This is a new section of the Public-Private Partnership Resource Center website and is currently in draft form. Your feedback is welcome: If you would like to comment on the content of this section of the website or if you have suggestions for links or materials that could be included please contact us at ppp@worldbank.org.

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# Rooftop Solar PV and Energy for Underserved Communities, Connecticut, United States

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***On this page:*** *A case study on Rooftop Solar PV and Energy for Underserved Communities, Connecticut, United States. Find more at the Municipal Public-Private Partnership Framework - Project Summaries section for brief summaries of around 100 projects from around the world, examples of successes and challenges, as well as innovative ideas on solutions, or visit the Guidelines on Innovative Revenues for Infrastructure section.*

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**Project Summary:**

**Background**

Connecticut (CT) has the most expensive energy tariffs in the continental United States (US), which disproportionately impacts its poorest residents. In Bridgeport, CT, around 26 percent of the lowestincome households' annual revenue is spent on energy bills, which average about USD 4,078 per year. In 2015,

under the “Solar for all” program, the CT Green Bank decided to pursue a PPP that could help low-income households reduce their energy costs. The “Solar for all” program involves various programs, including the installation of rooftop solar PV generators and other energy efficient solar products on homes. CT Green Bank is a state-supported institution established in 2011 to catalyse clean energy development in several sectors, by providing low-cost, long-term sustainable financing to maximize the impact of public funds. In December 2014, CT Green Bank issued a request for proposals from solar providers interested in engaging with the low- to-moderate income markets, which had been largely ignored by most solar enterprises.

**Project Structure**

PosiGen, a solar enterprise that had experience serving underserved communities across Louisiana in the aftermath of Hurricane Katrina, was selected as the winning bidder for the project. The program is designed to offer affordable solar panel leases paired with energy efficiency measures, regardless of the participant’s income or credit score. CT Green Bank would provide some funding in the form of up-front rebates and performance-based incentives (PBIs) (subject to phase-out) to PosiGen for solar PV installations on low- to-moderate income residential properties.

CT Green Bank also provided a direct credit enhancement in the form of USD 5 million in subordinated debt to PosiGen’s CT lease fund, and a USD 3.5 million working capital loan to address timing gaps associated with third-party tax equity financing.

The low-cost capital and performance-based incentives provided security to PosiGen investors and enabled PosiGen to offer an affordable lease product to customers. It also helped leverage over seven times more private investment than the Green Bank’s term financing contribution, amounting to USD 37 million for PosiGen’s CT solar lease installations.

PosiGen leases the solar PV installation to the homeowner for a 20-year term, with fixed lease payments – around USD 75 per month – and an option to purchase efficiency upgrades for an additional USD 10 per month. The lease agreement also guarantees the production of electricity. If the system does not produce the forecasted amount of electricity, the homeowner is eligible for reimbursement. Towards the end of the lease term, the homeowner is given an option to purchase the solar PV installation at fair market value.

**Lessons Learned**

As of June 2018, PosiGen had leased 1,651 solar installations to homeowners across CT, namely in Bridgeport, Hartford, New Haven, and New London, equating to USD 46 million of installed equipment. This amounted to an 188 percent increase in solar dissemination among Connecticut’s low-income communities.

The success of the project stemmed in part from the willingness of the private partner to proactively engage with the affected community and its representatives – including elected officials, NGOs, and faith leaders, with strategic support from CT Green Bank. Understanding the local community helped the private provider in its marketing campaigns.

The private provider also adds a personal touch by offering to sit down with the customer to discuss ways the customer can reduce their monthly payments and guarantee savings through a solar PV lease. In addition, the provider keeps the contract simple and offers a standard, 6.2-kilowatt installation to minimize installation and operating costs.

The private provider did face some challenges at the beginning of the project, due mainly to a negative perception that solar energy is expensive. In addition, the provider faced some backlog in obtaining required permits and inspections, as well as outdated infrastructure, namely structurally unsound rooftops that would not support solar panel installation and dated electrical systems. Nonetheless, in time, by proving its customers could reduce their energy bills, PosiGen was able to expand its market and attract new customers,

overcoming the initial, negative perception. It was reported that in Bridgeport, the average family that leased a solar PV reduced their energy bill by more than USD 1,280 annually. Around 30 to 40 percent of PosiGen's new sales come from referrals by existing customers.

CT's "Solar for All" partnership received the 2018 State Leadership in Clean Energy Award from the Clean Energy States Alliance.[1]

*Footnote 1: Case source(s): https://energynews. us/2018/09/04/ northeast/connecticutpublic-privatepartnership- deployssolar- to-underservedcommunities/ Accessed on June 13, 2019.*

*https://www. renewableenergyworld. com/ugc/ articles/2018/07/19/ connecticutgreen- bank-andposigen-solar-for-allpartnership-- bringingthe- benefits-of-cleanenergy-. html Accessed on June 13, 2019.*

*https://www.nrdc. org/sites/default/ files/green-banksconnecticut- tt.pdf Accessed on June 13, 2019.*

*https://energynews. us/2019/06/07/ northeast/connecticutprogram- pairs-energyefficiency- with-all-solarinstallations/ Accessed on June 13, 2019.*

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*The Guidelines on Innovative Revenues for Infrastructure (IRI) is intended to be a living document and will be reviewed at regular intervals. They have not been prepared with any specific transaction in mind and are meant to serve only as general guidance. It is therefore critical that the Guidelines be reviewed and adapted for specific transactions.*

*To find more, visit the Innovative Revenues for Infrastructure section and the Content Outline, or Download the Full Report. For feedback on the content of this section of the website or suggestions for links or materials that could be included, please contact the Public-Private Partnership Resource Center at ppp@worldbank.org.*