



NY Green Bank
A Division of NYSERDA

NY Green Bank

Metrics, Reporting & Evaluation

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(Through June 30, 2019)

Case 13-M-0412

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1 Performance at a Glance – As of June 30, 2019

Stimulating New Clean Energy Proposals in the State

NY Green Bank (“NYGB”) has received over **\$3.4 billion** in investment proposals since inception.

Strong Active Pipeline

The Active Pipeline of potential investments proceeding to close is **\$546.7 million**.¹

Driving Material Clean Energy Investments Across NYS

NYGB’s investments support clean energy projects with a total project cost of **between \$1.82 and \$2.14 billion**² in aggregate, based on Overall Investments to Date of **\$786.7 million**.

Mobilizing Capital

NYGB’s investment portfolio represents continuing progress towards an expected mobilization ratio of Total Project Costs to NYGB funds of **8:1**, manifesting in \$8.0 billion of clean energy and sustainable infrastructure projects mobilized in New York State (“NYS” or the “State”) by NYGB activity by December 2025 (including the effect of capital recycling). Currently at up to **\$2.14 billion**.

Revenue Growth - Maintaining Self-Sufficiency

Continued revenue growth – **\$65.4 million** in revenues has been generated since NYGB’s inception. NYGB continues to maintain self-sufficiency through the generation of annual net income.

Contributing to CEF, REV, CES and Other State Targets

NYGB’s investments to date drive estimated gross lifetime greenhouse gas (“GHG”) emissions reductions of **between 9.55 and 16.40 million metric tons**², equivalent to removing **between 139,707 and 164,476 cars** from the road for a period of **23 years**.³

¹ The value of the Active Pipeline is separate from the value of the investment portfolio. As of June 30, 2019, the \$546.7 million in Active Pipeline does not include the \$786.7 million in closed transactions comprising NYGB’s Overall Investments to Date.

² NYGB monitors its counterparties’ clean energy project installations throughout the duration of each investment through the receipt and review of periodic reports as well as updated impact benefit calculation factors advised by the New York State Department of Public Service. Based on information received, NYGB continually manages the actual and expected energy and environmental impact benefits across its portfolio. As new information becomes available informing NYGB of NYS market uptake of clean energy projects, NYGB may correspondingly adjust (up or down) the overall portfolio’s high and low estimated Total Project Costs and energy and environmental metrics (identified at closing of each investment, working with the relevant clients and counterparties and reflected in Transaction Profiles). Consistently monitoring and refining expected outcomes improves the accuracy of NYGB’s portfolio-level estimate of impact benefits as it works towards meeting the CEF objectives to support the State’s clean energy goals. Given such periodic adjustments, the aggregate estimated benefits reported in Quarterly Reports are the most up-to-date estimates (and no longer reflect the sum of the low and high estimated benefits specified in the Transaction Profiles at the time of each transaction close).

³ NYGB’s GHG emissions reductions values reflect the estimated effect of both direct and indirect impact benefits – see [Section 4.2](#).

2 Introduction

This Quarterly Report (“**Report**”) is filed by NYGB with the New York State Public Service Commission (the “**Commission**”) pursuant to the Metrics, Reporting & Evaluation Plan developed in consultation with the New York State Department of Public Service (“**DPS**”) and filed with the Commission⁴ (the “**Metrics Plan**”).

Defined terms used in the text of this Report but not separately described have the meanings respectively given to them in the Metrics Plan.

3 Business Update

3.1 Overview

NYGB’s investment activities fall into two broad categories, relating to:

- (a) Transactions that have closed, which collectively comprise NYGB’s investments; and
- (b) Transactions that are in process but not yet closed, which collectively comprise NYGB’s pipeline.

Each proposed NYGB investment is categorized by the stage it has reached in NYGB’s internal credit underwriting and transaction execution processes.

NYGB closed **four new investments** during the quarter ending June 30, 2019, adding **\$49.1 million** to NYGB’s investment portfolio. These transactions are discussed in [Section 3.2](#).

NYGB’s overall transaction status and Active Pipeline are summarized in [Figure 1](#),⁵ showing that since inception through June 30, 2019:

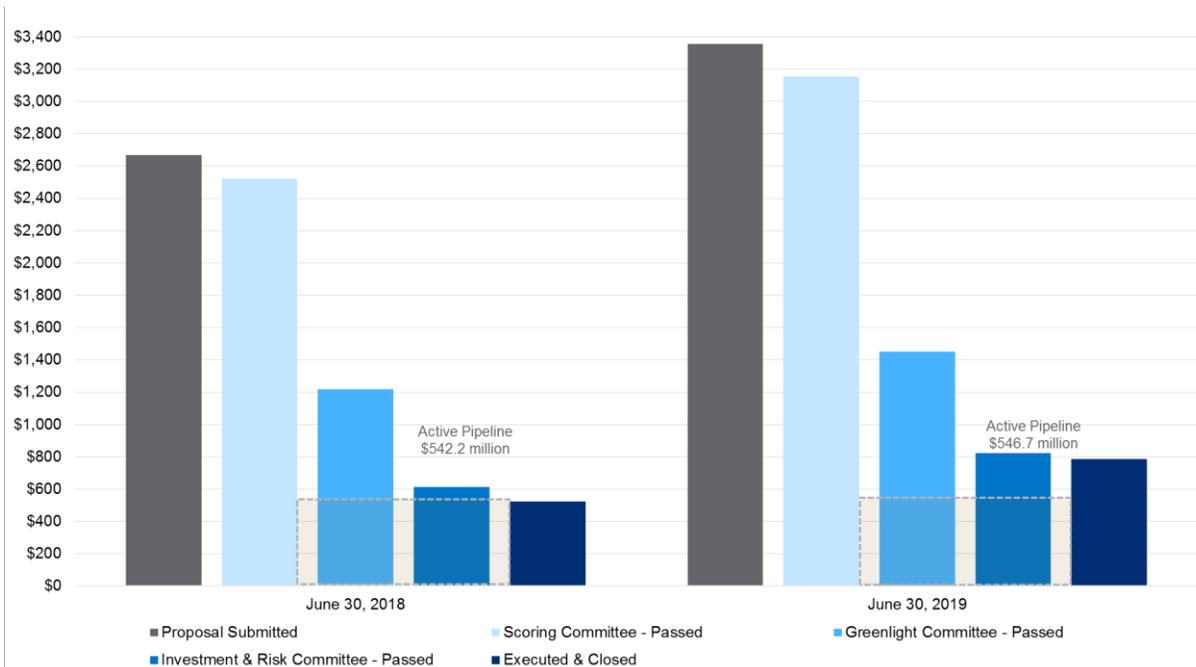
- (a) Over **\$3.4 billion** of proposals have been received and evaluated by NYGB’s Scoring Committee;
- (b) **\$3.2 billion** of proposals have passed Scoring Committee evaluation – representing potential investments that meet NYGB’s mandate and proposal evaluation criteria;
- (c) **\$1.5 billion** of proposals have received Greenlight Committee recommendation for advancement;
- (d) **\$823.3 million** of proposals have been vetted by the Investment & Risk Committee (“**IRC**”) and approved by NYSERDA’s President & CEO; and
- (e) **\$786.7 million** of transactions have been closed – comprising NYGB’s Overall Investments to Date – mobilizing public and private investments to support in the range of **\$1.82 to \$2.14 billion** in Total Project Costs for clean energy deployment in the State.

Also, as shown in [Figure 1](#), NYGB currently has an Active Pipeline of **\$546.7 million**.

⁴ Case 13-M-0412, “NY Green Bank – Metrics, Reporting & Evaluation Plan”, Version 3.0, dated June 20, 2016.

⁵ Note that all these amounts change over time as proposals and transactions evolve.

Figure 1. Transaction Status & Active Pipeline (\$ Millions): Year-on-Year Review



3.2 Investment Portfolio

3.2.1 Highlights

In the quarter ended June 30, 2019, NYGB closed four transactions, respectively sponsored by Agbotic Inc., Distributed Sun SUNEIGHT, Ecosave, Inc. and Spruce Finance, Inc. Each transaction, as part of NYGB’s portfolio, contributes to the primary Clean Energy Fund (“CEF”) objectives of GHG emissions reductions, customer bill savings, energy efficiency, clean energy generation and mobilization of private sector capital.⁶ In turn, the CEF objectives support the State’s aggressive clean energy targets, including under New York’s Green New Deal⁷ which mandates a significant increase in the State’s Clean Energy Standard (“CES”) with a goal of 70.0% energy generation from renewable sources by 2030 and carbon-free electricity by 2040. This is supplemented by the *Climate Leadership and Community Protection Act*⁸ (the “CLCPA”) which set the State target to reduce GHG emissions from all anthropogenic sources 100.0% over 1990 levels by the year 2050, with an incremental target of a zero-carbon emissions electricity sector by the year 2040.⁹

3.2.2 New Investments

Agbotic, Inc. - Supporting Deployment of Controlled Environment Agricultural Assets in New York State

- Introduces Controlled Environment Agriculture (“CEA”) to NYGB’s portfolio

⁶ As set out in the CEF Order (Cases 14-M-0094 et al.) issued and effective on January 21, 2016, page 40.

⁷ Announced by Governor Andrew M. Cuomo in the 2019 State of the State. See www.governor.ny.gov/sites/governor.ny.gov/files/atoms/files/2019StateoftheStateBook.pdf.

⁸ Senate Bill S6599 was signed into law by Governor Cuomo on July 18, 2019. See legislation.nysenate.gov/pdf/bills/2019/a8429.

⁹ The CLCPA codified and expanded New York’s Green New Deal and other nation-leading clean energy and climate targets for the State, including: (a) quadrupling New York’s offshore wind target to 9,000 MW by 2035 (up from 2,400 MW by 2030); (b) doubling distributed solar deployment to 6,000 MW by 2025 (up from 3,000 MW by 2023); (c) deploying 3,000 MW of energy storage by 2030 (up from 1,500 MW by 2025); (d) more than doubling new large-scale land-based wind and solar resources through the CES; (e) maximizing the contributions and potential of New York’s existing renewable resources; (f) expanding and enhancing the Solar For All Program to increase access to affordable and clean energy for low-income, environmental justice and other underserved communities; and (g) initiatives to achieve carbon neutral building stock statewide, including through the energy efficiency target to reduce energy consumption by 185 trillion BTUs below forecasted energy use in 2025.

- *Reduces GHG emissions by up to 70,504 metric tons from the underlying energy efficiency measures installed*
- *Reduces electricity use by at least 65,223 MWh from the underlying energy efficiency measures installed*
- *Achieves energy savings from fuel of up to 231,876 MMBtu over the average life of the underlying energy efficiency measures*

Agbotic is a NYS based CEA agritech company that builds Smart Farms with robotic greenhouse automation to make local and organic food with an ecologically restorative model for farming. Agbotic produces a mix of specialty root crop, herb, leafy green, and industrial hemp products to distribute directly to retailers, food service companies, restaurants and consumers within a one-day delivery of its greenhouses. The company focuses on growing organic plants for healthy nutrition and in a manner that improves the environment.

NYGB's \$6.0 million construction-to-term loan facility (the "**Facility**") will enable Agbotic to complete the construction of a cluster of six greenhouses and related infrastructure located in Sackets Harbor, NY. The greenhouses will grow and sell certified organic produce to businesses and retailers/grocers. The greenhouses will be equipped with various energy efficiency measures, including LED lights and heat sinks, and benefit from efficient on-site power generation.

Distributed Sun SUNEIGHT 2019 – Bridge Loan to Support the Deployment of Community Solar Projects

- *Reduces GHG emissions by up to 662,556 metric tons from the underlying projects*
- *Generates at least 662,256 MWh of renewable energy from the underlying projects*
- *Increases renewable energy installed generation capacity by at least 22.5 MW*

Distributed Sun and EWT Americas Inc. are developing a portfolio of community distributed generation ("**Community DG**") solar projects in NYS and requested NYGB to provide a \$1.0 million Bridge Loan to finance interconnection advance deposits to NYSEG and RG&E for such projects, due under the Commission's Standardized Interconnection Requirements and Application Process.

This transaction is expected to support up to 45.0 MW of solar assets in the State which in turn are expected to: (i) provide commercial and residential project subscribers access to reliable, clean, low-cost energy; and (ii) reduce up to 26,500 metric tons of GHG emissions annually in NYS. As there has been an increasingly strong demand for Community DG solar throughout NYS, capital providers are recognizing, and will continue to recognize, the value in providing financing to enable the deployment of these projects. As a result, NYGB expects its Bridge Loan product to continue to serve as a template for capital providers to assess and replicate in the future. Capital providers are expected to increasingly recognize the value in providing financing at various phases to enable the deployment of these projects.

Ecosave Inc. – Supporting Commercial Energy Efficiency in New York State

- *Reduces GHG emissions by up to 131,393 metric tons from the underlying projects*
- *Reduces electricity use by at least 468,110 MWh over the average life of the underlying projects*
- *Achieves energy savings from fuel of up to 607,640 MMBtu over the average life of the underlying projects*

Ecosave is a Philadelphia-based energy services company that provides turnkey design, engineering, procurement, construction, utility management and maintenance solutions for building energy efficiency ("**EE**") and Distributed Energy Resources ("**DER**") projects. NYGB established a financing relationship with Ecosave through NYGB's previous \$2.0 million participation in a construction-to-term loan for the Hebrew Home project with NYCEEC. The company opened a New York office in April 2019 with the goal of developing and completing \$30.0 million or more in EE and DER projects in New York by 2029.

NYGB has provided a \$15.0 million credit facility (the "**Term Loan**") against receivables from EE projects completed under Energy Savings Agreements ("**ESAs**") and Energy Performance Contracts ("**EPCs**"). Ecosave is expected to use the Term Loan to support at least five new EE or DER projects in New York.

NYGB's participation in the Term Loan will facilitate the growth of the NYS energy efficiency market by supporting growing market confidence in ESA and EPC cash flows. This investment involves a replicable transaction structure that enables Ecosave's portfolio to scale and ultimately attract private sector investment. Ecosave's pipeline has been financed on a project-by-project basis to date. The structure of the Term Loan should decrease the time necessary to secure financing for new projects.

Spruce 2019 – Supporting Residential Solar in New York State

- *Reduces GHG emissions by up to 325,230 metric tons from the underlying projects¹⁰*
- *Estimated to indirectly spur the generation of at least 266,845 MWh of renewable energy from the future residential solar projects*
- *Equivalent to the estimated deployment of up to 9.1 MW of future residential solar resources in the State*

Spruce owns a portfolio of approximately 23,500 residential photovoltaic (“PV”) systems that it operates and manages, located in 11 states including New York. NYGB has committed \$27.1 million alongside capital from five commercial banks to support the medium-term financing of these residential PV assets.

Since being acquired in 2017 by HPS Investment Partners, Spruce has crystalized its focus on its key business lines, sold non-core assets and cut administrative costs. Through the leadership of a new executive team, these initiatives resulted in Spruce achieving positive operating cash flow commencing in the fourth quarter of 2018. Market recognition of this transformation should continue to put downward pressure on credit financing costs. This transaction demonstrates to the market that a high-quality portfolio of residential solar assets can successfully go through a turnaround under a well-executed reorganization and recapitalization plan.

NYGB will provide support to an active participant in the residential solar value chain, Spruce. Both NYGB and Spruce believe that developers and investors will continue to view the New York residential solar market as robust and competitive. Developers and investors can enter the residential solar market knowing that potential buyers of their assets exist. Should they decide that they would like to exit their position and monetize their assets, Spruce (among similar parties) can support this as an active buy-side market player, encouraging greater liquidity for these types of assets. A competitive landscape of both buyers and sellers will drive the continued growth of residential solar in the State.

This transaction compliments a previous commitment by NYGB to Spruce in March 2017, that was refinanced by this new recapitalization transaction. In the prior transaction, NYGB committed \$6.0 million to a five-year \$99.4 million senior secured term loan (which Spruce used to refinance an existing aggregation facility supporting 86.0 MW of generating capacity across 12,711 homes in 11 states). Over 6.2% of the initial portfolio was located in New York State and NYGB's activity helped establish a new medium-term lending market for financing existing residential solar systems in NYS while providing liquidity for Spruce to develop additional projects.

Many benefits of CEF initiatives in the State comprise follow-on market activity as part of quantifying overall impact. In this instance, the provision of secondary financing of operating PV assets is expected to provide confidence to developers and future financiers that there is increasing liquidity in the residential solar asset class, throughout the project lifecycle, spurring even greater interest and activity from developers and financiers. NYGB expects to see material indirect benefits from transactions like this one in the form of more residential PV development for NYS.

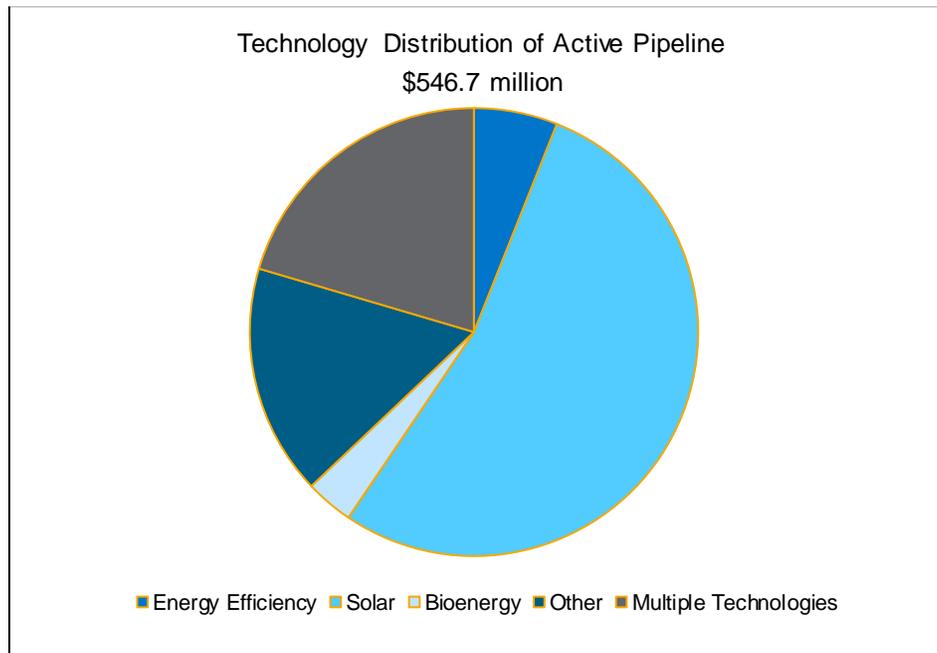
Further details on all NYGB's investments are contained in the Transaction Profiles publicly available on NYGB's website at www.greenbank.ny.gov/Investments/Portfolio, and the Transaction Profiles for the investments described in this [Section 3.2](#) are also included in the [Schedule](#) to this Report.

¹⁰ Since this investment does not include the construction of new clean energy resources but does involve the prolonged operation of assets, impact benefits attributable to this transaction are classified as both direct and indirect. Indirect benefits are further discussed in [Section 4.2](#).

3.3 Active Pipeline

Demand for NYGB investment is evidenced by the total value of proposals that have been submitted to NYGB in response to its open solicitations for investment proposals (collectively, the “Investment RFPs”).¹¹ Through June 30, 2019, proposals requesting over \$3.4 billion of NYGB capital have been received. NYGB’s Active Pipeline at June 30, 2019 is \$546.7 million. Figures 2, 3 and 4 below show the distribution of proposed investments in NYGB’s Active Pipeline by technology, end-use customer segment and geography.

Figure 2. Active Pipeline by Technology



¹¹ At the time of this Report, NYGB has four open investment solicitations, all of which are continuous, with proposals evaluated as they are received: RFP 1: Clean Energy Financing Arrangements; RFP 7: Construction & Back-Leveraged Financing for Ground-Mounted Solar Generation Systems Targeting Corporate & Industrial End-Users; RFP 8: Financing Arrangements for Renewable & Energy Efficiency Projects: Office, Commercial & Industrial, and Multi-Family Real Estate Properties; and RFP 10: Financing for CDG Solar Projects Including Projects Paired with Energy Storage. All Investment RFPs and access to the portal for the online submission of investment proposals are available at www.greenbank.ny.gov/Work-with-Us/Open-Solicitations.

Figure 3. Active Pipeline by End-Use Customer Segment

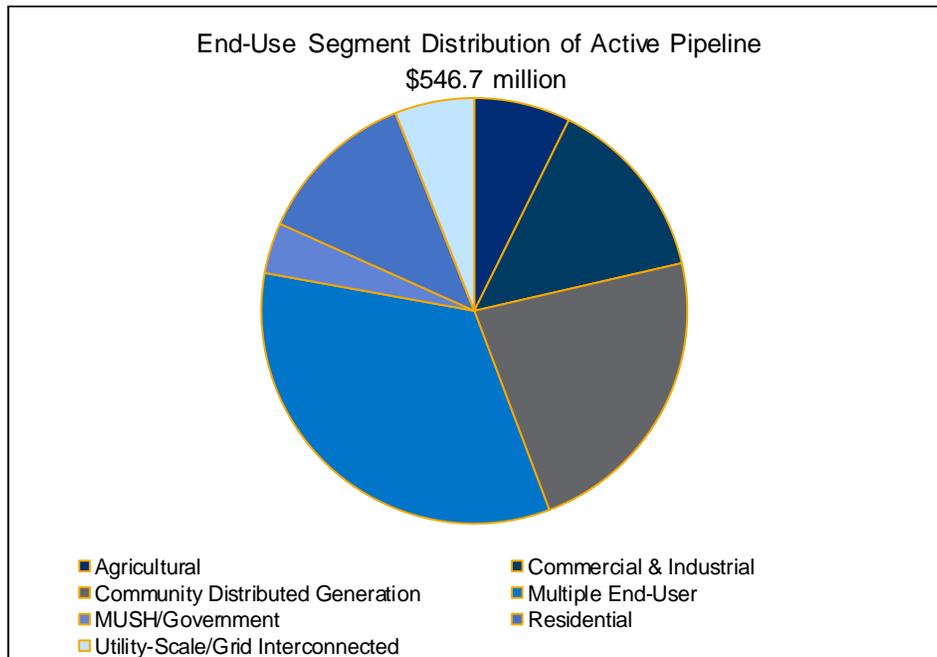
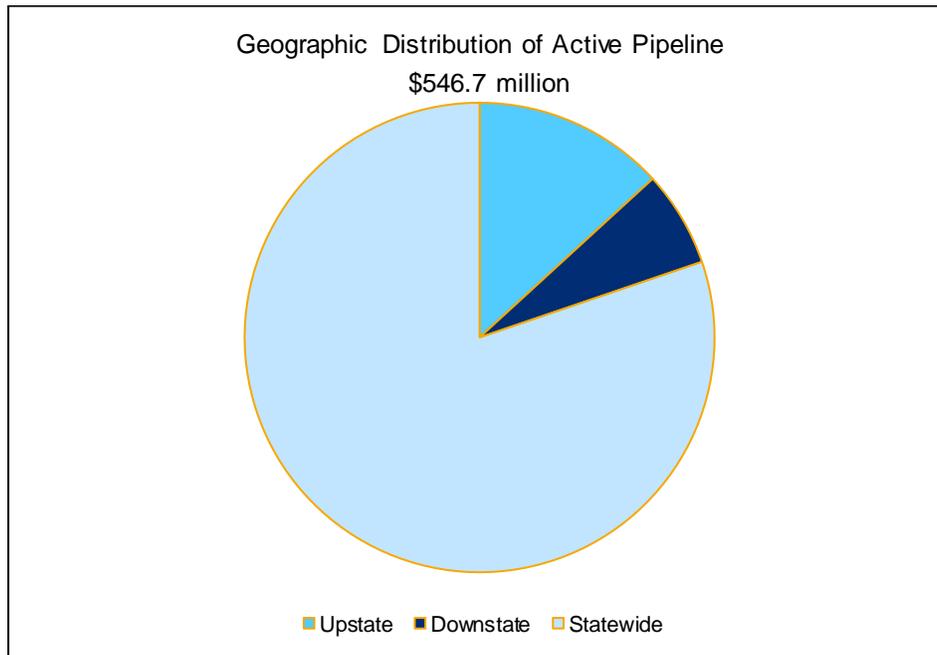


Figure 4. Active Pipeline by Geographic Distribution



3.4 Strategic, Operational & Risk Matters

In the quarter ended June 30, 2019, in addition to those matters referenced elsewhere in this Report and ongoing “business as usual” activities (e.g., origination, execution and routine outreach), NYGB’s achievements include:

- (a) Annual Business Plan: NYGB completed its Business Plan for the 2019 – 20 plan year (the “**Plan**”). The Plan, filed with the Commission on June 19, 2019, details NYGB achievements in the prior plan year, while outlining goals and deliverables (tying directly to NYGB’s mission and investment criteria), together with corresponding key performance indicators, all for the current plan year. Plan deliverables also tie specifically to the Metrics Plan and are addressed in Section 5 of this Report.
- (b) Continuing Stakeholder Outreach & Communications: NYGB participated in 10 events during the quarter including the Opening Ceremony Panel at NY Energy Week; speaking to NYGB’s financing approach at the NECEC Cleantech Financial Innovations Summit; and keynoting the 2019 New York Power Summit. Additionally, NYGB participated in a joint webinar with Connecticut Green Bank and Regional Plan Association and discussed the potential for NYGB and Connecticut Green Bank to work together.

In June 2019, The Circulars recognized NYGB as a Highly Commended Circular Economy Investor in The Circulars 2019 Yearbook¹² for its efforts financing projects that encourage the circular economy to become mainstream. The Yearbook showcases inspiring circular economy initiatives from private and public sector organizations around the globe and this year’s commendation recognizes the ongoing leadership of NYS in clean energy and climate.

- (c) New Service Provider Solicitation Launched: On June 28, 2019 NYGB released RFP 11: Technical & Engineering Support & Market Fundamentals & Analysis Services (“**RFP 11**”). Through this solicitation, NYGB seeks proposals from technical, engineering and service firms experienced in a broad variety of renewable energy technologies and other sectors of sustainable infrastructure. Selected firms will become approved advisors capable of providing advice and representation for NYGB in potential transactions. Note that consistent with NYSERDA procurement protocols, key procurements are periodically rebid.
- (d) Public Reporting & Metrics:
 - i. On May 15, 2019, NYGB filed its Quarterly Report for the period ending March 31, 2019, as required by the Metrics Plan (available at www.greenbank.ny.gov/Resources/Public-Filings).
 - ii. On June 29, 2019 NYGB filed its Annual Financial Metrics Report. This annual report incorporates NYGB’s audited annual financial statements for FY 2019 – 20 and includes management discussion and analysis as well as notes to the financial statements. The filing can be found at www.greenbank.ny.gov/Resources/Public-Filings.
 - iii. NYGB will host its regular Quarterly Review Webinar for this Report in late August 2019, including discussion of developments and activities from NYGB’s fiscal quarter ending June 30, 2019.

¹² See www.thecirculars.org/insights.

4 Metrics

4.1 Quarterly Metrics

Required metrics for the period April 1, through June 30, 2019 are set out in [Table 1](#).¹³

Table 1. Quarterly Metrics

Quarterly Metric	Prior Quarter	Current Quarter
Capital Position		
▪ Authorized Capital (\$)	\$1.0 billion	\$1.0 billion
▪ Authorized Administrative Expenses (\$)	\$17.6 million	\$17.6 million
▪ Authorized Evaluation Expenses (\$)	\$4.0 million	\$4.0 million
Operational Matters		
▪ Cumulative Revenues (\$) ¹⁴	\$58.6 million ¹⁵	\$65.4 million
▪ Cumulative Operating Expenses (\$) ¹⁶	\$35.8 million	\$38.6 million
▪ Direct Operating Expenses (\$) ¹⁷	\$21.9 million	\$23.7 million
▪ Allocated Expenses (\$)	\$14.0 million	\$14.9 million
▪ Credit Facility (if in place)		
▪ Credit Facility Amount (\$)	Not Applicable	Not Applicable
▪ Credit Facility Drawn Amount (\$)	Not Applicable	Not Applicable
▪ Credit Facility Fees & Interest (Cumulative) (\$)	Not Applicable	Not Applicable
Investment Portfolio		
▪ Committed Funds (\$)	\$171.7 million	\$154.8 million
▪ Deployed Funds (\$) ¹⁸	\$299.7 million	\$349.7 million
▪ Current Portfolio (\$) ¹⁹	\$471.3 million	\$504.6 million

¹³ NYGB monitors its counterparties' clean energy project installations throughout the duration of each investment through the receipt and review of periodic reports as well as updated impact benefit calculation factors advised by DPS. Based on information received, NYGB continually manages the actual and expected energy and environmental impact benefits across its portfolio. As new information becomes available informing NYGB of NYS market uptake of clean energy projects, NYGB may correspondingly adjust (up or down) the overall portfolio's high and low estimated Total Project Costs and energy and environmental metrics (identified at closing of each investment, working with the relevant clients and counterparties and reflected in Transaction Profiles). Consistently monitoring and refining expected outcomes improves the accuracy of NYGB's portfolio-level estimate of impact benefits as it works towards meeting the CEF objectives to support the State's clean energy goals. Given such periodic adjustments, the aggregate estimated benefits reported in Quarterly Reports are the most up-to-date estimates (and no longer reflect the sum of the low and high estimated benefits specified in the Transaction Profiles at the time of each transaction close).

¹⁴ Cumulative Revenues reflect quarterly fair market value adjustments related to NYGB capital held in U.S. Treasury securities, consistent with U.S. generally accepted accounting principles. In addition, Cumulative Revenues are always stated net of impairments.

¹⁵ The prior quarter cumulative revenue figure has been updated from \$59.8 million contained in the Quarterly Report filed in May 2019 to reflect the audited financial statements which were finalized in June 2019. Taking into account, and consistent with, the material change rules for NY SERDA, the \$1.2 million difference (representing ~2.0%) does not require refiling of the March 31, 2019 Quarterly Report.

¹⁶ Cumulative Operating Expenses currently includes \$369,837 in Evaluation Expenses.

¹⁷ Direct Operating Expenses (since NYGB inception, as reported in [Table 1](#)) includes approximately \$1.5 million in non-recurring costs associated with NYGB's capital expansion initiative. Costs of this nature are not normally included in operating expenses or the calculation of operating net income. Proper accounting treatment of these amounts will always be reflected in NYGB's annual audited financial statements, including a more detailed breakdown of all NYGB's revenues and expenses.

¹⁸ Deployed Funds as presented in [Table 1](#) is net of all capital repaid to the reporting date.

¹⁹ The dollar value of the Current Portfolio is expected to fluctuate from quarter to quarter, including to reflect any increases or decreases in Committed Funds and/or Deployed Funds. Committed Funds increase when new transactions are executed with commitments that have not yet been funded, and/or in connection with existing transactions, where repaid amounts may be available to be redrawn pursuant to the terms of investment agreements. Deployed Funds increase where the total dollars funded into investments exceed amounts repaid in the same period. Decreases in Committed Funds occur, for example, in connection with the release of undrawn funds at the end of an availability period or otherwise consistent with the terms of an investment, while decreases in Deployed Funds occur primarily when NYGB investments are repaid from time to time, allowing those monies to be recycled into new clean energy investments in the State, generating further benefits for ratepayers. Note that due to rounding for the purposes of presentation in this Report, the sum of Committed Funds and Deployed Funds may not be identical to Current Portfolio. In addition, Current Portfolio is always stated net of any portfolio losses.

Quarterly Metric	Prior Quarter	Current Quarter
▪ Overall Investments to Date (\$)	\$737.6 million	\$786.7 million
▪ Total Project Costs (Cumulative) (\$) ²⁰	In the range of \$1.74 to \$1.96 billion	In the range of \$1.82 to \$2.14 billion
▪ Mobilization Ratio	Tracking at least 2.6:1 on average across portfolio	Tracking at least 2.6:1 on average across portfolio ²¹
▪ Portfolio Concentrations (%) ²²	77.8% Renewable Energy	76.5% Renewable Energy
	5.9% Energy Efficiency	7.4% Energy Efficiency
	16.3% Other	16.1% Other ²³
▪ Number & Type of NYGB Investments	35 – Renewable Energy	37 – Renewable Energy
	7 – Energy Efficiency	8 – Energy Efficiency
	5 – Other	6 – Other
▪ Number & General Type of NYGB Counterparties ²⁴	56 – Local Development Corporation; Global, Corporate and/or Investment Bank; Regional Bank; Specialty Finance Company; Energy Project Developer; Municipal, University, Schools & Hospitals; Energy Technology Provider & Vendors; Government Authority; Insurance Company; Transportation	58 – Local Development Corporation; Global, Corporate and/or Investment Bank; Regional Bank; Specialty Finance Company; Energy Project Developer; Municipal, University, Schools & Hospitals; Energy Technology Provider & Vendors; Government Authority; Insurance Company; Transportation
Direct Impact Benefits		
▪ Estimated Gross Lifetime Energy Saved by Fuel Type from Energy Efficiency Projects (MWh/MMBtu) and/or Estimated Gross Lifetime Clean Energy Generated (MWh) for Committed Funds & Deployed Funds	Estimated Gross Lifetime Energy Saved by Fuel Type (Energy Efficiency): 199,000 – 238,000 MWh; and 0.95 – 1.13 million MMBtu	Estimated Gross Lifetime Energy Saved by Fuel Type (Energy Efficiency): 369,900 – 450,000 MWh; and 1.43 – 2.05 million MMBtu
	Estimated Gross Lifetime Clean Energy Generated: 16.9 – 20.7 million MWh	Estimated Gross Lifetime Clean Energy Generated: 17.5 – 22.0 million MWh

²⁰ Further to the definition of “Total Project Costs (Cumulative)” in the Metrics Plan (see page 15), Total Project Costs (Cumulative) may include fair market value (“FMV”) data for a subset of NYGB’s investments. FMV is an estimated market valuation of fully installed energy projects provided by NYGB’s counterparties and is often required for federal income tax purposes, by institutional investors and for certain grant program purposes unconnected with NYGB. As projects progress and the cost of installed equipment and labor are known and reported to NYGB by its counterparties, NYGB seeks to adjust reported values and replace FMV in its aggregated data sets and periodic reporting with reported actual costs.

²¹ Given the range of Total Project Costs that NYGB investments mobilize, the Mobilization Ratio also represents a range; currently of 2.3:1 to 2.7:1.

²² Based on executed transactions and reflecting dollar values invested by NYGB in renewable energy and energy efficiency transactions, each as a proportion of the Current Portfolio.

²³ “Other” technology classification includes: CHP, sustainable transportation, fuel cells, energy storage, microgrids and other types of projects that, while falling within “clean energy”, are not readily classified as either renewable energy or energy efficiency.

²⁴ In reporting the number and type of NYGB counterparties, NYGB seeks to reflect counterparties that are discrete (i.e., where NYGB is involved in different transactions with the same counterparty, that party is counted only once for the purposes of this metric); and directly in the transaction with NYGB (i.e., vendors or other counterparties to NYGB’s clients or expected future transaction participants are not counted).

Quarterly Metric	Prior Quarter	Current Quarter
<ul style="list-style-type: none"> Estimated Gross First Year²⁵ Energy Saved by Fuel Type from Energy Efficiency Projects (MWh/MMBtu) and/or Estimated Gross First Year Clean Energy Generated (MWh) for Committed Funds & Deployed Funds 	Estimated Gross First Year Energy Saved by Fuel Type (Energy Efficiency): 14,700 – 17,600 MWh; and 50,000 – 59,000 MMBtu	Estimated Gross First Year Energy Saved by Fuel Type (Energy Efficiency): 25,800 – 31,600 MWh; and 83,000 – 115,000 MMBtu
	Estimated Gross First Year Clean Energy Generated: 1,149,000 – 1,329,000 MWh	Estimated Gross First Year Clean Energy Generated: 1,176,000 – 1,382,000 MWh
<ul style="list-style-type: none"> Estimated Gross Lifetime Energy Saved from CHP (MWh) for Committed Funds & Deployed Funds 	Estimated Gross Lifetime Energy Saved from CHP: 7,070 – 8,640 MWh	Estimated Gross Lifetime Energy Saved from CHP: 60,700 – 74,200 MWh
<ul style="list-style-type: none"> Estimated Gross First Year Energy Saved from CHP (MWh) for Committed Funds & Deployed Funds 	Estimated Gross First Year Energy Saved from CHP: 293 – 358 MWh	Estimated Gross First Year Energy Saved from CHP: 2,973 – 3,634 MWh
<ul style="list-style-type: none"> Estimated Gross Lifetime Energy Savings from CHP (MMBtu)²⁶ for Committed Funds & Deployed Funds 	Estimated Gross Lifetime Energy Savings from CHP: -(41,000 – 50,100) MMBtu	Estimated Gross Lifetime Energy Savings from CHP: 190,900 – 233,300 MMBtu
<ul style="list-style-type: none"> Estimated Gross First Year Energy Savings from CHP (MMBtu) for Committed Funds & Deployed Funds 	Estimated Gross First Year Energy Savings from CHP: -(1,700 – 2,070) MMBtu	Estimated Gross First Year Energy Savings from CHP: 9,890 – 12,100 MMBtu
<ul style="list-style-type: none"> Estimated Gross Clean Energy Generation Installed Capacity from CHP (MW), if applicable, for Committed Funds & Deployed Funds 	1.6 MW	1.9 MW
<ul style="list-style-type: none"> Estimated Gross Clean Energy Generation Installed Capacity (MW), if applicable, for Committed Funds & Deployed Funds 	478.0 – 596.3 MW	500.5 – 641.3 MW
<ul style="list-style-type: none"> Estimated Gross Lifetime GHG Emission Reductions (metric tons)²⁷ for Committed Funds & Deployed Funds 	9.07 – 11.14 million metric tons ²⁸	9.55 – 12.01 million metric tons
Indirect Impact Benefits²⁹		
<ul style="list-style-type: none"> Estimated Lifetime Energy Saved (MWh) 	-	-
<ul style="list-style-type: none"> Estimated Lifetime Energy Saved (MMBtu) 	-	-

²⁵ All “estimated gross first year” metrics refer to the first year of estimated gross benefits (e.g., energy saved, installed capacity, GHGs etc.) that are expected to occur when each underlying project is fully installed. This means that estimated gross first year benefits across NYGB’s portfolio do not (and are not intended to) correspond to installed benefits in any given year, and instead represent cumulative estimated benefits across NYGB’s portfolio based on transactions executed through the CEF term. Note that underlying projects will usually be installed over one or more years following execution of investment agreements (reflecting project development/implementation and funding deployment cycles). The sum of all estimated gross first year measures will approximate the total annual CEF benefits goals for NYGB investments at the end of the CEF term (i.e., in 2025). As set out in Section 2.2.2 of the Metrics Plan, NYGB reports on installed energy and environmental benefits associated with NYGB’s portfolio in the prescribed form annually, with such reporting included in the Quarterly Metrics Report for each quarter ending December 31.

²⁶ For CHP systems, energy savings in thermal unit form is computed as the difference between the natural gas displaced by the recovered thermal energy and natural gas consumption by the generator. See www.nyserda.ny.gov/-/media/Files/Publications/PPSER/Program-Evaluation/2015ContractorReports/2015-Distributed-Generation-CHP-Impact-Evaluation-Final.pdf for information on CHP Impact evaluation methods in NYS.

²⁷ NYSERDA utilizes a 1,103 lbs/MWh conversion factor to estimate GHG emissions reductions for electric generation and energy efficiency savings across all components of the CEF.

²⁸ In the Quarterly Report filed on May 15, 2019, the upper bound of direct GHG benefits was erroneously presented as the sum of indirect and direct benefits where the intention is to report in this section of [Table 1](#) the range of estimated direct GHG reductions. Indirect GHG benefits are separately outlined in [Table 1](#).

²⁹ NYGB reports and tracks Indirect Impact Benefits to reflect the contribution to NYS clean energy goals made by NYGB activities and related incremental value for all NYS consumers.

Quarterly Metric	Prior Quarter	Current Quarter
▪ Estimated Lifetime Clean Energy Generation (MWh)	3.9 – 7.8 million MWh	4.1 – 8.4 million MWh
▪ Estimated Installed Capacity CHP (MW)	-	-
▪ Estimated Installed Capacity (MW)	52.1 – 104.3 MW ³⁰	61.2 – 125.2 MW
▪ Estimated Lifetime GHG Emissions Reductions (Metric Tons)	2.04 – 4.08 million metric tons	2.18 – 4.36 million metric tons
Investment Pipeline		
▪ Active Pipeline (In the Quarter) (\$)	\$702.7 million	\$546.7 million
Investment Process		
▪ Proposals Received – Value (Cumulative) (\$)	\$3.4 billion	\$3.4 billion
▪ Approvals - Scoring Committee (Cumulative) (\$)	\$3.2 billion	\$3.2 billion
▪ Approvals - Greenlight Committee (Cumulative) (\$)	\$1.5 billion	\$1.5 billion
▪ Approvals - IRC (Cumulative) (\$)	\$775.0 million	\$823.3 million

4.2 Direct & Indirect Impact Benefits

As NYGB has developed and grown since inception, with increasing diversity in the nature and type of transactions in which it participates, its activities have the potential to generate both direct and indirect impact benefits for NYS residents. While the Metrics Plan was designed with an initial focus on direct impact benefits, NYGB differentiates between direct and indirect impact metrics, tracking both to more comprehensively quantify the estimated impact of each NYGB investment on the NYS clean energy and sustainable infrastructure market. This is consistent with the CEF Order, which specifically recognizes the importance of catalyzing markets and generating indirect benefits as part of CEF initiatives, including over longer time horizons.³¹

The quantification of indirect impact benefits is intended to capture the market transformational effects of NYGB investment activity. Many other CEF initiatives also anticipate accruing indirect benefits related to longer-term effects from follow-on market activity. These indirect impacts are grounded in a theory of change developed for each initiative, and NYSERDA will use market evaluation approaches, consistent with the rest of the CEF, to verify the indirect impacts as they accrue over time. Estimated indirect benefits are reflected in NYGB progress reporting, in general and towards meeting NYGB CEF goals. The realization and evaluation of NYGB indirect benefits over time will also be reflected in periodic reporting as appropriate. Both direct and indirect metrics contribute to the reductions of GHGs in the State from NYGB activity.

For NYGB, direct and indirect impact metrics are further defined as follows:

- (a) *Direct Impact Metrics*: Direct impact metrics quantify the estimated impact of the counterparty's project development or business-building activity. The types of direct impact metrics that NYGB tracks are those

³⁰ The total indirect estimated installed capacity for the prior quarter (69.7 – 86.7 MW) has been updated in this Report to reflect further analysis and correspond to data presented in the NYGB Plan filed in June 2019. As the revision of figures relates to expanding the estimated range (indicating greater uncertainty, but including the prior range), this is not considered to be a material change requiring refiling of the prior Quarterly Report.

³¹ See CEF Order (Cases 14-M-0094 et al.) pages 68 – 69: “The approved [CEF eligibility criteria] provide NYSERDA with the needed flexibility to choose initiatives that will create the greatest benefits for the least cost and to support innovative new technologies and approaches. We recognize that initiatives oriented towards market development, while they have the potential to create the greatest benefits for ratepayers in the long run, will have more indirect and less easily calculated clean energy benefits as compared to resource acquisition programs. We require NYSERDA to take a broad view of these indirect benefits when considering whether an initiative is eligible for CEF funding and to also take into account other benefits of the initiative, including its contribution to all of the CEF goals and its economic development benefits. Funding market-based projects with an indirect impact on clean energy is wholly consistent with the Commission's historic approach to clean energy programs. For example, the Commission approved workforce development programs, designed to achieve both indirect clean energy benefits and economic development benefits, as part of both [the energy efficiency performance standard] and [the renewable portfolio standard]. Holistic consideration of these benefits will best support the SEP, the goals described in the New York State Energy Law, and the interests of ratepayers”.

outlined in the Metrics Plan (and publicly reported quarterly), in aggregate on a path to achieving the impact benefit objectives by the end of the CEF in December 2025. Benefits are tracked on an estimated and actual basis (with actuals reported annually for NYGB’s Investment Portfolio in each calendar year). NYGB investments typically involve terms that limit or incentivize the use of NYGB investment proceeds to new or incremental project development in NYS.

- (b) *Indirect Impact Metrics:* Indirect Impact Metrics seek to measure the effect of NYGB investment for projects, pipelines, or other counterparty structures that wholly or in part catalyze other developments in the clean energy and sustainable infrastructure market beyond that in which NYGB directly invests (e.g., providing liquidity in the secondary markets and in relation to large-scale renewables with merchant exposure). While some particular NYGB investments might not fund new project development, material indirect benefits are nevertheless expected to accrue to the State over time as a result of this type of NYGB activity. NYGB tracks such estimated benefits (which can be in MWs, MWh, MMBtus, or metric tons of GHG reduced/avoided) on a lifetime basis. The realization of indirect impact benefits is expected over time. To confirm the nature and extent of indirect impact benefits that are in fact realized by the State, periodic market assessments will occur as needed to confirm that new development activity has in fact eventuated, validating NYGB’s estimated indirect impact benefits.

5 Progress Against Plan Deliverables

In its Plan, filed on June 19, 2019, NYGB identified deliverables (the “**Plan Deliverables**”) that collectively mark its progress in implementing key initiatives in the period April 1, 2019 through March 31, 2020 (the “**Plan Year**”).

Progress against the Plan Deliverables is required to be addressed in NYGB’s Quarterly Reports, together with a brief narrative (as appropriate) of status and an explanation of any material variances relative to expectations.

NYGB’s performance against the Plan Deliverables for the quarter ending June 30, 2019 is summarized in [Table 2](#).

Table 2. Status of Plan Deliverables (2019 – 20)

Category	Deliverable	Status in Quarter Ending June 30, 2019
Strong Active Pipeline		
Active Pipeline	<ul style="list-style-type: none"> Maintain an Active Pipeline of at least \$450.0 million per quarter on average throughout the 2019 – 20 Plan Year. 	<input checked="" type="checkbox"/> Achieved for this Quarter: Active Pipeline of \$546.7 million .
Clean Energy for LMI	<ul style="list-style-type: none"> Publicly issue Credit Enhancement/Loss Reserve for CDG Tax Equity RFI/RFP. 	<input checked="" type="checkbox"/> Ongoing & On Track: Due to be issued by year-end.
	<ul style="list-style-type: none"> Convene LMI stakeholders to present NYGB’s CDG financing approach on LMI-friendly terms, such as to not require FICO scores or long-term contracts. 	<input checked="" type="checkbox"/> Achieved for this Quarter: On July 11, 2019, NYGB hosted the webinar “Financing Community Distributed Generation for Low-to-Moderate Income Communities.” The webinar highlighted the ways NYGB continues to facilitate increased opportunities for LMI customers to participate in, and benefit directly from, NYS’s growing distributed energy market.

Category	Deliverable	Status in Quarter Ending June 30, 2019
	<ul style="list-style-type: none"> Convene LMI stakeholders to present NYGB approaches to financing projects in LMI communities, and to communicate current developments and progress made during the 2019 – 20 Plan Year. 	<input checked="" type="checkbox"/> Ongoing & On Track: Further convenings and communications to continue as products develop.
Energy Storage	<ul style="list-style-type: none"> Participate in NYSERDA webinar to inform market participants of how NYGB financings can leverage NYSERDA planned bulk and retail storage incentives. 	<input checked="" type="checkbox"/> Achieved for this Quarter: On May 2 and 3, 2019 NYGB presented on its financing approach to energy storage in NYSERDA's Retail & Bulk Energy Storage Webinars.
	<ul style="list-style-type: none"> Publicly issue new standalone Energy Storage RFP following announcement of planned NYSERDA storage incentives. 	<input checked="" type="checkbox"/> Ongoing & On Track: Due to be issued by year-end.
	<ul style="list-style-type: none"> Convene energy storage market participants to present NYGB standalone Energy Storage RFP. 	<input checked="" type="checkbox"/> Ongoing & On Track: Due to be convened by year-end.
Energy Efficiency	<ul style="list-style-type: none"> Provide guidance to market participants on key items to improve the probability of securing project financing from NYGB (to be included in NYSERDA pay-for-performance RFP for small commercial applications). 	<input checked="" type="checkbox"/> Achieved for this Quarter: NYGB provided feedback on the NYSERDA and Consolidated Edison pay-for-performance RFP, in connection with the financial capacity of proposers.
	<ul style="list-style-type: none"> Participate in NYSERDA residential stakeholder pay-for-performance convening and others with commercial market players around tenant improvement financing models. 	<ul style="list-style-type: none"> Not Started: The date for this convening is yet to be determined and will be coordinated with NYSERDA programs and initiatives.
Large-Scale Renewables	<ul style="list-style-type: none"> Contribute to NYSERDA land-based LSR RFP and NYS port infrastructure RFI to communicate potential NYGB financing roles and structures to likely respondents and related parties. 	<input checked="" type="checkbox"/> Ongoing & On Track: NYGB contributed to NYSERDA's Land-Based RFP.
	<ul style="list-style-type: none"> Participate in May 2019 webinar³² for NYSERDA's LSR RFP³³ to provide information to potential respondents on NYGB financing options, so that these may be reflected in, and priced into, RFP responses. 	<input checked="" type="checkbox"/> Achieved this Quarter: On May 2, 2019, NYGB participated in the Renewable Energy Standard Program RFP19-1 Webinar. In the webinar, NYGB highlighted its financing approach for LSR projects.
	<ul style="list-style-type: none"> Participate in NYSERDA convening of LSR market participants to communicate NYGB financing opportunities to NYSERDA RFP respondents. 	<input checked="" type="checkbox"/> Achieved this Quarter: As noted above, on May 2, 2019, NYGB participated in the Renewable Energy Standard Program RFP19-1 Webinar. In the webinar, NYGB highlighted its financing approach to LSR projects. Additionally, on May 15, 2019 NYGB hosted a Financing Large-Scale Renewables webinar to further detail how NYGB can be helpful in providing financing to the LSR market.
Community Distributed Generation	<ul style="list-style-type: none"> Publicly issue Credit Enhancement/Loss Reserve for CDG 	<input checked="" type="checkbox"/> Ongoing & On Track: Due to be issued by year-end.

³² See:

www.nyserda.ny.gov/All%20Programs/Programs/Clean%20Energy%20Standard/Renewable%20Generators%20and%20Developers/RES%20Tier%20One%20Eligibility/Solicitations%20for%20Long%20term%20Contracts.

³³ Issued April 23, 2019. See: <http://portal.nyserda.ny.gov/servlet/servlet.FileDownload?file=00Pt000000ED99VEAT>.

Category	Deliverable	Status in Quarter Ending June 30, 2019
	<p>Tax Equity RFI/RFP, as noted above under "Clean Energy for LMI."</p> <ul style="list-style-type: none"> ▪ Convene LMI stakeholders to present NYGB's CDG financing approach that may not require FICO scores or long-term contracts, as noted above under "Clean Energy for LMI." 	<p><input checked="" type="checkbox"/> Achieved this Quarter: As noted above, on July 11, 2019, NYGB hosted the webinar "Financing Community Distributed Generation for Low-to-Moderate Income Communities." The webinar highlighted the ways in which NYGB continues to facilitate increased opportunities for LMI customers to participate in, and benefit directly from, NYS's growing distributed energy market.</p>
Clean Transportation	<ul style="list-style-type: none"> ▪ Convene market participants and clean transportation innovators to identify specific market needs or gaps and advance NYGB financing product development and offerings. 	<p><input checked="" type="checkbox"/> Ongoing & On Track: NYGB continues to work with NYSERDA and other market participants on clean transportation initiatives.</p>
Bio Energy	<ul style="list-style-type: none"> ▪ Convene market participants to identify specific market needs and advance product development and potential offerings. 	<ul style="list-style-type: none"> ▪ Not Started: The date for this convening is yet to be determined.
Portfolio Driving Material Clean Energy Investments Across NYS		
Committed Funds	<ul style="list-style-type: none"> ▪ Commit \$962.6 million (cumulative) to NYGB investments by March 31, 2020, including at least \$225.0 million of incremental commitments in the 2019 – 20 Plan Year (at an average rate of \$56.25 million in closed transactions per quarter). 	<p><input checked="" type="checkbox"/> Not Achieved this Quarter: \$49.1 million in closed transactions in the quarter.</p>

Category	Deliverable	Status in Quarter Ending June 30, 2019
Mobilizing Capital		
<ul style="list-style-type: none"> ▪ Mobilization Ratio 	<ul style="list-style-type: none"> ▪ Continue progress toward a ratio of 8:1 across all NYGB investments, manifesting in \$8.0 billion of clean energy and sustainable infrastructure projects mobilized in the State by NYGB activity by the end of the CEF in 2025. 	<ul style="list-style-type: none"> ✓ Ongoing & On Track: NYGB investments are expected to mobilize up to \$2.14 billion in estimated project costs.
	<ul style="list-style-type: none"> ▪ Collaborate with NYSERDA and other relevant stakeholders to continue to explore the viability of a public private partnership to effectuate NYGB's third-party capital raise and national expansion, which will deliver the same or greater benefits to all New Yorkers using less ratepayer capital, as directed by Governor Cuomo in the 2019 State of the State/Executive Budget package. 	<ul style="list-style-type: none"> ✓ Ongoing & On Track: NYGB/NYSERDA continue to work with relevant parties.
Maintaining Self-Sufficiency by Strengthening Operations		
<ul style="list-style-type: none"> ▪ Legal & Technical Services 	<ul style="list-style-type: none"> ▪ Issue new RFP for technical service providers to NYGB and select slate of approved providers by September 2019. 	<ul style="list-style-type: none"> ✓ Ongoing & On Track: Issued Technical RFP in June 2019.
	<ul style="list-style-type: none"> ▪ Issue new RFP for legal service providers to NYGB and select slate of approved providers by December 2019. 	<ul style="list-style-type: none"> ✓ Ongoing & On Track: RFP to be issued in the third quarter of 2019.

Schedule – Transaction Profiles

As required by the Metrics Plan, Transaction Profiles for each of the transactions closed during the quarter to which this Report relates are attached.

Supporting Deployment of Controlled Environment Agricultural Assets in New York State

Agbotic, Inc.

NY Green Bank (“**NYGB**”) has committed \$6.0 million to finance the construction and operation of a cluster of energy efficient robotic greenhouses (collectively, the “**Project**”) developed by Agbotic, Inc. (“**Agbotic**”). The Project is located in Sackets Harbor, NY and will grow certified organic produce for sale into local markets, while the Project’s energy efficiency measures and on-site generation are expected to reduce greenhouse gas (“**GHG**”) emissions. This is NYGB’s first investment in a controlled environment agricultural (“**CEA**”) asset as part of its ongoing efforts to create and expand new asset classes of sustainable infrastructure investments. The transaction creates an important precedent in the CEA sector and signals to the market that project financings are available to experienced CEA producers with high-quality assets.

Transaction Description

Agbotic is a New York State (“**NYS**”)-based CEA agritech company that builds Smart Farms with robotic greenhouse automation to make local and organic food with an ecologically restorative model for farming. Agbotic produces a mix of specialty root crop, herb, leafy green, and industrial hemp products to distribute directly to retailers, food service companies, restaurants and consumers within a one day delivery of its greenhouses. The company focuses on growing organic plants for healthy nutrition and in manner that improves the environment.

NYGB’s \$6.0 million construction-to-term loan facility (the “**Facility**”) will enable Agbotic to complete the construction of a cluster of six robotic greenhouses and related infrastructure located in Sackets Harbor, NY. The greenhouses will grow and sell certified organic products to businesses and retailers/grocers. The greenhouses will be equipped with various energy efficiency measures, including LED lights and heat sinks, and benefit from efficient on-site power generation.

To date, most CEA financings have been done at the corporate level, and have been in the form of venture capital or other equity investments. Hence, there are limited transaction comparables for NYGB’s investment in Agbotic as asset-based project finance. As CEA is a rapidly-growing sector in the United States, the Facility provides transaction history for an asset in an emerging clean infrastructure sector with appealing economics and meaningful environmental benefits. This transaction is NYGB’s first investment in the CEA sector and NYGB’s participation establishes a replicable financing precedent for an emerging business model.

This Transaction Profile is provided pursuant to the updated “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, 2016.¹ This Transaction Profile contains specific information in connection with the Agbotic transaction entered into on June 20, 2019, as required by the Metrics Plan.²

Form of NYGB Investment

NYGB Product	Product Sub-Type	Committed Capital
Asset Loan & Investment	Construction-to-Term Loan	\$6.0 million

¹ Case 13-M-0412.

² See Section 4.0, page 8 and Schedule 3.

Location(s) of Underlying Project(s)

North Country. The greenhouses are located in the North Country, New York.

Types of Client & Counterparty Organizations that are Transaction Participants

	Name	Participant Type
Client	Agbotic Project #1, LLC	Borrower
Counterparty	Agbotic, Inc.	Sponsor, a CEA Agritech Company
Vendor	Sterling & Wilson Cogen Solutions, LLC	Energy Infrastructure Provider

Summary of Financing Market Objectives & Barriers Addressed

Beneficiary	Market Barrier	Financing Solution
Controlled Environment Agriculture Sector	Early-stage companies in the CEA sector have limited access to efficient debt financing solutions in order to scale up their businesses. The majority of existing financings are done at the corporate level, where companies receive venture capital and private equity investments.	NYGB's investment establishes a precedent of asset-based project finance in the CEA sector. NYGB's participation provides transaction history for an asset in an emerging clean infrastructure sector with appealing economics and limited market comparables.
Capital Market Participants	On an individual basis, there is limited debt capital support for small to mid-sized CEA companies; however, capital providers are more likely to participate on an aggregated basis once a pipeline of projects has achieved meaningful scale.	NYGB's willingness to support these assets helps to demonstrate to the broader market that there is lender comfort with produce revenue models. Knowledge of market liquidity and ability to periodically validate asset value via the market is expected to provide further motivation for participation by interested investors going forward.
New Yorkers	While interest and activity in local organic produce are increasing rapidly in NYS, a relatively small number of financial models are being used.	By bridging financing gaps in the marketplace, NYGB is encouraging the building of more clean and efficient CEA assets in the State. Ultimately this is expected to provide New Yorkers with greater choices and access to local organic produce, grown efficiently and at lower cost.

Technologies Involved

Technology	Measures
Energy Efficiency	On-site cogeneration plant, LED lighting, heat sinks

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”.³ In addition, the Metrics Plan requires that the following energy and environmental measures, applicable to this transaction, be reported on:⁴

- Estimated gross lifetime and first-year clean energy generated (MWh);
- Estimated gross clean energy generation installed capacity (MW); and
- Estimated gross lifetime and first-year GHG emission reductions (metric tons).

The estimated lifetime and first-year energy and environmental impacts of the Project, facilitated by NYGB’s financial participation in this transaction, are as follows:

Energy/Environmental Impact	Lifetime Low Estimate	Lifetime High Estimate	Annualized Low Estimate	Annualized High Estimate
Electricity savings (MWh)	65,223	79,717	3,261	3,986
Fuel savings (MMBtu) ⁵	231,876	593,206	11,594	29,660
Estimated GHG emission reductions (metrics tons) ⁶	44,601	70,504	2,230	3,525

Planned Market Characterization Baseline & Market Transformation Potential

The Metrics Plan requires that market evaluation occurs when a critical mass of NYGB financing and investment arrangements are put in place, approximately three to five years following initial NYGB capital deployments. Market evaluation activities commenced in 2018 to collect baseline data on key market indicators for the sectors that have been supported by NYGB since its inception, and the dataset will be updated in 2019 to include indicators specific to this transaction. Baseline data will be used 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:

- Favorable financial performance data throughout Facility term; and
- Favorable technology performance data.

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

- Increased volume of projects in the CEA sector, involving lengthening financing and investment durations (i.e., 10+ years) over time;
- Average and aggregate dollar value of projects in development and completed increases;
- Demonstration of competitive risk/return profiles;
- Increased awareness and use of evolving asset class financial performance data by financing entities;
- Financial entities emerge showing interest in NYGB’s transaction position;
- Scale of CEA investments increases;
- Increased number of energy efficiency equipment measures installed in CEA projects;
- Relationships with financial partners established; and

³ 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.

⁴ See Metrics Plan, Section 2.0, pages 2 - 6.

⁵ “Natural gas usage at the site is increased by the CHP facility. Energy Savings in thermal unit form are computed as the difference between the natural gas displaced by the recovered thermal energy and natural gas consumption by the generator [refer to www.nyserda.ny.gov/-/media/Files/Publications/PPSER/Program-Evaluation/2015ContractorReports/2015-Distributed-Generation-CHP-Impact-Evaluation-Final.pdf for information on CHP Impact evaluation methods in NYS].

⁶ As of January 1, 2016, the New York State Energy Research and Development Authority (“**NYSERDA**”) utilizes a 1,103 lbs/MWh conversion factor to estimate GHG emissions reductions for electric generation and energy efficiency savings across all components of the Clean Energy Fund (“**CEF**”). NYSERDA has previously utilized a 625 lbs/MWh conversion factor and 1,160 lbs/MWh. Factors have changed – and can be expected to continue to change – to reflect the improving efficiency/“greening” of the NYS grid (i.e., the New York Independent System Operator).

- Realized energy savings and emissions reductions.

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 and 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 (project subscribers, financial community) to track information including but not limited to: participation rates, project scale information, interest in CEA financing, and influence of NYGB's participation on financial markets. As noted, baseline data was collected on key indicators in the first phase evaluation during 2018 – 2019. Subsequent studies will assess progress against baseline levels for other market segments like CEA as those evolve. The specific timing of these efforts will be developed (and may be revised) on an ongoing basis based on experience or other factors as NYGB's investment portfolio continues to grow and evolve.

Impact evaluation is expected to draw upon and include data collected to support project-specific measurement and verification activities (e.g., such as those associated with PON 2701). Impact evaluation activities will likely include use of hourly interval data retrieved from PON 2701 Interval Data System with on-site validation activities. Annualized first-year energy savings will be based on electric usage readings (kWh) at the customer meter. Total electricity savings may be comprised of prime mover generation as well as secondary electric impacts attributable to use of an absorption chiller to satisfy cooling load that otherwise would have been satisfied with an electric chiller. Agbotic will provide quarterly performance reports to NYGB for the duration of the Facility. On-site verification of measure installations and performance will be conducted by NYSERDA. All specific transaction and Project data will be anonymized and/or aggregated prior to being reported or published.

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

Bridge Loan to Support the Deployment of Community Solar Projects

Distributed Sun – SUNEIGHT 2019

In May 2019, NY Green Bank (“NYGB”) provided a 24-month senior secured \$1.0 million bridge loan facility (the “Bridge Loan”) to SUN8 PDC, LLC (“SUN8”), which is jointly owned by Distributed Sun LLC (“DSUN”) and EWT Americas Inc. (“EWTA”). Bridge Loan proceeds will finance project interconnection advanced payments to New York State Electric & Gas Corporation (“NYSEG”) and Rochester Gas and Electric Corporation (“RG&E”) for community distributed generation (“Community DG”) solar projects. This transaction is expected to provide New York State (“NYS”) residents and businesses with a greater variety of energy choices and, ultimately, lower-cost clean energy opportunities.

Transaction Description

DSUN and EWTA are developing a portfolio of Community DG solar projects in NYS and requested NYGB to provide a \$1.0 million Bridge Loan to finance interconnection advance deposits¹ to NYSEG and RG&E for such projects, due under the New York State Public Service Commission (the “Commission”) Standardized Interconnection Requirements and Application Process.

This transaction is expected to support up to 45.0 MW of solar assets in the State which in turn are expected to: (i) provide commercial and residential project subscribers access to reliable, clean, low-cost energy; and (ii) reduce up to 26,500 metric tons of greenhouse gas (“GHG”) emissions annually in NYS. As there has been an increasingly strong demand for Community DG solar throughout NYS, capital providers are, and will continue to, recognize the value in providing financing to enable the deployment of these projects. NYGB expects its Bridge Loan product to continue to serve as a template for capital providers to assess and replicate in the future, as there has been a strong demand for Community DG solar throughout NYS. Capital providers are expected to increasingly recognize the value in providing financing at various phases to enable the deployment of these projects.

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 Commission on June 20, 2016.² This Transaction Profile contains specific information in connection with the DSUN transactions entered into on May 10, 2019, as required by the Metrics Plan.

Form of NYGB Investment

NYGB Product	Product Sub-Type	Committed Capital
Asset Loan & Investment	Bridge Loan	\$1.0 million

Location(s) of Underlying Project(s)

Southern Tier Region. The first projects in the Bridge Loan will be located in Cortland County, NY.

¹ Under the revised NYS Standardized Interconnection Requirements, within 60 business days of receiving the Coordinated Electric System Interconnection Review (“CESIR”) results, interconnection applicants must pay the applicable utility 25.0% of the interconnection upgrade estimates.

² Case 13-M-0412.

Types of Client & Counterparty Organizations that are Transaction Participants

Name		Participant Type
Client	DSUN and EWTA	Energy Project Developers
Counterparties (current)	NYSEG and RG&E, subsidiaries of Avangrid, Inc.	Electric Utility

Summary of Financing Market Objectives & Barriers Addressed

Beneficiary	Market Barrier	Financing Solution
Solar Project Developers	Project sponsors are often expected to pay for interconnection upgrade expenses with equity funds as they finalize construction financing arrangements. This results in a relatively inefficient use of sponsor equity, which limits project deployment efforts and effectively restricts the amount of Community DG being deployed in NYS, slowing the rate of deployment.	This transaction encourages a more efficient use of sponsor equity and supports project development efforts in NYS by bridging the period in which project sponsors need to finalize project financing arrangements for projects for which the CESIR process has been completed. NYGB's role helps to create an easier pathway forward for developers and to enabling greater deployment of community and other distributed generation assets throughout the State.
Capital Market Participants	As a relatively new form of clean energy project, Community DG lacks financing precedents and has limited performance history in NYS. As such, it can be more difficult for private sector capital providers to assess and price the underlying risk exposures associated with Community DG project investments.	Projects supported as a result of this transaction will generate project and customer performance data to draw new investors and financial institutions into the marketplace by demonstrating that competitive risk-return profiles can be achieved by Community DG-enabled business models.
Community DG Subscribers	Due to project siting, property ownership and consumer preference issues, on-site solar project installations may not be viable for a number of NYS homeowners, renters, and businesses. This limits the number of solar projects getting done to those with suitably sited homes or businesses.	This transaction supports the deployment of Community DG solar projects, which provide those who are not otherwise able to install solar energy generation systems on their property (e.g., homeowners whose rooftops cannot support solar systems, renters and those who cannot afford solar stand-alone systems), with voluntary access to clean, low-cost energy, regardless of where their home or business is located.

Technologies Involved

Technology	Measures
Renewable Energy	Solar photovoltaic systems

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 reductions in support of New York's energy

policies”.³ In addition, the Metrics Plan requires that the following energy and environmental measures, applicable to this transaction, be reported on⁴:

- Estimated gross lifetime and first-year clean energy generated (MWh);
- Estimated gross clean energy generation installed capacity (MW); and
- Estimated gross lifetime and first-year GHG emission reductions (metric tons).

The estimated gross lifetime and first-year energy and environmental impacts of the Bridge Loan are as follows:

Energy/Environmental Impact	Lifetime Low Estimate	Lifetime High Estimate	First-Year Low Estimate	First-Year High Estimate
Estimated clean energy generated (MWh)	662,256	1,324,512	26,490	52,980
Estimated clean energy generation installed capacity (MW)	22.5	45.0	Not Applicable	
Estimated GHG emission reductions (metric tons)	331,278	662,556	13,251	26,502

Planned Market Characterization Baseline & Market Transformation Potential

The Metrics Plan requires that market evaluation occurs when a critical mass of NYGB financing and investment arrangements are put in place, approximately three to five years following initial NYGB capital deployments. Market evaluation activities commenced in 2018 on sectors that have been supported by NYGB since its inception, and the data set will be updated going forward to include indicators specific to this and other transactions. Baseline data will be used 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.

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

- Size (i.e., generation capacity and expected dollar value) and location of projects financed by the Bridge Loan;
- Aggregate expected energy generation for projects financed by the Bridge Loan; and
- The number of projects that finalize construction financing arrangements.

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:

- Market volume of DSUN projects increases;
- General understanding of renewable energy benefits by financial community increases;
- Increased awareness and use of Community DG subscriber performance data by financing entities;
- Increased awareness and use of project/technology performance data by financing entities;
- Demonstration of competitive risk-return profiles for Community DG solar investment;
- Decreased project costs;
- Volume of secondary market financing of Community DG solar assets increases; and
- Number of new lending participants.

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

NYSERDA will evaluate the direct and indirect impacts that this transaction has 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 (project subscribers, financial community) to

³ 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.

⁴ See Metrics Plan, Section 2.0, pages 2 - 6.

track information including but not limited to: participation rates, project scale information, interest in solar financing (generally and with regard to Community DG specifically), and influence of NYGB's participation on financial markets. As noted, baseline data was collected on key indicators in the first phase evaluation during 2018 – 19. Later follow-up studies will assess progress against baseline levels for other market segments as those evolve. The specific timing of these efforts may be revised based on experience or other factors as NYGB's investment portfolio further develops and evolves.

Impact evaluation will assess which of the projects funded under the Bridge Loan raised construction financing, and were completed, commissioned, and placed in service.

As with all NYGB investments, DSUN projects that receive an incentive or funding from other entities (e.g., utility, other NYSERDA program) will, in accordance with the Metrics Plan, be tracked in order to minimize any double-counting activity on a consolidated basis. As set out in 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 these projects that receive support from multiple sources in order to maximize the efficiency of data collection and avoid participant survey fatigue.

Supporting Commercial Energy Efficiency in New York State

Ecosave – Commercial Energy Efficiency

NY Green Bank (“NYGB”) has committed \$15.0 million to finance at least five energy efficiency or distributed generation projects in New York State (“NYS” or the “State”). NYGB’s participation in this transaction provides a scalable financing model and establishes performance history for financing involving energy efficiency for medium-sized, unrated commercial and institutional customers, a market segment that historically has had difficulty accessing capital for otherwise technically and economically feasible efficiency projects.

Transaction Description

Ecosave is a Philadelphia-based energy services company that provides turnkey design, engineering, procurement, construction, utility management and maintenance solutions for building energy efficiency (“EE”) and Distributed Energy Resources (“DER”) projects. NYGB established a financing relationship with Ecosave through NYGB’s previous \$2.0 million participation in a construction-to-term loan for the Hebrew Home project with NYCCEC. The company opened a New York office in April 2019 with the goal of developing and completing \$30.0 million or more in EE and DER projects in New York by 2029.

NYGB has provided a \$15.0 million credit facility (the “Term Loan”) against receivables from EE projects completed under Energy Savings Agreements (“ESAs”) and Energy Performance Contracts (“EPCs”). Ecosave is expected to use the Term Loan to support at least five new EE or DER projects in New York.

NYGB’s participation in the Term Loan will facilitate the growth of the NYS energy efficiency market by supporting growing market confidence in ESA and EPC cash flows. This investment involves a replicable transaction structure that enables Ecosave’s portfolio to scale and ultimately attract private sector investment. Ecosave’s pipeline has been financed on a project-by-project basis to date. The structure of the Term Loan should decrease the time necessary to secure financing for new projects.

This Transaction Profile is provided pursuant to the updated “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, 2016.¹ This Transaction Profile contains specific information in connection with the Ecosave transaction entered into on June 27, 2019, as required by the Metrics Plan.²

Form of NYGB Investment

NYGB Product	Product Sub-Type	Committed Capital
Asset Loan & Investment	Multi-Draw Term Loan	\$15.0 million

Location(s) of Underlying Project(s)

Statewide.³ Subsidiaries of Ecosave will acquire projects throughout NYS.

¹ Case 13-M-0412.

² See Section 4.0, page 8 and Schedule 3.

³ Defined as projects located in four or more regions of the State.

Types of Client & Counterparty Organizations that are Transaction Participants

	Name	Participant Type
Client	Ecosave Contract Assets, LLC	Borrower
Sponsor(s)	Ecosave Holdings Inc.	Parent

Summary of Financing Market Objectives & Barriers Addressed

Beneficiary	Market Barrier	Financing Solution
Project Developers	Many energy efficiency providers must seek project-by-project construction finance. This consumes limited time and resources and creates higher transaction costs for each project, diverting funds that might otherwise be used to grow and scale.	NYGB's participation provides funding to construct new projects that meet pre-defined criteria, avoiding the need for separate loan documentation for each project. These transaction efficiencies allow for greater project scalability while lowering transaction costs for the Sponsor.
Capital Market Participants	Capital market participants may be interested in owning or financing commercial energy efficiency but are unable to find portfolios of similar project types at a scale large enough to justify diligence and transaction costs.	NYGB's participation enables aggregation of commercial efficiency projects into a larger pool that can be refinanced with institutional capital.
New Yorkers	While interest and activity in commercial and institutional building energy efficiency projects is marked and continues to increase in NYS, certain inefficiencies may exist in financing that limit the number of projects that are completed.	By providing financing for guaranteed savings projects, NYGB is encouraging more primary commercial and institutional building efficiency development in the State. Ultimately this is expected to provide New Yorkers with a more efficient building stock and access to clean energy at a lower cost.

Technologies Involved

Technology	Measures
Energy Efficiency & Distributed Energy Resources	Various: LEDs; HVAC; Solar; CHP; etc.

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 on:⁵

- Estimated gross lifetime and first-year electricity (MWh);
- Estimated gross lifetime and first-year fuel savings (MMBtu);
- Estimated gross lifetime and first-year greenhouse gas ("GHG") emission reductions (metric tons).

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, pages 2 - 6.

The estimated gross lifetime and first-year energy and environmental impacts of the Term Loan are as follows:

Energy/Environmental Impacts	Lifetime Low Estimate	Lifetime High Estimate	Annual Low Estimate	Annual High Estimate
Electricity savings (MWh)	158,471	198,089	10,565	13,206
Natural Gas savings (MMBtu)	486,108	607,635	32,407	40,509
GHG emission reductions (metric tons)	105,114	131,393	7,008	8,760

Planned Market Characterization Baseline & Market Transformation Potential

The Metrics Plan requires that market evaluation occurs when a critical mass of NYGB financing and investment arrangements are put in place, approximately three to five years following initial NYGB capital deployments. Market evaluation activities commenced in 2018 to collect baseline data on key market indicators for the sectors that have been supported by NYGB since its inception, and the dataset will be updated in 2019 to include indicators specific to this transaction. Baseline data will be used 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:

- Number of new energy efficiency projects completed by Ecosave or similar market participants;
- Average and aggregate dollar value of projects;
- Number and location of projects;
- Size of projects;
- Energy savings and GHG emission reductions (in metric tons).

Outcome indicators are expected to show progress through program tracking or market evaluation over time. These include, but are not limited to:

- Favorable financial performance data;
- Favorable technology performance data;
- Increasing market volume of commercial and industrial energy efficiency projects (both development and primary/secondary financings);
- Investment risk/default rates become increasingly attractive to investors, as a result of positive financial performance data;
- Increasingly positive view of banks and institutional investors on investment value of energy efficiency projects;
- Amount and scale of energy efficiency investment increases, together with increased end-use market demand;
- Decreased project technology costs/increasing output and efficiency;
- Decreased financing costs based on higher liquidity and price discovery; and
- Increased number of financial participants participating in EE/DER investments and financings.

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

NYSERDA will evaluate the direct and indirect impacts that this transaction has 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 (project subscribers, financial community) to track information including but not limited to: participation rates, project scale information, interest in EE/DER in the industrial and commercial sectors, and influence of NYGB’s participation on financial markets. As noted, baseline data was collected on key indicators in the first phase evaluation during 2018 – 2019. Subsequent studies will assess progress against baseline levels for other market segments as those evolve. The specific timing of these efforts will be developed (and may be revised) on an ongoing basis based on experience or other factors as NYGB’s investment portfolio continues to grow and evolve.

Impact evaluation will use actual performance data to understand energy and environmental outcomes. Impact evaluation is expected to include annual review and analysis of actual energy savings data collected by Ecosave. Actual energy savings performance will be monitored and documented against expected performance. Impact evaluation will help provide verification of performance, in turn aiding the clean energy finance community in understanding the risks and rewards in this clean energy area.

As with all NYGB investments, Ecosave projects that receive an incentive or funding from other entities (e.g., utility, other NYSERDA program) will, in accordance with the Metrics Plan, be tracked in order to minimize any double-counting activity on a consolidated basis. As set out in 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 these projects that receive support from multiple sources in order to maximize the efficiency of data collection and avoid participant survey fatigue.

Supporting Residential Solar in New York State

Spruce – Residential Solar

NY Green Bank (“**NYGB**”) has committed \$27.1 million to the recapitalization of a portfolio of residential PV assets by Spruce Finance Inc. (“**Spruce**”), including 9.0 MW of capacity in New York State (“**NYS**” or the “**State**”). NYGB’s participation in this transaction – alongside other commercial banks – supports the medium-term financing of post-tax equity residential photovoltaic (“**PV**”) assets and the secondary market for residential PV assets more broadly. The existence of a robust secondary market supports even greater development of residential solar assets through price discovery and greater availability of capital interested in investing in this asset class. In addition, NYGB’s involvement in this transaction contributes to ratepayers’ greater energy choices, and ultimately, lower-cost clean energy opportunities.

Transaction Description

Spruce owns a portfolio of approximately 23,500 residential PV systems that it operates and manages, located in 11 states including New York and California. NYGB has committed \$27.1 million alongside capital from five commercial banks to support the medium-term financing of these residential PV assets.

Since being acquired in 2017 by HPS Investment Partners, Spruce has crystalized its focus on its key business lines, sold non-core assets and cut administrative costs. Through the leadership of a new executive team, these initiatives resulted in Spruce achieving positive operating cash flow commencing in the fourth quarter of 2018. Market recognition of this transformation should continue to put downward pressure on credit financing costs. This transaction demonstrates to the market that a high quality portfolio of residential solar assets can successfully go through a turnaround under a well executed reorganization and recapitalization plan.

NYGB will provide support to an active actor in the residential solar value chain, Spruce. Both NYGB and Spruce believe that developers and investors will continue to view the New York residential solar market as robust and competitive. Developers and investors can enter the residential solar market knowing that potential buyers of their assets exist. Should they decide that they would like to exit their position and monetize their assets, Spruce (among similar parties) can support this as an active buy-side market player. A competitive landscape of both buyers and sellers will drive the continued growth of residential solar in the State.

This transaction compliments a previous commitment by NYGB to Spruce in March 2017, that was refinanced by this new recapitalization transaction. In the prior transaction, NYGB committed \$6.0 million to a five-year \$99.4 million senior secured term loan (which Spruce used to refinance an existing aggregation facility supporting 86.0 MW of generating capacity across 12,711 homes in 11 states). Over 6.2% of the initial portfolio was located in New York State and NYGB’s activity helped establish a new medium-term lending market for financing existing residential solar systems in NYS while providing liquidity for Spruce to develop additional projects.

Many benefits of Clean Energy Fund initiatives in the State (including NYGB investments like the Rock Wind and Valcour transactions) comprise follow-on market activity as part of quantifying overall impact. In this instance, the provision of secondary financing of operating PV assets is expected to provide confidence to developers and future financiers that there is increasing liquidity in the residential solar asset class, throughout the project lifecycle, spurring even greater interest and activity from developers and financiers. NYGB expects to see material indirect benefits from transactions like this one in the form of more residential PV development for NYS. Specific estimated indirect impact benefits associated with this transaction are set out in the “Metrics & Evaluation Plan” section of this Transaction Profile, below.

This Transaction Profile is provided pursuant to the updated “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, 2016.¹ This Transaction Profile contains specific information in connection with the Spruce transaction entered into on April 30, 2019, as required by the Metrics Plan.²

Form of NYGB Investment

NYGB Product	Product Sub-Type	Committed Capital
Asset Loan & Investment	Term Loan	\$27.1 million

Location(s) of Underlying Project(s)

Statewide.³ Spruce will refinance projects throughout New York

Types of Client & Counterparty Organizations that are Transaction Participants

	Name	Participant Type
Client	Kilowatt Systems, LLC Volta Solar Owner 1, LLC Volta MH Owner II, LLC	Project Holding Companies
Sponsor(s)	Spruce Holding Company 1, LLC Spruce Holding Company 2, LLC Spruce Holding Company 3, LLC (together, “ Spruce ”)	Solar Operating Company
Counterparties (current)	Silicon Valley Bank, ING, KeyBank, EastWest Bank, BankUnited	Commercial Banks

Summary of Financing Market Objectives & Barriers Addressed

Beneficiary	Market Barrier	Financing Solution
Project Developers / PV Asset Managers	Solar developers may face difficulties refinancing assets efficiently after the tax equity period ends.	NYGB’s participation supports a liquid secondary market for operating projects where the perceived market need is greatest. This may catalyze growth and developer activity throughout the project life cycle.
Capital Market Participants	Capital market participants may be interested in owning or financing residential solar assets, but may have a mismatch between the life of the solar assets and the duration of their desired exposure.	NYGB’s participation provides an important market signal that a liquid secondary market in such assets exists and should continue to exist. Knowledge of market liquidity and ability to periodically validate asset value via the market should provide enticement to interested investors.
New Yorkers	While interest and activity in residential solar projects has been robust and continues to increase in NYS, certain inefficiencies may exist in financing the full PV asset life cycle.	By bridging financing gaps in the secondary marketplace, NYGB is encouraging more primary residential solar development in the State. Ultimately this is expected to provide New Yorkers with greater choices and access to clean energy at a lower cost.

¹ Case 13-M-0412.

² See Section 4.0, page 8 and Schedule 3.

³ Defined as projects located in four or more regions of the State

Technologies Involved

Technology	Measures
Renewable Energy	Residential PV Systems

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 [“(GHG)”] 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 on:⁵

- Estimated gross lifetime and first-year clean energy generated (MWh);
- Estimated gross clean energy generation installed capacity (MW); and
- Estimated gross lifetime and first-year GHG emission reductions (metric tons).

Since this transaction involves the secondary market financing of existing PV assets, there are no claimed direct incremental impact benefits. However, material indirect impact benefits are expected to result for the State from NYGB investments of this nature.⁶ The estimated additional gross lifetime and first-year energy and environmental impacts of the Spruce projects are as follows:

Energy/Environmental Indirect Impact	Annual Estimate	Lifetime Estimate
Estimated clean energy generation installed capacity (MW)	9.1 – 21.0	
Estimated clean energy generated (MWh)	10,674 – 24,724	266,845 – 618,106
Estimated GHG emission reductions (metric tons)	5,616 – 13,009	140,406 – 325,230

Planned Market Characterization Baseline & Market Transformation Potential

The Metrics Plan requires that market evaluation occurs when a critical mass of NYGB financing and investment arrangements are put in place, approximately three to five years following initial NYGB capital deployments. Market evaluation activities commenced in 2018 to collect baseline data on key market indicators for the sectors that have been supported by NYGB since its inception, and the dataset will be updated going forward to include indicators specific to this and other transactions. Baseline data will be used 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.

Output indicators will identify early activity levels and will be regularly tracked at least for the duration of the transaction. These include, but are not limited to:

- Number of new PV projects acquired by Spruce or similar market participants;
- Average and aggregate dollar value of projects;
- Location of projects;
- Size of projects (i.e., installed capacity in MW);
- Estimated renewable energy generation (in MWh); and
- Estimated GHG emission reductions (in metric tons).

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, pages 2 - 6.

⁶ As the attribution of indirect benefits is an evolving area for the Clean Energy Fund and NYGB, details with respect the methodologies and key assumptions involved will be included in NYGB’s future Quarterly Metrics & Evaluation Report, with the next such report due to be filed on [May 15, 2019].

Outcome indicators are expected to show progress through program tracking or market evaluation over time. These include, but are not limited to:

- Favorable financial performance data;
- Favorable technology performance data;
- Increasing market volume of residential PV (both development and primary/secondary financings);
- Investment risk/default rates become increasingly attractive to investors as a result of positive financial performance data;
- Amount and scale of PV investment increases, together with increased end-use market demand;
- Decreasing project technology costs/increasing output and efficiency; and
- Decreasing financing costs based on higher liquidity and price discovery.

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

NYSERDA will evaluate the direct and indirect impacts that this transaction has 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 solar financing and influence of NYGB's participation on primary and secondary financial markets. As noted, baseline data is being collected on key indicators in the first phase evaluation during 2018 – 19. Later follow-up studies will assess progress against baseline levels for other market segments as those evolve. The specific timing of these efforts may be revised based on experience or other factors as NYGB's investment portfolio further develops and evolves.

Impact evaluation will assess the further development of projects to verify that PV system installations are occurring over time as part of expected market follow-on activity and that those new systems are collectively generating clean energy and impact benefits within the estimated ranges set out in this Transaction Profile.

As with all NYGB investments, projects that receive an incentive or funding from other entities (e.g., utility, other NYSERDA program) will, in accordance with the Metrics Plan, be tracked in order to minimize any double-counting activity on a consolidated basis. As set out in 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 these projects that receive support from multiple sources in order to maximize the efficiency of data collection and avoid participant survey fatigue.