



New Energy Solutions for Low- and Moderate-Income Customer

EnergyFit

A new model for financing and achieving energy efficiency savings in one- to four-family low- and moderate-income buildings

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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.² In the REV Proceeding and several others, The New York State Public Service Commission (the Commission) too has focused on ways to increase low- and moderate-income (LMI) segment participation in REV initiatives.³ 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, reduced greenhouse gas emissions (GHG), 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 that specifically offer solutions for the LMI segment. 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 encouraged to propose demonstration projects using a variety of approaches—energy efficiency measures, 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* (REV Proceeding).

² REV Proceeding, Order Adopting a Ratemaking and Utility Revenue Model Policy Framework (issued May 19, 2016), p. 54.

³ 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).

EnergyFit is one of three demonstration projects selected as a result of this solicitation process. In particular **EnergyFit** is needed because the one- to four-family housing stock has tremendous energy savings potential in aggregate. Despite the size of the market opportunity, this segment of LMI housing stock has failed to attract sufficient investment, as energy efficiency providers have historically viewed the small residential market as less attractive. This is because the cost and complexity of completing projects on small buildings is typically higher and the savings is typically lower, as compared to larger buildings. As a result, the majority of one- to four-family buildings have not received energy efficiency retrofits, and thus many LMI customers have not benefited from lower energy costs that result from retrofits.

EnergyFit provides a new model for financing and capturing energy efficiency savings in one- to four-family LMI buildings by taking a portfolio approach to obtaining a predictable level of energy efficiency saving in these LMI buildings. The goal of the project is to demonstrate a scalable model for significant increases of LMI participation in energy efficiency. The portfolio approach includes administering a standard package of energy efficiency measures and streamlined customer engagement methods to a group of buildings of the same age and type. In the demonstration, the portfolio approach is combined with (1) an innovative third-party financing structure called “Pay for Success”⁴ that will fund the project, and (2) OpenEEmeter cloud-based⁵ technology that closely monitors and verifies the energy performance of the buildings in the portfolio. The business model developed for **EnergyFit** is the result of a partnership between Con Edison and a team assembled by CLEAResult, which includes the Pratt Center for Community Development, Open Energy Efficiency, Quantified Ventures, and HSB Munich RE. The **EnergyFit** team (including Con Edison and its partners) is described below and in detail in the Market Attractiveness section (2.1.2).

Project Partners ⁶	Roles
Con Edison Investor-owned utility	<i>Project Sponsor, Oversight and Guidance, Financing (for Startup Costs), Purchase of Energy Savings</i>
CLEAResult Aggregation firm (energy efficiency implementer)	<i>Team Lead, Energy Efficiency Strategy, and Implementation</i>
Pratt Center for Community Development Advocacy, research, and policy nonprofit	<i>Community Engagement and Enrollment, LMI Customer Strategy</i>
Open Energy Efficiency Meter (OpenEEmeter) Software and technology provider	<i>Measurement and Verification of Project Savings</i>
Quantified Ventures Impact investing advisory firm	<i>Investors and Social-Financing Transitions Management</i>
HSB Munich RE	<i>Development and Issuance of Financing Insurance</i>

⁴ “Pay for Success” presents a novel approach to addressing persistent social problems. It is a contracting model that drives resources toward high-performing initiatives that succeed in measureable ways. In this instance, the Company will pay an aggregation firm, CLEAResult, based on actual delivered savings over time, rather than on upfront estimates.

⁵ Cloud-based computing means storing and accessing data and programs over the Internet instead of on an individual’s computer hard drive. The “cloud” is a metaphor for the Internet, and “cloud-based” refers to applications, services, or resources made available to users on demand, via the Internet, from a cloud computing provider’s servers.

⁶ A detailed description of project partners can be found in the Market Attractiveness section (2.1.2).

The *EnergyFit* demonstration project will test three central hypotheses.

Hypothesis 1: Delivering a standardized package of low-cost energy conservation measures (ECMs) to a critical mass of one- to four-family buildings will generate predictable savings across the portfolio of projects.

Hypothesis 2: The predictability of savings generated will be sufficient to increase investor confidence and secure further third-party financing needed to cost-effectively scale up the Pay-For-Success model, post demonstration.

Hypothesis 3: Applying the proposed ECM packages and the CBO-driven engagement process will reduce LMI individual and building owner participation barriers enough to attract the target number of participants and achieve the desired number of retrofits.

To qualify as a participant, either the building owner (for master meter buildings) or the resident (for directly metered buildings) must be a Con Edison customer in a geography targeted by the demonstration. Building owners can have their building participate if their building is located in LMI census tracks⁷ within Con Edison's combined gas and electric service territory, in the selected geographies. Individuals can participate if they live in LMI census tracks in the Company's combined gas and electric service territory within the selected geographies, and they are directly metered. The majority of participants will be directly metered residents as they represent the largest portion of small residential buildings in the Company's service territory (roughly 93 percent). The *EnergyFit* team will select buildings that have not recently undergone energy efficiency upgrades and participants will be screened for participation in existing Con Edison energy efficiency programs, prior to enrollment. How gas or electric is used in the building (for heat, cooking, etc.) has no bearing on eligibility for participation. More information on participants can be found in the Participation section (3.3) of this filing.

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

- An expected energy savings of three to 15 percent for electric bill savings and of 13 to 20 percent for gas bill savings, resulting in 318 MWh of energy reduction and 16,384 dekatherms (Dth) annually.⁸
- A combined annual cost savings of \$315,544 for 1,500 LMI participating household units over the three-year life of the demonstration project.

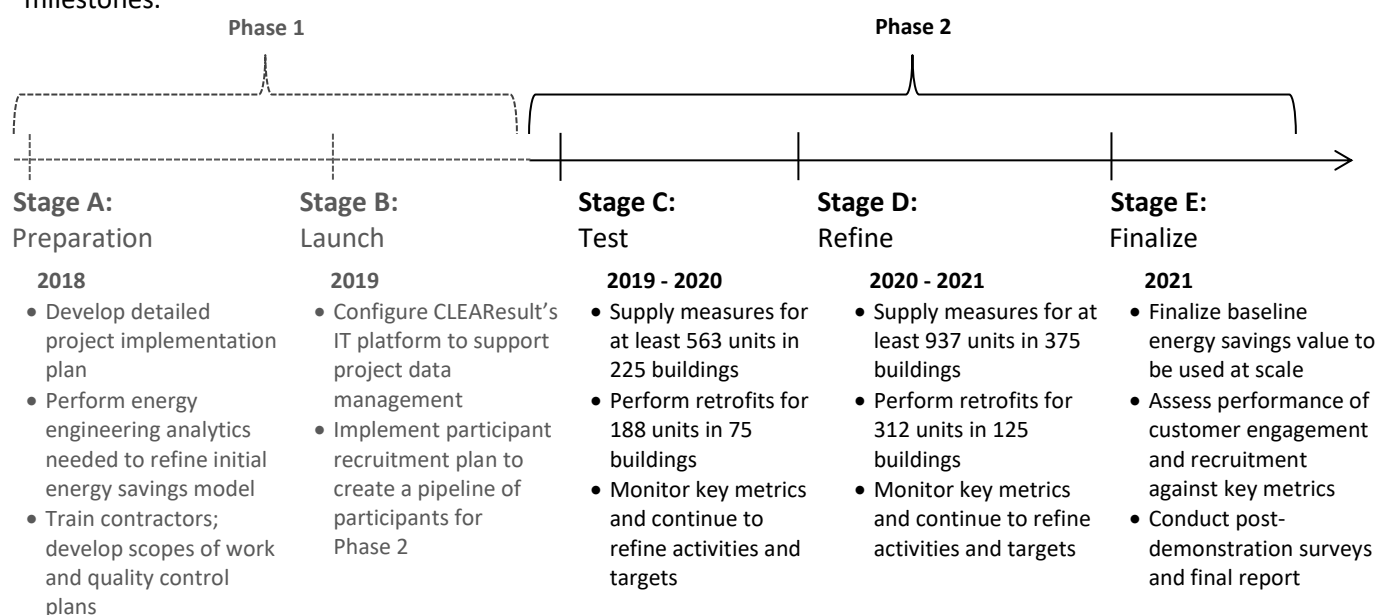
⁷ LMI census tracks are defined in this filing as "low-income," meaning total household income is less than 60 percent of the state median income (SMI) for similarly sized households, and "moderate-income," meaning total household income is less than 80 percent of the area median income (AMI), for similarly sized households.

⁸ This figure assumes a monthly bill of \$80, which for a typical low-income customer would be before the \$10-\$21 low-income discount is applied.

- A new business model for increasing LMI participation in residential energy efficiency, through third-party financing.
- Data vital to gaining a deeper understanding of effective customer engagement, communication channels and their impact on increasing energy literacy, ways to reduce energy efficiency initiative soft costs and to improve efficiency performance measurement, non-energy-related benefits to customers (such as improved health and safety), and other learnings derived from the performance indicators outlined in the Metrics for Success section (3.1) of this filing.

As discussed above, *EnergyFit* will utilize two innovations related to these hypotheses. The first innovation is the use of an open-source energy metering tool to closely monitor energy performance across participating buildings. This tool will demonstrate that energy savings are predictable and reliable at the portfolio level—a key requirement for attracting third-party investors. The second source of innovation is the use of a financing mechanism that will allow the aggregation firm, CLEAResult, to be paid based on actual delivered savings, rather than based on the projected cost for delivering energy savings. This projected cost method is how energy savings are currently procured from energy efficiency providers, commonly referred to as energy efficiency implementers, and all risk of implementer underperformance, under this construct, is borne by customers. *EnergyFit* will finance efficiency projects and Con Edison will only pay for the savings the project can demonstrate. A detailed description of the innovative financing mechanism used in the *EnergyFit* model can be found in the Solution and Financial Elements sections (1.2 and 4.0, respectively) of this filing.

Also related to the hypotheses above is the project's streamlined approach to efficiency measure selection. Specifically, all 1,500 participants will be provided with a package of direct install measures, including LED lighting, low-flow showerheads and aerators, domestic hot water pipe wrap, smart Wi-Fi thermostats, and smart power strips. A subset of these participants will receive additional air sealing and insulation measures. All participants and participating building owners will be located in Con Edison's combined electric and gas territory to maximize potential energy saving to participating customers. Below is an overview of the project timeline and milestones.



Con Edison will overcome market and technology barriers by partnering with two organizations that have successful track records in the small residential market. Particularly relevant to this demonstration project is their success with an innovative pilot⁹ conducted in 2016 with the support of the New York City Council. This pilot used grassroots methods to reach customers, spreading the word through local groups, churches, community events, and door-to-door outreach. It then used a highly efficient process to deliver a package of ECMs that was tailored to LMI one- to four-family small residential buildings of similar age and type. This approach made it easier, quicker, and cheaper to complete projects and led to strong approval ratings from customers and contractors. *EnergyFit* will build on these learnings to develop a cost-effective, market-based solution to energy efficiency in one- to four-family buildings that can be scaled. Participating LMI customers are expected to save up to 15 percent on their monthly electric bills and 20 percent on their monthly gas bills (if they pay directly for gas heating). Across the portfolio, this is expected to result in 318 MWh of energy reductions and 16,384 Dth annually when all projects are complete. Those savings are equal to roughly \$315,544^{10, 11} in combined annual cost savings for LMI participants over the three-year life of the demonstration project.

Finally, the *EnergyFit* model for realizing energy efficiency savings in one- to four-family LMI buildings should be scalable within the larger LMI segment. If adapted appropriately, it may also be scalable throughout the City's housing stock more generally. The fundamental principal of a portfolio approach to capturing savings can be applied throughout the one- to four-family housing market regardless of participant income, as well as in other housing stock categories as described in the Customer Segmentation and Demographics section (2.2) of this filing.

1. Business Model(s) Overview

1.1. Problem (the Market Opportunity)

The LMI customer segment has unmet potential for achieving environmental and system benefits—the segment is made up of over 1.5 million households¹² in the Con Edison service territory. Therefore, expanding access to

⁹ EngeryFit NYC Final Report, July 2016, Pratt Center for Community Development, http://prattcenter.net/sites/default/files/energyfit_interim_report_oct_2016.pdf.

¹⁰ Rates used for savings calculations were based on \$0.20/kWh and \$1.16/Th, which are subject to change over the course of this demonstration.

¹¹ These numbers do not account for LMI resident that live in master meter one- to four-family buildings where the demonstration's bill benefits will not go directly to the tenants. Strategies related to this master-meter building tenant issue are discussed in full in the Target Population, Sample Size, and Control Group section (3.3.1) of this filing.

¹² The US Census Bureau's American Community Survey (ACS) estimates the number of households by income band (in \$10,000 increments) for all U.S. 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>

energy efficiency solutions could yield significant reductions in GHG emissions and improvements to the reliability and resiliency of the electric grid, while providing customer energy and bill savings benefits. One- to four-family homes account for more than 800,000 buildings and 19 percent of the carbon emissions in New York City¹³—in general, buildings account for 73 percent of the New York City’s GHG emissions.¹⁴ Furthermore, 557,000 of one- to four-family buildings are located in LMI census tracts.¹⁵ The vast majority of these buildings have not received energy retrofits. Without finding effective solutions to increasing energy efficiency in small buildings that can be replicated at scale, New York State is unlikely to reach its ambitious clean energy goals of 40 percent reduction in GHG emission and 23 percent decrease in energy consumption in buildings by 2030.

Despite the increasing availability of cost-effective efficient energy solutions, the market has not developed to serve LMI customers. First, small residential buildings are not ideal targets for energy efficiency implementers because of the higher cost and complexity of working with these buildings relative to the lower savings yield; larger buildings typically have fewer barriers to customer acquisition. Added challenges in this segment are identifying customers, walking them through the process of completing an energy efficiency program, and overcoming customer sensitivity to covering the upfront costs of implementing energy efficiency measures. As a result, implementers have exhibited reluctance to engaging this housing segment. Second, LMI customers face a number of obstacles that have discouraged participation, including the inability to pay upfront costs of energy efficiency measures, gaps in information and awareness, and in some cases, limited control over dwelling efficiency upgrade decisions that impact energy consumption. This is a common condition of energy efficiency programming known as a “split-incentive,” which discourages property managers and owners from making energy improvements in rental units because they typically do not pay tenants’ energy bill and therefore are not financially motivated to make energy improvements to the units. Likewise, renters’ relatively short tenures in apartments prevent them from investing in energy improvements because they cannot take the value of that investment with them when they move to another dwelling.

Another challenge is that many conventional energy efficiency programs require extensive analysis and testing of an individual property before work can begin, which drives up costs and lengthens project timelines. Completed projects often fail to achieve the level of savings that were predicted because such programs apply a building-by-building approach, which typically yields unpredictable savings due to the large variability in building characteristics. These characteristics include building typology, use, conditions, occupancy, and occupant behaviors. Such attributes can dramatically alter the savings a home can realize when evaluating outwardly similar homes. Conversely however, grouping individual buildings of similar typology into a portfolio of homes or projects can produce predicted aggregate energy savings with relatively high accuracy. The only requirement for this accuracy is that the sample size of buildings is statistically significant, or adequate to provide data about typical portfolio savings distribution of the larger population. This portfolio-level performance assurance is what the project team believes will attract third-party capital investment to LMI energy efficiency.

¹³ One City Built to Last Technical Working Group Report, *Transforming New York City Buildings for a Low-Carbon Future*, 2016, p. 9, http://www1.nyc.gov/assets/sustainability/downloads/pdf/publications/TWGREport_04212016.pdf.

¹⁴ One City Built to Last Technical Working Group Report, *Transforming New York City Buildings for a Low-Carbon Future*, 2016, p. 1, http://www1.nyc.gov/assets/sustainability/downloads/pdf/publications/TWGREport_04212016.pdf.

¹⁵ NYC Department of City Planning PLUTO, 2016; U.S. Census, American Community Survey 2015.

Fundamental to measuring a portfolio's performance is a standard set of measures that can provide a consistent and reliable savings analysis over any population. Investors have traditionally avoided financing energy efficiency projects in residential buildings, particularly in the one- to four-family LMI housing stock, because energy efficiency savings are usually estimated rather than measured and can vary on a building-by-building basis. Historically, savings predictions have been provided through either deemed savings as dictated by the New York Technical Resource Manual (NY TRM) or through energy model simulations, neither of which provide accurate predictions of energy savings on a project-by-project basis.¹⁶ This demonstration is intended to provide the basis for adopting a new tool and approach for predicting energy savings.

New York City is an ideal test case for proving the hypotheses, listed in the Hypotheses section (1.3), due to the prevalence and geographic concentration of one- to four-family housing stock with common architectural characteristics (such as similar building footprint and layout, similar construction materials and techniques, similar era of construction, etc.). The vast number of these buildings not only allows for expedited implementation, but also for significant opportunity to scale the approach in a relatively short time frame following the demonstration.

1.2. Solution (REV Demonstration Project Idea)

In November of 2016, Con Ed released a RFI in search of new solutions for LMI customers.¹⁷ Respondents to the RFI were encouraged to propose demonstration projects of different forms and approaches, looking specifically to address energy efficiency measures, distributed energy resources, financing and billing innovations, and education and outreach to LMI customers. Con Edison encouraged the formation of partnerships that would span the entire project cycle, including customer acquisition, outreach and education, product and service delivery, measurement and verification, and project administration and oversight. The RFI included numerous metrics that were used to assess the potential benefits for LMI customers, non-participating customers, and the energy system.

EnergyFit is one of the projects submitted as part of the RFI. The demonstration focuses on providing energy solutions to LMI customers who live in one- to four-unit buildings in Con Edison's combined electric and gas service territory, specifically in Manhattan, Queens, and the Bronx. Increasing the efficiency of these small residential buildings is essential to achieving the State's proposed GHG reduction targets. However, Con Edison and its partners believe that the required investment in this market segment will not occur organically, nor with sufficient scale and speed, to reach the State's ambitious energy goals. Especially as buildings make up 73 percent of New York City's GHG emission and 19 percent of this emission comes from one- to four-family buildings.¹⁸ The *EnergyFit* demonstration project, therefore, is designed to test a new business model for

¹⁶ Cluett, Rachael, et al., *Scaling Up Participation and Savings in Residential Retrofit Programs*, American Council for an Energy Efficient Economy, Report A1605, (October 2016), pp. 9-16 <http://aceee.org/research-report/a1605>

¹⁷ For more information on the RFI, see <https://www.coned.com/en/business-partners/business-opportunities/low-moderate-income-customers>.

¹⁸ One City Built to Last Technical Working Group Report, *Transforming New York City Buildings for a Low-Carbon Future*, 2016, p. 1 and p. 9, http://www1.nyc.gov/assets/sustainability/downloads/pdf/publications/TWGreport_04212016.pdf.

financing LMI efficiency projects that, if proven viable, could catalyze the market and unlock this historically underserved LMI market segment. The project seeks to first undertake a critical mass of retrofit projects, then assemble a foundational savings performance dataset at the portfolio level, and, finally, fine-tune the financial products and mechanisms underpinning the project that are fundamental to stimulating the additional third-party investment needed to scale.

EnergyFit was modeled after a small “proof-of-concept” pilot that the aggregation firm CLEAResult and CBO partner Pratt Center for Community Development conducted in Brooklyn in 2016 with funding support from the New York City Council. The pilot provided strong evidence that customer acquisition and project delivery costs can be significantly reduced through community-based outreach and standardized scopes of work. The pilot also provided anecdotal evidence of the reliability of energy savings across a portfolio. In the six months the pilot ran, from January to June 2016, *EnergyFit* NYC connected with 730 interested homeowners, conducted 414 intakes, 89 assessments, and retrofitted 32 homes.¹⁹ After the retrofits were completed, each participating building’s energy usage was tracked for one year to determine the retrofit’s impact on energy usage and cost. While most participants were found to have saved on their utility bills, analysis showed that a larger sample size of buildings would be needed in order to provide a statistically significant answer to whether the specific package of energy efficiency measures chosen for this building stock was appropriate. As a result, the standard package tested during this pilot may or may not be optimally cost effective in its current form. Therefore, an expanded pilot with hundreds of retrofits and a control group was recommended because it would enable the mix of measures in the standard package to be refined using an empirical approach. Other recommendations were to continue to offer a standard package of retrofit measures, to provide a continuous point of contact for advisement and support, to address barriers to moderate-income household participation, and to simplify the homeowner engagement process by reducing the number of steps between the initial touch point with interested participant and a completed retrofit. These recommendations were among 12 others listed in the pilot’s final report.²⁰ *EnergyFit* will apply learnings from the 2016 pilot in a more rigorous experimental design that will use metered data to prove that reliable energy efficiency savings are achievable across a portfolio of LMI housing stock and that these savings can support a scalable project model.

EnergyFit is expected to result in a validated model for financing LMI efficiency projects known as “Pay for Success.” Pay for Success presents a novel approach to addressing persistent social problems. It is a contracting model that drives resources toward high-performing initiatives that succeed in measureable ways. Pay-for-Success uses elements of pay-for-performance, but is distinct from pay-for-performance because the pay-for-performance model does not include an impact investment that covers upfront costs or insurance to mitigate investor risk, two elements included in the Pay-for Success model that are described in detail below.

EnergyFit will be deployed using a grassroots method to identify and enroll LMI participants. The demonstration will then use a highly streamlined process to deliver the standard retrofit package to hundreds of buildings in LMI communities, resulting in immediate energy savings. Finally, it will use a rigorous performance management

¹⁹ *EnergyFit* NYC Final Report, July 2016, [p. 9](http://www.prattcenter.net/research/energyfit-nyc-final-report), Pratt Center for Community Development, <http://www.prattcenter.net/research/energyfit-nyc-final-report>.

²⁰ *EnergyFit* NYC Final Report, July 2016, p. 15, Pratt Center for Community Development, <http://www.prattcenter.net/research/energyfit-nyc-final-report>.

tool to assess energy savings performance across the portfolio of projects of similar age and type. The set of solutions described above has two core facets: (1) a streamlined solution delivery strategy, and (2) an innovative financing structure.

1. Streamlined Solution Delivery

Since high customer acquisition costs present a barrier to participation in energy efficiency initiatives in the one- to four-family LMI housing market, *EnergyFit* will partner with a CBO—in this case, the Pratt Center—that has extensive experience working in low-income communities and engaging potential participants in their networks. The involvement of a community-based partner will also help to address participant skepticism about participating in energy programs, a barrier to participation described in more detail in the Motivating Customers section (3.4.2) of this filing. The Pratt Center will lead the customer engagement effort following a process previously vetted in their 2016 proof-of-concept pilot.

EnergyFit will implement three key components of innovation in its field-tested solution delivery model: (a) streamlined community-based engagement, (b) standardized energy conservation measures, and (c) rigorous performance analysis.

- a) Community-based engagement and outreach is the most essential component of the solution delivery strategy. It is the first participant touchpoint for the project. What makes this proposed strategy unique is that each participant will have a dedicated client representative who will assist from the beginning to the end of the process. Staff from either the Pratt Center, CLEAResult, or a partnering CBO will hold the client representative role depending on participants' needs and the origin of their enrollment. Partnering CBOs will only be engaged if necessary to meet the enrollment requirements of the project. Additionally, each participant will be assigned a pre-selected, competitively procured, home performance contractor who will complete the ECMs. The assignment of this contractor will address the common challenge observed in the prior *EnergyFit* pilot, where most participants did not have a "go-to" contractor for this type of work and were wary of scams. By addressing these communication and trust issues from the onset, participants will be more likely to stay engaged and complete the projects.
- b) Standardized energy conservation measures are another important element of the streamlined solution delivery strategy that *EnergyFit* employs. All participating customers will receive a standardized package of ECMs through a simplified process outlined in the Customer Outreach section (3.4). Traditionally ECMs are not standardized, but rather sold to customers based on the energy efficiency implementer's area of expertise. For example, if the implementer specializes in lighting, then lighting measures would be offered; if the implementer specialized in weatherization measures, insulation would be offered, and so on. Combining conservation measures based on the implementers' collective ability to obtain the maximum level of energy saving for a portfolio of buildings of similar typography, as the *EnergyFit* team proposes in this demonstration project, represents a departure from the norm and an innovative approach to capturing savings in LMI one- to four-family households.

The standardized package of ECMs used in this project will include a free energy assessment and the following direct install measures (for approximately 600 buildings, or 1,500 units):

- LED lighting (to replace incandescent bulbs only)
- Low-flow showerheads and aerators (both kitchen and bath)
- Domestic hot water pipe wrap
- Smart Wi-Fi thermostats
- Smart power strips

A subset of these participants (approximately 500 units) will receive a full energy retrofit that includes the following additional measures:

- Air sealing and weather-stripping measures throughout the building
- Attic insulation and air sealing
- Roof access point air sealing and insulation

The demonstration will also address minor health and safety issues that are identified during the course of the energy assessment and retrofits, within an allocated budget and scope for each home. Health and safety measures could include the following:

- Installation of combination methane, carbon monoxide, and smoke detectors
- Addressing ambient moisture issues associated with bathroom or kitchen ventilation
- HVAC ventilation and flue repairs
- Minor clean and tunes for HVAC equipment

If significant health and safety issues are present, such as mold infestation or structural issues that prevent further retrofit work from occurring, the project will inform participants and refer them to agencies that may be able to assist them in remediating the problem, if the participant desires assistance.

Offering a standard package of ECMs that is tailored to the small-building typology makes it easier for participants to understand and commit to participating in the project. It also eliminates the need to conduct energy audits or review long lists of possible options, which can be confusing and overwhelming, leading to decision paralysis rather than to project completion.

What makes this aspect of *EnergyFit* innovative when compared to traditional initiatives is that it addresses the long completion timeframe and administrative complexities that conventional energy efficiency programs typically see. These programs often involve multiple procedural steps, with frequent lulls in between that allow for too much time without active customer engagement. Customer frustration with delays often leads them to abandon projects before completion. LMI customers typically do not have the ability to take extended time off from work and other commitments to meet with contractors on multiple occasions and so are particularly prone to abandoning the projects in these cases.

Under the *EnergyFit* model, a free energy assessment and direct install measure installations will be completed in a day or less—a significant innovation. This shortened timeframe is due to the project's

standard ECM package tailored by building type, which as stated above, makes it easier for participants to understand and commit to participate and removes the need for energy audits and the review of numerous options. The follow-on retrofits, which a subset of buildings will receive, will also be completed in a day or less. Providing such quick turn-arounds is expected to increase the likelihood that the participant will complete the full range of options offered in the project. This streamlined process should also reduce soft costs for contractors, who in turn are positioned to offer more competitive pricing to Con Edison.

- c) Performance analysis is the final component of the proposed engagement and outreach solution. A fundamental component of measuring the portfolio's performance is having a standard set of weights and measures, which can provide a consistent and reliable savings analysis for a given population size. In this demonstration, the OpenEEMeter platform will provide the Team with a standard set of weights and measures and reliable analysis. Historically, savings predictions have been provided through either deemed savings as dictated by the NY TRM or through energy model simulations, both of which have traditionally proved imprecise savings predictions on a project-by-project basis. As described below, *EnergyFit* will use open energy efficiency meters to calculate energy savings achieved through the project's retrofits.

The OpenEEMeter uses a rigorous, transparent, and replicable methodology to compare each building's energy consumption, normalized for weather, before and after the efficiency treatment, and aggregates the results to generate a portfolio-level savings measurement. This process will provide the actuarial data needed to underwrite future performance, through the Pay for Success model, at scale. The OpenEEMeter platform is based on other existing open-source protocols, including HP-XML, Green Button, and the Department of Energy Building Energy Data Exchange Specification (BEDES). The use of open source protocols should allow stakeholders to understand, scrutinize, and strengthen the platform. Utilities and energy organizations across the country—including PG&E, Energy Trust of Oregon, Marin Clean Energy, and NYSEERDA —have utilized OpenEEMeter, but without a portfolio approach or the Pay for Success structure described above, primarily to gain a better understanding of how estimated savings results compare to metered savings results. This demonstration project represents the next step in the evaluation of the OpenEEMeter tool and the use of the data it produces as the backbone for third-party financing. Utilizing metered energy efficiency savings will enable Con Edison and its partners to prove that the performance of small residential energy retrofit projects yield consistent energy reductions at the portfolio level.

The OpenEEMeter platform can provide analysis based on monthly metered data or 15-minute interval data from advanced metering infrastructure (AMI). The *EnergyFit* demonstration project will utilize monthly billing data, because the Team expects that many buildings selected for this demonstration project will not yet have AMI meters, as the full roll out of AMI in Con Edison's service territory will occur over the course of several years. The Team has intentionally not selected buildings slated for AMI installation to avoid participant confusion between the demonstration and AMI's roll out. As AMI infrastructure expands in the Company's service territory, AMI data will benefit the project and allow the Team to refine the retrofit package offered to participants. AMI meter reads do not provide the pre-

and post-analysis necessary to understand the impact of an energy efficiency intervention, so the OpenEEmeter technology platform is required to perform this analysis.

2. Innovative Financing: The Pay-for-Success Transaction Model

The primary objective of this demonstration is to test the viability of the proposed business model and its components, each of which would be necessary to catalyze third-party investment in portfolios of LMI small residential energy retrofits. Rather than spending funds derived from customer utility rates to pay for efficiency projects in advance, based on engineering estimates (i.e., deemed savings or energy simulation), the demonstration will implement an arrangement in which an aggregation firm will receive payments only for actual delivered savings, on a quarterly basis. These aggregation firms will secure upfront financing to implement their measures. This process will allow project participants to benefit from energy savings that are competitively priced, without customer utility rates reflecting performance risk should the measures underperform. Underperformance is a risk factor for which financing institutions require insurance as a form of protection for the investor. The amount of the quarterly payment to the aggregation firm will be determined as the Team develops the implementation plan for this project. The calculation of this payment will likely be based on the estimated useful lifetime savings of the measures installed, the costs to the aggregation firm for the measures installed, and the savings purchase agreement (SPA) value²¹ that CLEAResult and Con Edison will agree to during Phase 1 of the demonstration. A retainer of 80 percent of the quarterly payment to CLEAResult will be paid each quarter and the remaining 20 percent plus any additional saving beyond 100 percent of the estimated saving will be paid to CLEAResult as a true up payment once OpenEEmeter can verify project performance (after four consecutive quarters). This retainer will help to offset the risk of going to market with estimated savings based on engineering models and back casts of other data.

Using a fuel-neutral²² approach, based on the savings and costs for one individual unit in a building, a potential formula for calculating quarterly payment to the aggregation firm could resemble the following:

$$\begin{aligned} & (\$/\text{kWh SPA} \times \text{kWh fuel-neutral savings obtained per quarter}) \\ & + (\text{The value of the annual OpenEEmeter true up savings} \div \text{The four quarters in the year}) \end{aligned}$$

The *EnergyFit* Pay-for-Success arrangement includes three key components: (a) SPAs, which set the economic terms and performance criteria between Con Edison and the aggregation firm; (b) investment grade insurance, which mitigates performance risks; and (c) project-based financing to leverage third-party capital. Each of these components is discussed below. Additional details on the financial transaction model are provided in the Investments section (4.2) of this filing.

²¹ SPAs are contracts between utilities and aggregation providers that set targets for energy savings and demand reductions and stipulate the amount that the utility is willing to pay for each unit of weather-normalized metered energy savings.

²² The SPA value is based on fuel-neutral lifetime savings, meaning gas and electric saving are both converted to kWh metrics. Total estimated unit project costs are divided by lifetime savings to get to get the SPA amount. This may not be the actual formula used to value savings in demonstration. It is provided for illustrative purposes only.

- a) SPAs are contracts between utilities and aggregation providers that set targets for energy savings and demand reductions and stipulate the amount that the Utility is willing to pay for each unit of weather-normalized metered energy savings. SPAs create a source of funds that aggregation providers can use to finance the upfront capital and administrative costs of acquiring the savings. This form of securing financing differs from most current efficiency finance structures, which are based on either customer creditworthiness or efficiency-asset values. Instead, SPAs more closely mirror the project finance arrangements used by utilities and private companies to finance infrastructure and power plants, where the project is underwritten based upon projected cash flows rather than the balance sheets of its sponsors. Payments from the utility to the aggregation firm reflect the value of energy efficiency as a grid and carbon resource, as well as the social value placed on helping LMI consumers reduce their energy costs.

At scale, in a future version of the proposed demonstration model, Con Edison would purchase a given amount of savings through a procurement marketplace, and multiple energy efficiency implementers would submit costs at which they can deliver the amount of savings requested. From this group of proposed costs (or bids), Con Edison would select an implementer. In this demonstration, however, the Team is establishing the cost of the energy savings for which a future procurement of the savings (the SPA) will be based and demonstrating the financial transactions needed to enable that procurement (insured investor financing and saving procurement). Since the value per energy unit saved cannot be determined until the Team knows exactly how much savings can predictably be obtained, as well as the actual versus estimated cost to obtain this savings, the following process has been instituted for the demonstration only:

- CLEAResult will complete retrofits with a mix of their own staff and subcontractors.
- Con Edison will buy the savings obtained from each contractor project, bundled quarterly, at a pre-determined value per energy unit saved.
- The pre-determined value per energy unit saved initially will be derived from CLEAResult energy engineer projections.
- Each year, the pre-determined value of the savings will be readjusted and a new, per-energy-unit-saved value will be developed that is expected to be more accurate than the value prior.
- At the end of the demonstration, the project team will have a baseline for determining the relative value of energy-per-unit-saved need as the basis for selection in a future SPA marketplace.

This process will reduce the financial risk to the project partners by shortening the length of time that capital is deployed. Once the model has been successfully tested, the SPA payments from Con Edison to contractors may occur more or less frequently than quarterly, depending on the amount of time required by the contractor to capture savings and the investor requirements for repayment.

- b) Investment-grade insurance is the second component of the Pay-for-Success model. Although energy retrofits can exhibit a high degree of variance in delivered savings at the individual building level, they perform reliably and consistently when averaged across an adequately sized portfolio of buildings. To gain the confidence of third-party investors, it is not necessary for every individual retrofit to perform precisely as expected. Underperformance in a subset of buildings is anticipated and therefore factored into the mathematical logic applied. Instead, third-party investors must be confident in the probability that the required level of energy savings will be achieved across the entire portfolio of retrofits, so that the aggregation firm receives financing on the front end of the transaction and can be paid by Con Edison, through the SPA, on the tail end of the transaction. Once it receives funds from Con Edison, the energy efficiency implementer can repay the financing institution.

The use of investment-grade insurance to mitigate performance risk and, by extension, reduce borrowing costs, is a common feature of project finance. Insurance provides a backstop for the projects' investors and enhances their willingness to supply the upfront capital, thus removing that burden from CLEAResult if the projects do not materialize or savings fall short. In addition, insurance protects CLEAResult from bearing the cash flow burden associated with unpaid performance payments.

To decrease the risk to investors in the demonstration further, Con Edison will make payments to CLEAResult quarterly for the energy savings CLEAResult is able to obtain. CLEAResult can then repay investors sooner than the close of the demonstration project in 2021, which lowers the risk to the investors' capital. *EnergyFit* will test the use of investment-grade insurance to create a backstop for savings performance risk at the portfolio level. HSB Munich Re, one of the world's largest reinsurance firms, will provide consultation so that the demonstration's Pay-for-Success transaction model, as well as the SPA between Con Edison and CLEAResult, can be conducive to performance-based insurance. HSB Munich Re will then develop a performance insurance product that CLEAResult will purchase to facilitate third-party financing, as described below.

- c) A financing mechanism is the final component of the Pay-for-Success model applied in this demonstration. This component will include the following steps.
- *Financing*: An impact-oriented investor will finance the costs for all retrofit projects and program activities upfront. Impact investing refers to investments made into companies, organizations, projects, or funds with the intention of generating measurable, beneficial, social, or environmental impact along with, or in lieu of, a financial return. These investments are expected to generate a financial return on capital or, at a minimum, a return of capital. The specific investors in this project have not been selected yet. Project partner Quantified Ventures, which has a track record of securing impact investment, will select the investors, as described in the Third-Party Specifics of Agreements section (3.3.2), after the *EnergyFit* team is under contract to deliver an implementation plan for this project. In this demonstration project, the capital raised by Quantified Ventures from third-party impact investors will be placed in a "warehouse" account and function as a line of credit accessible by efficiency measure implementers, so they can draw down on these funds as needed to complete assessments and retrofits. CLEAResult will manage the distribution of these funds, and the

impact investment will be insured through a performance insurance product developed by HSB Munich Re. CLEAResult will use these impact investment funds to cover the costs of the project, margins, insurance, and financing charges.

- *Retrofit implementation:* The CLEAResult contractors will likely bear some risk to their payments based on their team's performance.
- *Bundling and purchase of savings:* In the demonstration, CLEAResult will "bundle" together quarterly savings from individual buildings (as calculated by the OpenEEmeter), and Con Edison will buy those savings on a per-energy-unit-saved basis, as contracted in the initial SPA. CLEAResult will use this cash flow to then repay the project's impact investors.
- *Cycle repetition:* As each new bundle of savings described above is sold off to Con Edison, additional funding is allocated to the warehouse and the cycle repeats. Under this construct, at the end of the demonstration the demonstration team will have a clear picture of how much savings can be achieved at scale.

1.3. Hypothesis Being Tested

EnergyFit's core objective is to demonstrate that the market for energy retrofits in LMI one- to four-family buildings can be animated first through the use of an innovative financing mechanism, and second through the use of streamlined customer engagement and measures that reduce traditional customer participation barriers and project soft costs. The three central hypotheses, therefore, are:

Hypothesis 1: Delivering a standardized package of low-cost ECMs to a critical mass of one- to four-family buildings will generate predictable savings across the portfolio of projects.

Hypothesis 2: The predictability of savings generated will be sufficient to increase investor confidence and secure further third-party financing needed to cost-effectively scale up the Pay-For-Success model, post demonstration.

Hypothesis 3: Applying the proposed ECM packages and the CBO-driven engagement process will reduce LMI resident and building owner participation barriers enough to attract the target number of participants and achieve the desired number of retrofits.

1.4. Commission's REV Demonstration Principles Being Addressed

EnergyFit addresses the following the Commission's REV demonstration principles:²³

²³ REV Proceeding, Memorandum and Resolution on Demonstration Projects and Criteria for REV Demos (issued December 12, 2014). p. 2.

- 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.**

The *EnergyFit* demonstration includes partnerships between Con Edison and a team of third-party service providers, led by CLEAResult. These service providers are described in detail Market Attractiveness section (2.1.2). Third-party capital will be leveraged through the transactions of a Pay-for-Success model, where private third-party investment will be utilized to implement the energy interventions proposed, as described in the Solution section (1.2) under the heading Innovative Financing.

- 2) 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.**

All of the expected 1,500 units participating in the demonstration will receive a package of direct install measures, including LED lighting, low-flow showerheads and aerators, domestic hot water pipe wrap, and smart Wi-Fi thermostats valued at approximately \$300.00. These measures will be installed for the participating customer, which adds additional value for the participant. For the Company, economic value can result from deferred infrastructure build-out at scale, ability to access new earning adjustment mechanisms, increased customer satisfaction, additional value to the gas grid through shaving peak Dth demand, and any resulting reductions in write-offs and arrearages within the target population. Arrearages for 2017 averaged \$88 million dollars²⁴ for Con Edison's low-income customers alone. In addition, the Solution section (1.2) of this filing describes how the *EnergyFit* project model reduces the costs to customers because the energy efficiency providers will only be reimbursed for energy savings actually achieved. To determine the amount of value, the Team will need to compare the cost per unit of energy saved from the demonstration project to the current rates paid for existing energy efficiency implementer-led LMI energy efficiency retrofit and direct install programs, post demonstration.

CLEAResult, Pratt Center for Community Development, and the other third-party service providers will receive economic value from project payments for their work according to the schedule outlined in the Investments section (4.2). They will also gain knowledge and the economic value of economies of scale from testing their approaches with LMI customers in a large-scale demonstration.

Upfront capital costs for this project are provided by third-party financing with all demonstration costs being borne by Con Edison.

- 3) While some demonstrations may be bilateral, and therefore may not be "competitive" per se, utilities and service provider should propose rules (data, terms, standards, etc.) that will help create subsequently**

²⁴ Case 16-E-0060, Electric Low Income Rate Report 16-E-0060 Rate Year 2017, Low Income Reports, Consolidate Edison Company of New York, Inc. (issued January 30, 2018).

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.

If the hypotheses of this demonstration are proven true, the necessary market and associated market mechanisms would be put into place to facilitate a Pay-for-Success open market, where Con Edison would procure energy efficiency outcomes through an auction and many aggregators would bid for the ability to provide energy efficiency services at the clearing price that results from that auction. From this demonstration, appropriate rules and standards can be extrapolated and applied to support the establishment of a subsequent competitive market.

Established market standards for safety, reliability, and consumer protections will be used during this demonstration as well as in any scaled project in the future. Specific detail related to standards and customer protections can be found in the Conditions and Barriers section (3.5).

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

A key strength of this demonstration is that it specifically focused on residential customers who are classified as LMI in one- to four-family buildings and historically underserved by the existing energy efficiency market. Many of the lessons learned in this demonstration can be applied more broadly to all residential customers in the future, as well as beyond one- to four-family buildings that are currently the focus of this project.

5) The utility should identify questions that it hopes to answer or 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 extensively researched the challenges faced by LMI customers and then issued a competitive RFI to solicit the best solutions available in the market. This solicitation outlined in great detail important considerations and questions the Company hoped all respondents should include. CLEAResult's portfolio approach and the Pay-for-Success project financing mechanism have the potential to be a viable model for attracting energy efficiency services to this underserved segment of utility customers. The *EnergyFit* demonstration project will apply learnings from this 2016 pilot in a more rigorous experimental design and at sufficient scale to prove that reliable energy efficiency savings are achievable across a portfolio of LMI housing stock and will support a scalable project model.

In light of hypothesis number three, other questions the Company believes the project may address include questions related to the following challenges:

Challenge 1: Financing for Distributed Energy Resources (DERs)

- Is there a way to eliminate the capital and credit barriers that LMI customers face?
- Can investment in third-party DERs generate a return and/or become a recoverable investment without creating an intra-customer class subsidy?
- Can investment in third-party DERs also generate ancillary benefits without creating intra-customer class subsidy or cross-subsidy base?
- Can a no-cash-upfront program work for LMI customers?

Challenge 2: Energy Literacy

- Do channels of communication affect barriers to energy literacy?
- Do we produce better results when messaging is less generic and focuses on the LMI segment specifically?
- What types of information about an energy project, products, or services have the greatest impact on energy use?

Challenge 3: Trust

- Can collaborating with CBOs improve customers' trust of Con Edison?
- Does improved customer trust yield measurable impacts (e.g., increased penetration DERs, improved on-time payment, etc.)?
- How important is trust to customers?

2. Market Attractiveness

2.1. Unique Value Proposition (From the Following Perspectives)

2.1.1. Participating Customer

Participating LMI customers are expected to directly benefit from their involvement in the demonstration in the form of immediate and lasting energy savings, estimated to range from between three and 15 percent for electric bill savings and 13 to 20 percent for gas bill savings. It is important to note that savings estimates for participating customers may vary widely, even when similar homes are offered similar ECM packages. These differences may occur as a result of the presence of central air conditioning, the absence of air conditioning, the existing levels of insulation in the home, and other factors.

Traditional methods of acquiring energy efficiency savings take a mass market, lower-touch approach to recruiting participants. This approach is often not specific to the customer base, but rather applied to the market as a whole based on the efficiency implementer's area of specialty. In this scenario, there is typically no established relationship with the customer being recruited to participate and the burden of upfront cost, time commitment, and complexity of selecting measures falls on the participating customer directly. The model the

EnergyFit Team seeks to demonstrate is different from traditional methods used in small buildings for several reasons.

First, it uses community-based engagement strategies to acquire participants, which reduces costs and increases trust. Pratt Center will lead participant engagement in partnership with other CBOs that have strong networks and long track records working in low-income communities. Each participant will be assigned a dedicated participant manager to assist, at every step of the process, as well as a pre-assigned home performance contractor, thus reducing gaps in communications and uncertainty about project delivery.

Second, the demonstration utilizes a streamlined process to deliver standardized energy conservation measures, which reduces program complexity, participant time commitment, and cost. Traditional programs offer too many possible variations, and customers often feel vulnerable to contractors misleading them about what types of measures are necessary, or directing them only towards contractor specialties even if it is not the most valued or highest priority from the customer's perspective (e.g., HVAC contractors will push furnace replacements, not insulation installations). Offering an easy-to-understand pre-determined set of ECMs will allow participants to feel empowered in participating, rather than confused and overwhelmed by too many choices. Initial energy assessments and direct install measures will be installed in less than a day, as will the supplemental retrofit package that a subset of buildings will receive.

Unlike some traditional energy efficiency programs, *EnergyFit* does not require participants to pay upfront, or at any point in the process, for the energy efficiency measures. Participating customers in approximately 600 one-to four-family buildings will receive a free energy assessment and free direct install measures, and a subset of these participants in approximately 200 buildings will receive a full energy retrofit described in the Solutions section (1.2). Participating customers will also receive focused education on how energy retrofits work and how simple behavior changes can save them money. This education is vital to maximizing the long-term effectiveness of installed measures and participant savings. To add additional value, the demonstration will try address minor health and safety issues that are identified within the course of the energy assessment or retrofit, within an allocated budget and scope for each home. If additional health and safety measures are identified that exceed the allowable scope and budget, the participant manager will offer referrals to agencies that can assist with further remediation.

Finally, in addition to the direct financial, health, and safety benefits described above, participating customers are expected to have a satisfying experience through the project. The combination of factors described above—community-based engagement to increase trust, simple program to reduce confusion, short visits to minimize time commitments, and zero-cost to participate—will increase participant satisfaction rates (measured as pre- and post-retrofit Net Promoter Scores), as well as long-term participant engagement.

2.1.2. Partner / Third Party

Third parties will directly benefit from the learnings and business model development opportunities offered through this demonstration. As described in the Problem section (1.1), market participants face barriers to accessing and delivering energy efficiency solutions to LMI customers. The demonstration project team will work together to test ways to alleviate many of these barriers. At the same time, the team and other third-party participants will have the opportunity to demonstrate innovative solutions to accessing a hard-to-reach segment

within a large urban market, in partnership with one of the largest utilities in the industry. Successful implementation of the project could transform the energy efficiency industry for the LMI market.

Other beneficiaries of the project are the energy efficiency industry and New York's regulators. If properly staffed and executed, the project model proposed should allow regulators and the energy efficiency industry to set in place the rules and regulations to support scaling demonstration results successfully.

Third-Party Partner Value

Team Lead

CLEAResult, Inc. will serve as the overall project lead and the aggregation firm for the demonstration. CLEAResult has more than 30 years of experience designing, marketing, and implementing energy programs for communities, utilities, businesses, and residential energy customers to define and achieve energy efficiency goals. With a current portfolio of more than 250 clients and more than 900 programs, CLEAResult helps save more than 4,000 gigawatt hours of energy and more than 65 million therms annually. CLEAResult has three offices in New York State, including offices in Hauppauge, Albany, and Manhattan.

The value proposition for CLEAResult is the opportunity to test a cutting-edge Pay-for-Success transaction model that could transform the residential energy efficiency industry. Typically, aggregation firms are paid for their services based on modeled or estimated energy savings, rather than based on actual reported savings.

EnergyFit, on the other hand, will utilize a Pay-for-Success transaction model in which aggregation firms will be paid for delivering actual measured savings. This model will create an incentive for aggregation firms to deliver the greatest amount of savings for the least amount of cost, which should drive process improvement, cost reduction, and innovations in customer engagement and service delivery for CLEAResult and similar firms.

Team Members

The Pratt Center for Community Development will lead CBO participation and customer engagement efforts. Founded in 1963 as part of the Pratt Institute, the Pratt Center for Community Development works for a more just, equitable, and sustainable city for all New Yorkers by empowering communities to plan for and realize their futures. The Pratt Center has a longstanding track record of serving LMI communities and has an extensive network of CBO relationships that it will draw upon in the demonstration. CBO organizations subcontracted by Pratt Center will play a pivotal role in engaging participants, building trust, and delivering services in *EnergyFit*. If these additional CBO partners are needed Pratt will use its existing network. These organizations are expected to be local to the community where the project is located.

The value proposition for Pratt Center and participating CBOs rests in their ability to foster their missions through providing LMI constituents with immediate cost savings, as well as increased health and comfort. CBOs that experienced the complexity of traditional energy efficiency programs will also see the benefits of delivering a highly streamlined process that is focused on minimizing customer confusion and time commitment, while maximizing satisfaction and benefits.

Open Energy Efficiency will oversee performance data acquisition and analysis for the demonstration. Open Energy Efficiency's mission is to enable the energy efficiency marketplace of the future by transforming normalized metered energy savings into a procurable distributed energy resource. The Open Energy Efficiency team is led by experienced industry leaders and backed by top data scientists and software engineers. The demonstration project will use Open Energy Efficiency's open-source billing analysis tool, OpenEEMeter, to measure whole-building weather-normalized energy efficiency savings across the project portfolio. The OpenEEMeter is used by utilities, state regulators, program administrators, contractors, and finance companies to provide the equivalent of standard weights and measures for energy efficiency measurement.

Open Energy Efficiency will gain value from participating in the demonstration through deploying its software platform in a new and innovative use case with a Pay-for-Success business model. Open Energy Efficiency will gain real-time insights into the performance of the projects while paving the way for an outcome-driven transformation in the industry.

HSB Munich Re will provide performance insurance for the demonstration project. HSB, part of Munich RE, is the leading underwriter of equipment and technology in North America, servicing more than five million locations in the U.S. alone. HSB's underwriters and engineering staff have extensive experience providing risk solutions for business, industry, public entities, and institutions. HSB established HSB Energy Efficiency Insurance to underwrite the performance of energy efficiency conservation measures. The use of performance insurance as part of the Pay-for-Success transaction model removes the uncertainty of energy performance. This reduces perception of risk and allows lenders to offer lower interest rates for use of their capital.

The value proposition for HSB is the ability to apply its insurance expertise to the Pay-for-Success transaction model for the first time in the small residential energy efficiency market segment. Successful implementation of this model could open up a new marketplace that would not only benefit HSB and other performance insurers, but also participating customers and customer rates as efficiency outcomes are realized at lower cost and with lower risk.

Quantified Ventures will serve as the impact investment brokerage firm for this project. Founded in 2014, Quantified Ventures is dedicated to advancing the fields of pay-for-success and impact investing through steady innovation and a relentless pursuit of transactional efficiencies. They work with governments, health systems, nonprofits, companies, and impact investors to negotiate purposeful, efficient agreements that accelerate funding of socially beneficial outcomes. Their clients are empowered with the confidence to make informed, insightful business decisions—knowing exactly which investments will and will not work, and why.

The value proposition for Quantified Ventures is the ability to apply its expertise in facilitating impact investment to an underserved and critically important segment of the energy efficiency industry.

Value to Other Third-Party Participants

Third-party investors

Third-party investors in this REV Demonstration provided by Quantified Ventures, as described in the Third-Party Specific Agreements section (3.3.2), will provide structured financing (project finance) to provide upfront capital

to build projects and reach participants. They will be paid based on the long-term cash flow that the aggregation firm will receive from the utility in exchange for delivering actual metered energy savings. Impact investors will derive value from the climate and social justice benefits that will be created from the LMI retrofits. In exchange, they will provide a lower cost of capital than the market rate.

Home Performance Contractors

Home performance contractors that specialize in installing insulation, air sealing, HVAC equipment, and other ECMs related will be attracted to this demonstration because it will reduce customer acquisition costs and soft costs, both of which are long-standing barriers in this large but hard-to-access market segment. Home performance contractors will benefit through experiencing a more streamlined process that will eliminate untimely approval and completion processes, inaccurate and controversial energy modeling, uncertainty about incentive levels, and limitations and confusion about eligible measures. This will result in an easier, less-time consuming pitch to participants and faster project completion time.

2.1.3. Utility

As described in the Problem section (1.1), traditional energy efficiency programs have not effectively addressed some of the unique challenges and opportunities faced in the LMI customer segment, and particularly in small residential buildings. Overly complex programs that require upfront payments from customers and lengthy studies drive up costs, jeopardize completion, and limit the potential energy savings. By comparison, *EnergyFit* provides Con Edison the opportunity to demonstrate a new customer engagement approach and business model that is expected to reduce customer acquisition and soft costs, increase adoption rates, and potentially scale up third-party investment in residential energy efficiency. As a result, *EnergyFit* will enable Con Edison to more effectively support LMI participants in reducing their energy usage and costs. Reducing energy costs for low-income customers is an important priority of the Commission that this demonstration project will support.

Con Edison will also benefit through applying an open-source billing analysis tool, OpenEEMeter, to measure weather-normalized energy efficiency savings at the individual building and portfolio level. Rigorous documentation using a transparent and standardized methodology is expected to demonstrate that energy savings at the portfolio level are reliable and can yield attractive financial returns for third-party investors. Making this case to the marketplace should allow Con Edison to increase investment in small-residential energy efficiency while reducing its direct capital contribution and minimizing performance risk normally borne by customer rates.

Con Edison will also benefit from deeper and longer-lasting engagement with its LMI participants. The *EnergyFit* demonstration will leverage points of customer engagement as an opportunity to discuss the value of energy conservation in terms of cost savings as well as improved health, safety, and comfort. Energy education is expected to maximize the effectiveness of installed measures, improving the cost-effectiveness of the project, and strengthen the customer-utility relationship. It is also expected to provide the Company with an opportunity to return to participating customers with new offerings and energy reduction programs as they evolve. As a result, the demonstration is expected to increase levels of customer satisfaction, as measured by the Net

Promoter Score. The Team will capture a baseline Net Promoter Score and will measure changes in this metric via surveys throughout the project life cycle.

Finally, Con Edison will benefit from this demonstration project by identifying ways to effectively deliver energy efficiency and load relief, which in turn will contribute to Earning Adjustment Mechanisms (EAMs). Proving the success of the standard package model could also greatly increase the number of retrofits completed in both LMI and market-rate small residential buildings.

2.1.4. System

Con Edison's customer rates and the energy system will benefit from *EnergyFit* in the following ways:

- **Alignment of incentives to reduce system costs.** Programs that include upfront rebates can place unnecessary performance risk, and thus increased program costs, on customer rates and require extensive monitoring so that proper rebate procedures are being followed and rebate campaign metrics are properly tracked and assessed. It is not uncommon to see a significant portion of utility rebate program budgets allocated to administrative costs, which effectively increase the price of energy efficiency. By paying only for actual metered energy savings, *EnergyFit* is expected to reduce overhead, risk to customer rates, and the long-term cost of acquiring energy efficiency as a resource.
- **Technology and business model innovation.** Traditional energy efficiency programs rely heavily on estimated savings and often shy away from newer and more innovative approaches to energy efficiency. Breakthroughs in technologies and business models are often neglected because the savings have not yet been reliably proven to regulators. The Pay-for-Success model encourages innovation by rewarding all savings equally, and focusing on meter reading regardless of where savings come from—LED light bulb conversions, a smart radiator cover, etc.
- **Creation of EE as a true capacity resource.** The implementation of the metered energy efficiency platform in this demonstration project will provide a statistically robust dataset and transparent, unbiased analysis to prove that consistent energy savings are achievable across a portfolio of small energy efficiency retrofits. This actuarial performance data will allow for Con Edison to consider energy efficiency to a greater extent in future system planning. It could also create a future opportunity for private actors to bid energy efficiency as a resource into forward capacity markets, along with all other traditional and DERs. As DER penetration increases in the coming years, the time and locational benefits of energy efficiency will become increasingly important to addressing system planning and resource needs.

2.2. Customer Segmentation and Demographics

The demonstration has two test groups, which include:

Group A: Attached one- to four-unit buildings constructed before 1930²⁵

Group B: Semi-attached one- to four-unit buildings constructed before 1930

These two building types are very prevalent in New York City and in LMI census tracts. As depicted in Table 1 and Figure 1 below, the Team estimates that there are approximately 18,902 potentially eligible buildings in Manhattan, the Bronx, and Queens. This number is derived from publicly available U.S. Census data and New York City Primary Land Use Tax Lot Output (PLUTO) data. There is also a high prevalence of one- to four-unit building stock in LMI census tracts located in parts of Brooklyn, Queens, and Staten Island where Con Edison does not provide natural gas. These buildings are not included in the demonstration, but could be addressed at scale, post demonstration, in partnership with other utilities.

Table 1. 1-4 Unit Buildings in LMI Census Tracts (80 percent of AMI or below)²⁶

	Group A Attached	Group B Semi-attached	Total
Bronx	2,404	6,146	8,550
Manhattan	1,899	451	2,350
Queens	3,157	4,845	8,002
Total	7,460	11,442	18,902

To achieve the maximum effectiveness, the demonstration will only enlist LMI customers within this identified pool that have 12 months of pre-retrofit gas and electric billing data that can be entered into the demonstration's statistical models. Income eligibility for each potential LMI participant will be confirmed during the intake process so that the demonstration serves LMI customers and communities and a balanced number of low- versus moderate-income participants are represented. CLEAResult and the Pratt Center will collect self-reported, participant income (to verify LMI status), and building- and unit-level data directly from participants as described in the Evaluation section (3.2.2). As part of the onboarding process, interested Con Edison LMI participants and building owners will self-screen for participation eligibility using CLEAResult's secure energy efficiency platform and participant portal (also call the DSMT, or Demand-Side Management Tracker). Please see the Consumer Protection section (3.5.2) and the Appendix, item number four, for details regarding the security of this data. Participants will be asked to agree to the use of any information collected. Participant information will feed into the OpenEEmeter analytic platform and matched with real-time building and unit-level energy

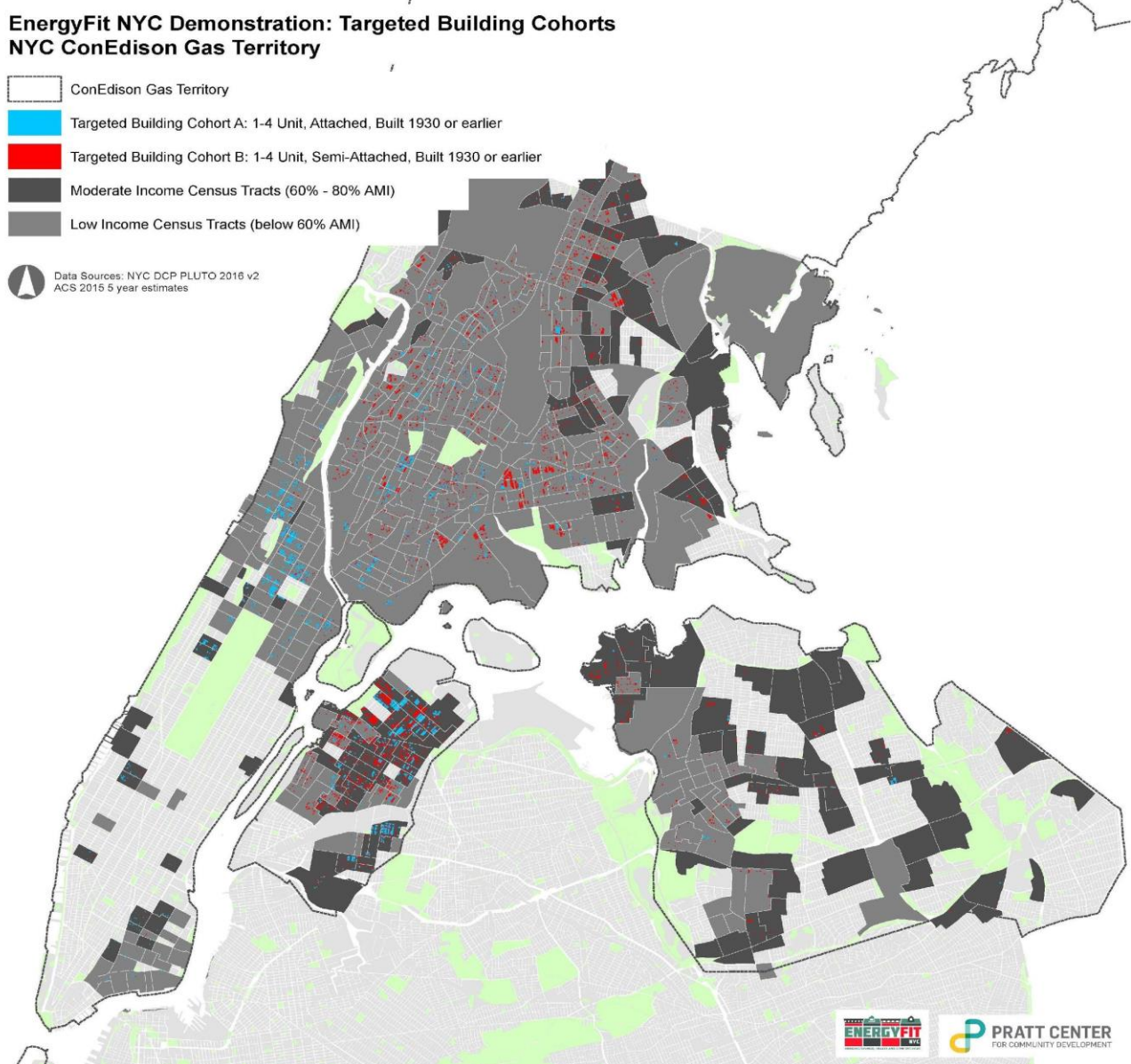
²⁵ There are a number of different building typologies that make up the universe of New York City's more than 860,000 one- to four-family buildings. The pre-1930s criterion was selected, because it represents the majority of these homes, is highly prevalent in LMI census tracts, and allows the EnergyFit team to build on the previous work done in the EnergyFit NYC pilot. Focusing on this subset of 1930's buildings, rather than a variety of buildings, also allows for quicker analysis of results of metered savings performance in a more affordable demo scope and size, while still achieving critical desired learnings.

²⁶ Number of buildings was derived from Primary Land Use Tax Lot Output (PLUTO) 2016 V1; pre-1930 includes year 1930. Where proxy code or the year built was not available buildings were not included (Queens PLUTO 2016 V2).

usage data. Usage data will be provided by Con Edison via a secure CSV file sent to OpenEEmeter. Figure 1 below shows the concentration and location of each building type (Group A and B) from Table 1 above.

[Continues on the following page]

Figure 1. Demonstration Project Cohort Groups A and B



2.3. Channels (Communication, Sales, Promotion)

The Pratt Center will be the primary channel for communication and promotions. The Pratt Center will work with its extensive network of CBOs to identify organizations that have established track records working with LMI residents in the areas targeted above. This local staff will work one-on-one with participants to provide support as participants go through the various stages of the customer journey. Working with CBOs was a key factor in the success of Con Edison's Brooklyn Queens Demand Management (BQDM) non-wires solutions

initiative, and this effort is expected to enhance the *EnergyFit* demonstration project’s potential for success as well.²⁷ To facilitate the ease of connecting participants with an efficiency implementer, CLEAResult will use a competitive process to pre-select home performance contractors to complete the project’s retrofits so that they can be vetted and verified. Suggesting a pre-qualified contractor for each participant is expected to reduce skepticism, distrust, and participant decision difficulty.

Relationship building and transparency between Pratt Center staff, contractors, and participating customers is critical. The project approach will include encouraging participants to feel comfortable asking questions, providing them with easy-to-read frequently asked questions (FAQs) and reference materials, not immediately trying to collect personal data during the first point of contact, and providing them with a single customer-service contact that the participant can reach out to with concerns. These methods were vital to the success of the initial *EnergyFit* pilot described in the Solution section (1.2). Data collection is described in detail in the Evaluation (3.2.2) section.

Language and demeanor are also incredibly important when serving LMI customers. All staff that interacts with participants will be trained to build comfort, participant knowledge, and trust by using accessible language and customer-service oriented manner. Based on learning from the prior *EnergyFit* pilot, it is essential to recognize participants as partners in the retrofit process so they are empowered to control their energy usage. Customer feedback from the initial pilot referenced recognizing participants as partners as key to customer satisfaction, leading to continued engagement with energy efficiency over time.

The demonstration will engage LMI participants through the following additional mediums:

Direct Engagement	<ul style="list-style-type: none"> - Door-to-door canvassing by the Pratt Center staff and local CBOs - Outreach to CBO membership networks - Host and attend events specific to targeted communities - Dedicated local staff available to answer questions and assist participants through the process - Engaging past participants to serve as trusted messengers - Word of mouth and participant referral marketing
Marketing Collateral	<ul style="list-style-type: none"> - Project overview and fact sheet - Frequently asked questions - Educational collateral (What is an energy assessment? etc.) - Postcards - Strategically placed project signage - Supplemental canvassing materials (door hangers, etc.) - Emails and social posts
Digital / Web	<ul style="list-style-type: none"> - Webpage with project content - Web portal for online enrollment - Digital ad placements

²⁷ BQDM Quarterly Expenditure & Program Report, Q1 – 2018, p. 28

2.4. Ability to Scale

CLEAResult notes that the energy efficiency market for one- to four-family buildings is small, with only a handful of contractors actively working in the five boroughs. By developing a standardized package that is readily marketable to similar building types and a streamlined process to deliver that package, the existing contractor pool in the NYC metro area could be quickly expanded. While this demonstration project is focused on LMI communities in Con Edison's combined electric and gas service territory, the benefits of the *EnergyFit* approach can easily be expanded to LMI communities in Con Edison's electric-only territory and market-rate households in the Con Edison's gas and electric only territory.

The demonstration project is designed for scalability in the following two ways.

- 1. To a larger set of Con Edison customers:** The demonstration will focus on two building type groups that are a subset of the 557,000 one- to four-family buildings located in LMI census tracts. Post-demonstration, the *EnergyFit* approach is easily scalable to the balance of that housing stock. Additionally, there is another 300,000 one- to four-unit buildings located in higher-income census tracts to which this approach can also be applied. Further, a standardization approach could be applied to similar buildings in the five or more unit small residential building market as well.
- 2. As an on-ramp to deeper energy retrofits.** As indicated by the low participation rates in existing home performance programs, offering only a comprehensive, individualized home performance approach is not a viable path to achieving scale. However, by starting with a quick, easy-to-understand retrofit, participants can become comfortable with energy efficiency and recognize the benefits, establishing an opportunity for future additional upgrades. Customer feedback from the initial *EnergyFit* pilot included residents who were interested in pursuing solar and other efficiency offerings after having a positive experience with the pilot. In the demonstration, the Team will collect information on HVAC equipment status, in hopes of fully understanding the potential for additional energy efficiency upgrades as the project evolves.

3. Demonstration Plan

3.1. Metrics for Success

The following section outlines the metrics that will be used to determine the success of the demonstration. The primary metric for success will be the model's ability to achieve an estimated electric savings of three to 15 percent and gas savings of 13 to 20 percent, but the demonstration will also provide valuable data on the effectiveness of a wide array other important project performance indicators. The resulting data will be used to help inform the value of creative project financing and streamlined engagement in achieving energy savings from LMI one-to four-family buildings. A detailed list of important key performance indicators and a proposed reporting schedule is below. More metrics will be added to this list once Phase 1 of the demonstration is

complete and there is an understanding of which elements should be included in the net present value calculation described in the Leveraging of Third Party Capital section (4.2.2). Phase 1 is described in detail in the Timelines, Milestones and Data Collection section (3.2).

Category of Effect	Performance Metrics	Reporting Cycle
Affordability	<u>Participating customers:</u> <ul style="list-style-type: none"> • Average dollar value of energy savings as compared to average participant annual usage • Average percent reduction in energy costs • Reduced proportional energy cost to LMI households measured as a percentage of dollars spent on utility bills • Average reduction in late fees and penalties • Percent reduction in monthly cost-deviation • Reduction in the number and cost of participant disconnections • Tenant savings (when utility bill is included in rent) 	→ Quarterly
	<u>Non-participating customers:</u> <ul style="list-style-type: none"> • Cost per kWh and cost per kWh as compared to current energy efficiency implementer price • Reduced arrearages of participating customers • Reduced dollar amount of write-offs and uncollectable late payments at the group and individual level, relative to the control group • Reduced number of participating accounts with arrearages or written off as uncollectible, relative to the control group 	→ Annually
Sustainability	<u>Energy consumption</u> <ul style="list-style-type: none"> • Average amount of energy savings at the portfolio level as compared to the estimated electric savings of three to 15 percent and gas savings of 13 to 20 percent targeted • Reduced baseload, at the portfolio level, as compared to the year prior • Reduced GHG emissions in metric tons • KWh reduction • Efficiency savings (at the portfolio or individual level, year-over-year, compared to the control group) <u>Health and safety</u> <ul style="list-style-type: none"> • Number of health and safety remediations • Number of agency referrals to address more significant health and safety concerns • Number of each type of health and safety remediations undertaken, including minor mold remediation, ambient moisture issues, etc. <u>Program efficiency</u> <ul style="list-style-type: none"> • Participant acquisition costs • Cost of ECMs as compared to savings measured • Dollar value of soft cost as compared to target • Decrease in dollar value of soft cost over prior year • Project cost per participant • Monthly portfolio level savings achieved as compared to predicted savings 	→ Annually
Engagement	<u>Participant perceptions</u> <ul style="list-style-type: none"> • Reported increase in positive perceptions of the Utility • Reported perception of increased comfort as a result of project participation/measures <u>Energy literacy</u> <ul style="list-style-type: none"> • Change in energy literacy related to EE, EE measures, energy management techniques, and potential energy savings that can be obtained through EE, as measured by comparison to a pre- and post-demonstration project survey 	→ Annually

	<ul style="list-style-type: none"> • Reported increase in understanding of home energy efficiency options <p><u>Demographics</u></p> <ul style="list-style-type: none"> • Number and percent of participants who engage with the project and express interest in moving forward with the full retrofit option • Number of participants who participate in the demonstration project as compared to the target of 2,000 • Number of participants participating from semi-attached homes built before 1930 • Number of participants participating from attached homes built before 1930 • Participant conversion rate as compared to the number of participants engaged <p><u>Participant satisfaction</u></p> <ul style="list-style-type: none"> • Net Promoter Score • Level of satisfaction with the projects onboarding/enrollment process, by entity performing onboarding/enrollment • Level of satisfaction with the assessment process • Level of satisfaction with the retrofit process • Ease of the intake and enrollment process <p><u>Cost to serve</u></p> <ul style="list-style-type: none"> • Rate of participant attrition • Rate of participant retention • Average dollar amount spent to acquire participants compared to number of participants acquired versus those targeted 	
Access	<p><u>Clean energy access</u></p> <ul style="list-style-type: none"> • Number of units that received home energy assessments/direct install measures as compared to the annual target set in Phase 1 • Number of units that received home energy retrofits as compared the three-year target of 200. Annual targets will be determined and tracked during Phase 1 of the demonstration. <p><u>Energy solutions adoption</u></p> <ul style="list-style-type: none"> • Time (in days/hours) between initial participant inquiry to project completion • Number of participants enrolled by each project partner (CBO, Pratt, CLEAResult, etc.) • Total number of participants enrolled • Number of project staff members hired from the local community • Number of New York-based subcontractors • Number or participants referred by another participant 	→ Quarterly

3.2. Timelines, Milestones, and Data Collection

3.2.1. Implementation Phase

Phase 1: This phase of the demonstration will last approximately 10 months, during which the Team will develop term agreements related to the structure and processes needed to deploy financing and to procure energy savings in this demonstration. Key activities related to this phase occur in two stages, Stage A and Stage B, described below and in Figure 2.

Stage A – “Preparation”

This stage is critical to ensuring that *EnergyFit* demonstrates what investors deem necessary in order to invest in the project. At the close of this phase several factors will determine if the project moves forward (the amount of private investment attracted, the level of investor risk present versus risk tolerance of investors recruited by the *EnergyFit* Team, the ability of all parties to reach agreement on project terms, etc.)

Stage B – “Launch”

This stage includes project start-up activities and will occur during the last four months of Phase 1. Stage B activities will only commence if the Team is satisfied with the outcomes of Stage A. A schedule of Phase 1 tasks and milestones is shown in the table below.

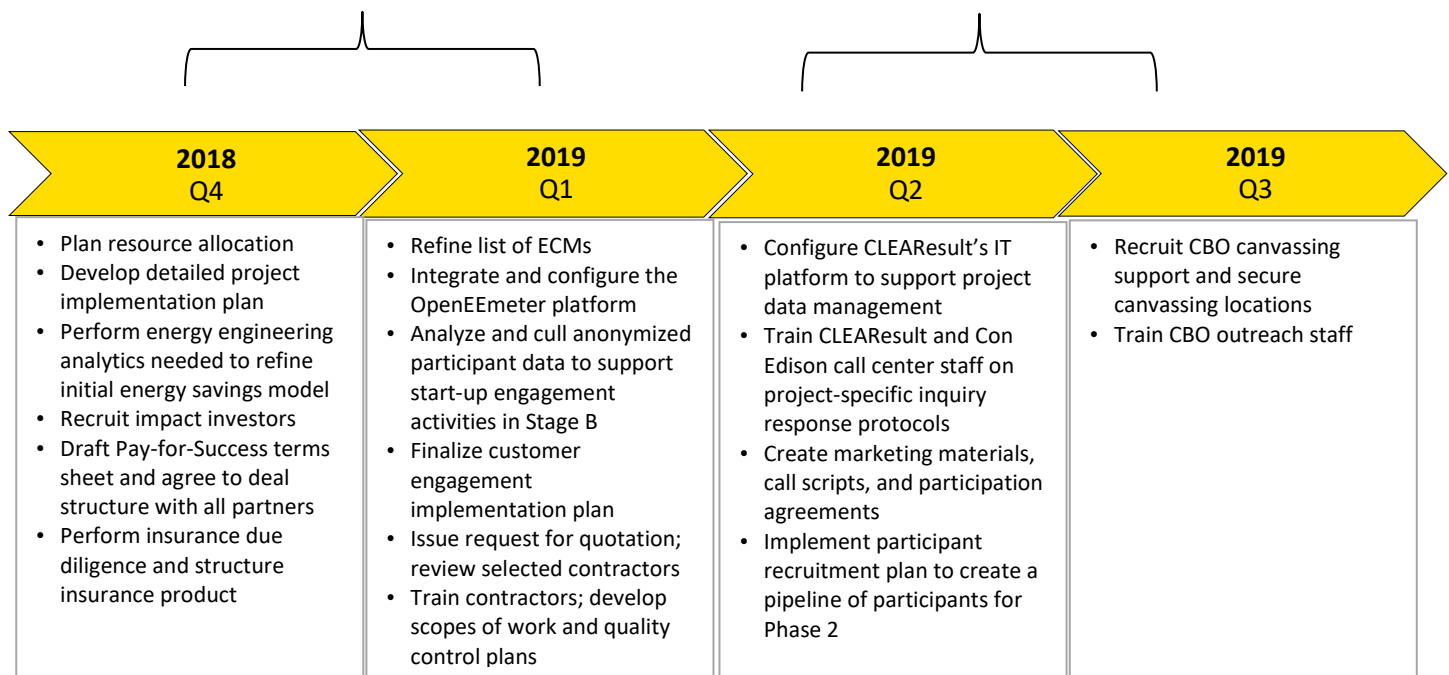


Figure 2. Timelines and milestones for Phase 1 of the demonstration project showing activity across the first year.

Phase 2: If all activities during Phase 1 are successful and the “Pay for Success” transaction terms are agreed to by all parties, the demonstration will move to Phase 2 and assessments and retrofits will begin. Phase 2 will be divided into three stages: Stage C, Stage D, and Stage E, as shown in Figure 3 below. Each of these stages will last

12 months. Con Edison will evaluate project costs and realized energy efficiency savings in order to adjust the contractor performance payments quarterly as described in the Solution section (1.2, under the Savings Purchase Agreements and Financing Mechanism headings). It is expected that by the close of each stage in Phase 2 there will be adjustments from baseline assumptions about the energy efficiency savings that can be obtained in the project. With each adjustment to the Team’s baseline assumptions, the Team will move closer to knowing what amount of saving the project model can predictably realize.

Stage C – “Test”

2019 Q4	2020 Q1	2020 Q2	2020 Q3
<ul style="list-style-type: none"> Conduct assessments; supply standardized measures for 150 units in approximately 60 buildings Perform retrofits for 50 units in approximately 20 buildings Gather savings performance results Evaluate savings and costs Adjust savings projections and energy savings models accordingly 	<ul style="list-style-type: none"> Purchase realized savings (Con Edison) Repeat activities three through five from previous quarter Assess performance of customer engagement and recruitment against key metrics Refine ECM as needed Conduct assessments in 150 units in approximately 60 buildings; perform retrofits for 50 units in approximately 20 buildings 	<ul style="list-style-type: none"> Repeat activities one through four from previous quarter Conduct assessments; supply standardized measures for 263 units in approximately 105 buildings; perform retrofits for 88 units in approximately 35 buildings 	<ul style="list-style-type: none"> Repeat activity one from previous quarters Conduct assessments; supply standardized measures for 240 units in approximately 96 buildings; perform retrofits for 80 units in approximately 32 buildings Use performance results from this stage to set a baseline for Stage D and refine project model Conduct set-up activities for Stage D Reset target number of buildings to address each quarter in Stage D, if needed Adjust contractor payment amounts, per energy unit saved, as needed

Stage D – “Refine”

2020 Q4	2021 Q1	2021 Q2	2021 Q3
<ul style="list-style-type: none"> Set savings procurement target for contractor (Con Edison) Conduct assessments; supply standardized measures for at least 233 units in approximately 31 buildings Perform retrofits for at least 78 units in approximately 31 buildings Gather savings performance results Evaluate savings and costs Adjust savings projections and energy savings models accordingly 	<ul style="list-style-type: none"> Purchase realized savings (Con Edison) Repeat activities one and four through six from previous quarter Assess performance of customer engagement and recruitment against key metrics Refine ECM as needed Conduct assessments; supply standardized measures for 240 units in approximately 96 buildings; perform retrofits for 80 units in approximately 32 buildings 	<ul style="list-style-type: none"> Repeat activities one through four from the previous quarter Conduct assessments; supply standardized measures for 225 units in approximately 90 buildings; perform retrofits for 75 units in approximately 30 buildings 	<ul style="list-style-type: none"> Repeat activities four and six from 2020 Q4 and one, three and four for 2021 Q1 Use performance results from this stage to set a baseline for Stage E – target number of buildings, contractor payment amounts, etc. and refine project model Conduct set-up activities for Stage E

Stage E – “Finalize”

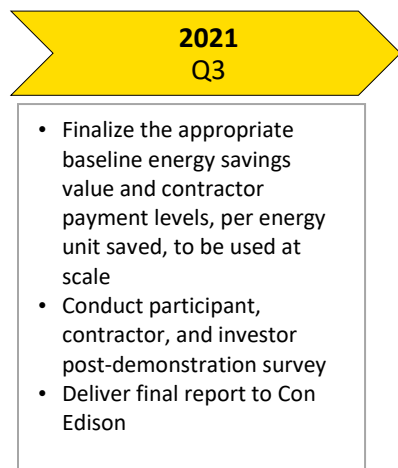


Figure 3. Timeline and milestones for Phase 2 of the demonstration project showing activity across three years, including final reporting and dissemination of results that will take place both during and after the project completion date.

3.2.2. Evaluation Phase

The Evaluation phase will include continuous data collection, storage, and sorting. The team will report costs and project performance results based on key performance indicators listed in the Metrics for Success (3.1) section, desired learnings outlined in the Hypothesis Being Tested (1.3) section, and observed opportunities for modifying the project in order to scale. Evolutions of costs and project performance will occur quarterly. Project partners will be surveyed annually, as an additional consideration, to monitor factors such as investor confidence in the (1) predictability of the savings, (2) adequacy of cash flows derived from the business model’s SPA transactions, (3) home performance contractors’ ability of to drive down their costs, and (4) community partners’ capacity to provide a continuous stream of participation from the LMI customer. Customer protections related to the data collected are described in the Consumer Protections section (3.5.2) of this filing.

To properly analyze project performance and scalability, 12 months of energy metered data post energy efficiency intervention is required and an additional 24 months is needed to understand the impacts of seasonality. This analysis will help to refine the energy saving model such that investors will feel comfortable investing at scale. As the number of contractor projects increases over the course of the project, so will the reliability of the demonstration’s findings. The more projects completed the more confidence the Team and future investors can have in the validity of the demonstration project’s results.

In order to evaluate project costs, CLEAResult will supply project cost information (about materials, labor, administration, etc.) to Con Edison, under a non-disclosure agreement (NDA), using an “open-book” accounting methodology, where CLEAResult’s accounting books related to this project can be

openly viewed as needed. Open-book accounting will allow Con Edison to have full transparency as it relates to project cost and will lead to greater accountability and accuracy in the demonstration.

The CLEAResult platform's analytics program can help the Team optimize project delivery using the platform's insights and data visualization features. These features pull insights from project data and suggest new opportunities for project improvement. The outward-facing side of the CLEAResult platform, the "participant portal," has a simple web-based user interface, so local CBO partners can collect information on location during initial participant intake and contractors can verify the accuracy of that information when on site at participant homes.

Portal screening may include the following prompts (in addition to others):

- **Please select the building type that most closely describes your home:**
 - Single-family detached
 - Attached on one side
 - Attached on both sides
 - Number of units
 - Other (describe)
- What year was the building built?
- How many floors are in the building?
- Have there been any additions built onto the building?
- Was your home originally built as a masonry home or was a brick facade installed after? (attached masonry only; unknown will be an option)
- Have all residents (tenants included) lived in your home at least one year?
- Would our team be able to access all tenant spaces in the building during the assessment?
- How many Con Edison electric meters are in the home? How many gas meters are in the home? (prompt for account numbers if they are approved)

3.3. Participation

3.3.1. Target Population, Sample Size, Control Group

CLEAResult and the Pratt Center will conduct marketing and outreach activities needed to enroll and perform energy efficiency assessments and direct installation measures on 600 buildings (1,500 building units); 500 of the units in this sample will receive the full retrofit package described in the Solution section (1.2). The sample of 1,500 units will be divided into two cohorts as shown in Figure 3 below. Marketing materials will highlight the intention of the demonstration project to benefit LMI customers and LMI communities in the Company's service territory, the New York energy system, and the environment.

The Team has chosen not to exclude master meter buildings in LMI neighborhoods with LMI tenants, so the *EnergyFit* demonstration project will include both direct metered and master metered buildings. In general, master meter one- to four-family buildings represent seven percent of the one- to four-family homes in the Company's service territory; the remaining 93 percent are directly metered. For low-income master meter households (that have heat included in the rent), high energy costs can result in increased operating and maintenance costs for building owners, who pass the cost along to the tenants, a dynamic that can result in unaffordable housing and create housing insecurity for lower-income households.²⁸ For these master metered buildings, the financial benefit of energy efficiency improvements therefore result in reduced operational costs for the building owners, and, according to the Clean Energy Advisory Council's report on providing clean energy services, this benefit is typically passed on to the LMI tenants in the form of increased comfort and safety, improved viability of the housing stock, and the stabilization of rents as a product of reduced operating and maintenance costs for the building owners.²⁹ As a result, the Team believes that by including master metered buildings with LMI tenants it can achieve benefits for LMI communities and tenants, while also realizing local grid benefits for Con Edison.

Owners of multi-unit master meter LMI housing who receive government subsidies (like Section 8) for serving low-income tenants are required to provide justification for increasing tenant rent. For owners of unsubsidized LMI housing³⁰ the Team will seek to find ways for these owners to share their savings with tenants. Marketing materials for both of these master meter building types will highlight how participating in the project can reduce the need for capital improvements and how the rent stability that can result from not having to undertake such improvements can potentially increase tenant retention, decrease vacancy rates, and improve tenant comfort, and health and safety (potentially through reduced instances of asthma, improved indoor air quality, decreased winter drafts, etc.). Conversely, for participants who live in directly metered buildings (who pay their own utility bills), the incentive for participation is expected to be direct energy bill savings as a result of the efficiency measure implemented. For units in directly metered buildings, the incentive for the building owners is anticipated to be no-cost participation and bill savings for their tenants.

Treatment groups #1, #2, and #3 below will receive home energy assessments, including limited health and safety remediation, energy efficiency education, and direct installation of energy conservation measures, as described in the Solution section (1.2). Treatment group three will receive an energy retrofit package consisting of prescriptive insulation and air sealing in high energy loss areas, as described in the Solution section (1.2). The control group will contain an additional 500 units that pass

²⁸ Matter 16-01007, Clean Energy Advisory Council (CEAC) LMI Clean Energy Initiatives Working Group, *Report on Alternative Approaches to Providing Low and Moderate Income (LMI) Clean Energy Services*, February 6, 2017, p. 10.

²⁹ Matter 16-01007, Clean Energy Advisory Council (CEAC) LMI Clean Energy Initiatives Working Group, *Report on Alternative Approaches to Providing Low and Moderate Income (LMI) Clean Energy Services*, February 6, 2017, p. 14.

³⁰ Unsubsidized low-income buildings can be thought of as "naturally occurring low-income housing"—they are not legally required by a government housing portfolio to keep their rents affordable for low-income tenants, but they cater to low-income tenants because that is the market rate in a neighborhood.

the same screening process in order to qualify for assessment and direct installation work. Participants will receive a nominal incentive such as a gift card for their participation.

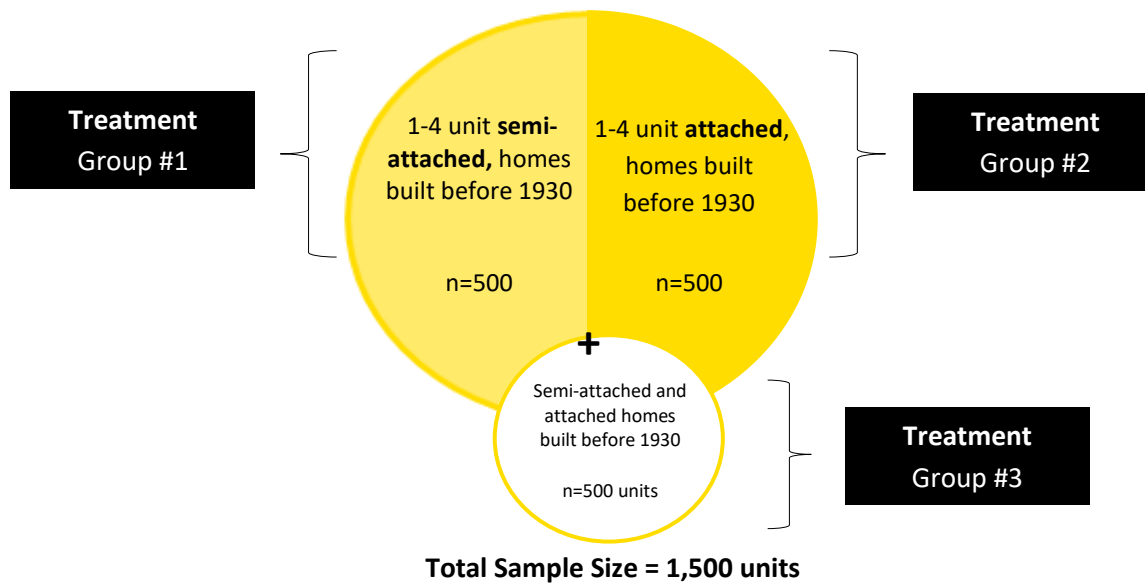


Figure 3. Treatment and Control Group Overview

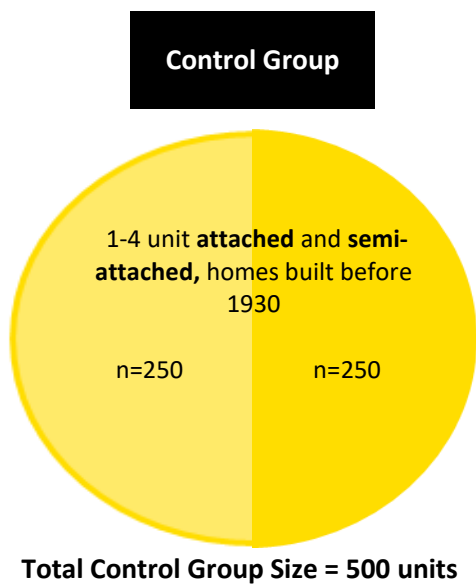


Figure 4. Control Group Overview

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

All third-party scopes of work will address the timely delivery of appropriate technology (like power strips) and services (like customer engagement). The scopes of work will also detail 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 basic elements of the project's design.

CLEAResult has agreed to:

- Act as team lead and manager of all partners and third parties on behalf of Con Edison as needed
- Develop a go-to market strategy for all channel partners to execute
- Provide engineering resources for data analysis and evaluation
- Develop marketing plans and materials
- Train all contractors and define scopes of work for all other necessary parties and their staffs
- Provide participant contact center call support services
- Perform home energy assessments and direct installations; manage the distribution of all ECMs
- Provide quality control
- Manage all project data and any necessary reporting to Con Edison

Pratt Center has agreed to:

- Support CLEAResult in project design and provide local market intelligence
- Lead and manage customer engagement initiatives locally
- Recruit, manage, train, and develop scopes of work for any additional CBOs needed for engagement
- Report on project key performance indicators related to their outreach
- Assist with general project reporting and case study development

OpenEEmeter has agreed to:

- Assist with project design
- Provide access to OpenEEmeter platform and project data housed therein
- Customize the OpenEEmeter platform as needed
- Analyze pre- and post-retrofit data
- Assist CLEAResult with reporting as needed
- Provide timely delivery of the OpenEEmeters upon receipt of payment

Quantified Ventures has agreed to:

- Recruit an optimal group of impact investors for the project
- Support impact investors with project performance information
- Create materials related to project performance that allows for confident, informed, and insightful investment in the project

- Oversee all financial transactions between project partners and impact investors³¹
- Identify operational, process, data, management, and strategic gaps in the project design that could impede investment and scalability
- Draft initial outcome-based financing terms between project partners

HSB Munich Re has agreed to:

- Design and supply a performance insurance product to reduce risk to impact investors
- Provide consultation on project design and outcome-based transition terms

Participating CBOs 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

Con Edison will provide utility bill and energy use information, with the participant's permission, so that the Team can create a baseline of energy use in the participating households. Con Edison will also provide project oversight and management, guidance and expertise, and assistance with site and local CBO selection.

3.4. Customer Outreach / Community Engagement

3.4.1. Outreach to Affected Communities

To generate leads and drive participation in the *EnergyFit* project, the Team will use NYC Department of Finance and Department of City Planning PLUTO tax lot data to identify one- to four-family semi-attached and attached homes in LMI census tracts. Below are the tactics the Team will use for outreach and engagement with the community as they recruit participants. All participant data shared with the demonstration partners will be subject to strict terms of appropriate use, confidentiality, and security. Each tactic below will fully comply with federal Telephone Consumer Protection Act of 1991 (TCPA) and the Commission's Uniform Business Practices for Distributed Energy Resources Suppliers, as applicable.

Mailings

One of the most effective tactics deployed during the initial *EnergyFit* pilot was mailing collateral material (like postcards) with information about the pilot, guidelines for participating, and instructions

³¹ Quantified Ventures serving in this role provides the appropriate assurance to investors and Con Edison that all debts are being satisfied according to the terms set forth in Phase 1 of the demonstration project.

for interested residents to either call a hotline number or visit a website to enroll. This practice generated over half of all pilot leads and will be used in the *EnergyFit* demonstration project as well.

Canvassing

Another tactic that will be used from the prior pilot is canvassing. In the pilot, a group of pre-qualified homes were selected and a team of Pratt Center and local CBO staff were deployed to conduct door-to-door outreach. Canvassers left informational materials with the building owners and the heads of individual households within the building. In the *EnergyFit* demonstration project the Team will follow the same practice. Canvassing staff will also be hired from the communities they will serve and trained and deployed to specific, pre-qualified buildings with informational materials.

Training will include an overview of the *EnergyFit* project, best practices for community engaging, role-playing exercises, and shadowing of experienced community outreach staff. Local staff will explain the value of the demonstration project and enter participant information into the CLEAResult participant-facing portal. Local staff will also be provided with “leave-behind” materials that will clearly outline measures installed, services completed, and additional educational tips and resources. CLEAResult will work with Con Edison’s Corporate Affairs department to evaluate all materials for cultural relevance and fit for participants (e.g., marketing collateral available in a participant’s native language, when possible).

Events

Pratt Center and local CBOs will engage, educate, and enroll LMI participants during community outreach events. Specific CBO partners will be identified during the demonstration preparation phase and be recruited from Pratt Center’s long-standing relationships with CBOs.

Local advocacy

Pratt Center and local CBO partners will expand their established referral networks to support outreach and generate visibility among eligible participants. Promotional materials—posters, fact sheets, and press articles—will be displayed in the offices and distributed through communication channels that these referral partners use. Explicit instructions from distribution will accompany any materials sent to referral partners. Pratt Center will coordinate with Con Edison’s Corporate Affairs department in working with local elected officials and other community leaders in areas with high numbers of the selected building stock as a means of building trust with the community. The Team will seek to promote the project through several additional avenues, including flyers in local community-gathering spaces (churches, supermarkets, schools) and through relationships with homeowners who have received the retrofit and want to share success with neighbors.

Technology

An integrated marketing approach will be used to marry mail, email, canvassing, and media placements tactics with communications on digital platforms, such as social media sites, community blogs, and other appropriate digital promotions channels. Once participant enrollment information has been entered into the CLEAResult participant portal, the CLEAResult customer contact center will use this information to assist participants and provide a seamless customer experience.

Additional participant touch-points

The Team will leverage every touch point with participants to provide education on the benefits of energy efficiency.

EnergyFit website:

- The Team will develop an *EnergyFit* website and include the *EnergyFit* URL on all marketing materials. The website will provide an overview of the demonstration and an opportunity to answer basic questions to determine a participant's eligibility. These entries will be screened by CLEAResult's customer contact center and all participants will receive a response regarding their eligibility within one business day.

Customer contact center:

- Contact center staff will explain the value of the demonstration project and enter participant information into the central management system to determine eligibility. After the initial eligibility screening, the contact center will notify all participants who are eligible to schedule the short, in-home assessment and direct install. If ineligible, the participant will receive information on steps they can take independently to explore other energy efficiency programs (including DIY information and information about or referrals to alternative programs).

Customer managers:

- All project participants that are selected to participate will be assigned a participant manager from the customer contact center. The participant manager will assist the participant as they move through the participation process. The participant manager is expected to function as a trusted resource that troubleshoots issues that arise and answers questions in a timely manner. They will inform interested participants if they will be proceeding to full retrofit, assign them to an installation contractor, and contact the participants after the retrofit is complete to administer follow-up surveys. A flowchart of how participants will experience service is shown below in Figure 5.

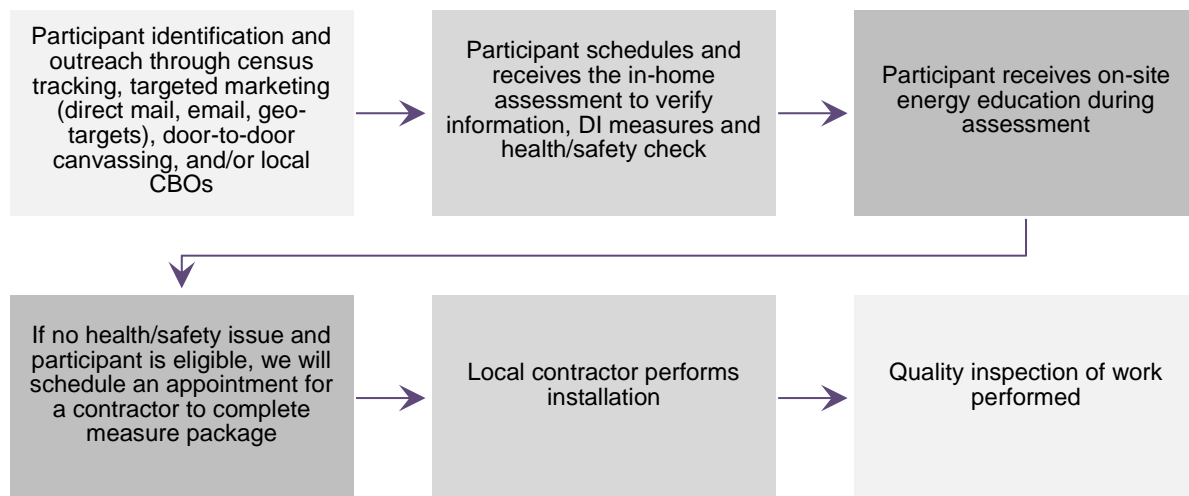


Figure 5: *EnergyFit* Customer Experience

3.4.2. Motivating Customers / Communities

Motivating LMI customers to participate in the *EnergyFit* demonstration project will require the Team to address key barriers to participation specific to this population. Table 4 below provides an overview of the common LMI program risks and barriers, as well as tactics for overcome them based on the Teams' collective energy efficiency experience working with and for LMI communities.

Table 4. Overcoming Income Qualified Program Participation Barriers and Risks

Barriers	Mitigation Strategies
High upfront costs of assessment and weatherization measures	<ul style="list-style-type: none"> ✓ No-cost assessments and direct Install (DI) measures ✓ Provide up to \$400 in incentive funds to make health and safety upgrades and home improvements ✓ Refer to agencies that can help find additional funds if repairs are significant and more costly than the project's health and safety incentive
Lack of knowledge about energy efficiency products,	<ul style="list-style-type: none"> ✓ Partner with local CBO lead by the Pratt Center and benefit from their prior experience and pilot work, enrolling LMI participants

programs and benefits	<p>and educating them about EE and EE products</p> <ul style="list-style-type: none"> ✓ Focus participant education on how retrofits benefit them directly ✓ Educate to maximize and demonstrate the effectiveness of installed measures ✓ Highlight immediate improvements in cost post-installation to encourage change in participant usage patterns long term
Low participant satisfaction with typical EE project processes	<ul style="list-style-type: none"> ✓ Offer a pre-determined set of measures to reduce confusion and provide clear next steps to decrease participant decision paralysis ✓ Communicate with participants through their preferred medium (web, phone, email, etc.) ✓ Respond to participant inquiries within two business days
Time commitment	<ul style="list-style-type: none"> ✓ Offer a streamlined process that includes a shorter assessment than traditional efforts (one to two hours) and a one-day retrofit
Lack of customer interest/participation	<ul style="list-style-type: none"> ✓ Use Pratt's existing list of over 300 interested participants to start initial enrollment to allow lead time for securing additional participants ✓ Conduct outreach through Pratt Center's local staff and CBOs that are trusted and familiar with the participating communities
Lack of knowledge about local contractors	<ul style="list-style-type: none"> ✓ Contract with a select group of vetted contractors ✓ Assign contractors to a home to minimize confusion and burden of contractor selection
Program credibility and awareness	<ul style="list-style-type: none"> ✓ Conduct direct outreach through collaboration with local on-the-ground organizations ✓ Market project using community-based outreach channels and cost-permitting channels offering maximized impression rates

3.5. Conditions / Barriers

3.5.1. Market Rules and Standards

There are no anticipated impediments to this project from utility rules and standards. Nor does this project offer impediments to utility regulation and reporting. All energy saving claims will be supported with data and analysis so that Con Edison can report to regulators for use in proceedings or forecasting.

This demonstration will leverage normalized metered energy consumption data to determine the impacts of the demonstration, a practice that varies from how saving-from-efficiency initiatives in NY are measured. Currently, either the New York Technical Resource Manual or proprietary energy usage simulation software is used to value deemed energy savings. By shifting to normalized, metered-energy savings, we expect this project to provide more accurate and impactful data, as described in the Solution section (1.2), and true valuation of energy efficiency as an asset comparable to other supply-side resources.

3.5.2. Consumer Protections

CLEAResult will act as the lead steward of all participants' data through their data management platform and customer portal. However, all vendors interacting with participant data will sign and comply with Con Edison's standard Data Security Agreement (DSA) and Vendor Risk Assessment (VRA).

Ethical business practices are a top priority. All technology vendors will be vetted for data security vulnerability by Con Edison's internal information technology team. To protect participant data, the Team has instituted physical and digital security measures; these include physical controls; logical layers such as data isolation; application security, infrastructure service, identity, and access management such as federated identity management; and single sign-on. More detail on the security of the CLEAResult and OpenEEmeter platforms can be found in the Appendix, item number four. Additionally, the Team will institute safety plans that meet industry standards for operating within a customer's home and that protect the participant and the implementation staff entering the participant's home.

3.5.3. Channel or Market Challenges

The primary channel partner will be the Pratt Center for Community Development's local staff and network of CBOs, trusted in and familiar with the participating communities. Much of the engagement will be driven by their efforts, and though they have a waiting list of interested participants and success in a small pilot using the channels outlined in this filing, there will be channel and market challenges that present risk to the successful delivery of the *EnergyFit* demonstration project. Con Edison and the project partners will enter into agreements with any additional engagement providers that will include detailed scopes of work, timelines, and budgets in order to minimize the risk of non-performance associated with third-party channels.

Another channel partner will be CLEAResult, with its customer call center representatives and digital platforms (the CLEAResult website and customer portal). The challenge will be providing a seamless user experience and timely responses so as not to cause a drop in participation or satisfaction. Regular bi-weekly and monthly performance reports and in-person check-ins will also minimize this risk of channel under performance.

4. Financial Elements / Revenue Model

4.1. New Utility Revenue Streams

4.1.1. Platform Services, including Pricing Strategies

The primary objective of this demonstration project is not to test a new utility revenue stream. Instead it will test a new model for delivering cost-saving energy efficiency measures to a difficult-to-reach market segment—small residential LMI customers—through community-based engagement and a streamlined process, while utilizing an innovative financing approach (Pay-for-Success) to leverage third-party financing and maximize performance outcomes. Nonetheless, there are several opportunities for Con Edison to earn additional revenue from this model if implemented at a larger scale, which can be explored post demonstration. Among the opportunities for obtaining additional revenue is meeting earning adjustment mechanism targets—such as surpassing energy efficiency savings goals and reducing peak demand—or through other shared savings mechanisms agreed to between Con Ed and the Commission in the future. Con Edison could also recognize transactional revenue through serving as the platform provider to this marketplace should a marketplace develop. This aspect of this concept will be vetted in the third stage of the demonstration and post demonstration as evaluation of the project begins in preparation for taking the project to scale.

4.2. Investments

4.2.1. Details and Timing of Spending

Below is the demonstration project budget by calendar year. The budget allocations for Phase 2 will be updated after Phase 1. For more detail about the phases of this project please see the Timeline, Milestones and Data Collection section (3.2).

Table 5. Project Budget

	Phase 1 <i>2018</i>	Phase 2 <i>2018</i>	<i>2019</i>	<i>2020</i>	<i>2021</i>	Total
Total	\$963,444	\$591,874	\$1,578,843	\$1,578,843	\$1,578,843	\$6,791,847

4.2.2. Leveraging of Third-Party Capital

EnergyFit will achieve significant leverage of third-party capital by financing the installation and program costs during the demonstration period. For the Pay-for-Success model to succeed, the portfolio of

energy efficiency retrofits must provide positive economic returns to all stakeholders, including Con Edison, aggregation firms, private contractors, impact investment firms, and performance insurance firms.

During Phase 1A of the demonstration project, Con Edison and its partners will conduct energy analysis and financial modeling using conservative inputs (lower assumed savings, higher assumed costs) in order to develop draft terms for the Pay-for-Success model. These terms and underlying analyses will then be shared with impact investors that are identified by Quantified Ventures as well as the performance insurer HSB. It is expected that all parties will agree in principle to the transaction terms within six months, representing the conclusion of Phase 1A. The terms will then be executed during Phase 1B.

Below is a description of the basic variables that will be used to calculate net present value (NPV) from the perspective of the impact investor. While the actual financial formulas used for the products will likely be more complicated, this simplified description is provided to shed light on core considerations.

Traditional NPV Formula

$$NPV = -C_0 + \sum_{i=1}^T \frac{C_i}{(1+r)^i}$$

Variable	Description	Relevance	Objective
$-C_0$	Expected project cost	Impact investor pays upfront to develop the retrofit projects in exchange for an expected future cash flow	Reduce project costs through optimizing the mix of ECMs, achieving operational efficiencies, and reducing soft costs
C_i	Expected future cash flows	Impact investor receives payment from CLEAResult to finance efficiency projects and CLEAResult receives payment from Con Edison of a certain dollar amount per energy unit saved according to the terms of SPA	Establish dollar per unit saved value that accounts for all benefits to participants, society, and the environment—including avoided system costs, carbon mitigation, LMI energy burden reduction, customer satisfaction, and other public policy goals—while providing the impact investors a reasonable return
T	Time period	Duration over which each cash payment is made by CLEAResult to impact investor	Time milestones for project completion and associated cash payments to accurately reflect pacing of project, thus minimizing both lag time and risk of project non-completion

R	Risk-adjusted discount rate	Factor applied to future cash flows to account for the time-value of money, as well as project risk	Minimize the risk-premium given to lenders through accurately projecting costs and portfolio-level costs energy savings, meeting completion milestones, and mitigating performance risk through efficiently priced insurance
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Not represented in the formula above is the addition of performance insurance, which reduces the risk of the impact investor's investment in the project. This will add cost to the project on one hand but will drive down the investor's rate of return requirements associated with risk. The specific costs of performance insurance will be determined and included during of Phase 1A. Over the long term the costs of the insurance should be reduced as the savings yield and portfolio risk are more fully understood.

4.3. Returns (ROI estimates When Self-Sustaining, etc.)

This demonstration is expected to show that consistent savings can be achieved across a portfolio of LMI small residential energy efficiency retrofits and that third-party investors will be willing to finance the projects through a Pay-for-Success model. Currently, this market segment is underserved because of high customer acquisition costs, insufficient data about performance, and other perceptions of risk. Achieving projected savings and levels of financial returns, and making this data publicly available, will not only reduce the cost of capital for future LMI retrofit projects but also unlock a vast marketplace. At scale, we estimate that this model will provide impact investors a valuable rate of return, and this rate of return will be one of the key learnings of this demonstration project. These rates of return are expected to be competitive and should be particularly attractive to mission-aligned financial institutions and those with Community Reinvestment Act (CRA) requirements.

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

4.4.1. Qualitative

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

- Positive feelings, beliefs, and perceptions: Aside from direct monetary savings, participating customers will benefit from improved engagement with Con Edison based on the belief that it is helping them to solve the challenges of high energy costs. At the same time, Con Edison will

develop a deeper understanding of customer challenges, concerns, and feelings—particularly around trust of the Company and its product offerings.

- Improved energy literacy: Participating customers will also benefit from developing an increased understanding of energy use and approaches to reducing their utility costs. Participants who previously perceived a lack of control over their utility bills may experience higher levels of customer satisfaction based on this new-found knowledge, the observed cost savings, and sense of control.

4.4.2. Quantitative

Above all, the project must produce energy savings at a reasonable cost when compared to other low-income energy efficiency initiatives. Analysis of bill impacts and OpenEEmeter readings will verify savings. Those savings will be valued with respect to the Company's avoided cost and cost per kWh saved to determine how this project compares with other initiatives serving LMI participants and building owners in LMI one- to four-family housing stock.

The quantitative benefits from *EnergyFit* fall into the following categories:

- Low risk to customer rates: In CLEAResult's experience, traditional home performance programs exhibit revenue realization rates as low as 60 percent on a portfolio basis and seldom allow for mid-course corrections or claw back of rate-based funding in the event of underperformance. By comparison, *EnergyFit* is expected to achieve a revenue realization rate of 100 percent, with almost no exposure risk to customer rates as described in the Solution section (1.2), because third-party investors, rather than utility customer rates, cover the upfront costs, and energy efficiency implementers are only rewarded if actual savings are achieved.
- Market transformation: Demonstrating the cost-effectiveness of energy efficiency investments in one- to four-family buildings and the attractiveness of financial returns to third-party investors through the pay-for-success model, in the quantitative manor outlined in the Metrics for Success section (3.1), could unlock a vast and underserved marketplace. As described previously, this market segment consists of hundreds of thousands of buildings within the Con Edison territory, most of which have never experienced an energy efficiency retrofit.

5. Reporting

5.1. Information to be Included in Quarterly Reports to the Commission

Con Edison will provide quarterly reports to the Commission providing updated core performance metrics as outlined in the Metrics for Success section (3.1). In addition to core metrics, the Company

will provide the following:

- Project costs, to date, compared to budget or target metrics, with explanation of any variances
- Milestones achieved (or not)
- Lessons learned against hypotheses
- Highlights of the demonstration project from the previous quarter, including completion of project activities and major tasks, as well as key metrics achieved
- Forecast for the next quarter, including activities to complete and metrics to be achieved
- Review of filed work plan, including updates to timeline if necessary
- Recommendations for the next quarter
- Appendices providing supporting documentation if necessary

6. Conclusion

6.1. Post-Demonstration Benefits

6.1.1. Qualitative

A number of qualitative benefits will continue after the completion of this project.

- Experience: Con Edison will have gained experience using community-based approaches to engaging and building positive relationships with customers. Through delivering an easy-to-understand, effective project, Con Edison will improve customers' perceptions of the utility, while reducing their energy costs and improving home health, safety, and comfort. In addition, Con Edison will have created a cost-effective, high-yield ECM package that could be scaled across the housing stock addressed in demonstration or adapted with minor modifications to other housing typologies.
- A new strategy: Con Edison will have showcased a retrofit strategy that is easy for contractors to sell while reducing the associated soft costs typical of home performance programs (travel, parking, cost of multiple home visit, auditing, modeling, etc.), therefore attracting a larger number of contractors into the home performance space. In addition, Con Edison will have tested a new performance contracting model that encourages quality installation of ECMs, accountability for performance, and robust third-party investment. Finally, the demonstration will put the foundational elements into place for an open market procurement of energy efficiency that will allow for scaled investment and increased energy savings results in the LMI sector and beyond.

6.1.2. Quantitative

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

- Customer engagement: A scaled project could engage hundreds of thousands of LMI households across the Con Edison service territory, leading to greater customer satisfaction, energy literacy, and program participation across a significant portion of the Company's residential customer base.
- Cost savings and energy efficiency: A scaled project could achieve substantial energy savings and utility bill reductions for participating low-income customers. Savings in the range of three to 15 percent on electricity bills and up to 20 percent on gas bills would yield millions of dollars in annual savings, as well as significant carbon reductions with low marginal cost to Con Edison and customer rates.
- Reduced soft costs: Aggregating projects will enable installation contractors to purchase bulk materials, reduce transportation time and costs, streamline work processes, and improve the efficiency of delivery.
- Robust and actionable performance data: Con Edison will develop an actuarial record on performance that can be analyzed by building, project t, participant, and contractor attributes. This data will allow CLEAResult to monitor performance of contractors and projects in near-real time to improve targeting, quality assurance, and adaptive management of the project.
- System benefits: Having reliable data on the performance of residential energy retrofits will also allow Con Edison to better understand the benefits of a scaled program and more effectively incorporate such measures in support of advanced grid management. Ultimately, the development of a Pay-for-Success marketplace empowered by metered energy efficiency and third-party investment could unlock an underserved market segment and yield significant system benefits.
- Non-energy benefits: The value of LMI efficiency and non-energy benefits from the perspective of a subset of impact investors will be quantified. Quantifying non-energy benefits such as improved health of the participant due to less draft, better indoor air quality, etc. will provide tremendous value and serve as data points for policy considerations.

6.2. Plans to Scale

6.2.1. Breakpoints in Scaling

The following conditions would represent potential breakpoints in scaling the project beyond Year Three.

Underperformance: If the standardized package of ECMs does not consistently yield energy use reductions at the portfolio-level during the project period, cost-effectiveness targets are unlikely to be achieved, which could limit interest between third-party investors.

Customer acquisition challenges: If the project has difficulty in engaging and recruiting project participants, and if course corrections are not effective to meet the planned study sample of 600 energy assessments and 200 retrofits, “customer acquisition” was harder and more costly than anticipated and may outweigh the benefits.

Health and safety concerns: If health and safety concerns were found in a large swath of LMI small residential buildings, conducting energy retrofits within this market segment may not be feasible at scale or within reasonable budget constraints.

Replicability challenges: Achieving success within the covered housing type would not guarantee the applicability to the rest of the market, since one- to four-family buildings vary significantly from other building types. Limited experience and data availability for other building types may lead to limited participation and high pricing unless similar demonstrations are run, which could impede scaling.

6.3. Advantage

The primary benefit of this project is that it will yield high performance outcomes and cost-saving benefits in a difficult to reach market segment—LMI small residential buildings—with minimal risk to customer rates and maximal leveraging of third-party investment. It will provide nationally relevant research and implementation data on the cost effectiveness of energy retrofits across a portfolio of projects and create an innovative financing model—Pay For Success—that will drive marketplace development based on manageable performance risk. An advantage of this model is that its essential elements can be easily scaled to a full program within the LMI small residential market segment and also adapted with likely minor modifications to other residential segments. Dissemination of results can occur well before the end of the project, thus enhancing the opportunities for learning and achieving impacts beyond just the demonstration project.

7. Appendices

1. Letters of Support from Quantified Ventures
2. Letter of Support from HSB Munich RE
3. Letter of Support from the Pratt Center for Community Development
4. OpenEEmeter and CLEAResult Demand-Side Management Tracker Security Overview



March 8, 2018

Michael Burke, Director
CLEARresult
2 Wall Street, Albany, NY 12205

Dear Mr Burke:

It is my pleasure to submit this letter of support for CLEARresult's proposal to provide energy solutions for Low-to-Moderate (LMI) customers under the framework of the Reforming the Energy Vision (REV) initiative in New York State. Through Quantified Ventures' work in structuring and coordinating Pay For Success (PFS) and social impact bond (SIB) financing vehicles, we have experienced the real world need for a more robust approach to funding assessment methodologies, particularly in the environmental sector.

We at Quantified Ventures believe that there is substantial opportunity to "scale what works" through PFS transactions. These mechanisms align incentives of the private, public, and non-profit sectors to deliver proven interventions and produce measurable outcomes that address some of the most intractable social, environmental, and healthcare issues facing our society. Key to the success of these transactions, however, is bringing all of the right resources and stakeholders to the table in order to explore how to continuously improve their efficiency and effectiveness. Through this initiative, CLEARresult has a unique opportunity to influence the energy efficiency sector, while creating a positive social impact in the lives of LMI populations via PFS transactions. This also provides an opportunity for outcome based research and data to advance the energy efficiency industry.

Collaborators such as CLEARresult are critical to the industry ecosystem, and we are looking forward to working with CLEARresult and push the edges of innovation within the Pay for Success industry.

Sincerely,
A handwritten signature in black ink, appearing to read 'Eric Letsinger'.

Eric Letsinger
President, Quantified Ventures



CLEAResult
Michael Burke
Director
Tel.:+(518) 207-4525
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Copy
Glenn Sansbury, HSB
Doug Akerson, HSB
Brandon Quinlan, AJG
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Zaine Watson, CLEAResult

March 14, 2018

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Mr. Burke,

Letter of Intent- EnergyFit NYC REV Demonstration Project

Please consider this updated letter as a non-binding expression of support by The Hartford Steam Boiler Inspection & Insurance Company (HSB) for the **EnergyFit NYC** Con Edison Reforming the Energy Vision (REV) demonstration project developed by CLEAResult and Open EE Meter team, which includes Quantified Ventures and the Pratt Center for Community Development.

HSB provides equipment and performance insurance/risk transfer solutions for the energy efficiency, distributed generation, and emerging energy technology marketplace. We understand the need for facilitation of further capital and innovative financial solutions in the low and moderate income housing sector. My colleague Glenn Sansbury and I have participated in initial discussions with the CLEAResult and Open EE Meter teams, and based on the preliminary information received to this date, I believe that their **EnergyFit NYC** project can be supported by HSB's energy efficiency insurance product.

The HSB staff will participate in regular calls, review project performance data, and provide feedback on the team's approach to the market.

This letter is nonbinding and creates no liability or obligation of any nature whatsoever on the part of HSB or its affiliates and CLEAResult. This letter does not address, and is not intended to address, the various underwriting information that must be collected and assessed by HSB in order to issue a final quote. HSB's final support will be made at our sole discretion after full and appropriate due diligence is performed.

Best Regards,

David Tine

The Hartford Steam Boiler
Inspection and Insurance Co.
One State Street
P.O. Box 5024
Hartford, CT 06102-5024
www.hsb.com



Hartford Steam Boiler



March 9, 2018

Con Edison
Attention: Con Edison LMI Demonstration Team
REVDemos@coned.com

RE: Consolidated Edison Company of New York, Inc. (Con Edison) for Energy Solutions for Low- and Moderate-Income Customers

To Whom It May Concern:

The Pratt Center for Community Development would like to express our support of the proposed demonstration project (EnergyFitNYC) for Con Edison in your service territory. We have worked with CLEAResult (and their former organization CSG) on both the original EnergyFit NYC Pilot, its' preceding Standard Measures study and the previous Green Jobs/Green NY (GJGNY) program for the past seven years in New York.

In the initial EnergyFitNYC pilot, Pratt Center was the lead contractor and we worked very closely with CLEAResult, who was sub-contracted to us as our technical assistance partner. Pratt Center managed all administrative duties, outreach and communication, and program design and implementation. CLEAResult managed the RPI contractor's retrofit work, performed all technical analysis, and was a crucial thought-partner in ensuring the success of the pilot. Thanks to their partnership, we have been able to provide high quality testing of new models to increase the number of residential retrofits in New York City. During our work on GJGNY, Pratt Center acted as a sub-contractor to CLEAResult, supporting their work retrofitting New York City's small residential building stock through a network of local community-based partners.

We are excited to continue partnering with CLEAResult as EnergyFitNYC grows throughout Con Edison's territory.

Sincerely,

A handwritten signature in black ink, appearing to read 'Adam Friedman'.

Adam Friedman
Executive Director

200 Willoughby Avenue • Brooklyn, NY 11205
T: 718.636.3486 • F: 718.636.3709 • www.prattcenter.net

Summary of Security for DSMT platform

Our DSMT platform uses the Salesforce.com platform was developed with security at its core. Within the platform, we can secure data down to the field level, encrypt data for specific users, and source the same data record to multiple parties in a controlled manner using our role-based security model. The security of our clients' customer data is paramount and a major requirement when we selected Salesforce as the foundation. Controls over physical security, logical security, network architecture and management and change management ensure data integrity is maintained. Additionally, we maintain detailed audit trails as well as encrypt data at rest.

Salesforce.com provides client-side data validation using user interface validation rules. The system performs server-side validation using exception rules. These validation rules can be translated into JavaScript validation packets that are dynamically generated. Application Programming Interface (API) connections also use validation and exception rules so any third-party transactions are subject to the same core rule services.

We submit our DSMT platform to external security reviews. We contract with a top tier security firm to conduct a penetration test and application test annually. We are also seeking a SOC 2 (Type II) certification which will include a deep audit and verification of the platform security controls procedures.

CLEAResult also uses active directory to provide single sign-on (SSO) access authentication protocols for access to company computers and applications. CLEAResult systems provide a rich security model protecting data access, integrity and privacy. Role-based security in the Salesforce environment grants data access privileges to users within the organization hierarchy. Role-based security, record-level security and field-based security define a user's security rights. The data model makes full use of the Salesforce.com capabilities to implement a complete and robust security experience for our clients.



Open Energy Efficiency

OpenEE Platform Security

March 2018

Security

All OpenEEmeter integrations meet strict security requirements equal to or greater than the security policies of OpenEE. As a company providing a SaaS (Software as a Service) platform, we believe it is critical to share all relevant security information with our clients and to be completely transparent about potential vulnerabilities.

Architecture Overview for Security

The OpenEE Enterprise Version is deployed on unique cloud-based web servers and is supported by various backend database/cloud services including, but not limited to:

- Heroku - OpenEEmeter datastore deployment. Heroku uses Amazon data centers³², which have multiple safeguards/physical redundancies outlined in their own policies and procedures.³³
- Google Cloud Storage - Storage of raw data and JSON outputs of savings calculations. Google has detailed backup, security, and retention policies around their Cloud Platform³⁴ that are in line with company policies and procedures.
- Periscope Data - Data visualization and analytics. Periscope Data uses Amazon data centers, which have multiple safeguards/physical redundancies outlined in their own policies and procedures.³⁵
- GitHub - The company utilizes GitHub for storage and version control of source code.³⁶

Minimal Acceptable Security Standards

OpenEE has established the following minimal acceptable standards for data storage:

- Data Storage - Must be ISO 27001 Compliant. ISO 27001 is an internationally accepted standard for information security systems.³⁷
- Data Transmission - Transmissions over the web must be encrypted using current industry SSL/TLS standards.

³² Heroku Security - <https://www.heroku.com/policy/security>

³³ Amazon Web Services Security - <https://aws.amazon.com/security/>

³⁴ Google Cloud Platform Security - <https://cloud.google.com/security/>

³⁵ See footnote 1.

³⁶ GitHub - <https://help.github.com/articles/github-security/>

³⁷ ISO 27001 - <http://www.iso.org/iso/home/standards/management-standards/iso27001.htm>

Data Security: Sensitive client data is kept isolated throughout the OEE systems. In particular, the following mechanisms are used:

- Separate Google Cloud Storage accounts for each customer with unique service account credentials
- Separate Heroku applications and Postgres databases for each customer
- Separate data pipelines for processing customer data (data from different customers is not co-mingled in a single analysis cluster)