

**TO:** Mayor Gray, DC Council Members, and DDOE

**FROM:** Amit Ronen, Director, George Washington University Solar Institute  
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**DATE:** June 3, 2014

**RE:** Consensus Recommendations on How to Catalyze Low-Income Solar in DC

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Extensive conversations between key stakeholders attending an April 9<sup>th</sup> Roundtable on opportunities for low-income solar in DC revealed that the necessary leadership, consensus, and resources are available to launch a groundbreaking low-income solar initiative in the District.

The stakeholders recommended that the city pursue a direct dollar-per-watt rebate program that incentivizes low-income participation and community solar projects, combined with a credit enhancement program that unlocks and leverages the necessary capital for these projects.

We believe this multifaceted approach directly supports District Department of the Environment (DDOE) goals to stretch limited government dollars the farthest, provide the greatest certainty and opportunity for local solar installers, help reduce the energy burden on DC's most vulnerable citizens, and drive the most economic development by permanently creating wealth in lower income District communities.

## Background

While solar energy has become increasingly affordable and residential solar installations are booming, most panel installations occur in higher income neighborhoods. This is the case in Washington, DC, where less affluent District residents are prevented from receiving the benefits of solar energy due to multiple market barriers such as renting, living in a multi-family building, lower credit scores, or having utility bills covered through government support programs.

Despite these challenges, the District's recent enactment of forward-leaning legislation, such as the Community Renewables Energy Act of 2013, creates new opportunities for solar developers and community leaders to improve energy affordability and accessibility. Innovative solar programs in other states, like California's Single-family Affordable Solar Homes (SASH) program, have enabled families to reduce their monthly electricity bills by an



average of around 80%, savings that will continue for the life of these solar systems (at least 25 years or more). Such savings could have a significant positive impact on strained District family budgets, where households with incomes below 50% of the Federal poverty level must spend about a third of their annual income for their home energy bills, and energy assistance programs like the Low Income Heating and Energy Assistance Program (LIHEAP) are unable to fully address community needs.

Well-designed and implemented solar investment programs can bring permanent wealth into low-income communities by becoming a source of local, living-wage jobs and empowering families with a tangible asset that delivers economic value for decades. In addition, with residential solar installations beginning to saturate the early adopter market, innovative low-income solar programs that leverage private sector funding can help ensure the continued growth of our nascent local solar industry, reduce future electricity price fluctuations for all residents, improve the resiliency of the local grid, and help the District meet its greenhouse gas reduction targets.

### **Low-Income Solar Roundtable**

On April 9, 2014, the GW Solar Institute and DC SUN convened a daylong event at George Washington University to discuss and develop recommendations on how to accelerate the deployment of solar to benefit low-income District residents. About 70 key stakeholders from the low-income housing, solar, financing, and advocacy communities, as well as the federal and DC government (including leaders and representatives from DDOE, DCSEU, DHCD, DHA, DGES, and Office of the People’s Counsel) participated.

After an engaging day of education, dialogue, and brainstorming, the diverse group of local interests agreed that a number of synergies and opportunities exist between the District’s low-income housing and energy programs and that DC could become a national leader and serve as a model on how to best deploy solar in urban low-income communities.

### **Roundtable Results**

The Roundtable succeeded in:

- Promoting understanding and collaboration amongst various District sectors and interests, particularly between low-income housing and solar stakeholders.
- Laying the groundwork for the District to participate in an ambitious pilot program with the US Department of Housing and Urban Development (HUD).
- Developing clear recommendations for DDOE on how best to structure future incentive programs for low-income solar.



## Roundtable Consensus Framework

After discussing the tradeoffs among several possible frameworks to leverage available funds, roundtable participants concluded that a multipronged approach is needed to tackle the market barriers to low-income solar deployment.

Specifically, they found that a direct dollar-per-watt rebate program that incentivizes low-income participation and community solar projects, combined with a loan guarantee program that unlocks the necessary capital for these projects would stretch limited government dollars the farthest, provide the greatest certainty and opportunity for local solar installers, help reduce the energy burden on DC's most vulnerable citizens, and drive the most economic development by increasing wealth in lower income District communities. The framework relies on two key policies enabled by DC's progressive solar laws: virtual net metering under the Community Renewables Energy Act (CREA) and Alternative Compliance Payments required under the District's Renewable Portfolio Standard (RPS).

### Alternative Compliance Payments (ACPs)

Energy suppliers serving District customers are required to pay ACPs if they are unable to fulfill their solar energy requirements under DC's RPS.

The RPS requires energy suppliers to procure a certain percentage of DC-based solar energy each year (through the purchase of locally produced solar renewable energy credits SRECs) and they must pay a fine if those requirements are not met.

Estimates for the ACP payment this year range from \$500,000 to \$12 million dollars, but the final amount won't be known until the DC Public Service Commission (PSC) publishes the amount, based off suppliers' compliance reports. In 2015 the fee could also reach several million dollars.

By law, ACP payments are transferred to DDOE to be used to stimulate solar development in the District. This creates a positive feedback loop, increasing suppliers' ability to comply with the law in the future.

### Community Renewables Energy Act (CREA)

Passed unanimously by the City Council last October, CREA allows renters and apartment dwellers to offset their electric bills with solar, even if the solar panels are located somewhere across town.

Allowing for "virtual " on bill credits from shared solar installations (also referred to as "solar gardens") is a promising new way to use community solar models to increase equity and access to clean energy for DC residents and potentially deliver solar to any DC resident more efficiently than typical rooftop solar programs.

CREA also opens up a vast number of new project and financing models for deploying solar on low-income housing stock.

Although the law was enacted in 2013 there are not yet any community renewable energy facilities (CREFs) operational in DC due to the fact that the DC Public Service Commission (PSC) has failed to publish regulations implementing the legislation in a timely fashion. The PSC has stated they expect to publish draft rules shortly.

Although Roundtable participants identified a number of existing DC and Federal government programs that could augment a low-income solar energy component to their efforts (such as the Sustainable Energy Trust Fund, financed by a surcharge on electricity and natural gas and administered by the Sustainable Energy Utility), the focus was on how to most effectively utilize the millions of ACP dollars that could potentially become available over the next couple of years. DDOE has indicated they plan to dedicate a significant portion of future ACP receipts to low-income solar investments.

Given the significant leverage and benefits to District residents and the local economy, city leaders may also want to consider supplementing ACP funds for low-income solar with annual appropriated funds.

Here's an example of how these interlocking programs could work, using a hypothetical investment of \$5 million in public funding:

#### **Leveraged Low Income Financing and Credit Enhancement Program (~\$4 million)**

*A \$4 million government investment would help finance over \$36 million in private sector loans to low-income solar installations in DC.*

A loan guarantee is a promise by one party (the guarantor) to assume the debt obligation of a borrower if that borrower defaults. Loan guarantee (or public loan loss reserve) programs are often established to correct perceived market failures such as those for borrowers, regardless of creditworthiness, who lack access to the credit resources available to experienced borrowers. For building owners and tenants with insufficient or inadequate credit history or building equity, a loan guarantee eliminates a lender's credit risk allowing financing to occur and greatly reducing project costs.

In the case of a low-income solar, a loan guarantee program makes a wide variety of low-income solar investments bankable by taking advantage of the following facts:

- A solar system typically provides energy or hot water heating below the cost charged by the utility, therefore the actual risk of non-payment is quite low.
- The lifetime energy savings from a solar system far exceed the installation costs.
- Matching public funds with private capital greatly leverages the total amount of project funding available and allows for more competitive and flexible financing options.
- A predictable funding source decoupled from government budget cycles provides the private sector with the certainty necessary to continue to grow the local solar industry and its associated workforce.

## Program Benefits

- Overcomes market barriers unique to low-income solar by mitigating risk to investors.
- Leverages limited public and private dollars.
- Unlocks capital for communities so cost-competitive projects actually happen.
- Provides higher level of financing needed for larger community scale projects.
- Can recapture and revolve funding for new projects as existing loans are repaid.
- Builds awareness and capacity for solar lending within private sector.
- Lessens the need for agency administration and oversight.
- Create comfort within investment community to continue projects after government support.

## Program Design

- DDOE would select a private administrator for the guaranteed loan portfolio through a Request for Proposals (RFP). (Other innovative leveraged loan proposals could be followed as well.)
- The selected administrator (or Escrow Agent) would hold the ~\$4 million of guarantee money (minus any administrative costs) and approve lenders' loans or portfolio of loans based on strict criteria established in the RFP.
- Partial loan guarantees would be limited to 50% of a lender's actual losses arising from a default (i.e. the defaulted amount minus post-default recoveries from collateral or other assets of the borrower).
- Each year as a loan is repaid, funds are freed up for new loans. Unguaranteed portion cannot be paid back faster than the guaranteed portion.
- Leverage ratios could start low in year one and increase with experience.
- Once the loan fund is stabled, organized community groups or solar developers would propose a community solar project within the District boundaries, such as array on multi-family unit, a residential bulk purchase, or a commercial scale installation on a government or larger privately owned building.
- A majority of the ownership of any community solar project would be allocated to low-income residents, either by splitting system capacity or as a percentage of a system's electricity output.
- For community solar projects, a requirement could be added that at least half of the project's shareholders meet low-income thresholds within 5 years to ensure intended use of funds.
- Assuming a hypothetical case of 10% administrative costs and a 20% default rate, the \$4 million could help finance around \$36 million of loans. This amount of leveraging could increase over time as more of the initial loans are paid back and the actual default rate is lower than expected.

- Assuming installed system costs average \$2.50 per watt after rebates and credits, the initial loan portfolio could help finance approximately 14.4 megawatts of solar installations in DC.
- If the risk coverage is assignable to secondary markets, the amount of capital flowing into these communities could be increased even further.

### **Low Income Rebate Program for Single Families and Community Solar (~\$1 million)**

*A rebate program that empowers low-income homeowners and renters who wish to install panels on their roofs or own a portion of a community solar project.*

Even with a robust loan guarantee program overcoming barriers like imperfect credit scores, some low-income homeowners will still not be able to provide the necessary amount of equity to invest in a solar installation. In addition, other segments of the lower income population - such as renters, homeowners with shaded or structurally unsound roofs, or tenants of apartment buildings - may not have the option to invest in a solar system on their property or have the financial ability to participate in a community solar project without a rebate.

This complementary rebate program that includes a community solar component can take advantage of the District's groundbreaking Community Renewables Energy Act by reducing or eliminating the upfront costs of becoming an investor and beneficiary of a community solar project. These segments represent a significant underserved, vulnerable market of low-income District households.

#### Program Benefits

- Increases household wealth by providing a tangible asset that delivers consistent returns for decades.
- Allows lower-income residents without the disposable income to invest and own solar energy assets.
- Program can be tailored and scaled for different types of low-income families.
- Lowers upfront cost of solar systems for families, shortening the payback period.
- Allows the vast majority of District residents, particularly lower income individuals, that don't own a solar ready roof to possess a solar energy asset.
- Can harness aggregated purchasing power to spur competition and lower system costs.
- Strengthens communities and helps deconcentrate poverty.
- May replace or allow for expanded use of LIHEAP funding.

## Program Design

- Lower-income residents are provided an upfront rebate on a sliding scale of \$1 to \$3 per watt, to cover the cost of purchasing a solar system for owner-occupied single-family households, or a share of a community solar project funded by the credit enhancement program.
- For owner-occupied single-family housing, direct rebates would be available.
- Any SRECs generated could be used to provide rebates for residents or support additional loan guarantees, or be retired by the District to meet its greenhouse gas reduction goals.
- Additional parameters may be needed to limit incentives to projects that would not otherwise occur.

## **Metrics for Success**

Roundtable participants recognized that “low-income solar” means many different things to many different people. Although there are many competing objectives in advocating for greater solar investment on low-income housing, ranging from climate change to energy justice to asset building to public health, attendees were able to agree on the following common objectives (italicized) and associated performance metrics (bullets):

### *Maximize the Benefits to Low-Income Communities*

- Number of individuals impacted
- Average annual energy savings per resident
- Total solar capacity installed
- Total number of job training opportunities and local jobs created

### *Create and Maintain Local Wealth*

- Maintain solar revenue streams in the local community and with low-income residents
- Incentivize solar adoption by building owners
- Reduce housing burden for low-income families

### *Strengthen Low-Income Housing Sector with Innovative New Models that Create New Funding Streams for the Sector*

- Measure total private sector dollars leveraged

### *Build Strong Solar Market in DC*

- Provide steady and predictable incentives that are good for companies
- Encourage a diverse array of companies able to take advantage of incentives (not just one or two)
- Create opportunities for local job training
- Increase number of local jobs steadily and sustainably (not boom and bust cycle)

### *Strive for the Highest Possible Greenhouse Gas Reductions*

- Measure amount of carbon reduced per incentive dollars spent

### *Act as a Model/Case Study for Developing Best Practices that May be Replicated Elsewhere*

- Develop diverse project models
- Disseminate lessons learned
- Amplify investments by connecting with other DC low-income solar efforts already underway