



**TRANSACTION TAKEAWAY**

# SOLAR FOR ALL

## HOW CONNECTICUT GREEN BANK DRIVES SOLAR AND ENERGY EFFICIENCY FOR LOW- TO MODERATE-INCOME HOUSEHOLDS

Connecticut Green Bank believes that access to solar and energy efficiency should not be precluded by lack of affordable financing, inability to use federal tax credits, or low credit scores. It is important to make rooftop solar and energy efficiency (EE) accessible to low- to moderate-income (LMI) homeowners, not only because it is a traditionally underserved market that has been excluded from participating in the overall growth of distributed clean energy measures, but in particular because LMI homeowners can disproportionately benefit from utility cost reductions, due to their relatively high energy burdens (household energy costs relative to annual income).

As the result of a request-for-proposal process initiated by CT Green Bank in December 2014 to address market barriers related to LMI household uptake of clean energy installations, PosiGen, a Louisiana-based solar company, has been offering a rooftop solar PV lease product with an option for the installation of EE measures since 2015 with Green Bank support. Specifically, the program:

- offers solar PV installations to single-family homeowners (including residences with up to four units).
- incentivizes deployment in the LMI market through the use of elevated performance-based incentives for qualifying LMI households. (LMI households are

**PROJECT NAME:**

Solar for All

**TECHNOLOGIES:**

Residential rooftop solar PV and energy efficiency (e.g., sealing, insulation, smart thermostats, LED lighting)

**START YEAR:**

2015

**SIZE:**

1,651 leases for \$46 million of installed equipment as of June 2018

**PROGRAM PARTNER/DEVELOPER:**

PosiGen

**CT GREEN BANK FINANCING:**

Subordinated term debt (\$8.5 million facility)

**ADDITIONAL CT GREEN BANK INCENTIVE:**

Residential Solar Investment Program (elevated performance-based incentive for qualifying LMI households)

**CAPITAL SOURCES:**

Tax equity, PosiGen equity, CT Green Bank subordinated debt, and third-party senior debt

**REASONS FOR GB INVOLVEMENT:**

Wanted to innovate targeted financing solutions that both significantly reduced the energy burden and increased solar deployment for LMI homeowners. Had been seeking an integrated solution for homeowners, knowing that solar and energy efficiency paired together yielded greatest energy burden reductions

**LESSONS FOR THE MARKET:**

Clean energy deployment for LMI households can reach parity with non-LMI households by means of market-based financing structures that combine lower customer-acquisition, installation, and other operating costs with attracting lower-cost capital. PosiGen has achieved such a balance with (1) a standardized installation offer (to reduce installation and operating costs) that utilized elevated incentive programs from the CT Green Bank (to help drive down lease costs) and leveraged existing energy-related offerings from local utilities (to facilitate growth), (2) a product that includes an underwriting alternative to the FICO score (to expand the market), and (3) a marketing approach that uses community-based tactics and trusted messengers and leverages the positive reputation of the CT Green Bank (to reduce customer acquisition costs).

considered those whose income is at or below 100 percent of the Area Median Income (AMI). As of June 2018, about 60 percent of installations have been on LMI homes, and about 75 percent of installations have occurred within census tracts that are below 100 percent of area median income.)

- offers PV systems that are leased to the homeowner (and require no up-front homeowner investment).
- couples a basic energy efficiency package offered through the local utility's Home Energy Solutions (HES) program with an EE installment option called an Energy Savings Agreement (ESA). (As of June 2018, 99 percent of PosiGen customers have received HES services and 75 percent of PosiGen customers have opted for the ESA.)

The lease has a 20-year term with fixed lease payments. The homeowner has a fair market value purchase option at the end of the lease term. The lease agreement has a production guarantee, under which the homeowner is reimbursed if the system does not produce the initially estimated electricity amount.

As of June 2018, PosiGen has leased 1,651 solar installations to homeowners under the program, comprising \$46 million of installed equipment.

## FINANCIAL "PLUMBING AND WIRING"

The solar installations are financed by pulling together funds from several participants, a combination of PosiGen, tax equity investors, private sector lenders, and CT Green Bank. In a tax equity investor structure, a corporation that has a lot of taxable income in the United States and expects significant tax liabilities—typically a bank or other large corporation—invests in a special purpose entity (SPE) that owns the project. The corporation (which is the tax equity investor) generates most of its value in the form of tax benefits, such as tax credits and depreciation. This allows the project to benefit from the tax equity capital without having to pay a large cash return (and typically the developer is not in a position to use the tax benefits itself).

In the PosiGen structure, there is a separate SPE, structured as a limited liability company (LLC), for each tax equity fund. The tax equity investors invest directly in the LLCs that own the solar installations. PosiGen also participates in these LLCs, with its position leveraged by a combination of senior third-party debt and subordinated CT Green Bank debt ("back leverage"). Back leverage essentially means that the lender makes its loan to the PosiGen entity participating in the LLC that owns the project, rather than directly to the project LLC itself. The lender is behind the tax equity investor in repayment priority in this structure. The solar installations are leased to the homeowners and owned by the LLC, thus enabling the LLC (and therefore the tax equity investor) to claim the federal solar investment tax credit (ITC) and depreciation tax benefits through the ownership of the underlying assets.

## DEPLOYING IN CONNECTICUT

PosiGen had previously operated in Louisiana, focusing on the LMI sector and installing more than 29 megawatts of solar PV for more than 6,000 households during its first three years. Operating in Connecticut posed new challenges, including a different marketing environment and more challenging regulatory hurdles. For example, in Louisiana, PosiGen generally operated only in the New Orleans area. Connecticut, in contrast, includes 169 towns (with potentially different regulations), almost all of which have a significant potential customer base for the PosiGen solar product.

PosiGen has risen to the challenge, forming a new, Bridgeport-based subsidiary, PosiGen CT, LLC, which employs about 50 people (and up to about 65 on occasion) and providing employment for about 55 more people through its subcontractors. With CT Green Bank assistance, PosiGen has adapted to the different marketing environment, using door-to-door canvassing and community events (often organized in coordination with the town government), along with television, radio, and web-based ads.

CT Green Bank has assisted PosiGen in guiding its statewide deployment strategy and allowing for co-branded marketing and outreach. It has provided consultation support on marketing campaigns, community outreach strategies, and customer acquisition techniques. Assistance has included staffing events, co-branding materials, and troubleshooting market barriers. CT Green Bank has also provided PosiGen with introductions to different partners, groups, and others in the CT Green Bank network that might be useful for outreach.

## MARKETING BY WORD OF MOUTH

PosiGen has found that initial installations in a neighborhood would lead to further installations in the same neighborhood. In 2017, about 40 percent of its sales in Connecticut came from referrals. One homeowner was so enthusiastic about her solar installation that she hosted the local launch campaign after going door-to-door to recruit more of her neighbors to go solar.

Conducting outreach through community centers and parent-teacher groups, participating in community events, and using door-to-door canvassers who live in the neighborhood where they are canvassing are other methods employed by PosiGen to augment the neighborhood effect.

## MOTIVATING BOTH PROVIDERS AND CUSTOMERS TO DO LMI INSTALLATIONS

CT Green Bank offers a performance-based incentive (PBI), as part of its Residential Solar Investment Program (RSIP), to CT Green Bank-approved solar providers. The PBI is paid to the system owner (here, PosiGen entities) quarterly over six years and is based on actual production at a specified per-kilowatt-hour rate. By basing the PBI on continuing production, CT Green Bank provides an incentive to the

system owners to make an effort to maintain and increase solar energy production after installation.

To encourage LMI installations in particular, CT Green Bank offers an “enhanced” PBI for installations of solar systems in LMI households. As of June 1, 2018, the enhanced PBI for eligible LMI households is \$0.090/kWh, relative to the standard PBI of \$0.035/kWh.

The PBI is delivered directly through the LLC that owns the systems and is therefore commingled with the overall cash flow stream used to repay capital providers (the tax equity, the debt investors participating in the financing structure, and PosiGen), making the lease offering possible and facilitating lower lease payments than would otherwise be feasible. In the case of the enhanced PBI, CT Green Bank evaluates pricing to assure that the homeowner receives adequate savings.

As part of the overall RSIP, as designed to transition clean energy deployment to purely market-based financing structures, the PBI levels will phase down over time and as more solar energy is produced, ultimately ending either in 2022 or when solar PV installations reach a total capacity of 300 MW, if earlier.

There are other features of the program that enhance its appeal to LMI homeowners. As a lease product, the solar lease structure is attractive to homeowners with a limited ability to use the ITC themselves. Instead, as discussed above, the homeowner benefits indirectly from the lower cash payments to the tax equity investor, who is able to make use of the ITC in lieu of a portion of its cash return. Also, PosiGen doesn’t rely exclusively on FICO scores, allowing homeowners to demonstrate creditworthiness through other measures, such as their utility bill track record.

PosiGen has an additional economic incentive to focus on LMI installations. Lower-income neighborhoods tend to have both a high energy cost and a relatively high energy cost burden relative to residents’ income. Therefore, residents in lower-income neighborhoods benefit disproportionately from the energy cost savings of solar PV installations. Thus, LMI neighborhoods are an attractive market from this perspective too.

The bottom line is that the LMI market for solar can be targeted successfully, but the offering strategy must be tailored to the market—for example, by installing a standard configuration (to drive operating efficiencies),

creating a product offer that includes an underwriting alternative to the FICO score, utilizing various state and local incentives and existing energy-related services to help drive down offer pricing to LMI customers, and employing a marketing approach that uses community-based tactics and trusted messengers.

## ENERGY EFFICIENCY MADE ACCESSIBLE TO LMI HOUSEHOLDS

There is also an EE component of the program. Homeowners participating in the RSIP (performance-based incentive) are required to have a Home Energy Solutions Program audit to identify potential EE improvements. Although homeowners are not required to install EE measures, the audit does usually lead to basic EE improvements such as low-flow faucets, efficient light bulbs, and house sealing. PosiGen offers more extensive EE upgrades in conjunction with the solar installations, available for \$10 a month, payable over 20 years (and, unlike the solar installation, the EE installation is owned by the homeowner). Measures under this program may include insulated attic access hatches, advanced air sealing, chimney balloons, carbon monoxide detectors, Nest thermostats, pipe wraps, extensive smart power strips, and LED lighting options. Currently, about two-thirds of the homeowners in the solar program elect the more extensive EE installation.

In sum, the PosiGen residential solar lease financing program is at the intersection of Connecticut Green Bank’s missions: promoting clean energy and combating climate change, furthering inclusive prosperity, and generating jobs and economic development. In keeping with the green bank model, CT Green Bank has provided support for the program in ways that will help catalyze private sector participation: providing subordinated debt, a performance-based financial incentive subject to phase-out, and guidance for statewide deployment, including input on marketing, community outreach, and customer acquisition techniques.

Best of all, the program has been successful in targeting the LMI market. From 2012 through 2017, representation in RSIP-approved projects increased from 2 to 13 percent for households with income of less than 60 percent AMI; from 4 to 16 percent for households with 60 to 80 percent AMI; and from 14 to 19 percent for households with 80–100 percent AMI.

## GREEN BANK NETWORK

Transaction Takeaways are snapshots of notable features of Green Bank deals.

The Green Bank Network (GBN) is a membership organization managed by NRDC and the Coalition for Green Capital that was founded in December 2015 to foster collaboration and knowledge exchange among existing Green Banks, enabling them to share best practices and lessons learned. The GBN also aims to serve as a source of knowledge and a network for jurisdictions that seek to establish a Green Bank. The GBN founding members are the Clean Energy Finance Corporation (Australia), Connecticut Green Bank (U.S.), Green Finance Organisation (Japan), GreenTech Malaysia, NY Green Bank (U.S.), and Green Investment Group (UK). Visit us at [greenbanknetwork.org/about-gbn](http://greenbanknetwork.org/about-gbn).



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