



New Energy Solutions for Low- and Moderate-Income Customers

Community Power

A new model for supporting community distributed generation for low- and moderate-income customers

Date: September 24, 2018

Table of Contents

Executive Summary	4
Section 1 Business Model(s) Overview	9
1.1. Problem (The Market Opportunity)	9
1.2. Solution (REV Demonstration Project Idea)	11
1.3. Hypothesis Being Tested	18
1.4. Commission’s REV Demonstration Principles Being Addressed.....	18
Section 2 Market Attractiveness	20
2.1 Unique Value Proposition (From the Following Perspectives).....	20
2.1.1 Participating Customer	20
2.1.2 Partner / Third Party.....	22
2.1.3 Utility	24
2.1.4 System	24
2.2 Customer Segmentation and Demographics.....	24
2.3 Channels (Communication, Sales, Promotion).....	25
2.4 Ability to Scale (How Large Could This be?)	25
Section 3 Demonstration Plan	26
3.1 Metrics for Success (Now and Future)	26
3.2 Timelines, Milestones and Data Collection	27
3.2.1 Implementation Phase	27
3.2.2 Evaluation Phase.....	28
3.3 Participation	29
3.3.1 Target Population, Sample Size, Control Group	29
3.3.2 Third-Party Partner(s) – specifics of agreement(s).....	29
3.3.3 Utility Resources and Capabilities	31
3.4 Customer Outreach / Community Engagement.....	31
3.4.1 Outreach to Affected Communities	31
3.4.2 Motivating Customers / Communities	32
3.5 Conditions / Barriers.....	33
3.5.1 Market Rules and Standards	33
3.5.2 Consumer Protections	33
3.5.3 Channel or Market Challenges	34
Section 4 Financial Elements / Revenue Model	35
4.1 New Utility Revenue Streams.....	35
4.1.1 Platform Services, including Pricing Strategies	35
4.2 Investments	35
4.2.1 Details and Timing of Spending	35

4.2.2	Leveraging of Third Party Capital	35
4.3	Returns (ROI Estimates When Self-Sustaining, Etc.)	36
4.4	Cost Effectiveness (Benefits to Customers as Compared to the Cost).....	36
4.4.1	Qualitative	36
4.4.2	Quantitative.....	37
Section 5	Reporting	38
5.1	Information to be Included in Quarterly Reports to the Commission	38
Section 6	Conclusion	38
6.1	Post-Demonstration Benefits.....	38
6.1.1	Qualitative	38
6.1.1	Quantitative.....	38
6.2	Plans to Scale	39
6.2.1	Breakpoints in Scaling.....	39
6.3	Advantage	40
Section 7	Appendix.....	40

Executive Summary

Consolidated Edison Company of New York, Inc. (Con Edison or the Company) is continually seeking ways to allow all customers to benefit as the Reforming the Energy Vision Proceeding (REV Proceeding)¹ takes shape and the New York energy system is reimagined. In the REV Proceeding and others, the New York State Public Service Commission (the Commission) also has focused on ways to increase low- and moderate- income (LMI) segment participation in REV initiatives.² Recognizing this focus, Con Edison proposes to conduct a series of demonstration projects to test innovative approaches to serving LMI customers who are not well served by the existing market for energy solutions. Con Edison has three overarching goals for these demonstrations:

1. Help LMI customers gain access to clean energy and acquire new tools and services.
2. Aid LMI customers in managing energy use and controlling costs.
3. Achieve energy savings, greenhouse gas (GHG) emission reductions, system improvements, and other local benefits.

In keeping with these goals, over the past year and a half, the Company has engaged more than 100 stakeholders and directly surveyed more than 1,000 low-income customers. Stakeholders included representatives from LMI community-based organizations (CBOs), the energy industry, and the affordable housing sector. Thereafter, Con Edison conducted a competitive solicitation initiated by a request for information (RFI) that sought ideas and partners that could assist the Company in developing new business models specifically focused on solutions for the LMI segment.³ This RFI elicited 33 proposals representing 96 distinct organizations, many of which directly serve LMI communities as part of their core mission.

Respondents to the RFI were allowed to propose demonstration projects that included a variety of approaches — novel energy efficiency methods, distributed energy resources, financing and billing innovations, education and outreach, and other strategies. Included in the RFI were several metrics that were used to assess potential project benefits for participating LMI customers, non-participating customers, and the energy system. Con Edison encouraged RFI respondents to form their own partnerships in the event that a single respondent could not produce a proposal that would span the entire project cycle—customer acquisition, outreach and education, product and service delivery, measurement and verification, and project administration and oversight. To facilitate partnership, the Company also created a portal where organizations could either sign up if they were interested in partnering with other RFI respondents or view a list of RFI respondents interested in partnering.

¹ Case 14–M-0101, *Proceeding on Motion of the Commission in Regard to Reforming the Energy Vision*, Order Adopting a Ratemaking and Utility Revenue Model Policy Framework, (issued May 19, 2016) (REV Track 2 Order), p. 54.

² For example, Case 14–M-0565, *Proceeding on Motion of the Commission to Examine Programs to Address Energy Affordability for Low Income Utility Customers*, Order Adopting Low Income Program Modifications and Directing Utility Filings (issued May 19, 2016) (Low Income Order); Case 15-E-0751, *In the Matter of the Value of Distributed Energy Resources*, Order Adopting Low-income Community Distributed Generation Initiatives (issued July 12, 2018) (Low-Income Community Distributed Generation Order); Case 12-M-0476, et al.; *Proceeding on Motion of the Commission to Assess Certain Aspects of the Residential and Small Non-residential Retail Energy Markets in New York State*, Order Adopting a Prohibition on Service to Low-Income Customers by Energy Services Companies (issued December 16, 2016); Clean Energy Advisory Council Low and Moderate-Income (LMI) Clean Energy Initiatives Working Group Recommendations Report (filed December 22, 2016).

³ For more information on the Request for Information (RFI) solicitation, see <https://www.coned.com/en/business-partners/business-opportunities/low-moderate-income-customers>.

Community Power is one of three demonstration projects selected as a result of the solicitation process. This project tests a new self-sustainable model for supporting community distributed generation (CDG) for LMI customers, which without Con Edison’s initial backing to prove this model is a worthy financial investment, would not be attractive to investors new to LMI CGD. This project will deliver one megawatt (MW) of CDG from scattered rooftop solar arrays to approximately 350 directly metered LMI participants living in New York City Housing Authority (NYCHA) housing.⁴ As part of this demonstration, a workforce of between 15 and 30 NYCHA housing residents will be trained to install the project’s solar arrays. The expected energy savings per participant may vary but could total approximately \$78 annually (or \$6.36 per month) over the course of the 25 year life of the solar assets. This number is dependent on individual participant monthly energy usage. The *Community Power* business model is the result of a partnership between Con Edison and a team assembled by Solar One, which includes WE ACT, Green City Force, Co-op Power, Resonant Energy, a yet-to-be-determined financial institution, and NYCHA. Con Edison’s role is not only to prove bankability but also to provide legitimacy for the project and its partners to customer and investors new LMI CDG. This will help LMI customers gain access to clean energy, acquire new tools and services, and aid LMI customers in managing energy use and controlling costs. The Community Power team (including Con Edison and its partners) is described below, and in detail in the Market Attractiveness section (2.1.2).

Project Partners⁵	Roles
Con Edison Investor-owned utility	<i>Project Sponsor, Oversight and Guidance, Financing (for Program Costs), Funds to De-risk the Debt Portion of the Capital Stack (for Capital Costs).</i>
Solar One Environmental nonprofit	<i>Team Lead, Solar Strategy, and Training</i>
WE ACT Environmental justice nonprofit	<i>Community Engagement and Enrollment, LMI Customer Strategy</i>
Green City Force Environmental training and service program	<i>Workforce Recruitment and Training</i>
Co-op Power Community energy cooperative	<i>Solar Development, Operation, and Ownership, Delivery of Tax Equity Investment</i>
Resonant Energy Solar financing organization	<i>Pre-Construction Finance, Support for Solar Development</i>
Impact Investor (Lender) Social and environmental benefit seeking debt provider	<i>Project Finance (for Capital Costs)</i>
NYCHA Public housing provider	<i>LMI Housing Resident Engagement and Enrollment Partner</i>

⁴ At Con Edison’s discretion, the project may include participants living in other types of income-restricted affordable housing, as needed, if it is not possible to maintain the required subscription levels by enrolling only NYCHA residents.

⁵ A detailed description of project partners can be found in the Market Attractiveness section (2.1.2).

The project is sufficient in scale to test three central hypotheses:

Hypothesis 1: LMI participants will, in aggregate, make on-time solar subscriptions payments if their monthly net bill savings is significant (greater than the cost of their monthly subscription fee) and these participants are educated and recruited by trusted community partners.

Hypothesis 2: Actively working with a pool of CDG subscribers (providing a monthly statement and promptly following up with and replacing non-paying participants from a waitlist) will enable a project revenue realization rate greater than 95 percent, even with some level of participant non-payment.

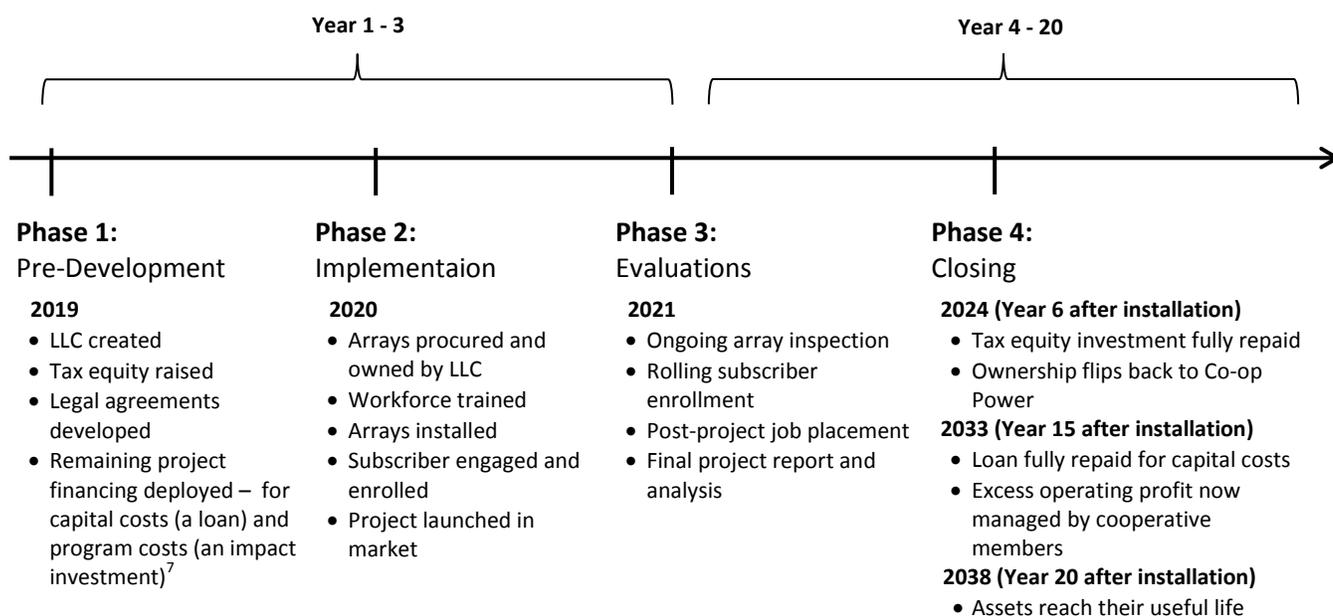
Hypothesis 3: Showing that LMI CDG projects have a revenue realization rate that is high (95 percent or greater) and predictable will enable lenders to quantify the risk of LMI CDG projects and therefore, finance future, larger LMI CDG projects.

During this demonstration, Con Edison and its partners expect to achieve the following outcomes:

- Energy savings per participant that is anticipated to equal up to \$78 annually (or \$6.36 per month) over the course of 25 years. In total, these savings will add up to an estimated \$667,352⁶ for participating LMI customers over the lifetime of the project, depending on individual participant monthly energy usage.
- A new business model for increasing access to CDG for LMI customers through third- party financing.
- Development of relevant and actionable data on participant subscription default rates, LMI CDG project revenue realization rates, and other learnings derived from the performance indicators outlined in the Metrics for Success section (3.1) of this filing.

The *Community Power* business model allows LMI project participants to receive the benefits of owning solar generation (such as energy bill savings and participating in the green economy) without taking on the upfront cost or debt typically required to own solar generation equipment. To facilitate these benefits, this project will utilize a special-purpose entity (SPE) financing structure (known as a “partnership-flip” model). Under this structure, the solar arrays are owned by a limited liability corporation (LLC) and tax-equity investors so that the project can work with these tax equity investors to monetize federal tax and accelerated depreciation benefits, and lower the overall cost of the project. After six years, majority ownership transfers to Co-op Power. Participating subscribers will become members of Co-op Power by virtue of subscribing to the *Community Power* demonstration project and paying their monthly subscription. Though the demonstration project will take place over the course of three years, the solar arrays used in the project have a 25 year useful life, and Co-op Power will continue to provide solar energy to participants after the three year demonstration period ends. As a result, subscriptions will continue to be issued under contractual agreement exclusively to LMI Con Edison customers. The table below provides a high-level view of the project life cycle and key milestones.

⁶ Key assumption: A 25 year asset life, system size (kW-DC) 1,180, production factor (kWh/KW-DC) 1,180, Annual PV Degradation Rate .50 percent, Con Ed VDER annual rate escalation 1.5 percent, Year One SC1 VDER (\$/kWh) \$0.2022, solar subscription rate \$0.172.



CDG is an important component of New York State’s REV initiative and represents an opportunity to expand low-income access to clean energy.⁸ In a CDG project, a third party owns a solar installation or a network of solar installations and allocates a share of the energy along with associated credits to multiple residential customers (who become “subscribers” to the solar system). This model is especially useful for renters in multi-family buildings who do not own or control access to their rooftops. In the demonstration, participants will pay a monthly subscription fee and, in exchange, receive a credit on their Con Edison bill. The value of this net savings may vary over time, based on the value of solar energy, but, as discussed below, participants will not bear any financial risk in this demonstration.

The subscription price for each participant’s solar energy credits is designed to be seven to 15 percent⁹ below the value of these solar credits, so participants are expected to always see a savings. Providing a seven to 15 percent discount is possible for two reasons: first, under the Value of Distributed Energy Resources (VDER)¹⁰ tariff, only a small portion (approximately 32 percent) of participants’ net savings fluctuates with the electricity market, while a larger portion (approximately 68 percent), made up of the Market Transition Credit (MTC) and Environmental Factor, remains fixed for 25 years. Second, participating customers will be charged a subscription fee at the end of the month based on the solar energy credits delivered to them at the beginning of the month. This will protect participants against solar array underperformance because the participant’s subscription fee paid at the end of the month will intentionally be set at \$0.1702 per kWh of solar energy given to them at the beginning of the month. \$0.1702 per kWh is below the full dollar value of that solar energy. This fee allows the participant’s monthly

⁷ An impact investment is an investment made for its social benefit, in addition to, or in lieu of a financial return. In either case, the return is usually less than the return that would be expected by a traditional lender.

⁸ Low-Income Community Distributed Generation Order, p.2.

⁹ This percent is a target value and subject to change based on the needs of the project.

¹⁰ Low-Income Community Distributed Generation Order, p. 1.

subscription cost to be an expected seven to 15 percent lower than the full dollar value of the solar credits they receive on their bill. For example, if in July the customer gets \$67 worth of solar energy credit from the *Community Power* project at the beginning of the month, their subscription fee would likely be between \$57 and \$62 at the end of the month depending on fluctuating market conditions (such as the cost of energy for SC1 customers), the season or month of the year, and the participant's monthly energy usage. Given this arrangement, the proposed model is designed so that LMI participants will always receive a net savings on their bill that is greater than the cost of their monthly subscription fee. This means that the participant will never pay a subscription fee at the end of the month that is greater than the solar energy bill credit they received from the demonstration project at the beginning of the month. Finally, participants will not pay any upfront or additional fees to participate in the project.

The proposed demonstration model seeks to address two persistent challenges for LMI customers: managing energy costs and accessing clean energy generation. Regarding energy costs, the Commission observed that LMI customers pay a higher percent of their income towards utility bills compared to other customer segments.¹¹ Through CDG, however, LMI customers could save money on their energy bills. Department of Public Service Staff acknowledged that the public interest may warrant utility participation in clean energy for the LMI customer segment, where there is no developing market for distributed energy resources (DERs).¹² Con Edison is proposing *Community Power* in order to demonstrate how CDG for LMI might work.

Regarding access to clean energy generation, the Commission has found that LMI customers have a more difficult time participating in the DER clean energy market.¹³ LMI customer challenges include an inability to pay upfront costs of clean energy generation and energy efficiency measures, a lack of access to capital or credit, and renting rather than owning their homes, all factors that make it more difficult to engage with the clean energy market.¹⁴ As a result, data on LMI clean energy project performance is lacking, and assessing the potential risk of these projects is difficult. Without this data, it is difficult to demonstrate that LMI DER financing can represent an attractive investment, investors may be less willing to lend capital, and underwriting costs may prove to be prohibitively high for LMI customers and developers. *Community Power* will provide this needed, relevant data on LMI CDG project performance. To execute this demo, the *Community Power* team will use a two-pronged approach: (1) A creative financing structure that mitigates default exposure and supports the project's revenue expectations, and (2) a mission-aligned partnership between organizations with successful track records in delivering clean energy offers — in many cases directly to LMI communities.

For participating LMI customers, the *Community Power* demonstration project model provides a solution that does not require capital, credit-worthiness, or ownership of one's dwelling, allowing LMI customers to participate in the DER energy solutions market and benefit from DERs like CDG. For investors and project developers, *Community Power* is expected to demonstrate that CDG for LMI customers is financially feasible and represents a viable investment opportunity. Specifically, the project is anticipated to show that LMI customers will, in the aggregate,

¹¹ Low Income Order, p. 4.

¹² Case 15-E-0751, et al.; *Staff Report on Low-Income Community Distributed Generation Proposal* (issued December 15, 2015)

¹³ REV Track 2 Order, p. 92, Low Income Community Distributed Generation Order, p. 3.

¹⁴ Cases 15-E-0751, et al., In the Matter of the Value of Distributed Energy Resources, Order on Net Energy Metering Transition, Phase One of Value of Distributed Energy Resources, and Related Matters (issued March 9, 2017) (VDER Transition Order), p. 140. .

make on-time payments for solar energy if that energy is delivered at a discount, expected to be seven to 15 percent, less than the full value of that solar energy they receive. The table below provides an overview of the project features for LMI participants that are addressed in later sections.

Project Participants’ Benefits and Responsibilities	
Legal Liability	Participants are not legally liable for the maintenance of or the financial obligations of the solar array system.
Financial Obligations	Participants will pay an expected \$57 per month as per a signed participation agreement. This amount may vary based on the participant’s monthly energy usage. This initial subscription will be set at a fixed \$0.172/kWh and increase by 1.5% annually.
System Performance Liability	LMI subscribers will receive their allotted solar credits at the start of each month. At the end of each month, subscribers will be charged a subscription fee that is expected to be seven to 15 percent less than the value of the solar energy credits they received. If the system underperforms, future savings may be less but individual subscribers will not lose money because they only pay if they receive solar energy credits from the solar system.
Exit Clause	Participants can stop participating at any time, and their subscription will end within 30 days of notification at no cost. Each existing participant will be replaced by a LMI customer on the project’s waitlist.
Projected Savings	Participating households should realize an annual savings of approximately \$78 as a result of an seven to 15 percent discount on solar energy credits for an estimated lifetime savings of \$667,352 across all participating customers.
Eligibility Requirements	Participants must live in NYCHA or income-restricted affordable housing, have a checking account or hold a credit card, ¹⁵ and be current on their Con Edison bill at a directly-metered residence.
Billing	Participants will receive a monthly invoice from Co-op Power for the monthly solar energy subscription, and will continue to receive their monthly bill from Con Edison. Participants will receive two bills for the full duration of the project. Both bills will be available online.

Business Model(s) Overview

1.1 Problem (The Market Opportunity)

The LMI customer segment has significant unmet potential for achieving environmental and system benefits. Given the large size of the LMI customer segment — more than 1.5 million households¹⁶ in the Con Edison service

¹⁵ See section 2.2, Customer Segmentation and Demographics, for more information.

¹⁶ The US Census Bureau’s American Community Survey (ACS) estimates the number of households by income band (in \$10,000 increments) for all US counties each year. According to this data, 1.485 million households in NYC and Westchester (the Con Edison territory) earn less than \$50,000 per year, and 1.697 million households earn less than \$60,000. The demonstration project defines LMI as less than 80% of Housing and Urban Development (HUD) AMI, which is broken down according to household size; 80% of AMI is \$50,750 for a household of one, \$58,000 for a household of two, and \$65,250 for a household of three. Since the average household size in New York City is 2.65 and in Westchester is 2.63 (based on the US Census Quick Fact sourced below), the number of households that fall between the \$50,000 and \$60,000 income bands is the number of LMI households in Con Edison’s service territory. Therefore, based on household income data from the US Census Bureau’s American Community Survey, over 1.5 million households are under 80% of AMI. US Census Quick Fact, <https://www.census.gov/quickfacts/fact/table/NY,westchestercountynewyork,newyorkcitynewyork/INC110216>; Household Income Data, US Census Bureau’s ACS <https://www.census.gov/programs-surveys/acs/>; New York City Government Poverty Measure 2005-2015: An Annual Report from the Office of the Mayor, May 2017, <http://www1.nyc.gov/assets/opportunity/pdf/NYCGovPovMeas2017-Highlights.pdf>.

territory — expanding access to new energy solutions that help these customers manage the cost of energy use through green DERs could yield significant decreases in greenhouse gas emissions and direct financial benefit to LMI customers. At the same time, new energy solutions could also provide the LMI segment with local, environmental, and customer benefits like lower energy bills. Despite these potential benefits, the DER market has struggled to offer innovative products and services to the LMI segment because of the segment’s presumed higher customer acquisition and transaction costs, its riskier investment profile, and the complexity involved in serving this segment through existing mechanisms.

Customer Challenges

Low-income customers are defined as customers having a total household income that is less than 60 percent of the state median income (SMI) for similarly-sized households, and moderate-income customers have a total household income less than 80 percent of the area median income (AMI) for similarly-sized households. Because of their low incomes, and often times lower FICO scores¹⁷, LMI customers are perceived to be a credit risk for financing institutions and CDG developers who rely on income and FICO score to predict revenue realization rates for their projects. Consequently, LMI customers, who could benefit most from clean energy generation, have realized only a limited benefit from these programs.

Third-Parties Challenges

Even though CDG may present an opportunity to provide solar energy to LMI households, absent data specific to the perceived risks of customer non-payment and the risk profile for investing in LMI projects, forthcoming CDG projects in New York are unlikely be marketed toward (or available to) Con Edison’s LMI customers. Data regarding participant default and CDG project revenue realization is needed.¹⁸

Control and Ownership Challenges

LMI stakeholders and communities have a desire for DERs. While many energy program strategies address energy cost (weatherization, direct utility subsidies, etc.), they often do not empower LMI participants to partake in the benefits of ownership or control of valuable energy infrastructure such as DERs, like CDG systems. The challenges developers and energy program providers face associated with affording LMI customers the opportunity to have control and ownership are identified earlier in this filing (access to capital, credit, lack control of their dwelling, etc.).

¹⁷ There is a correlation between income and credit score. Higher salaries can help reduce debt-to-income ratio (DTI), a key component used to calculate a credit score. Higher salaries can also lead to higher credit limits; higher credit limits can help reduce a person’s utilization ratio; a high utilization ratio is a strong sign of credit risk, second only to payment history. Experian, *How Utilization Ratio Affects Credit Scores*, (written January 17, 2018) <https://www.experian.com/blogs/ask-experian/how-utilization-rate-affects-credit-scores>. Accessed June 28, 2018. U.S. News & World Report, *How Your Credit Limit Is Determined*, (written December 5, 2013) <https://creditcards.usnews.com/articles/how-your-credit-limit-is-determined>. Accessed June 28, 2018.

¹⁸ Revenue realization refers to the total possible dollar amount of solar energy credits provided divided by the actual total dollar amount of subscription payments received from subscribers. Solar City and Sun Run are the two largest residential solar energy system owners in the U.S.; both regularly report revenue realization rates above 99 percent. Kieran Coleman, et al., *Financing Community-Scale Solar* (Rocky Mountain Institute, 2017). p. 14. Source: https://rmi.org/wp-content/uploads/2017/06/RMI_Financing_Community_Scale_Solar_Insight_Brief_2017.pdf

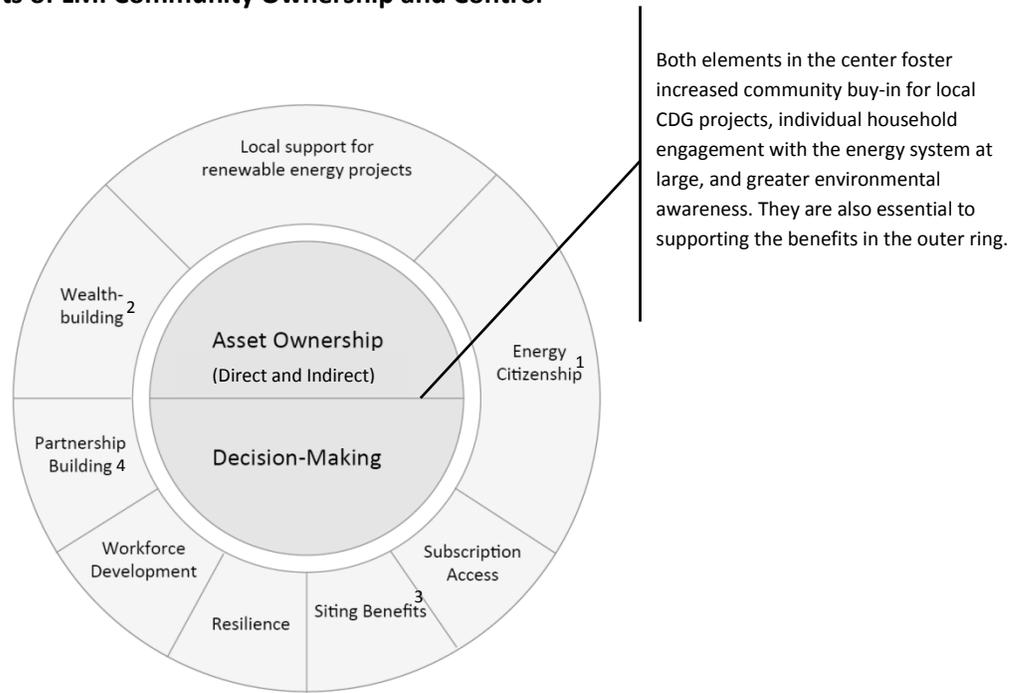
1.2 Solution (REV Demonstration Project Idea)

Based on the stakeholder engagement described in the Executive Summary, the Company learned from LMI environmental justice organizations (and its project partners) that LMI communities place importance on and have a desire for community member ownership of energy-generating assets placed in their neighborhoods. As owners, these community members are empowered to play a meaningful role in shaping and steering their community's transition to clean energy in a way that maximizes long-term, local, economic, and individual benefits. Ownership can mean either that LMI participants directly and legally own CDG, or indirectly have ownership through a role in decision-making. For example, indirect ownership decision making can take the form of having a voting system whereby LMI participants can voice their opinions about CDG project developments, profit sharing, subscription access, and workforce development opportunities.

Figure 1 below shows how a project might allow for LMI community control and ownership. The information in the figure and in this paragraph was derived from The Rocky Mountain Institute and reflects the organization's qualitative research on ideal LMI-community CDG projects. This framework is comparable to that of the *Community Power* project. The figure's inner ring represents the two core elements of community ownership—asset ownership and decision-making. The outer ring represents potential benefits to the community that can be achieved through core elements in the center. There are two elements of ownership: direct and indirect. Direct ownership of physical assets entails individuals within the community holding equity in the project. Indirect ownership of physical assets refers to equity held by a community organization or other entity that serves the interest of the individuals within a community. Since direct ownership is not possible due to the upfront capital requirement, the *Community Power* team has structured the demonstration project such that participants have indirect ownership through membership in Co-op Power and can therefore receive some benefits of ownership, including a say in decision-making, potential for profit sharing after debt is paid in year 15, energy citizenship through the project's education and outreach plan, workforce development opportunities through the green apprenticeship, and subscription access, among others.

[Continues on next page]

Figure 1. Potential Benefits of LMI Community Ownership and Control



1. **Energy citizenship** refers to increased empowerment of the local community due to feelings of control and self-sufficiency, increased awareness toward energy production and consumption, as well as increased awareness of environmental problems.
2. **Wealth-building** refers to allowing communities to share in profits generated.
3. **Siting benefits** refers to benefits that derive from the locations selected, such as infrastructure improvements.
4. **Partnership building** refers to the benefits that can arise from the trust and partnerships that result from the community planning process and the feeling of empowerment that can be achieved in the community through a collaborative effort in developing the project.

Source: Rocky Mountain, eLab Summit 2017, <https://www.rmi.org/our-work/electricity/elab-electricity-innovation-lab/elab-summit/>, Con Edison.

Community Power will deliver one MW of solar generation capacity to LMI customers who reside in directly metered NYCHA buildings. A group of approximately 350 participants will receive 100 percent of the solar energy generation from this project in the form of solar credits to reduce their energy bill costs. As mentioned earlier in this filing, the two key components of the Community Power model that make the project different from other CDG developments are (1) a creative ownership and financing structure that mitigates default exposure so that the project’s revenue expectations to investors are met, and (2) a mission-aligned partnership between organizations with successful track records delivering clean energy offers, in many cases directly to LMI communities.

The Ownership Structure

Through their subscription to this CDG project, each participant will become a member of Co-op Power. Co-op Power will own and manage the solar arrays via an SPE in the form of a limited liability company (LLC). The project is structured for indirect ownership – Co-op Power holds equity in the project and serves the interest of the

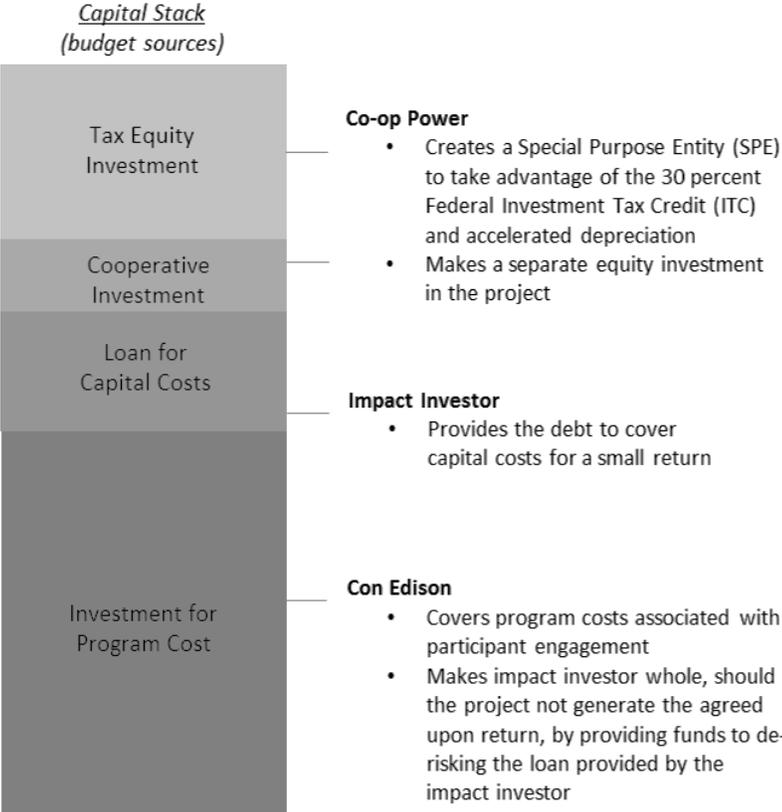
participants and the local community. The liability for the solar system is at the LLC level, and individual members of the cooperative are not legally responsible for financial obligations of the cooperative or the LLC.¹⁹ After six years, majority ownership of the LLC transfers to Co-op Power, the long-term owner and operator of the solar energy systems.

The Financing Structure

Tax-Equity Investment

In the *Community Power* demonstration project, a “partnership flip” business structure allows the project to fully monetize tax benefits such as the Federal Investment Tax Incentive (ITC) and accelerated depreciation tax deductions granted by the federal government.²⁰ As a result of these tax reductions, the overall net cost of a solar project decreases for the developer.

Tax equity is a common feature of project finance for solar projects; under this structure, tax equity investors fund a portion of a solar system’s installation costs and in exchange receive 100 percent of the tax incentives and accelerated depreciation tax deduction. Over the first six years of the demonstration project, the tax incentives received will repay the tax equity investors’ initial capital contribution.



Co-op Power has significant experience raising small-scale tax-equity investment from its members and others who have the passive income to invest in the cooperative’s solar projects and benefit from solar tax

¹⁹ Co-op Power manages its liability by pooling solar assets together across geographies and creating limited liability companies (LLCs) to own and operate clean energy generating assets. The cooperative’s board of directors are responsible for making sure that the cooperative follows good business practices and that members of the cooperative vote on the cooperative’s major decisions.
²⁰ The federal government allows equity investors that own solar projects to receive a 30 percent Investment Tax Credit (ITC) upon installing a system. In addition, under the accelerated depreciation rules, the owner of a solar system may deduct roughly 20 percent of the total system cost each year for five years. If the accelerated depreciation is added up over five years, it typically returns 30 percent of the total system cost to the owner in after-tax dollars. When the investment tax credit and accelerated depreciation solar tax incentives are combined, the solar system owner gets roughly 60 percent of the total system cost repaid by the federal government in the form of lower taxes. These funds flow to the tax equity investor.

incentives. Fundamentally, Co-op Power is a decentralized network of local community energy cooperatives. Though the demonstration project will only serve LMI customers in specific areas of Con Edison's service territory, project participants will still be a part of Co-op Power's larger membership of more than 750 members throughout the Northeast. These members are diverse and include working families as well as high net worth individuals, organizations, and institutions.

Equity and Impact Investment

Co-op Power will make an equity investment in the demonstration project to cover a portion of the costs of the solar system in exchange for return on their investment. Two impact investments will cover the remaining project costs. The first is a loan from a yet-to-be-determined, mission-aligned lender for a modest rate of return, and the second will be an impact investment by Con Edison in exchange for project learnings, uptake in solar energy literacy, and other metrics outlined in the Metrics for Success section (3.1) of this filing. Con Edison's investment will cover all program-related costs. These funds will reside in an account that Solar One will draw down on as needed, with the obligation that funds be used to execute the project's programmatic deliverable related to workforce training and participant engagement. These deliverables include securing and paying staff for Solar One, WE ACT, Green City Force, and other community partners; developing materials for marketing; and any additional costs other than personal services.

The lender's loan will cover all capital costs associated with the solar array implementation including, but not be limited to, the cost of solar array installation and construction, procurement of Solar PV modules, permitting, interconnection, and all expenses otherwise associated with the solar system development. Con Edison will provide funds to de-risk the loan. These funds will reside in an account selected by Con Edison, from which the lender can draw funds from if the *Community Power* demonstration project underperforms and LLC (or Co-op Power after year six of the project) is unable to repay the loan from project revenues.

Subscription Revenue

Subscribers to the CDG projects will pay a subscription fee of 0.172 per kWh of solar they receive, leading to an annual savings for each participating household. This pricing is based on (1) the target net savings of \$6.36 per month, per household, and (2) the revenue required to service the solar projects' debt and cover operating expenses. If the demonstration is successful, the model is expected to be scalable and this pricing structure will likely continue to scale.

The Strategic Partnerships

Solar Array Installation

In addition to providing energy cost savings to direct-metered LMI customers and gathering valuable data regarding revenue realization, this demonstration project will provide up to 30 NYCHA residents with workforce training. Project partner Green City Force has a proven track-record in providing paid training

and assisting trainees to secure employment. Comprehensive paid training and hands-on solar installation experience will later help these trainees to advance in the construction trade. As part of their training, trainees will receive solar photovoltaic (PV) installation instruction, which teaches the science and mechanics of solar PV and provides students with hands-on classroom experience. The classroom instruction component of this training will take place in Solar One's state-of-the-art lab in Queens, New York. Hands-on technical training and classroom instruction are designed to equip trainees with the skills for several career pathways in the growing “green” jobs market (buildings operation and maintenance, energy efficiency retrofit services, solar installation, etc.). The objective of the workforce training program is to build skills and create real employment opportunities for residents in LMI communities. To achieve this objective, the training engagement will take the form of a paid apprenticeship.

After completing their classroom training, the green apprentices will receive hands-on solar installation training under the supervision of experienced solar installers that Solar One will select through a competitive bidding process. By shadowing experienced installers, trainees will gain skills in job site safety, fall protection, electrical safety, module installation, electrical wiring, racking installations, and conduit bending and installation. This workforce training program, currently at a 62 percent job placement rate, could achieve even higher placement rates for participants in this demonstration project given the months of hands-on installation experience that the Green City Force apprenticeships offer to trainees. In addition, NYCHA is continuously issuing RFPs for its 25 MW solar effort and therefore has insight into which companies are bidding on NYCHA roofs and are likely to hire newly minted trainees.

Participant Outreach and Engagement

Solar One and WE ACT will be subcontracted by Co-op Power to engage with LMI residents for four distinct purposes throughout the project’s implementation. The following section provides detail regarding the outreach strategy for each of the four key engagements, as well as a brief description of the educational opportunity, desired outcomes, and how success will be measured. All subcontracted participant engagement activities outlined below will comply with the Uniform Business Practices for Distributed Energy Resource suppliers (UBPs) outlined by the Commission, as appropriate.

1. Solar 101 Project Information Session

Outreach	Solar One and WE ACT will create flyers and hang them in and around the designated facilities. Con Edison will approve these flyers. These organizations will seek to leverage NYCHA and Con Edison’s existing communication channels to inform residents of the opportunity for participation.
Content & Format	Workshops will be approximately 1.5 hours in length and include a brief presentation followed by time for Q&A and enrollment of interested residents. Bilingual support will be available on an as-needed basis, staffed by WE ACT. The workshops will be located at or near the sites which host the project’s solar arrays.

Desired Outcomes	Desired outcomes are (1) at least 60 affordable housing residents attend the workshops across the sites included in the demonstration project, and (2) residents gain information regarding opportunities to participate in the project and benefit from the solar energy produced. Based on these organizations prior experience, 60 is a reasonable attendance expectation.
Evaluation	The workshops will be evaluated based on how many prospective LMI participants attend and participant surveys about the presentations conducted, distributed before and after the workshop.

2. Community Power Enrollment

Outreach	Solar One and WE ACT will create materials describing the opportunity for LMI households to receive discounted solar energy credits through the demonstration project. Con Edison will approve these materials. Outreach will be conducted in the developments that host the proposed solar energy systems.
Content & Format	Outreach will include distributing and hanging Con Edison-approved flyers with information regarding the project. It will also include onsite information sessions in-person to secure participation and provide NYCHA residents with a phone number through which they can sign up for the solar subscription.
Desired Outcomes	The goal is to have at least 350 participants sign up to receive discounted solar energy credits on their utility bill.
Evaluation	Outreach will be evaluated based on the number of LMI households that sign up as well as the ratio of participants who live in the development where the systems are located to those who do not.

3. Green Workforce Training Enrollment

Outreach	WE ACT, Green City Force, NYCHA, and Solar One will promote the green apprenticeship and training opportunities directly to residents. These training programs include NYCHA's Resident Economic Empowerment & Sustainability (REES) initiative, Green City Force, and WE ACT's Worker Training and Job Readiness program.
Content & Format	The green workforce training program will consist of both classroom instruction and on-the-job training, whereby job-trainees get real hands-on experience installing solar energy systems. After some initial training in basic carpentry and electrical skills, students will receive a general introduction to solar power systems (with a focus on solar PV), electrical system fundamentals, mounting systems, and the safe installation and maintenance of solar PV systems. All trainees who successfully complete

	the two-week training will receive a Solar One certificate of completion.
Desired Outcomes	The goal is to recruit up to 30 affordable housing residents to participate in the solar training programs.
Evaluation	The success of the green workforce training program depends on the number of participants, participant attendance, and the number of participants who secure employment in the solar and/or construction trades following their participation in the program.

4. *Post-Commissioning Participant Survey*

Outreach	Six months after the solar system is commissioned, Solar One will conduct a follow up survey of all participants, including CDG subscribers and green jobs trainees.
Content & Format	Follow up surveys will be conducted by phone.
Desired Outcomes	The desired outcomes are that: (1) The majority of participants in the demonstration project are highly satisfied six months following system commissioning, and (2) At least 65 percent of green workforce trainees have employment in the trades six months following installation.
Evaluation	Net promoter score and other metrics as defined in the Metrics for Success section (3.1) of this filing will be used for evaluation.

Through offering participants a meaningful discount on electricity; delivering compelling information and educational materials to participants; and proactively managing the pool of subscribers using rolling enrollment and a waiting list to minimize lost revenue in the event of participant non-payment, the project is expected to achieve a high rate of revenue realization. The Team seeks a revenue realization rate of at least 95 percent. Publicly-traded solar leasing and power purchase agreement providers regularly achieve a 99 percent revenue realization rate; however, their customers are primarily homeowners with high credit scores. This demonstration project will serve low- and moderate-income renters. As such, we anticipate a higher rate of default (e.g., two months of lost revenue per instance of default). To mitigate against default, the *Community Power* team will quickly de-enroll participants who do not pay their CDG subscription charge and then enroll customers on the waiting list to keep the revenue realization rate above 95 percent. This is a strategy commonly used in the industry. If the project can demonstrate high revenue realization rates through this proactive subscription management, the team believes it will be able to attract more private capital (including mission-aligned capital from impact investors, foundations, and non-profit financial institutions) to support a larger LMI community shared solar portfolios, resulting in broader LMI access to the benefits of solar.

1.3 Hypothesis Being Tested

Community Power is focused on two core objectives. First, it seeks to demonstrate the feasibility and economic benefits of the CDG model for LMI customers. Second, it seeks to demonstrate that LMI CDG can yield stable and consistent financial returns that are sufficient to attract third-party investors at scale. The demonstration project will test three hypotheses:

Hypothesis 1: LMI customers will, in aggregate, make on-time payments for solar subscriptions if their monthly net savings is significant (greater than the cost of their monthly subscription fee) and they are educated and recruited by trusted community partners.

Hypothesis 2: Proactively managing the pool of CDG subscribers (providing monthly statement and promptly following up with and replacing non-paying customers from a waitlist) will enable a project revenue realization rate of greater than 95 percent, even with some level of participant non-payment.

Hypothesis 3: showing that LMI CDG projects have a revenue realization rate that is high (95 percent or greater) will enable lenders to quantify the risk of LMI CDG projects and, therefore, finance future, larger LMI CDG projects.

1.4 Commission's REV Demonstration Principles Being Addressed

Community Power addresses many of the REV demonstration principles, as described in the Memorandum and Resolution on Demonstration Projects and Criteria for REV Demos, issued December 12, 2014.

- 1) REV demonstrations should include partnership between utility and third party service providers. These partnerships may be unique to each demonstration depending on the situation. Utilities should endeavor to support demonstrations where third parties use their own capital.**

This project will be delivered by third-party service providers and leverage third-party capital for the non-programmatic portion of the budget. Upfront capital sources for the solar ownership entity include tax-equity investment, a small amount of sponsor equity from a community energy cooperative, and a loan from a yet-to-be-determined mission aligned lender. Upon success, the project may include private sector lenders to finance future LMI CDG projects.

- 2) The utility should identify questions it hopes to answer and problems or situations on the grid and the market should respond with solutions. Hence, third-party participation through a traditional RFP/RFI method where the utility has pre-diagnosed the solution(s) does not meet this requirement. Data sharing will be essential to enable market participants to propose solutions.**

As noted earlier in this document, Con Edison researched the challenges that LMI customers face and then issued a competitive RFI to solicit the best solutions available in the market. This solicitation outlined in detail key considerations and questions that the Company hoped all respondents would include. Solar One's

proposal convinced Con Edison that the proposed business model for LMI CDG could answer key questions related to financing DERs for LMI customers, would provide valuable information on LMI customer default rates on CDG subscriptions, and a strong CDG project revenue realization rate.

In addition to the three hypotheses outlined above, specific questions the Company believes the project may address related to challenges to CDG project participation include the following:

Financing for DERs

- *Desired Learnings:*
 1. Can investment in third-party DERs generate a return and/or become a recoverable investment without creating an intra-customer class subsidy?
 2. Can investment in third-party DERs also generate ancillary benefits (e.g., arrearage reduction) without creating an intra-customer class subsidy, or without creating a cross-subsidy base?
 3. Can DERs be used to drive energy and utility bill engagement?

Energy literacy

- *Desired Learnings:*
 1. Does energy education increase customer savings, improve behaviors, and/or lead to on time payment?
 2. Do channels of communication impact energy literacy?
 3. Do we produce better results when messaging is less generic and targets the LMI segment specifically?

Trust

- *Desired Learnings:*
 1. Can collaborating with CBOs improve customer's trust of Con Edison?
 2. Does improved customer trust yield measurable impacts? (increased penetration of DERs, improved on time payment, etc.?)
 3. How important is trust to customers?

3) Demonstrations should delineate how the generated economic value is divided between the customer, utility, and third-party service provider(s). The demonstrations should propose how much of the projected capital expense needs to go into the rate-base versus competitive markets.

The primary and direct beneficiaries of this project are intended to be the participating LMI customers. As stated earlier in this filing, participating customers will purchase solar energy credits at a discount, which will provide an expected \$78 in annual savings to each of the 350 participating households. In addition to utility bill savings, participating LMI customers will become members of Co-op Power. In the event that there are greater operating profits than forecast in future years, as members of Co-op Power, participants may vote to have the cooperative reinvest the funds, to distribute excess funds to the membership, or to have excess funds managed in some alternative manner.

The lender providing third-party capital to cover the upfront capital cost of the solar project will earn economic value in the form of tax incentives and/or returns on their investment. Resonant Energy will be paid a development fee to cover (1) the cost of its work forming the ownership and structuring agreements

between the ownership entity and the various contractors, and (2) Resonant Energy's costs associated with development activities that must occur prior to closing financing with the tax-equity and debt providers.

Any additional third-party community-based project partners (predominantly non-profit organizations) and subcontractors in this project (primarily solar installation contractors) subcontracted in the demonstration will earn economic value on a fee-for-service basis. Additional third-party community-based project partners will only be subcontracted as needed to fulfill enrollment and participation needs.

- 4) While some demonstrations may be bilateral, and therefore not "competitive" per se, utilities and service provider(s) should propose rules (data, terms, standards, etc.) that will help create subsequently competitive markets. In addition, utility and third-party providers need to establish regulatory proposals to ensure safety, reliability, and consumer protection. Service providers can retain intellectual property that results from base data that would be available to others.**

There is already an emerging market for CDG in New York State. This demonstration seeks to help to animate the market for LMI CDG where there is available roof space for solar, strong customer demand for cost-saving clean energy solutions, and limited product availability. This project will gather data necessary to allow private investors to quantify the risk associated with investing in future LMI CDG projects. Strong consumer demand and clearly understood risk for financial institutions could animate the LMI CDG market by enabling financial institutions—including those with a mission and/or obligation to invest in LMI communities—to provide the capital necessary to make LMI CDG a competitive segment in New York State.

Through this demonstration project we will gather valuable data regarding LMI customer participation in DERs, data which may inform future LMI subsidy and incentive program disbursement and design. If through this demonstration it is determined that a dollar invested in LMI CDG yields more than a dollar of benefit for an LMI household, this finding could be relevant for increasing savings impact without increasing cost. Upon completion of this demonstration project, Con Edison will share key findings (including potential regulatory proposals) with Department of Public Service Staff and the Commission in the form of a final report.

- 5) Utilities should explore opportunities in their demonstrations to work with and include various residential, commercial, institutional, and industrial customer participants.**

The demonstration project will deliver benefits to direct-metered LMI households, including those living in public housing and non-profit affordable housing. The demonstration may also deliver benefits to commercial customers in the form of roof lease payments for larger projects that are not sited on NYCHA buildings.

Market Attractiveness

2.1 Unique Value Proposition (From the Following Perspectives)

2.1.1 Participating Customer

As described in the Problem section (1.1) of this filing, LMI customers experience a range of obstacles that have discouraged participation in the DER market and pay a larger percent of their income towards utility bills when compared to other customers. These market factors make it especially important that LMI customers have the tools they need to manage their energy expenses.

Project Participants

Participating LMI customers will directly benefit from their involvement in the demonstration in the form of reduced energy costs, increased energy literacy, and a say in the decisions made regarding the clean energy installation and its outputs. Customers who participate in the demonstration will be able to purchase solar energy credits from the CDG projects at an expected discount of seven to 15 percent and will therefore receive a net electricity savings of approximately \$78 per household per year with no upfront cost.²¹ Participants will only pay for the solar energy credits they receive, and they will never pay more than they otherwise would have for their utility bill as a result of participating in this demonstration project. LMI subscribers participating in this project will all become members of Co-op Power. Through their membership, these LMI households will have a vote over the use of any operating profit that the LMI CDG project generates. Voting power helps to ensure that the solar projects are operated in a manner that maximizes benefits for subscribing members. This structure presents a best-of-both-worlds approach, leveraging third-party investment in the form of tax-equity and overcoming the upfront cost barrier to LMI participation, while at the same time maximizing the long-term value to participants.

Workforce Trainees

In 2017, the average NYCHA household had an annual income of \$24,336, and only 47.1 percent of residents were employed.²² Though many of residents may be retired, other NYCHA residents in this population earn low wages or are underemployed and seek higher-paid, higher-skilled career opportunities. This demonstration project will provide NYCHA residents seeking to enter the construction trades with paid, high-quality technical training that includes job readiness, construction, safe work practices, and solar installation. This paid training model is most beneficial for the participants, many of whom would otherwise not be able to justify participating in the workforce development programs (as they would need employment to cover expenses). This demonstration project will provide living wages for participants and, importantly, deliver value-added training and hands-on experience to the apprentices so that they are more prepared to secure full-time employment in the solar industry or building trades upon program completion.

²¹ Based on Con Edison's May 1, 2017 Implementation Proposal for Value of Distributed Energy Resources Framework pursuant to the direction of the PSC in Case 15-E-0751 *In the Matter of the Value of Distributed Energy Resources*, and Case 15-E-0082, *Proceeding on Motion of the Commission as to the Policies, Requirements and Conditions for Implementing a Community Net Metering Program*, the estimated value of solar energy credits from a CDG project for a residential ratepayer was \$0.2022/KWh. For each KWh of solar allocated to a participants' electricity bill, Co-op Power will charge them about \$0.172 by Co-op Power, which is a discount of about seven to 15 percent.

²² NYCHA 2017 Fact Sheet. <https://www1.nyc.gov/assets/nycha/downloads/pdf/factsheet.pdf>.

2.1.2 Partner / Third Party

A detailed description of the identified partner organizations and their respective value proposition in participating in this demonstration project are provided below.

Third-Party / Partner Value

Team Lead

Solar One is a leading environmental nonprofit organization in New York City. Founded in 2004, Solar One specializes in education, green workforce training, and technical assistance programs to help New Yorkers adopt clean energy solutions. Examples of its work include “Here Comes Solar,” a technical assistance and engagement program that has helped more than 200 buildings install solar over the past four years. Solar One is also implementing a “solar + storage” pilot program on behalf of the New York State Governor’s Office of Storm Recovery, which will deliver resilient solar energy systems to up to 17 community centers in New York City.

The value proposition for Solar One is that this demonstration project will offer a new model for solar deployment within LMI communities, thereby advancing its Here Comes Solar program. Here Comes Solar seeks to expand access to the benefits of solar among all New Yorkers, particularly those who face challenges to participation. The data gathered and lessons learned from the *Community Power* demonstration project can help expand access to capital for future LMI community shared solar and thereby further Solar One’s mission nationwide. This demonstration project also advances the mission of Solar One’s Green Workforce Training Program, which provides hard-skills training to cohorts of individuals with limited employment prospects, increasing their access to employment, career advancement, and economic opportunity.

Team Members

Solar One assembled the team members below during the RFI process and together they submitted a joint RFI response.

WE ACT is an established environmental justice organization in Northern Manhattan that has significant experience conducting outreach to, engaging, and educating low-income neighborhood residents on issues related to energy and the environment.

The value proposition for WE ACT is providing the benefits of clean energy to WE ACT’s LMI constituents in Northern Manhattan through this demonstration. Deploying solar by and for LMI residents is aligned with the goals that WE ACT established in its Northern Manhattan Climate Action Plan and the organization’s broader mission of advancing environmental justice in Northern Manhattan.

Green City Force runs a city-wide Clean Energy Corps in New York City that provides paid green jobs training to cohorts of 18-24 year-olds living in NYCHA public housing. Green City Force, an AmeriCorps program, engages

young public housing residents as agents of positive change serving low-income communities citywide through high-impact environmental service projects targeted to New York City's highest-need neighborhoods. Green City Force simultaneously provides these residents with the 21st-century skills, training, work experience, and wrap-around support services that prepare them to succeed in career-track jobs. Green City Force has an impressive 80% graduation rate.

The value proposition for Green City Force is to provide paid solar installation training to their LMI program participants through this demonstration, thereby improving their program participants' skills and future employment prospects in the solar industry. This demonstration project is aligned with Green City Force's mission of engaging young NYCHA residents in high-impact environmental projects while improving their skills and access to career-track jobs.

Co-op Power, a consumer-owned energy cooperative membership across New England and New York, is dedicated to creating a just and sustainable future through local ownership of energy resources. It has financed a number of large renewable energy projects, including portfolios of third-party- owned solar projects throughout the Northeast U.S., and is committed to expanding access to renewable energy among affordable housing and low-income communities. Co-op Power, as a decentralized network of local organizations, has Community Energy Co-ops (CECs) each playing the lead role in their respective regions, organizing and educating regionally to facilitate the development of one or more community-owned clean energy business. Each CEC has one member serve on the Co-op Power board. The cooperative's board of directors is responsible for making sure that Co-op Power follows good business practices and that members and subscribers of the cooperative vote on the cooperative's major decisions.

The value proposition for Co-op Power is to significantly expand Co-op Power's base of membership and solar assets in New York City through this demonstration while allowing it to advance its mission of creating a just and sustainable future through local ownership of clean energy resources.

Resonant Energy is a mission-driven, solar energy development company dedicated to making solar power accessible to urban low and moderate income communities. Resonant Energy was incubated by Co-op Power and provides financial modeling, fundraising and project management expertise to support the successful implementation of solar projects within a cooperative ownership structure.

The value proposition for Resonant Energy is that this project will expand Resonant Energy's solar project pipeline in New York.

The New York City Housing Authority is the largest rental housing provider in North America, serving nearly 400,000 LMI residents in its public housing portfolio of 176,066 permanently affordable apartments. NYCHA also manages the nation's largest housing voucher program, which provides rent subsidy to an additional 86,194 LMI households living in privately owned buildings across the city.²³ As NYCHA and other public housing authorities

²³ New York City Housing Authority. <http://www1.nyc.gov/assets/nycha/downloads/pdf/factsheet.pdf>

experience continued reductions in federal funding sources, it is critical for them to find ways to reduce their operating costs through energy efficiency and lower cost clean energy. NYCHA also recently set a goal of deploying 25 MWs of solar power at its developments by 2025.

The value proposition for NYCHA is that this demonstration project will advance the housing authority's resident employment and clean energy goals by providing paid workforce training and utility bill savings to its residents, while facilitating solar deployment on some of NYCHA's smaller scatter site developments that might otherwise not be commercially viable for solar installation. This demonstration project will also include best practices for workforce training and provide data regarding rates of customer default, which could inform future solicitations for large-scale solar on NYCHA developments.

2.1.3 Utility

Con Edison seeks to better serve its LMI customers, and this demonstration project will allow Con Edison to deliver direct benefit to LMI participants in the Company's service territory. Data gathered regarding rates of LMI customer participation and comparative analysis with the performance of this demonstration project will allow Con Edison to continue improving its delivery of services to this important customer segment, either directly or through third parties. Con Edison may also benefit from learnings that demonstrate our shared ownership of CDG with LMI customers as an investment opportunity for the Company should the projects results prove insufficient to stimulate investment interest from third parties.

2.1.4 System

2.2 Customer Segmentation and Demographics

Participant segmentation will apply the following criteria:

1. Participants must live in NYCHA (or other income-restricted non-NYCHA multi-family affordable housing that are yet to be determined, as needed) in Upper Manhattan the Bronx and/or Brooklyn.
 - The *Community Power* team plans to focus outreach and recruitment on specific affordable housing properties that have verifiable income restrictions for residents such as NYCHA buildings (and buildings that are owned and operated by non-profit affordable housing providers as needed). These buildings can help the *Community Power* team rapidly qualify and enroll eligible households.
2. Participants must have a checking account or credit.
 - Solar billing through Automated Clearing House (ACH) transactions will allow the project to process large volumes of credit and debit transactions associated with CDG subscription charges in batches.
3. Participants must pay a Con Edison utility bill belonging to a directly metered residence.
 - To receive bill credits directly from Con Edison, participating customers must be metered directly, and cannot live in a master-metering building. Participants will be required to include their Con Edison account number as part of enrollment.

2.3 Channels (Communications, Sales, and Promotions)

The *Community Power* team will conduct outreach to participants through a strategy that relies on partnerships. Green City Force will be principally responsible for recruiting NYCHA residents to participate in the green apprenticeship aspect of the project. Green City Force has existing relationships and processes in place with NYCHA that will facilitate on-the-job training for the paid, green apprentices in the project. Because of this relationship, NYCHA will assist with providing a pipeline of residents interested in job training and promotions.

WE ACT will be responsible for recruiting the project's subscribers. WE ACT, which has longstanding relationships with LMI residents in Northern Manhattan, will engage its membership and Con Edison customers in the LMI community in Northern Manhattan to participate in this project as subscribers, but also as volunteers to directly engage and recruit other participants. Similarly, Solar One has assisted more than a dozen affordable housing providers in New York City in adopting solar energy systems for their properties. Solar One will leverage these relationships to promote the opportunity as needed. WE ACT and Solar One will partner with other CBOs as needed to enroll participants in the Bronx and/or Brooklyn as well. Con Edison will approve all customer outreach conducted by WE ACT and Solar One. Communications and promotions will include:

- Conducting educational workshops on solar energy and the benefits of participating in CDG as described in the Solution section (1.2) above.
- Direct outreach to income-qualifying households, including phone calls, mailers, email, and flyers in a manner compliant with the Company's existing internal policies for communicating with customer, Uniform Business Practices (UBPs) for DERs, and the Telephone Consumer Protection Act (TCPA), as described in the Customer Protections section (3.5.2) of this filing.

NYCHA will also promote the project to its tenants through flyers and its tenant associations. NYCHA has provided a letter of support (Appendix 2). Detail about how each of the partners will enroll and communicate with participants will be provided in the implementation plan for this filing. The *Community Power* team, with assistance from Con Edison, will determine the specifics related to recruitment once this project has been filed and the Team is under contract to deliver a plan for implementation.

2.4 Ability to Scale (How Large Could This Be?)

If successful, there is the potential for greater deployment of LMI CDG in Con Edison territory and throughout the State. NYCHA alone has set a goal of deploying 25 MWs of LMI CDG in the coming years, and if *Community Power* is able to demonstrate that LMI CDG is a sound financial investment, barriers to capital for LMI CDG are expected to be reduced. In addition, if successful, Con Edison's financial contribution could possibly be replaced with debt from other financial institutions, including market-rate lenders and mission-aligned providers such as the New York Green Bank, the New York City Energy Efficiency Corporation, foundations, or Community Development

Financial Institutions. Con Edison has over 400,000 low-income (LI) customers, and there are also over 1.5 million²⁴ LMI households in Con Edison’s service territory alone, which the *Community Power* model could be scaled to include.

Demonstration Plan

3.1 Metrics for Success (Now and Future)

The demonstration will provide valuable data on the financial performance of LMI CDG, as well as on the attractiveness and value of shared solar to customers. A detailed list of the metrics and a proposed reporting schedule is below. The metrics below are expected to be measured against baseline pre demonstration surveys.

Category of Effect	Performance Metrics	Reporting Cycle
Affordability	Participating Customer Savings: <ul style="list-style-type: none"> • Average net utility bill savings delivered to low-income program participants (target = \$78/household/year) • Average percent reduction in energy costs (target = seven to 15 percent) • Average reduction in late fees and penalties • Reduction in the number and cost of disconnections 	→ Quarterly
	Project Financial Performance: <ul style="list-style-type: none"> • Default rate for LMI subscribers, defined as the percentage of participant payments that are more than 30 days overdue (target = < 10 percent) • Project revenue realization rate, defined as the percentage of total KWh sold at the target subscription rate (target = > 95%) 	→ Annually
Sustainability	<ul style="list-style-type: none"> • Total solar capacity installed (target = 1 MW-AC) • KWh of solar energy generated (target = 1,416,000/year) • Reduced GHG emissions in (target = 1,727,520 lbs of CO2 equivalent in GHG per year) 	→ Quarterly

²⁴ The US Census Bureau's American Community Survey (ACS) estimates the number of households by income band (in \$10,000 increments) for all US counties each year. According to this data, 1.485 million households in NYC and Westchester (the Con Ed territory) earn less than \$50,000 per year, and 1.697 million households earn less than \$60,000. The demonstration project defines LMI as under (80) percent of Housing and Urban Development (HUD) Area Median Income (AMI), which is broken down according to household size – (80) percent of AMI is \$50,750 for a household of one, \$58,000 for a household of two, and \$65,250 for a household of three. Since the average household size in NYC is 2.65 and in Westchester is 2.63, we know that we are looking for the number of households that fall between the \$50,000 and \$60,000 income bands. Therefore, based on the ACS data over 1.5 million households are under (80) percent of AMI. Household Income Data: US Census Bureau’s American Community Survey (ACS) <https://www.census.gov/programs-surveys/acs/>, New York City Government Poverty Measure 2005-2015: An Annual Report from the Office of the Mayor. May 2017. <http://www1.nyc.gov/assets/opportunity/pdf/NYCGovPovMeas2017-Highlights.pdf>

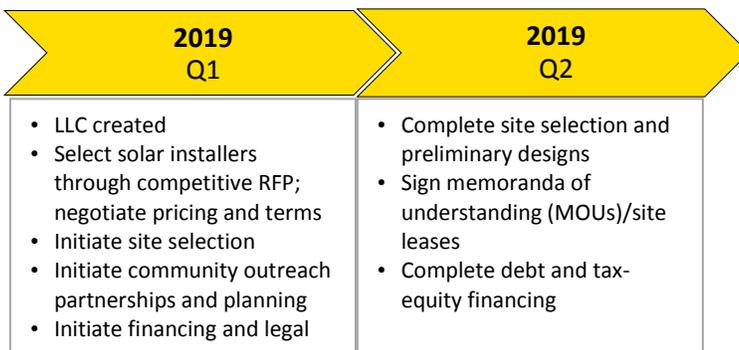
Engagement	<ul style="list-style-type: none"> • Number of LMI customers engaged and educated regarding opportunities to participate (target = 1,170 LMI customers assuming a 30 percent conversion rate, to arrive at 350 participants) • Net promoter score • Increase in energy literacy • Reported perceptions of the utility and demonstration program design 	→ Annually
Access	<ul style="list-style-type: none"> • Number of LMI households that subscribe to the CDG projects as compared to target of 350 • Number of NYCHA residents and other LMI customers who participate in the project as job trainees (target = 30) • Workforce training program completion rate (target = 90%) • Percentage of green workforce trainees employed in the trades six months following installation (target = 65%) • Participant satisfaction measured six months following system commissioning via phone survey (target = highly satisfied) 	→ Quarterly

3.2 Timelines, Milestones, and Data Collection

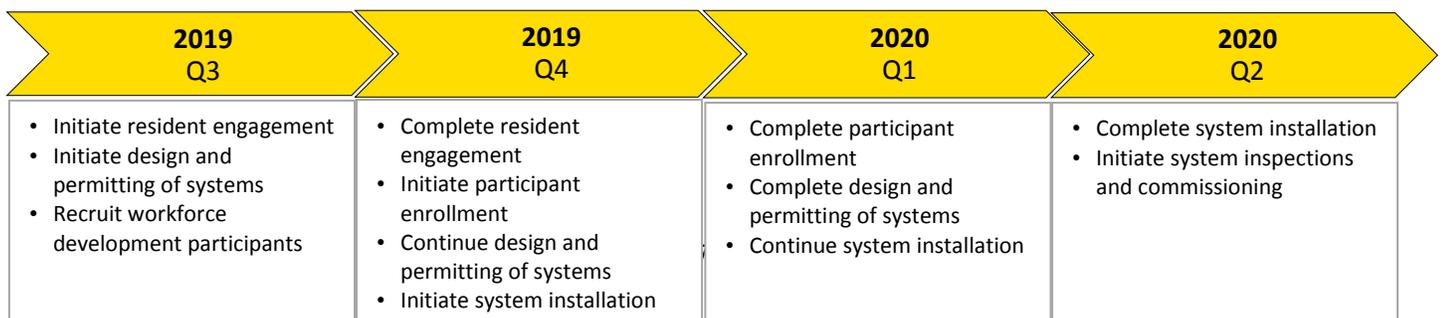
3.2.1 Implementation Phase

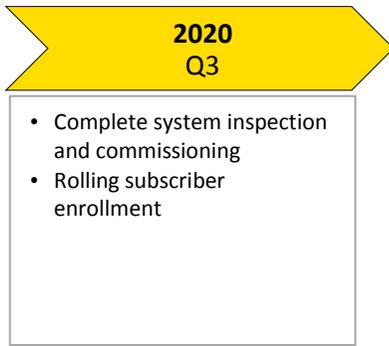
The schedule of demonstration project tasks and milestones are shown in Figure 1.

Phase 1 – Pre-development

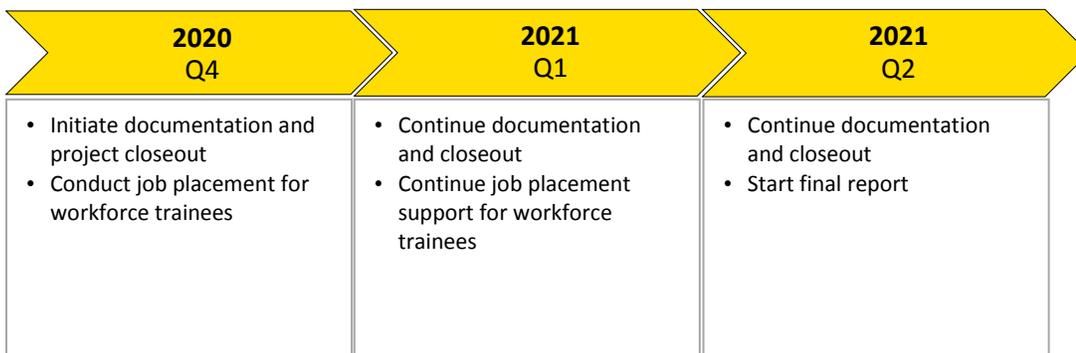


Phase 2 – Implementation





Phase 3 – Evaluation



Phase 4 – Closing

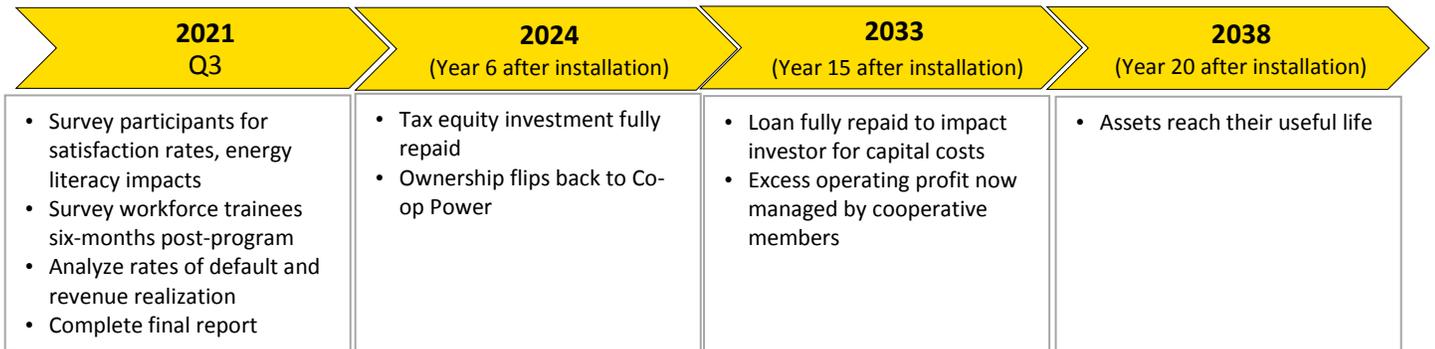


Figure 1. Timelines and milestones for the full scope of the demonstration project showing activity across three years.

3.2.2 Evaluation Phase

During the evaluation phase, Solar One will conduct phone surveys, and data analysis to evaluate and document key outcomes, including participant electricity bill savings, participant satisfaction, job placement rate for workforce trainees, participant default rates, and project revenue realization rate. While this phase is of equal duration to the implementation phase, most project activities will be completed prior to the start of the

evaluation phase, which will consist primarily of conducting phone surveys, analyzing participant payment data, and preparing a final report. For the results of this evaluation to be meaningful and reflect longer-term trends, phone surveys and participant payment data analysis will be conducted at least six months after participation in workforce training or after the solar energy systems begin generating solar energy credits for project subscribers. This will base their experience on a sufficient period of time with seasonal variation in solar production. In addition to evaluating the success of this demonstration project, during the evaluation phase Solar One will gather feedback from participants regarding what could be done more effectively were the project to be continued or replicated; Solar One will include strategies for improving and scaling this demonstration project in its final report.

3.3 Participation

3.3.1 Target Population, Sample Size, Control Group

To secure the participation of 350 subscribers, the *Community Power* demonstration project will engage at least 1,170 LMI households. The advantage of recruiting participants from NYCHA and other income-restricted housing developments is the elimination of the need to independently verify subscribers' income as LMI, a requirement for participation in the project. The demonstration project will recruit participants from Harlem and Washington Heights (in upper Manhattan), where WE ACT has a strong presence. The Community Power team will also select a second area in the Bronx and/or Brooklyn with a high density of low-income households and limited clean DER penetration, along with an additional community partner (based on need and availability).

3.3.2 Third-Party Partner(s) – Specifics of Agreement(s)

All third-party scopes of work will address the timely delivery of products (e.g., solar and electrical equipment) and services (e.g., customer engagement, equipment installation). The scopes of work will also detail the responsibilities and traditional features of a standard subcontract for the delivery of goods and services based on the needs of a given project. The items below are a non-exhaustive list of key third-party agreements fundamental to the most basic elements of the project's design.

Solar One has agreed to:

- Act as team lead, manager for all partners and third parties on behalf of Con Edison as needed
- Define scopes of work for all partners and subcontractors
- Manage all data-related activities and any necessary reporting to Con Edison
- Generate marketing material and conduct training of engagement staff
- Competitively procure the services of a qualified solar installation company to complete array construction
- Provide workforce training in collaboration with Green City Force
- Recruit one to two additional community partner organizations to provide customer engagement and enrollment support, if needed
- Analyze demonstration project performance and document outcomes

- Manage the program budget and accounts

WE ACT has agreed to:

- Conduct outreach to secure and maintain the participation of at least half of the 350 participants required
- Conduct energy literacy and project specific education activities and outreach
- Report on relevant project key performance indicators related to their role in the project

Green City Force has agreed to:

- Recruit and hire NYCHA residents to participate in paid green apprenticeships installing solar
- Provide job placement support for workforce program participants
- Report on relevant project key performance indicators related to their role in the project

Co-op Power has agreed to:

- Form an LLC to own the solar energy systems in year one of the project that will assume primary loan responsibility for the project during years one through six.
- Raise tax-equity and debt to finance the solar energy systems (with support from Resonant Energy)
- Own and operate the solar energy systems for the long term on behalf of its members
- Service the project's debt, manage participant invoicing
- Hire subcontractor to overseeing system operations and maintenance, and to execute the solar engineering, procurement and construction (EPC) agreement
- Assume primary loan responsibility after the tax equity investment is paid off
- Appropriately manage and use funds provided by Con Edison, drawing down on these funds only if necessary
- Service only LMI Con Edison customers with the solar arrays developed during the project
- Provide subscriber with cooperative membership rights once subscriptions are paid

Resonant Energy has agreed to:

- Raise tax-equity investment for the project
- Conduct financial and legal due diligence related to negotiating loan terms
- Supply a preconstruction financing²⁵ if needed to start construction on the solar arrays promptly; ahead of the loan provided by the lender is dispersed.

NYCHA has agreed to:

- Provide zero-cost leases for rooftop area for solar installations
- Identify NYCHA residents who are direct-metered customers of Con Edison
- Provide support with promoting the project

Impact Investors will agree to:

- Provide the debt to cover capital costs in the project, including solar array installation, construction, etc.
- Coordinate with Con Edison on loan administration

Project Participants must agree to:

²⁵ Solar installation companies typically require some upfront payment to begin work prior to the closing of the term financing, and development companies raise the upfront capital required to complete design and permitting work, and recoup the investment through their development fee which is paid once term financing closes.

- Provide ACH information for debits to pay their monthly subscription fee on time
- Notify contracted billing vendor if and when they wish to discontinue participation in the project

Additional Participating CBOs and Affiliate Organizations²⁶ must agree to:

- Provide staff to be trained and assist with outreach
- Report on project key performance indicators related to their outreach

3.3.3 Utility Resources and Capabilities

With the household’s permission, Con Edison will provide utility bill and energy use information to *Community Power* team for use in establishing a baseline of energy consumption in the participating households. Con Edison will also provide full project oversight and management, guidance and expertise, and assistance with site and local CBO selection. The Company will assign one dedicated project manager who will oversee the demonstration project’s partners and deliverables, as well as the deployment of utility resources in support of the project.

Finally, as discussed earlier in this filing, Con Edison will provide funds to de-risk the loan taken out by Co-op Power to cover the capital costs associated with the project. These funds will be for the full value of the loan, a financial return, and/or any other amounts expressed in the loan agreement that remain unpaid at the close of the loan terms (such as administrative and legal fees). The funds will reside in an account selected by Con Edison and approved by the lender, for which the lender will have the ability to make a monthly capital call to draw funds to fulfill the project’s loan terms, should the *Community Power* demonstration project under perform.

3.4 Customer Outreach / Community Engagement

3.4.1 Outreach to Affected Communities

All outreach and resident engagement will be completed in conjunction with community partners that have experience working within the LMI community. For example, we are partnering with WE ACT, a leading environmental justice organization that has more than 30 years of significant experience working with NYCHA residents. WE ACT, which convenes monthly meetings with more than 80 LMI attendees, specializes in community organizing and advocating for environmental health protection for their local constituency. Once host sites are selected, the *Community Power* team will finalize agreements with community partners such as WE ACT within the desired geographies.

The outreach strategy involve developing compelling content that can clearly and simply deliver messaging to participants, while leveraging WE ACT’s existing communication and outreach channels. Tactics for engaging residents may include direct outreach and hosting information sessions that present the CDG project in an easy-to-digest format. Informational materials will inform residents about:

²⁶ Additional partners will only be added as needed to fulfill the requirements of the project. For example, if additional staff is needed.

- How solar energy systems work
- Why CDG presents a unique opportunity to access and own clean energy resources
- How solar reduces utility bills and the potential impact of long-term savings
- How LMI households can subscribe to these LMI CDG projects
- How NYCHA residents can participate in green workforce training opportunities
- Other customers’ positive experiences utilizing solar
- How clean energy can benefit LMI families through (1) direct electricity bill savings which translates to an increase in disposable income and (2) potential employment in a growing field.

Whenever possible, materials will emphasize the personal stories and experiences of project participants. As necessary, materials will be translated into languages other than English in order to serve the market. Solar One and its community partners will distribute educational materials broadly through canvassing, calling/texting, mailers, flyers, email communications, and, most importantly, onsite events. All branding and co-branding decisions will be made collaboratively among the demonstration partners, with the final decision resting with Con Edison.

Participants will be required to agree to terms of service that obligate them to provide information to support an ACH transaction for payment of their monthly subscription fee on time. They will be given a 15-day grace period for late payments. After 15 days of missed payments or failed electronic transfers, the project will replace the participant with someone from the project participation waiting list. Co-op Power (or a separate CDG billing vendor) will manage the creation and delivery of each subscriber’s monthly subscription billing statement, and participants will be required to notify Co-op Power at least 30 days before the participant wishes to discontinue participation in the project.

3.4.2 Motivating Customers / Communities

Solar One will utilize field-tested strategies, including the engagement of trusted community members and organizations. Additionally, Solar One will deploy the mitigation strategies listed below:

Barriers to Motivation	Mitigation Strategies
Lack of Awareness	<ul style="list-style-type: none"> ✓ Educate potential participants on the feasibility, availability, and affordability of community shared solar projects ✓ Partner with WE ACT, which has significant, meaningful participation from LMI residents ✓ Leverage partner-affiliated organizations to promote the project
Lack of Trust	<ul style="list-style-type: none"> ✓ Work with trusted local organizations to assist with engagement ✓ Enlist help from organizations that are active and local to the demonstration sites and communities selected ✓ Share testimonials of other LMI customers who have participated in CDG projects

	<ul style="list-style-type: none"> ✓ Avoid slick or “salesy” approaches to participant communications
Confusion about Program Terms	<ul style="list-style-type: none"> ✓ Help participants to understand what their enrollment in community-shared solar entails ✓ Utilize simple, thoughtfully designed diagrams to explain the process, particularly the role of Co-op Power and how participating customers will realize savings on their Con Edison bills
Low Participation and Interest	<ul style="list-style-type: none"> ✓ Frequently evaluate marketing efforts ✓ Open enrollment to non-NYCHA affordable housing residents as needed to maintain an enrollment of 350 participants
Lag-Time between Unsubscribing and Subscribing	<ul style="list-style-type: none"> ✓ Maintain a waitlist of subscribers who could join the project as spaces open up ✓ Immediately update solar energy credit allocations when participants are removed and added

3.5 Conditions / Barriers

3.5.1 Market Rules and Standards

There are no anticipated impediments to this project from utility rules and standards. The project partners will comply with New York’s new and evolving regulatory requirements for DERs to support continued compliance.

3.5.2 Consumer Protections

The *Community Power* team will comply with the Commission’s UBPs for DERs as applicable.²⁷ The standards the PSC established include registration requirements, a standard disclosure statement, detailed marketing requirements, rules for handling customer inquiries and complaints, and penalties for any violations. The *Community Power* team will review these and other regulatory requirements on an ongoing basis for compliance. Additionally, participant terms of service will be clear, and allow participants to discontinue their subscription without being subject to cancellation fees. Participation in the project will require on time payments of the subscription fee – never falling more than 15 days behind – otherwise participation will be terminated.

²⁷ Case 15-M-0180, *In the Matter of Regulation and Oversight of Distributed Energy Resource Providers and Products*, Order Establishing Oversight framework and Uniform Business Practices for Distributed Energy Resource Suppliers (issues October 19, 2017)

Individual participant energy bill data will not be shared publicly but may be presented on an anonymized and aggregated basis, as part of reports filed with the PSC described in the Reporting section (5.1). All participating customers will provide authorization to share their data with the *Community Power* team which will be subject to terms of appropriate use, confidentiality, and security. The *Community Power* team and demonstration partners will be required to sign the Company's standard vendor Data Security Agreement and undergo a Vendor Risk Assessment.

3.5.3 Channel or Market Challenges

The *Community Power* team will be prepared to address several channel and market challenges.

- **Auto-pay requirement:** Solar billing software typically requires that all payments are made via ACH, which processes large volumes of credit and debit transactions in batches. In the *Community Power* team's experience, some LMI customers do not have checking accounts, in which case, it may be necessary to (1) recruit more than 350 participants in order to fully subscribe the projects, and (2) investigate the use of Pay Pal's My Cash Card, and other ACH compatible payment methods, as a possible approaches to enable participation by individuals who do not have a bank account or credit card. At the beginning of each month, the *Community Power* team will apply each subscriber's allotted solar energy credits to their Con Edison utility bill. At the end of the month, the team will debit the subscriber's bank account using an ACH payment. The average amount of the monthly debit to a subscriber's bank account is expected to be \$57 (at a rate of .172 per kWh, increasing by 1.5 percent annually).
- **Mailing of separate bills:** Enrollment in the *Community Power* will involve a contractual and financial relationship among Co-Op Power, and participants will receive a separate invoice with their monthly statement in addition to their regular Con Edison utility bill. This could cause some participant confusion. To address this confusion, educational workshops and materials will aid participants in understanding how the CDG process works and how subscriber payments will be managed. The monthly statements will outline the value of the solar energy credits they received and what they are being charged for these credits. Co-op Power has its own online billing platform and may produce statements for participants if an appropriate vendor is not found based on the project's budget for this service. Co-op Power statements may include a simple explanation of information, as well as graphical representations of solar production, solar energy credit value, and a net energy savings analysis. The statements will be delivered in a digital format. Digital statements and automatic payment through ACH are industry standard for solar energy subscriptions. Using this approach is expected to be faster, lower cost than paper billing, and easily scaled and tracked. However, the *Community Power* team will review this approach periodically through the demonstration as to its effectiveness for LMI participant who may be more responsive to receiving physical statements.

- **Confusion with energy service companies (ESCOs):** Communications about this project will need to clearly differentiate CDG from ESCO supply.²⁸ The *Community Power* team will educate participants about the full scope of our project, which includes local solar installations, workforce training, delivering savings to all participants, and creating opportunities for participants to build membership rights in the cooperative that owns the solar energy systems. By receiving the full picture, participants are expected to understand clearly the difference between *Community Power's* CDG and ESCOs.

Financial Elements / Revenue Model

4.1 New Utility Revenue Streams

4.1.1 Platform Services, including Pricing Strategies

This demonstration project will not test a new utility revenue stream. As such, the intent of this demonstration project is to show third-party financial institutions that CDG for LMI customers is a worthy investment.

4.2 Investments

4.2.1 Details and Timing of Spending

The total project budget as proposed is \$2,450,642. The impact investor will provide a loan of \$1,514,768, and Con Edison will provide funds to de-risk the debt.²⁹ These funds can be drawn on as needed to fulfill the loan obligations of the project. The funds for remaining program budget will come from Con Edison and function as an impact investment in exchange for the community-level benefits resulting from the project. These benefits include increased access to DERs for LMI participants, greater load reductions, and GHG reduction, among others. Below is the demonstration project budget by calendar year.

Budget	2018	2019	2020	Total
Total	\$1,767,264	\$581,004	\$102,374	\$2,950,642

4.2.2 Leveraging of Third-Party Capital

²⁸ Case 15-M-0127, *Order Resetting Retail Energy Markets and Establishing Further Process*, (issued and effective February 23, 2016),

²⁹ This amount will only be used if the project revenues are insufficient to meet the project's revenue requirements as defined in the loan. The security will be drawn down on by Con Edison as the loan is repaid, so this loan will not be an expense to the Company if not used to fulfill the monthly loan payments.

This demonstration project will leverage third-party capital in the form of tax-equity investment, which will cover approximately 50 percent of the total upfront cost of the capital costs for the project, cash equity, and debt. Co-op Power will serve as the project sponsor and will be principally responsible for incorporating the ownership entity (the LLC), raising tax equity from investors who can benefit from the federal solar tax incentives (through Resonant Energy), and operating the solar energy systems for the 25-year operating life of the solar arrays. For this demonstration, Con Edison will de-risk the debt portion of the capital stack and fund the program-related costs. However, with the success of this project, private lenders could replicate its concept without utility participation.

4.3 Returns (ROI Estimates When Self-Sustaining)

This demonstration is expected to show that LMI CDG delivers meaningful, long-term savings to customers while providing consistent and reliable financial returns to third-party investors who provide tax-equity and debt to support the projects. Currently, financial institutions do not know how to quantify the risk associated with LMI CDG because it is a relatively new product offering for which there is limited data on customer default rates. Achieving high rates of revenue realization through this project and making this data publicly available will reduce the cost of capital in the future. At scale, the *Community Power* team estimates that this model will provide tax-equity investors and debt providers with a competitive rate of return expected to be particularly attractive to mission-aligned financial institutions and those with Community Reinvestment Act (CRA) requirements. Inducing third-party investment in LMI CDG will enable Con Edison to expand access to lower cost clean energy for LMI customers, and thus reduce energy cost, without being funded through customer rates.

4.4 Cost Effectiveness (Benefits to Customers as Compared to the Cost)

4.4.1 Qualitative Benefits

Qualitative benefits are those which can be observed, but not measured. Positive quantitative results alone, when taken at face value, are not always the best indications of success. Nuances in feelings, perceptions, and behavior patterns, for example, cannot easily be measured but provide a richer understanding of the conditions that lead to a given result. Qualitative project benefits that will result from this project include:

- 1) Access and Control of Clean Energy
 - Better understanding of customer feelings about CDG and clean energy
 - Local, LMI community level support for renewable energy
 - Local community partnership with Con Edison

- 2) Positive Feelings, Beliefs, and Perceptions
 - Increased feeling that the Company desires to address the needs of all customer segments, even those that are not easily reached
 - Stronger positive belief in the Company as part of the community

- Feelings of empowerment through gaining access to clean energy
- Reduced perception of lacking control of utility bill due to alternative payment methods

3) Market Transformation

- Impact of providing LMI customer default rate analysis to the financial community in expanding access to capital for future CDG projects, specifically CDG projects that serve LMI customers
- Expanding the market for CDG may create additional indirect benefits, such as employment opportunities

4.4.2 Quantitative Benefits

The quantitative benefits from *Community Power* fall into five categories:

- 1) **Cost Reduction.** Participating LMI households are expected to achieve an average savings of \$78 per year through becoming members of Co-Op Power. These savings are expected to continue for up to 25 years, provided these participants continue to pay their subscription fee. In total, lifetime net savings will equal an estimated \$667,352 for participating LMI customers.
- 2) **Customer Satisfaction.** The project will engage 350 LMI customers. Participation in the project is expected to see an increase in Net Promoter Score,³⁰ as measured in pre- and post-demonstration surveys.
- 3) **Energy Literacy.** Participating customers are expected to increase their understanding of clean energy as determined in pre- and post-demonstration project surveys of participating customer energy literacy.
- 4) **Reduced Payment Challenges.** The demonstration may have the ancillary benefit of reducing arrearages and late payments among participating customers relative to a control group.
- 5) **Clean Energy Capacity.** The demonstration will deliver 1 MW of solar capacity in the Con Edison territory exclusively for the benefit of LMI customers. On an annual basis, the CDG projects are expected to generate 1,416,000 kWh of clean energy and a reduction of 1,727,520 lbs of CO₂ equivalent in GHG emissions per year.³¹
- 6) **Workforce Development.** The demonstration will provide paid apprenticeships, training, and job placement support to up to 30 NYCHA housing residents who will install the solar panels for the project. The workforce training program will be evaluated based on the number of participants, participant

³⁰ Net Promoter Score is an index that ranges from -100 to 100 and measures the willingness of customers to recommend a company's products or services to others. This score indicates a customer's brand loyalty and overall satisfaction with a company's products and services.

³¹ Statistics provided assume 1.2 MW DC (1 megawatt AC) with a production factor of 1,180 kWh per kW-DC, and that each kWh of energy generated with solar is diverted from being generated with natural gas, which releases 1.22 lbs CO₂ equivalent per kWh according to the EPA.

attendance rates, and, most importantly, the number of participants who secure full-time employment in the solar and/or construction trades following their participation in the project.

Reporting

5.1 Information to be Included in Quarterly Reports to the Commission

Con Edison will file quarterly reports with the Commission on core performance metrics as outlined in the Metrics for Success section (3.1) of this report. In addition to core metrics, the Company will provide the following:

- Project costs, to date, compared to budget and or target metric, with explanation of any variances
- Milestones achieved (or not)
- Lessons learned against hypotheses
- A list of participating housing providers and CBOs with estimates of value of contributions
- Summaries of self-reported behavior changes and improved energy literacy from resident surveys

Conclusion

6.1 Post-Demonstration Benefits

6.1.1 Qualitative Benefits

A number of qualitative benefits will continue after the completion of this project. First, Con Edison will have engaged hundreds of participating LMI customers who will see consistently lower energy costs for periods of up to 25 years due to their membership in Co-op Power. Second, Con Edison will have valuable data on financial performance of LMI CDG, which, if successful, will attract third-party investment, thereby expanding LMI access to solar without extensive subsidy of LMI CDG through customer rates.

6.1.2 Quantitative Benefits

The quantitative benefits from a scaled version of the demonstration project would include:

- 1) Customer Engagement. A scaled project could engage thousands of LMI households across the Con Edison service territory, leading to higher customer satisfaction, energy literacy, and program participation across a significant portion of the Company's residential customer base.

- 2) Cost Savings. Achieving the project's expected seven to 15 percent³² reduction in monthly energy costs across the LMI customer segment would yield millions of dollars in annual savings.
- 3) Greenhouse Gas Reductions. Scaling the program would also yield significant carbon reductions with low marginal cost to Con Edison and customer rates.
- 4) Third-party investment. Successfully scaling LMI community shared solar would leverage hundreds of millions of dollars of third-party capital.

6.2 Plans to Scale

6.2.1 Breakpoints in Scaling

While we are confident that this demonstration project will be successful, there will be significant challenges to overcome as the demonstration project is replicated and scaled up. These challenges include investor confidence and understanding of the investment class, and the availability of policies and incentives that support investment in LMI community-shared solar.

The following conditions would represent potential breakpoints in scaling the program beyond year three.

Low Revenue Realization Rates. If revenue realization rates are significantly below the 95 percent target, the cost of borrowing could increase and financing LMI CDG projects could be more difficult.

Low Participation. If the project has difficulty in engaging and recruiting project participants and course corrections are not effective to meet the planned enrollment of 350 participants, "customer acquisition" may prove harder and more expensive than anticipated, outweighing any project benefits.

Low Customer Satisfaction. If participants do not feel that they are significantly benefiting from their membership in the clean energy co-op, or if they have negative experiences for other reasons, customer satisfaction levels may not be sufficient to sustain the program at scale.

Diminished Appetite for Tax Equity. A federal tax overhaul that includes a roll-back on investment tax credits and changes to the tax code regarding accelerated depreciation tax deductions could negatively affect investor interest in the project.

³² Assuming the project achieves its expected \$6.36 net saving per participant, this savings estimate is based on an average customer usage of 337kWh per month, at an estimated electricity cost of \$.25 per kWh, where the customer charge on the bill is \$15.76 and the volumetric charge is \$67 over a 30 day billing cycle. 12 percent would be the amount of bill savings for an average customer with a monthly bill of \$82.76.

6.3 Advantage

A benefit of this project is in providing regionally relevant, high-value research and implementation data pertaining to payment performance of LMI CDG. The project will demonstrate that LMI CDG is not only a compelling model for expanding access to the benefits of clean distributed energy among LMI customers, but that LMI CDG can also be a sound investment for public and private financial institutions that are seeking to make environmentally sustainable investments while earning a reasonable rate of return. At the conclusion of the project, Con Edison expects to publish a final report, with the *Community Power* team, that includes data on the rates of revenue realization so that potential investors can quantify and more efficiently manage risk associated with the asset class. This will provide an advantage when seeking to move the demonstration project model to scale. The final report may assess the larger market opportunity in New York. The final report may also highlight policies and incentives that could support broader investment in LMI CDG for consideration by state regulators, policy makers, and thought leaders in New York and throughout the country.

Appendix

1. Letters of Support from NYCHA
2. Letter of Support from WE ACT
3. RFI Response Evaluation Criteria and Metrics

Appendix 1



NEW YORK CITY HOUSING AUTHORITY
90 CHURCH STREET • NEW YORK, NY 10007
TEL: (212) 306-3000 • <http://nyc.gov/nycha>

SHOLA OLATOYE
CHAIR & CHIEF EXECUTIVE OFFICER

March 16, 2018

Christopher Collins
Executive Director
Solar One
37 West 26th Street, Suite 209
New York, NY 10010

RE: ConEdison RFI: Energy Solutions for Low- and Moderate-Income Customers

Dear Mr. Collins,

It is my pleasure to provide this letter of support on behalf of the New York City Housing Authority (NYCHA) for Solar One's proposal for ConEdison RFI on Energy Solutions for Low- and Moderate-Income Customers. NYCHA supported Solar One's proposal in June 2017, and maintains its support regardless of the recent team changes and expansion of the scope in Solar One's current proposal.

Solar One proposes installing one megawatt AC of community shared solar on NYCHA buildings and other properties in NYC for the benefit of more than 350 low income households. As you know, NYCHA has made a commitment to host 25 MW of renewable energy capacity by 2025. As part of our efforts, NYCHA is developing the ACelerating Community Empowered Shared Solar (ACCESSolar) program, which will consider providing no-cost roof leases on smaller buildings (generally 40 kW of capacity or less) for projects that set ambitious targets for workforce training, resident hiring, and solar access for LMI clients. Should this proposal be funded, NYCHA will provide access to NYCHA sites for assessment and feasibility studies, and intends to provide low- or no-cost sites for solar PV installation through the ACCESSolar program.

Thank you very much for your interest in serving NYCHA residents.

Sincerely,

A handwritten signature in blue ink that reads "Vlada Kenniff".

Vlada Kenniff
Director of Sustainability Programs

Appendix 2



Founders

Vernice Miller-Travis
Peggy M. Shepard
Chuck Sutton

Board of Directors

Chair

Gregory Anderson

Secretary

Marianne Engelman Lado

Treasurer

Patricia Terry

Members

Charles H. Allison, Jr.
R. Darryl Banks
Joseph Bosch
Dennis Derryck, Ph.D.
David Evans, PhD.
Eric A. Goldstein, Esq.
Al Huang
Sarangi Iyengar
Jeff Jones
Marianne Engelman Lado
Ken P. Mak
Vernice Miller-Travis
Phillip Morrow
Hope K. Plasha
Regina Smith
Dart Westphal

Executive Director



June 20, 2018

Christopher Collins

Executive Director

Solar One

37 West 26th Street, Suite 209

New York, NY 10010

Re: Con Edison 2017 RFI: Energy Solutions for Low- and Moderate-Income Customers

Dear Mr. Collins,

WE ACT for Environmental Justice (WE ACT) is pleased to support Solar One's proposal for Con Edison's 2017 Request for Information: Energy Solutions for Low- and Moderate-Income Customers, to install community shared solar (CSS) photovoltaic systems on up to four New York City Housing Authority (NYCHA) facilities for the benefit of NYCHA residents. We believe that the proposed resilient, community shared solar projects will demonstrate that through innovative system design, program design and installation model, solar energy deployment can be a participatory process that delivers meaningful benefits to low-income participants through diverse channels.

Founded in 1988, WE ACT is a community-based organization located in Northern Manhattan that aims to build healthy communities by ensuring that minority and low-income populations participate meaningfully in the creation of sound and fair environmental health and protection policies and practices that impact their quality of life. WE ACT works with Solar One to engage and educate building owners regarding the benefits of solar energy across diverse property types in Northern Manhattan including rowhomes, multifamily buildings, and community facilities. Throughout our work together, Solar One has been responsive to our constituents, providing excellent guidance and identifying cost-effective options for our community's buildings to adopt solar, with the goal of making these buildings more efficient and resilient.

If suitable NYCHA facilities are identified in Northern Manhattan for this pilot program, we will be pleased to collaborate with Solar One to complete the important work of engaging and educating NYCHA residents regarding opportunities to participate in the solar program as well as offering them additional training such as: the OSHA-30 Hr. Construction, the Asbestos Handler, Scaffolding, and Flagging. WE ACT will enroll customers in the four identified Northern Manhattan NYCHA developments participating in the project. We strongly support Solar One's proposal to Con Edison and are confident that both organizations are uniquely positioned to work with NYCHA and Con Edison to execute a successful demonstration project that delivers diverse benefits and opportunities for participation to low-income ratepayers while providing system-wide benefits.

Sincerely,

A handwritten signature in black ink, appearing to read "Cecil D. Corbin-Mark".

Cecil D. Corbin-Mark

Deputy Director/Director of Policy Initiatives

Appendix 3

RFI Response Evaluation Criteria and Metrics

Con Edison has worked with stakeholders to develop an extensive set of metrics against which we will evaluate both responses to this solicitation and, ultimately, demonstration project success. Due to the breadth of solutions solicited, responses will be measured only against relevant criteria (i.e., not necessarily every criteria below). Similarly, Con Edison has no hard and fast “weighting” of evaluation criteria as the company expects responses to emphasize certain criteria over others. Each respondent should consider carefully and describe which of the criteria it will address.

In addition to the specific evaluation criteria a respondent selects, Con Edison is also interested in the realism and feasibility of the approach proposed to address these criteria. The company will assess feasibility throughout the response. Respondents are not expected to address every category of metrics with their response.

See below for Con Edison’s evaluation criteria.

Evaluation Metrics

Access	Affordability	Sustainability	Engagement	Team
Clean energy access #, % of customers gaining access	Cost reductions % reduction in average LMI customer’s costs	Energy savings MWH and MW reductions	Customer participation # of customers # of buildings	Track record Demonstrated record of success and impact
Energy solutions uptake #, % of customers who are delivered solutions	Energy burden % reduction in energy burden for LI customers	Clean Energy Generation MW / % increase in capacity	Customer satisfaction Net promoter score before and after	Diversity MWBE businesses and employee diversity
Acquisition Costs \$ to identify, reach and convert customers	Cost stability % reduction in monthly cost deviation	GHG reductions Total and per customer GHG reductions	Ongoing engagement % of customers who stay engaged after demo	Delivery capabilities Qualitative criteria
Program efficiency Cost-effectiveness, speed to ribbon cutting	Account management %, \$ Reduced arrears, penalties and write-offs	Health and well being Improved indoor air quality and comfort	Energy literacy % of customers who increase knowledge	Project management Qualitative criteria
Scalability % of applicable customer base	Cost of service \$ Reduction to serve targeted customers	Third-party investment third-party capital \$	Workforce development # of local jobs created and trained individuals	Partnership History Demonstrated record of successful partnerships
Feasibility				