able to raise capital and capture the benefits of tax incentives.

There are a number of community ownership possibilities for community solar, depending on the entity.

For community businesses, organizations, or institutions, projects can be owned:

- by local businesses or investors with sufficient tax appetite to monetize incentives;
- by local non-taxable entities such as governments, community choice energy aggregators, non-profit businesses or organizations, and cooperatives, in conjunction with a tax equity partner;
- by a for-profit (and taxable) subsidiary of a non-profit entity, created specifically to own the solar project; or
- by some combination of partners.

For individuals, there are two additional strategies that are being used in the United States.

In the first option, the customer owns a physical portion of a community solar project, such as a number of panels that are part of a larger installation, with electricity delivered to the customer as a bill credit. Financial incentives like tax credits accrue directly to the customer, and the Internal Revenue Service (“IRS”) has allowed such off-site arrangements to be eligible for federal section

25D tax credits, just as on-site systems are.⁴⁷ The system is maintained on behalf of the owners by a management company.

In the second option, the eligible customer buys a share of the company that owns the community solar installation, such as a cooperative. The customer/owner can also subscribe to the power output, and receive dividends from the cooperative.

These options are discussed in more detail below.

⁴⁷ Internal Revenue Service, [“Q&A on Tax Credits for Sections 25C and 25D: Notice 2013-70.”](#); Solar Energy Technologies Office, US Department of Energy, [“Homeowner’s Guide to the Federal Tax Credit for Solar Photovoltaics,”](#) accessed December 2021.

IV. How Business Models Apply to ILSFA Objectives

Public Act 102-0662 reorganized the structure of Illinois' four sub-programs, such as by splitting the Low-Income Distributed Generation (LIDG) sub-program into large and small customers:

- (A) Low-income single-family and small multifamily solar incentive
- (B) Low-Income Community Solar Project Initiative
- (C) Incentives for non-profits and public facilities
- (E) Low-income large multifamily solar incentive⁴⁸

Each of these programs has different barriers, opportunities, and business strategies to encourage energy sovereignty.

Public Act 102-0662 envisions ownership by “low-income households, not-for-profit organizations providing services to low-income households, affordable housing owners, community cooperatives, or community-based limited liability companies providing services to low-income households.”⁴⁹ Each of these entities, too, face different barriers to ownership of solar projects.

(A) Low-income single-family and small multifamily solar incentive

This sub-program, formerly called Low-Income Distributed Generation (LIDG), supports solar installed behind the meter on an owner-occupied single-family home, or small multi-family housing of four units or less. It delivers value through self-consumption and net metering, and if owned by the customer would increase home value.

The ILSFA Program pays Approved Vendors a lump sum payment for the REC value of the solar project after the project has been energized and approved. In the first three program years, ILSFA paid \$143.09 per REC (1,000 kWh) for a 15-year period on a 1-4 unit DG system sized up to 10 kW. This works out to, in effect, an upfront rebate of about \$3 per Watt.⁵⁰ Given that the national median installed price for residential solar was \$3.80 per Watt in 2020, the ILSFA incentive is substantial.⁵¹ The Agency updated its REC pricing model and proposed increases to ILSFA REC incentives for the Low-Income Single-Family and Small Multifamily Solar and the Low-Income Large Multifamily Solar sub-programs.

ILSFA requires that households receive the solar installation at no upfront cost and pay no more than 50% of the total savings in ongoing fees. These additional requirements help ensure that LMI households receive benefits, but also make projects less cost-effective for Approved Vendors. The ILSFA incentive makes up for that shortfall.

The low-income distributed generation program of ILSFA has resulted in 47 installations on single-family homes and 10 on small multi-family homes, falling short of the allowable budget. There are only four Approved Vendors active in the LIDG program. The most active vendor, Sunrun, has installed 39 of the systems. Sunrun owns the systems and leases them to homeowners on a 20-year

⁴⁸ Section D related to community solar pilot projects created under Public Act 99-0906, or FEJA. They were discontinued in CEJA.

⁴⁹ 20 ILCS 3855/1-56(b)(2)(A)(i).

⁵⁰ Apprise, [Illinois Solar For All Phase II Final Evaluation](#), October 2021, page 168.

⁵¹ Berkeley Lab, [Tracking the Sun](#), data tool and report, September 2021.

term, with no cost to the homeowner, delivering a minimum of 50% savings on electric bills. Sunrun plans to offer to sell the systems to the homeowner after 20 years for the residual “fair market value,” which is likely to be very low. (Solar panels and microinverters typically have warranties of 25 years.)

The most straightforward method of ownership by an eligible customer would be a cash purchase, supplemented with ILSFA incentives. As noted, the value to the customer of the ILSFA incentive has worked out to about \$3 per Watt, which is not far below median national prices. And the Agency has proposed raising the REC value for on-site solar installations under ILSFA.

But LMI households face a number of barriers to cash purchase of solar installations. They often lack the savings to pay cash for the system outright; they may have insufficient credit ratings to qualify for a home improvement loan or line of credit; and they may not have sufficient income tax liability to monetize the section 25D federal tax credit (though it can be carried over one year).⁵²

There are a number of options to get around these barriers, including a lease-to-own strategy, lower installation costs, and easy finance.

LEASE TO OWN: As mentioned, most if not all ILSFA DG projects have been installed through 20-year leases from a third-party owner (TPO). The REC purchase lowers the cost to the customer of the lease, delivering substantial savings to the customer. To encourage customer ownership a lease can include an early buyout option, triggered after a certain amount of time.

ILSFA payments could be structured to include an “energy sovereignty” incentive to cover the cost of transferring ownership to the customer. If the REC purchase must be made up front, on energization of the system, then an energy sovereignty contract could include the terms for the transfer of ownership, and the funds could be held in escrow to cover the cost of the early buyout. The terms of the contract could specify the cost and timing of the transfer of ownership, the transfer of warranties and insurance, and the cost of ongoing monitoring, maintenance, and insurance. When the transfer of ownership happens, it would be reported to the Program Administrator along with documentation of how it met the terms of the contract. If the transfer does not happen, the Agency would be allowed to claw back any energy sovereignty incentives from the Approved Vendor.

If the Agency were able to hold on to energy sovereignty funds, then the TPO and the customer could return to the Agency at the time of transfer for additional funds, rather than the TPO holding the funds in an escrow account. In this option, the initial REC purchase might be for the first 5-7 years of operation, then the Agency would pay out the remaining funds to cover the next 8-10 years of operation to the customer when they take possession. The law currently requires up-front payments, necessitating the escrow approach.

LOWER COSTS: Another way around the barriers could be found if vendors are able to lower residential installation costs to below the ILSFA incentive value, making it possible for the program to pay for the full cost. The Joint Solar Parties have argued that they could lower costs if the administrative process were streamlined, such as by using the same portal for ABP and ILSFA projects and eliminating duplicative inspections. Vendors claim that these inefficiencies add as

⁵² Solar Energy Technologies Office, US Department of Energy, “[Homeowner’s Guide to the Federal Tax Credit for Solar Photovoltaics](#),” accessed December 2021.

much as 30 hours of labor to a single ILSFA installation, driving up costs, reducing profits, and discouraging vendors from marketing to ILSFA customers.

In some cases, solar installers have been able to tap volunteer labor and donated cash and equipment to provide very low-cost installations for low-income customers. Habitat for Humanity, for example, has incorporated solar into new home construction, seeing extremely low costs.⁵³

Lower cost installations could also enable lower cost incentives, allowing the ILSFA budget to reach more customers. Currently, the Program budget has substantial funds remaining, with more coming as the program is revamped, but a more successful program could use up those funds quickly.

EASY FINANCE: Another way to encourage day-one ownership is through low-cost financing that does not hinge on a credit rating. The PosiGen/Connecticut Green Bank solar lease program doesn't depend on credit scores, simply requiring the customer to show proof they own their home, and that it was not subject to bankruptcy or foreclosure. According to an analysis of the program by Berkeley Lab, participating customers tend to have much lower credit scores than average, with over half showing "sub-prime" FICO ratings below 670.⁵⁴ And while delinquent payment rates were higher than other market-rate solar products outside Connecticut, the study found losses to be essentially comparable—and substantially better than non-prime auto loans.

The Hawaii Green Energy Money Saver (GEM\$) program is a state loan program for rooftop solar installations, with on-bill repayment of the loan at a rate lower than the bill savings and the repayment obligation tied to the meter. Interest rates are fixed at 5.5%, and households must have income lower than 140% of AMI. No credit check is required, but customers must not have been in arrears on utility bill payments for the previous year. Renters are also eligible for GEM\$ with the co-signature of the property owner. The program offers "innovative repayment mechanisms to increase landlord/property owner participation."⁵⁵

CEJA creates finance programs that could play an important role in reducing risk for non-prime lending to homeowners. For example, Section 16-111.10 of the Public Utilities Act ("PUA") directs the ICC to create the Equitable Energy Upgrade Program "that permits customers to finance the construction of energy projects through an optional tariff payable directly through their utility bill, modeled after the Pay As You Save system, developed by the Energy Efficiency Institute. The Program model shall enable utilities to offer to make investments in energy projects to customer properties with low-cost capital and use an opt-in tariff to recover the costs."⁵⁶

Like ILSFA, the PUA requires that the program "shall ensure [that] eligible projects do not require upfront payments; however, customers may pay down the costs for projects with a payment to the installing contractor in order to qualify projects that would otherwise require upfront payments."⁵⁷ The program must also ensure "accessibility by lower-income residents and environmental justice community residents."⁵⁸ As a consumer protection measure, the law stipulates that "eligible

⁵³ See for example [Give Solar](#).

⁵⁴ Jeff Deason, Greg Leventis and Sean Murphy, Berkeley Lab, [Performance of solar leasing for low- and middle-income customers in Connecticut](#), May 2021.

⁵⁵ Hawaii Green Infrastructure Authority, ["GEMS Financing Program."](#)

⁵⁶ 220 ILCS 5/16-111.10(c).

⁵⁷ Id. at §16-111.10(c)(1).

⁵⁸ Id. at §16-111.10(c)(4).

projects shall not create personal debt for the customer [or] result in a lien in the event of nonpayment.”⁵⁹

The Equitable Energy Upgrade Program has a first-year budget of \$20 million for each of the large utilities, rising to \$40 million in the second year, and to whatever amount customers demand in the third year.⁶⁰ Utilities would raise funds through borrowing, or from the Clean Energy Jobs and Justice Fund.⁶¹ Projects would be installed by vendors chosen through a request for proposals process.

While the Equitable Energy Upgrade Program is intended for customers of any income level, with the right customization it could facilitate customer-sited small DG projects under the Illinois Solar For All Program, by creating a low-cost and simple method of financing solar.

The Build Back Better Act pending in Congress would establish a direct pay provision for tax credits, eliminating the need for sufficient tax appetite, and vastly reducing the role of a partnership flip. Congress used this cash grant approach in the American Recovery and Reinvestment Act (ARRA) of 2009; it was found to be much more cost efficient to developers and the Treasury than the current tax credit approach.⁶² If direct pay is adopted, IPA should revisit all of the financial assumptions used to determine REC values.

(B) Low-Income Community Solar Project Initiative

The low-income community solar (LICS) program has been a very active part of Illinois Solar For All, with the volume of submitted projects significantly exceeding the amount of funding available. Across the first three program years, there were 92 project applications, 69 were deemed eligible, and 11 were selected.⁶³ Once fully operational, these 11 projects will be serving an expected 2500 subscribers. Seven of the 11 selected LICS projects were located in EJ communities and nine were located in low-income census tracts.

There are 17 Approved Vendors active in the LICS space, the most of the three sub-programs. Only five have projects selected and approved, led by Nexamp and Promethean, with three each.⁶⁴ So far, all current LICS projects are owned by third parties, with power sold through subscriptions, and no option for customer ownership.

As discussed in Section III above, there are two models that are being used to create community ownership of community solar projects: owning shares in a cooperative, and owning a part of a community solar installation.

An example of the first is Cooperative Energy Futures (CEF) in Minnesota, managed by Timothy DenHerder-Thomas. According to DenHerder-Thomas, CEF has 950 member-owners who pay \$25

⁵⁹ Id. at §16-111.10(k).

⁶⁰ Id. at §16-111.10(d)(1)-(3).

⁶¹ Id. at §16-111.10(e)(2)(A).

⁶² Bipartisan Policy Center, [“BPC Study Finds Opportunity for More Efficient Federal Renewable Energy Incentives; Treasury Cash Grants Twice as Effective as Tax Credits for Wind and Solar,”](#) March 25, 2011.

⁶³ Unselected projects may be resubmitted for consideration in subsequent program years. These metrics count resubmitted projects each year they are submitted separately.

⁶⁴ Apprise, Table III-9.

to join, with 700 subscribing to take solar electricity via virtual net metering.⁶⁵ Some members participate just in energy efficiency programs, while some are just investors but not solar subscribers. Members can buy Preferred Stock when the co-op offers it. CEF has secured \$1,675,000 in investments from the community since 2017, with expected annual dividends ranging from 5% to 8%. They paid their first dividend to members in 2020. Member-owners can sell their shares back to the coop if they wish. Community solar subscription terms are for 25 years but members can cancel at any time.

The co-op owns eight solar projects (6.9 MW), and DenHerder-Thomas says they are developing another seven now to support a doubling of membership.⁶⁶ CEF serves about 9% of the residential community solar market in Minnesota, which is dominated by sales to commercial customers. For each project, CEF had a tax equity partner for the first five years of operation, then performed a “Minnesota flip” to take ownership.

While Minnesota does not offer incentives for LMI participation in community solar, DenHerder-Thomas cites a University of Minnesota study that found about 40% of CEF members have income below 80% of AMI.

To facilitate ownership in the ILSFA program, an energy sovereignty bonus incentive could be offered to the cooperative to recruit eligible customers and used to finance the purchase of ownership in the co-op along with a subscription to the solar power. The cooperative itself would handle the relationship with a tax equity partner on behalf of its member/owners. Member/owners would also exercise control of the co-op through voting.

The second model of ownership is Co-op Power, which has 500 member/owners in MA, VT, CT, NH, and NY.⁶⁷ The co-op offers a variety of solar and energy options for members, including a community solar installation where customers buy and own individual panels in a shared off-site location, and the value of electricity is delivered to their bills via virtual net metering. Under the Community-Owned Community Solar option, the customer is responsible for managing the federal tax credit and renewable energy credits and pays Co-op Power for system operations and maintenance each month. Massachusetts residents were able to finance the panel purchase with a Mass Solar Loan when that program was in operation. The co-op offers a discounted co-op membership for people with “limited resources,” but no special discounts for buying the solar panels.

However, ownership in this model entails the same barriers as a rooftop system for a low-income customer: it requires up-front cash or financing, and the ability to monetize income-based tax credits. ILSFA could use the same lease-to-own strategy mentioned for rooftop systems, where the customer would lease the remote system from a TPO for 5-7 years, then exercise an early buyout option with financial assistance from the program.

(C) Incentives for non-profits and public facilities

According to the ILSFA Project Dashboard, 64 Non-Profit or Public Facilities (NP/PF) have been supported by Illinois Solar For All to date.⁶⁸ Notably, only forty percent of the 127 projects

⁶⁵ Interview with Timothy Den-Herder Thomas, General Manager, [Cooperative Energy Futures](#).

⁶⁶ Id.

⁶⁷ Co-op Power. “[Community Solar](#).”

⁶⁸ ILSFA [Project Dashboard](#), accessed February 2022.

submitted were deemed eligible by the program administrator, and 64 of the 77 eligible projects were selected. Thirty-three of the 48 selected NP/PF projects were located in EJ communities, and 47 were located in low-income census tracts. There are 16 AVs active in this sub-program.

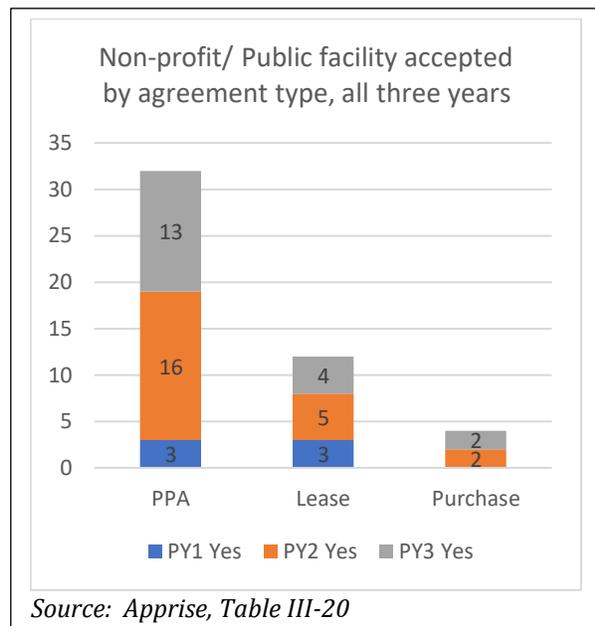
Of the selected projects, 32 were done with power purchase agreements (PPAs), where the customer buys power from a third-party owner. Another 12 were done with leases, while four systems were purchased by the customer.⁶⁹

While any future transfers of ownership are unknown, all but 10 involved contract terms of 15 years or longer, suggesting that they will not be transferred. Interestingly, eight involved contract terms of 6-7 years, which is the typical transfer point in a partnership flip.⁷⁰

Non-Profit or Public Facilities could use the same transfer strategy that residential customers could use, exercising an early buyout of a lease or PPA using energy sovereignty incentives from ILSFA.

Also, non-profit organizations with strong community ties may be good candidates for organizing a cooperative that would be owned by its members. A faith congregation, for example, could create a cooperative that owned a large solar system installed on the property. ILSFA incentives could be used to enable congregants in EJ communities to be shareholders in such a co-op.

A possible way to increase benefits to the community entity would be to find tax equity partners willing to offer generous terms to non-profit or public owners, a “public interest tax equity partner” or PITEP if you will. A PITEP would be a financial institution or corporation with a significant tax appetite and a commitment to Environmental, Social, and Governance (ESG) principles. They would serve as flip partner but transfer ownership on favorable terms, or even “front load” the deal so the community partner would start capturing benefits before transfer of ownership happens. In essence, their main financial benefit would be from tax and depreciation incentives, and they may pass along some of those to the community partner. They could, for example, donate the system to the community partner rather than selling it at “fair market value,” and take a tax deduction for that charitable contribution. This approach requires further research, especially on how IRS regulations would treat such an arrangement.



(E) Low-income large multifamily solar incentive

Public Act 102-0662 split the previous Low-Income Distributed Generation sub-program into the Low-Income Single and Small Multifamily Solar sub-program, and the Low-Income Large Multifamily Solar sub-program that covers solar projects serving residences with five or more units.

⁶⁹ Apprise evaluation, Table III-20

⁷⁰ See Table III-21

The previous LIDG sub-program awarded support for ten projects in buildings with five or more housing units, with nine awarded in the third year of the program. One project was over 2 MW; excluding it, the average size for the 57 LIDG projects was 12 kW.⁷¹ All of the multi-family installations were contracted under a power purchase agreement, while all of the smaller installations used leases.

Promoting on-site solar ownership in this space is complicated by arrangements between tenants and the building owner, and by the type of entity that owns the building. Apartment housing dedicated to low-income tenants is typically either publicly-owned or privately owned but supported by Project-Based Rental Assistance. (Tenants can also use housing vouchers to pay for housing that is not dedicated to low-income tenants.)⁷²

Publicly-owned housing is often owned by a local public housing authority (PHA), including 111 public housing agencies in Illinois. Properties supported by Project-Based Rental Assistance (PBRA) are most often owned by for-profit entities, although nonprofits (and some PHAs) own a significant share of Section 8 PBRA properties.

Ownership of an on-site solar system, and conveying its benefits to the low-income tenants, can be complicated. Tenants who are eligible for HUD housing assistance, whether through public housing or rental assistance, pay a “housing allowance” of 30% of their income for rent and utilities, according to HUD guidelines.⁷³ If solar enables a reduction in utility costs, rent can be increased to get back to the 30% mark, eliminating the energy savings. However, HUD issued an exception to this issue in 2019 for the California SOMAH program, and could extend it to other multifamily solar programs.⁷⁴ A related problem is that tenants in a master-metered building may not pay a utility bill at all. The building owner would see lower operating costs from on-site solar, creating an indirect benefit to tenants. But to directly benefit the tenants, the building owner could simply pay the value of the solar generation to eligible tenants as a cash payment, rather than a discount on utility bills. Many strategies are being explored.⁷⁵

Another strategy for tenants of public or PBRA housing is to create a tenant-owned cooperative that would own an on-site or community solar system. The electricity credits could be delivered to the tenants/owners by virtual net metering, or it could be sold to other subscribers with revenues paid to the tenants/owners each month. ILSFA incentives could be paid to eligible tenants to support their purchase of ownership shares in the co-op.

⁷¹ Apprise, Table III-26.

⁷² Center on Budget and Policy Priorities, [Housing Policy Basics](#), accessed January 2022.

⁷³ US Department of Housing and Urban Development, [HUD’s Public Housing Program](#).

⁷⁴ Seth Mullendore, Clean Energy Group, [“Housing Department Decision Will Bring Solar Benefits to Low-Income Households in California,”](#) August 16, 2019.

⁷⁵ Warren Leon, et al., Clean Energy States Alliance, [Solar with Justice: Strategies for Powering Up Under-Resourced Communities and Growing an Inclusive Solar Market](#), December 2019.

V. Suggestions to Encourage Sovereignty in ILSFA

This section presents a number of possible strategies the Agency could consider to promote energy sovereignty in ILSFA, both in the design of the ILSFA program incentives and in relation to other programs and policies.

ILSFA Incentives

On-site: To promote ownership for as many eligible customers as possible at the lowest price, ILSFA energy sovereignty incentives should be structured to leverage federal financial incentives. For on-site installations this is most readily achieved through a third-party owner (TPO) lease or power purchase agreement (PPA) with the option of an early buyout 5-7 years after energization. Since Agency support for ILSFA projects is limited to buying RECs up front, an “energy sovereignty” contract should define how the buyout will happen at that time.

The terms of the contract could specify the cost and timing of the transfer of ownership, the transfer of warranties and insurance, and the cost of ongoing monitoring, maintenance, and insurance. When the transfer of ownership happens, it would be reported to the Program Administrator along with documentation of how it met the terms of the contract. If the transfer does not happen, the Agency would be allowed to claw back any energy sovereignty incentives from the Approved Vendor. The Agency could offer a small bonus to Approved Vendors to incentivize buyouts.

Community solar: Two ownership pathways for community solar are promising: first, that a customer owns some panels at a centrally-located community solar project; second, that a customer is a shareholder in a business that owns a community solar project.

For the first option, ownership can be achieved the same way an on-site solar system can be owned, through a lease or PPA from a TPO with an early buyout clause. For the second option, it is likely that a cooperative structure is the best business model to facilitate ownership in a community solar company, since it avoids complicated regulation that applies to other corporate structures.

To facilitate ownership in a cooperative, ILSFA incentives can be offered to the cooperative to recruit eligible low-income and community customer/owners. The funds would be used to buy membership in the cooperative and to support a subscription for the solar electricity, which would be delivered as a bill credit through virtual net metering.

While current law limits the Agency or a utility to buying RECs upfront, consideration should be given to legislative changes that would allow the agency to retain funds until the time of transfer of ownership. This may result in fewer conflicts that can occur over the time gap between energization and the transfer of ownership.

Other Measures

1. Coordinate with other state agencies.

CEJA spells out a number of areas where inter-agency collaboration is necessary, most prominently with job training and finance programs. For example, ILSFA will have to work with the Illinois Finance Authority to ensure the new Climate Bank has finance policies and programs that facilitate

ownership. Likewise, the Illinois Commerce Commission will be setting program parameters for the Equitable Energy Upgrade Program, the on-bill finance program that can be used to finance ownership of on-site solar projects.

There may be especially rich opportunities to integrate Illinois Solar for All with the Low-Income Home Energy Assistance Program (“LIHEAP”) and the Illinois Home Weatherization Assistance Program (“IHWAP”), and other LMI energy programs administered by community action agencies. Other states have begun using solar power as a weatherization measure in WAP programs, or as a LIHEAP cost-saving strategy.⁷⁶ Such integration would make program delivery more efficient and greatly reduce customer acquisition costs.

2. Incorporate “ownership training” into DCEO job training programs

While CEJA created a full suite of job training programs, the goal of creating more energy sovereignty raises the need to increase the amount of business and “ownership training.” This could include, for example, training on finance, project management, maintenance and operations, customer acquisition, regulations, and insurance, among other things. Experts on these topics could be hired as business instructors and also serve as mentors for community-owned community solar project owners.

Such training could be included as an “other activity” for grassroots education efforts, or folded into other job training programs. The Business Enterprise Program (BEP) at the state Department of Central Management Services could serve as a model, which helps under-represented businesses compete for state procurement contracts. The Department created the Mentor Protégé Program “to help to create capacity and growth opportunities for emerging and scaling vendors” through coaching, mentoring and capacity building.⁷⁷

3. Ongoing education

A number of concepts and business models in CEJA are novel for Illinois, and in some cases even innovative nationally. While CEJA and the Long-Term Renewable Resources Procurement Plan are sufficient to establish programs, the programs and stakeholders would benefit from ongoing education and dialogue about how they can best be pursued, and improved over time.

For example, community solar cooperatives may be a good strategy for promoting ownership. However, there are very few community solar cooperatives currently in operation in the United States. Transferring that knowledge to Illinois, including making it compatible with state cooperative law, would benefit from ongoing research and discussion. It may be prudent to work with the Value-Added Sustainable Development Center of the Illinois Institute for Rural Affairs and the Illinois Cooperative Council to explore the development of co-ops, develop policies, and educate stakeholders.⁷⁸

4. Lower the cost of installation

As solar installation costs decline, it makes sense to stretch budget dollars by lowering the cost of incentives. But it could also make sense to lower installation costs as much as possible and cover those costs fully with program dollars. One strategy could be to streamline the administrative

⁷⁶ Paulos, 2017.

⁷⁷ Illinois [Department of Central Management Services](#).

⁷⁸ Illinois Institute for Rural Affairs, [Value-Added Sustainable Development Center](#) and the [Illinois Cooperative Council](#).

process for Approved Vendors, thus lowering their administrative expenses and attracting more vendors. Another approach is to push group procurement strategies, volunteer labor, and donated equipment, strategies that have helped cut costs in other state programs.

Stakeholders might also consider legislative changes to waive the requirement that ILSFA customers put no money down for on-site installations. If ILSFA incentives can cover most of the cost of a reduced-price system, some eligible customers may want to pay perhaps 10-20% of the cost of a system to own it from day one.

5. Community Choice Aggregation

While community choice energy aggregators in Illinois have concentrated on energy procurement, CCAs in other states have gone beyond procurement to develop a variety of local energy programs. As part of ongoing research and outreach, the Agency should explore whether and how CCAs can be vehicles for local ownership of rooftop and community solar projects. CCAs could have benefits in customer acquisition for community solar, for example, by doing opt-out enrollment of customers, perhaps in partnership with an Approved Vendor. CCAs could facilitate low-income community solar projects by aggregating customers by neighborhood or by local public housing agencies.

6. Direct Pay

Congress is considering a provision in the Build Back Better Act that would allow federal solar incentives to be paid as cash rather than as a credit against income. If this “direct pay” provision passes, many of the business models discussed in this memo, and indeed many distributed solar business models, will be obsolete. The Agency may need to revisit ILSFA financial and sovereignty policies immediately, rather than waiting for the next Plan cycle, since it will have fundamental implications for program delivery. It is also possible that legislative changes may be needed to realign energy sovereignty concepts for ILSFA and federal tax policy.