

Financing for Building Retrofits in Low-to-Moderate Income Housing Developments

New York City Housing Authority

NY Green Bank (“**NYGB**”) is committing \$11.0 million in a short-term loan (the “**Loan**”) made to New York City Housing Authority (“**NYCHA**”) in New York City, New York. The \$11.0 million in total loan proceeds will be used to finance the installation of LED lighting retrofits in up to 18 buildings inhabited by low-to-moderate income (“**LMI**”) tenants. This transaction is expected to save NYCHA 10% - 15% in annual energy costs by replacing current lighting equipment with cleaner, more efficient alternatives.

Transaction Description

NYGB is making a loan commitment of \$11.0 million to conduct energy improvements, primarily through the replacement of conventional lighting equipment with cleaner, more efficient LED lighting in 18 master-metered multifamily developments in New York City (the “**Project**”). The Project includes 30 different LED technologies, and is expected to generate savings of 10% - 15% of current annual energy expenses for the building owner.

The NYGB financing is expected to be refinanced by July 31, 2017.

NYGB financing will create a borrowing history for a relatively new structure that can be replicated with NYCHA and other New York State (“**NYS**”) public housing authorities (“**PHAs**”) that seek to utilize private capital financing for similar types of building upgrades.

NYGB’s commitment translates to an estimated reduction of 5,490 – 6,670 metric tons of greenhouse gas (“**GHG**”) emissions annually or 65,200 – 79,200 metric tons of GHG emissions reductions over the 12-year useful life of the Project.

This Transaction Profile is provided pursuant to the “NY Green Bank – Metrics, Reporting & Evaluation Plan, Version 3.0” (the “**Metrics Plan**”) developed in collaboration with the NYS Department of Public Service and filed with the NYS Public Service Commission (the “**Commission**”) on June 20, 2016.² This Transaction Profile contains specific information in connection with the agreement entered into on December 23, 2016, as required by the Metrics Plan.³

Form of NYGB Investment

NYGB Product	Product Sub-Type	Committed Capital
Asset Loan & Investment	Bridge Loan	\$11.0 million

Location(s) of Underlying Project(s)

New York City. Eighteen public housing developments in New York, NY.

¹ Refer to the Summary of Changes document for details of updates, available at www.greenbank.ny.gov/Investments/Transaction-Profiles.

² Case 13-M-0412.

³ See Section 4.0, page 8 and Schedule 3.

Types of Client & Counterparty Organizations that are Transaction Participants

	Name	Participant Type
Client	New York City Housing Authority	Government Authority
Vendor	Constellation NewEnergy	Energy Service Company

Summary of Financing Market Objectives & Barriers Addressed

Beneficiary	Market Barrier	Financing Solution
Public Housing Authorities	There is limited transaction history for PHAs borrowing on a short-term unsecured basis to finance energy efficiency improvements before they are refinanced by a term lender on completion of installation.	<p>NYGB's participation in this transaction and potential future short term loans with PHAs demonstrates to private capital sources (such as commercial banks) that there is demand for such a loan product and provides borrowing history for NYCHA and similar PHAs which seek to replicate the transaction structure.</p> <p>Transactions of this nature can help drive growth in the market for financing of LMI building energy efficiency by demonstrating a structure through which PHAs can successfully and scalably finance improvements benefiting LMI tenants in PHA-owned buildings.</p>

Technologies Involved

Technology	Measures
Energy Efficiency	LED lighting retrofits

Metrics & Evaluation Plan

Planned Energy & Environmental Metrics

NYGB's minimum investment criteria specifically require that "transactions will have the potential for energy savings and/or clean energy generation that will contribute to greenhouse gas reductions in support of New York's energy policies".⁴ In addition, the Metrics Plan requires that the following energy and environmental measures, applicable to this transaction, be reported on⁵:

- Estimated gross lifetime and first-year electricity savings (MWh);
- Estimated gross lifetime and first-year GHG emission reductions (metric tons).

The estimated gross lifetime and first-year energy and environmental impacts of this transaction are as follows:

Energy/Environmental Impact	Lifetime Low Estimate	Lifetime High Estimate	First-Year Low Estimate	First-Year High Estimate
Estimated electricity savings (MWh)	124,000	150,000	10,400	12,700
Estimated GHG emission reductions (metric tons) ⁶	65,200	79,200	5,490	6,670

⁴ Case 13-M-0412, "Order Establishing New York Green Bank and Providing Initial Capitalization" issued and effective December 19, 2013 of the Commission, Ordering Clause 6 at pages 24 – 25.

⁵ See Metrics Plan, Section 2.0, page 2 - 6.

⁶ As of January 1, 2016, the New York State Energy Research and Development Authority ("NYSERDA") utilizes a 1,160 lbs/MWh conversion factor to estimate GHG emissions reductions for electric generation and energy efficiency savings across all components of the Clean Energy Fund. NYSERDA previously utilized a 625 lbs/MWh conversion factor.

Planned Market Characterization Baseline & Market Transformation Potential

The Metrics Plan requires that market evaluation will occur when a critical mass of NYGB financing and investment arrangements are put in place. This market evaluation will be conducted on sectors that NYGB has supported and will occur approximately three to five years following initial NYGB capital deployments.⁷ Baseline data will be collected in 2017 for most indicators as a comparison point against which to assess market progress in the later studies. Progress indicators are defined below for the short, mid and long-terms.

Short-term progress indicators will identify early activity levels and will be regularly tracked for the duration of the transaction. These include, but are not limited to:

- Completion/verification of all anticipated LED lighting installations; and
- Favorable technology performance data evaluated through Measurement & Verification (“M&V”) reports provided by NYCHA annually.

Mid and long-term indicators will be expected to show progress through program tracking or market evaluation over time. These include, but are not limited to:

- Increased volume of energy efficiency projects financed by PHAs;
- Average and aggregate dollar value of projects in development and completed increases;
- Demonstration of competitive risk/return profiles;
- Increased awareness and use of financial performance data by financing entities;
- Financial entities emerge showing interest in NYGB’s transaction position;
- Scale of PHA energy efficiency investments increases; and
- Energy savings, emissions reductions evaluated based on M&V data from NYCHA.

Proposed Method of Outcome/Impact Evaluation (by NYSERDA) & Timeframe

NYSERDA will evaluate the impact this transaction has had on the clean energy finance markets and the energy/environmental benefits delivered by this transaction.

Market evaluation will address the short, mid and long-term indicators identified above. Methods will include analysis of program data along with interviews and surveys of market participants to track information including but not limited to: project scale information, interest in energy efficiency lease financing, and influence of NYGB’s participation on financial markets. As noted, baseline data will be collected on most key indicators in 2017 and later follow-up studies will assess progress against baseline levels. The specific timing of these efforts may be revised based on experience or other factors as the Project evolves.

Impact evaluation will be based on M&V reports provided by NYCHA annually. This will be used by NYSERDA to verify initial estimates and assess impacts related to installation of energy efficient LED lighting equipment. All site data will be anonymized and/or aggregated prior to being reported or published.

As with all NYGB investments, energy efficiency projects that receive an incentive or funding from other entities (e.g., utility, other NYSERDA program) will, in accordance with the Metrics Plan, ideally be tracked in order to minimize any double-counting of activity or benefits on a consolidated basis. Pursuant to the Metrics Plan, evaluation sampling approaches will also be used as a mechanism to estimate overlap and minimize double counting. Attempts will be made to coordinate market and impact evaluation activities for the Projects to maximize data collection and avoid participant survey fatigue.

⁷ See Metrics Plan, Section 3.3 at page 7.