



NY Green Bank
A Division of NYSERDA

NY Green Bank

Metrics, Reporting & Evaluation

Quarterly Report No. 19
(Through March 31, 2019)

Case 13-M-0412

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1 Performance at a Glance – As of March 31, 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 **\$702.7 million**.¹

Driving Material Clean Energy Investments Across NYS

NYGB’s investments support clean energy projects with a total project cost of **between \$1.74 and \$1.96 billion**² in aggregate, based on Overall Investments to Date of **\$737.6 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 NYS by NYGB activity by December 2025 (including the effect of capital recycling). Currently at \$1.96 billion as of March 31, 2019.

Revenue Growth - Maintaining Self-Sufficiency

Continued revenue growth – **\$59.8 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 9.07 and 15.22 million metric tons**², equivalent to removing **between 134,818 and 156,044 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 March 31, 2019, the \$702.7 million in Active Pipeline does not include the \$737.6 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 (“**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 so no longer will 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 **three new investments** during the quarter ending March 31, 2019, adding **\$100.0 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 March 31, 2019:

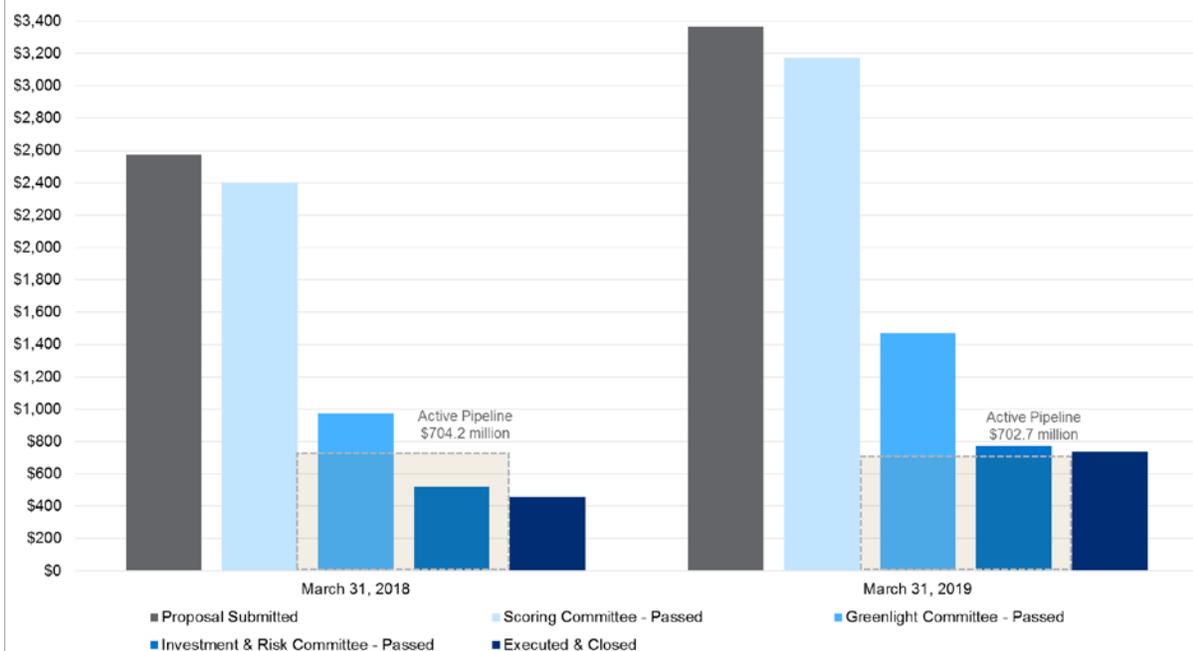
- (a) Over **\$3.4 billion** of proposals have been received and evaluated by NYGB’s Scoring Committee;
- (b) **\$3.2 billion** of proposals have passed Scoring Committee evaluation – representing potential investments that meet NYGB’s mandate and proposal evaluation criteria;
- (c) **\$1.5 billion** of proposals have received Greenlight Committee recommendation for advancement;
- (d) **\$775.0 million** of proposals have been vetted by the Investment & Risk Committee (“**IRC**”) and approved by NYSERDA’s President & CEO; and
- (e) **\$737.6 million** of transactions have been closed – comprising NYGB’s Overall Investments to Date - mobilizing public and private investments to support in the range of **\$1.74 to \$1.96 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 **\$702.7 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 March 31, 2019, NYGB closed three transactions, respectively sponsored by BlackRock Renewables Assets (one transaction) and Carlyle Power Partners (two transactions). 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 2040.⁸

3.2.2 New Investments

Rock Wind Holdings - Supporting Large-Scale Onshore Wind in New York State

- Equivalent to the estimated deployment of up to 35.1 MW of new large-scale wind resources in the State⁹
- Estimated to indirectly contribute up to 1,375,077 metric tons in reduced GHG emissions in the State from assumed future large-scale wind resources

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 New York’s Green New Deal includes certain critical components, 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.

⁹ Since this investment does not involve the construction of new clean energy resources, the impact benefits attributable to this transaction are classified as indirect. Indirect benefits are further discussed in [Section 4.2](#).

- *Estimated to indirectly spur the generation of up to 2,613,831 MWh of wind power in the State from future large-scale wind resources*

Black Rock Renewable Assets, the dedicated renewables investment team of BlackRock Real Assets, recently acquired a portfolio of five operating wind farms located in New York, Pennsylvania, and Illinois totaling 539.0 MW. NYGB has committed \$31.25 million alongside capital from three commercial banks to support the long-term financing of these quasi-merchant assets, which include a 55.4 MW project in Steuben County, NYS.

Commercial banks are becoming more comfortable with merchant exposure for thermal facilities, but the market is less developed for merchant renewable projects. NYGB's participation signals that long-term financings of NYS wind projects with merchant tails are possible, which in turn is expected to encourage more primary wind development in the State. This transaction supports the secondary market for wind projects in NYS at a time when long-term offtake contracts are increasingly scarce.

The 55.4 MW project will continue to generate renewable wind energy for the State. NYGB participation in this secondary market transaction is expected to spur further private investment in this type of asset, delivering even more renewable generation options and benefits to ratepayers. The anticipated growth of large scale renewables in the State (including onshore wind) can be expected to be maximized in a market where there is ample capital available for both project developments and the subsequent recapitalization and/or sale of operating assets. Many benefits of CEF initiatives in the State (including NYGB investments consistent with its mission, like this Rock Wind transaction) comprise follow-on market activity as part of quantifying overall impact. In this instance, the provision of secondary financing of operating wind assets is expected to provide confidence to developers and future financiers that there is increasing liquidity in merchant renewable project asset classes, across project lives, spurring even greater interest and activity. NYGB expects to see material indirect benefits from transactions like this one in the form of more large-scale renewable projects for NYS.

Valcour Wind Energy – Supporting Large-Scale Offshore Wind in New York State

- *Allows significant renewable assets to remain operational five years beyond their original design life*
- *Reduces GHG emissions by up to 1,613,567 metric tons from the underlying projects¹⁰*
- *Generates at least 2,913,810 MWh of renewable energy from the underlying projects¹¹*
- *Equivalent to the estimated deployment of up to 69.1 MW of new large-scale wind resources in the State*
- *Estimated to indirectly contribute up to 2,708,144 metric tons in reduced GHG emissions in the State from assumed future large-scale wind resources*
- *Estimated to indirectly spur the generation of at least 2,573,876 MWh of wind power in the State from future large-scale wind resources*

Carlyle Power Partners (“**CPP**”), a dedicated power investment platform of The Carlyle Group, recently acquired a portfolio of six operating wind projects in NYS, originally announced in September 2018. In late February 2019, NYGB committed financing to Valcour Wind Energy alongside three commercial banks to support the acquisition. In late March 2019, in a separate transaction, NYGB committed additional funding to Cogentrix Valcour Intermediate Holdings to further support CPP's acquisition, for a total aggregate commitment of \$68.75 million from NYGB. The wind projects total 612.0 MW and account for approximately 30.0% of current wind generation in the State. The first project in the portfolio started operating in 2008 and the final project came online in 2009.

The project finance market is becoming more comfortable with merchant exposure for thermal facilities, but the market is less developed for merchant renewable projects. NYGB's participation signals that long-term financings of NYS wind projects with merchant tails are possible, which in turn is expected to encourage more primary wind development in the State. This transaction supports the secondary market for wind projects in NYS at a time when long-term offtake

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](#).

¹¹ Assuming the installed generation operates for at least five years beyond the original 20-year design life. This does not represent the useful life assumption used for the financial evaluation of the portfolio.

contracts are increasingly scarce. Further large-scale renewable transactions are expected as NYGB continues to support large-scale renewables development in the NYS power market.

The recapitalization and expected operational improvements associated with this acquisition will allow the 612.0 MW of installed generation to remain operational beyond the original 20-year design life. During these additional years, the projects are expected to generate at least 2,913,810 MWh of clean energy and provide at least 1,532,889 metric tons of avoided GHG emissions. In addition to the environmental benefits, this transaction supports economic development in the State: more than 40 clean energy jobs in the North Country and Western NY will be retained through the continued operation of these wind projects, with continued lease payments made to landowners and property taxes contributed to local communities.

The 612.0 MW Valcour wind portfolio will continue to generate renewable wind energy for the State. NYGB participation in this secondary market transaction is expected to spur further private investment in this type of asset, delivering even more renewable generation options and benefits to ratepayers. The anticipated growth of large-scale renewables in the State (including onshore wind) can be expected to be maximized in a market where there is ample capital available for both project developments and the subsequent recapitalization and/or sale of operating assets. Many benefits of CEF initiatives in the State (including NYGB investments consistent with its mission, such as the Valcour transaction) comprise follow-on market activity as part of quantifying overall impact. In this instance, the provision of secondary financing of operating wind assets is expected to provide confidence to developers and future financiers that there is increasing liquidity in merchant renewable project asset classes across project lives, spurring even greater interest and activity. NYGB expects to see material indirect benefits from transactions like this one in the form of more large-scale renewable projects 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.

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**").¹² Through March 31, 2019, proposals requesting over \$3.4 billion of NYGB capital have been received. NYGB's Active Pipeline at March 31, 2019 is \$702.7 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.

¹² 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 2. Active Pipeline by Technology

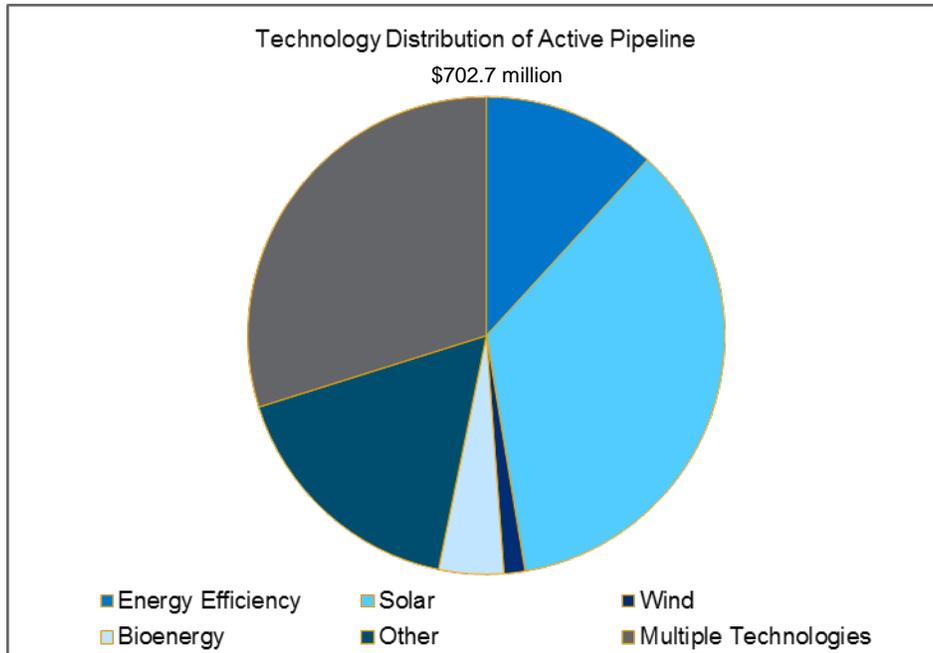


Figure 3. Active Pipeline by End-Use Customer Segment

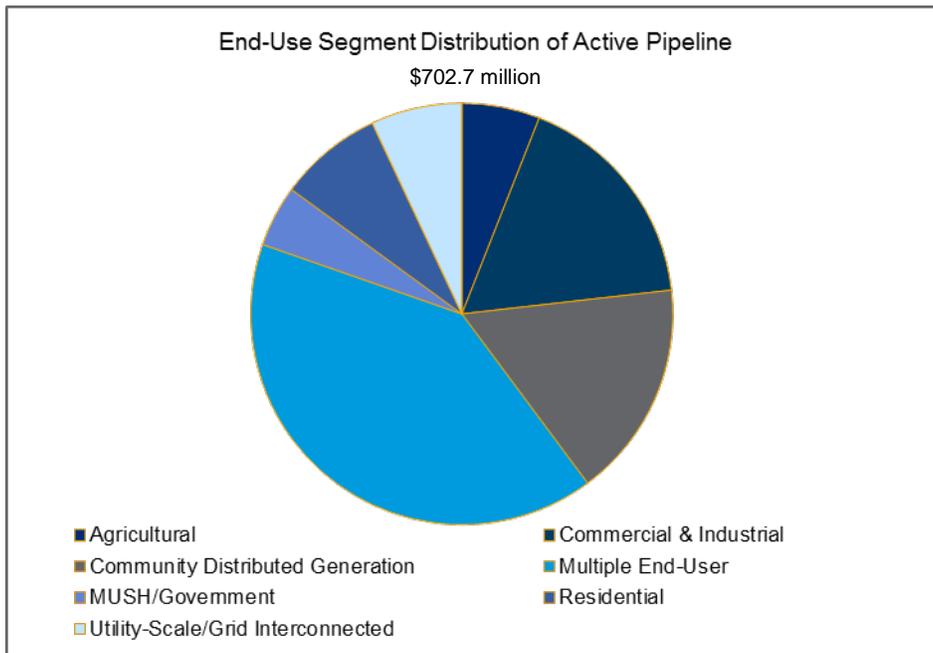
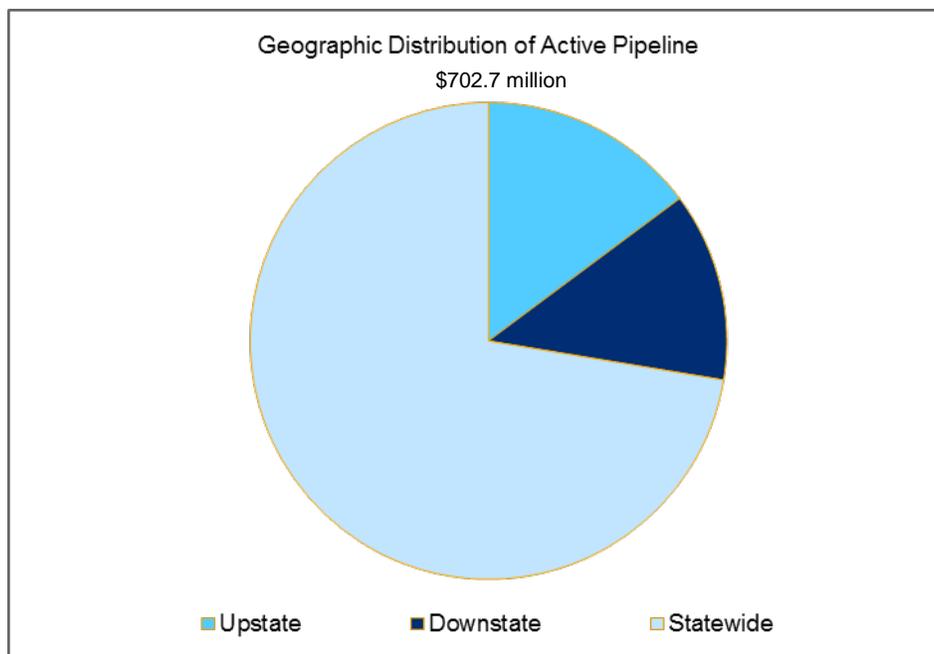


Figure 4. Active Pipeline by Geographic Distribution



3.4 Strategic, Operational & Risk Matters

In the quarter ended March 31, 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) Continuing Stakeholder Outreach & Communications:

- i. Participation in 15 events including two convenings as part of NYGB’s Annual Statewide Meeting Series located in the Capital Region and North Country. Other events included providing the keynote address at the U.S. Department of Energy Storage Financing Summit and the Offshore Wind Finance Forum; speaking to NYGB’s approach to financing community distributed generation (“CDG”) at the Solar Energy Industries Association Finance & Tax Seminar; and presenting on NYGB’s financing solutions for energy storage projects at the Annual Meeting & Conference: Capture the Energy organized by New York Battery & Energy Storage Technology Consortium. Additionally, as part of this year’s International Women’s Day celebrations, NY Green Bank Chief Operating Officer joined a panel of female business leaders hosted by the Australian Consulate in sharing career path insights;
- ii. In the State of the State book released January 2019,¹³ Governor Cuomo called for the development of terms for a public-private partnership (“PPP”) to effectuate NYGB’s third-party capital raise and national expansion. PPP is an effective and efficient means to further leverage the clean energy and sustainable infrastructure investment and asset management platform that NYS has created through NYGB. By partnering with reputable commercial parties who are similarly focused on advancing sustainable infrastructure and clean energy financing markets, NYS can achieve even greater direct and indirect benefits for the State’s consumers – including energy reliability, affordability and greater consumer choice;

¹³ See www.governor.ny.gov/sites/governor.ny.gov/files/atoms/files/2019StateoftheStateBook.pdf.

- iii. NYGB has received meaningful market feedback to its Request for Information (“RFI”) 5: Low and Moderate Income Participation in CDG Projects in New York State. Through the issuance and follow-up meetings and communications associated with this RFI, NYGB and NYSERDA have connected with CDG project developers, sponsors, financiers, community-based organizations, and all other market participants that specifically focus on, or are interested in, providing increased opportunities for low and moderate income (“LMI”) customers to participate in, and directly benefit from, the State’s growing distributed energy resource market. At the submission deadline of December 31, 2018, NYGB had received a strong response from market participants and over the past quarter has engaged in follow-up meetings and discussions with respondents. All responses have helped NYGB identify product refinements targeted to better serve LMI market segment needs and address barriers in LMI-focused CDG projects. To further advance discussions and tangible next steps with stakeholders focused on the LMI customer segment, NYGB and NYSERDA hosted a half-day roundtable meeting on April 12, 2019 for over 30 industry participants attending in New York City, Albany and Buffalo; and
- iv. On March 27, 2019, NYGB issued RFI 6: On-Lease Commercial Tenant Energy Efficiency Financing. RFI 6 is being used to: (x) solicit feedback from real estate market participants on a rolling basis with respect to NYGB’s proposed on-lease commercial tenant energy efficiency financing product; (y) identify prospective opportunities; and (z) collaborate with potential end-users on their efficiency upgrade financing needs. NYGB is using the information received in response to this RFI to refine its on-lease commercial tenant energy efficiency financing product as well as to identify and develop other standardized, replicable, and scalable financing approaches for energy efficiency improvement projects or portfolios of projects.

(b) Public Reporting & Metrics:

- i. Filed the Quarterly Report for the period ending December 31, 2018 (on February 14, 2019), as required by the Metrics Plan (available at www.greenbank.ny.gov/Resources/Public-Filings).
- ii. The first NYGB financial market transformation study was completed by independent consultant DNV GL at the end of March 2019, with the complete package subsequently being filed with DPS. Pursuant to the CEF Order and Clean Energy Fund Information Supplement, NYGB’s portfolio is subject to a baseline evaluation and ongoing evaluations as the portfolio grows throughout and following the 10-year term of the CEF. This study is the first and serves as the baseline assessment of NYGB’s initial portfolio.
- iii. NYGB will host its regular Quarterly Review Webinar for this Report in late May 2019, including discussion of developments and activities from NYGB’s fiscal quarter ending March 31, 2019.

4 Metrics

4.1 Quarterly Metrics

Required metrics for the period January 1, through March 31, 2019 are set out in [Table 1](#).¹⁴

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 (\$) ¹⁵	\$51.8 million	\$59.8 million
▪ Cumulative Operating Expenses (\$) ¹⁶	\$33.4 million	\$35.8 million
▪ Direct Operating Expenses (\$) ¹⁷	\$20.4 million	\$21.9 million
▪ Allocated Expenses (\$)	\$13.0 million	\$14.0 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 (\$)	\$168.1 million	\$171.7 million
▪ Deployed Funds (\$) ¹⁸	\$222.0 million	\$299.7 million
▪ Current Portfolio (\$) ¹⁹	\$390.2 million	\$471.3 million
▪ Overall Investments to Date (\$)	\$637.6 million	\$737.6 million

¹⁴ 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 so no longer will reflect the sum of the low and high estimated benefits specified in the Transaction Profiles at the time of each transaction close).

¹⁵ 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.

¹⁶ Due to rounding for the purposes of presentation in this Report, the sum of Direct Operating Expenses and Allocated Expenses may not be identical to Cumulative Operating Expenses. Cumulative Operating Expenses currently includes \$327,717 in Evaluation Expenses.

¹⁷ Direct Operating Expenses (since NYGB inception, as reported in [Table 1](#)) includes approximately \$1.4 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.

Quarterly Metric	Prior Quarter	Current Quarter
▪ Total Project Costs (Cumulative) (\$) ²⁰	In the range of \$1.51 to \$1.75 billion	In the range of \$1.74 to \$1.96 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	74.3% Renewable Energy 6.8% Energy Efficiency 18.9% Other	77.8% Renewable Energy 5.9% Energy Efficiency 16.3% Other ²³
▪ Number & Type of NYGB Investments	32 – Renewable Energy 7 – Energy Efficiency 5 – Other	35 – Renewable Energy 7 – Energy Efficiency 5 – Other
▪ Number & General Type of NYGB Counterparties ²⁴	55 – 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	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
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): 749,000 – 830,000 MWh; and 4.01 – 4.42 million MMBtu Estimated Gross Lifetime Clean Energy Generated: 14.5 – 18.3 million MWh	Estimated Gross Lifetime Energy Saved by Fuel Type (Energy Efficiency): ²⁵ 199,000 – 238,000 MWh; and 0.95 – 1.13 million MMBtu Estimated Gross Lifetime Clean Energy Generated: 16.9 – 20.7 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 2.4:1 to 2.7:1. See Section 4.3 for additional discussion of mobilization.

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).

²⁵ Material downward adjustments to NYGB’s energy efficiency portfolio during the first quarter of 2019 reflect updated NYS sales pipeline projections from NYGB counterparties.

Quarterly Metric	Prior Quarter	Current Quarter
<ul style="list-style-type: none"> Estimated Gross First Year²⁶ 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): 51,300 – 57,100 MWh; and 254,000 – 279,000 MMBtu	Estimated Gross First Year Energy Saved by Fuel Type (Energy Efficiency) ²⁷ 14,700 – 17,600 MWh; and 50,000 – 59,000 MMBtu
	Estimated Gross First Year Clean Energy Generated: 601,000 – 758,000 MWh	Estimated Gross First Year Clean Energy Generated: 1,149,000 – 1,329,000 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: 7,070 – 8,640 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: 293 – 358 MWh
<ul style="list-style-type: none"> Estimated Gross Lifetime Energy Savings from CHP (MMBtu)²⁸ for Committed Funds & Deployed Funds 	Estimated Gross Lifetime Energy Savings from CHP: -(41,000 – 50,100) MMBtu	Estimated Gross Lifetime Energy Savings from CHP: -(41,000 – 50,100) 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: -(1,700 – 2,070) 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	1.6 MW
<ul style="list-style-type: none"> Estimated Gross Clean Energy Generation Installed Capacity (MW), if applicable, for Committed Funds & Deployed Funds 	507.5 – 630.8 MW	478.0 – 596.3 MW ²⁹
<ul style="list-style-type: none"> Estimated Gross Lifetime GHG Emission Reductions (metric tons)³⁰ for Committed Funds & Deployed Funds 	8.23 – 10.33 million metric tons	9.07 – 15.22 million metric tons
Indirect Impact Benefits³¹		
<ul style="list-style-type: none"> Estimated Lifetime Energy Saved (MWh) 	-	-
<ul style="list-style-type: none"> Estimated Lifetime Energy Saved (MMBtu) 	-	-

²⁶ 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 March 31, 2019.

²⁷ Material downward adjustments to NYGB’s energy efficiency portfolio during the first quarter of 2019 reflect updated NYS sales pipeline projections from NYGB counterparties.

²⁸ 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.

²⁹ Decrease in this metric also reflects adjustments to NYGB’s energy efficiency portfolio during the first quarter of 2019 based on updated NYS sales pipeline projections from NYGB counterparties which involve both energy efficiency and renewable energy measures.

³⁰ 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.

³¹ This Report is the first in which NYGB reports and begins to track indirect impact benefits. This enhancement of metrics and impact reporting is being undertaken to more completely 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
▪ Estimated Installed Capacity CHP (MW)	-	-
▪ Estimated Installed Capacity (MW)	-	69.7 – 86.7 MW
▪ Estimated Lifetime GHG Emissions Reductions (Metric Tons)	-	2.04 – 4.08 million metric tons
Investment Pipeline		
▪ Active Pipeline (In the Quarter) (\$)	\$574.0 million	\$702.7 million
Investment Process		
▪ Proposals Received – Value (Cumulative) (\$)	\$3.1 billion	\$3.4 billion
▪ Approvals - Scoring Committee (Cumulative) (\$)	\$2.9 billion	\$3.2 billion
▪ Approvals - Greenlight Committee (Cumulative) (\$)	\$1.3 billion	\$1.5 billion
▪ Approvals - IRC (Cumulative) (\$)	\$675.0 million	\$775.0 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.³²

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 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

³² 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".

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 in NYS, 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.

4.3 Managing Outcomes Across the Portfolio – Mobilization

In this Report, the estimated mobilization ratio, which for each quarter of this past fiscal year (ending March 31, 2019) NYGB aimed to maintain at 3:1 on average across the portfolio, is at 2.6:1 (based on a range of 2.4:1 – 2.7:1).³³

When NYGB enters into each transaction, estimates are made (in collaboration with NYGB clients) of a number of key metrics, including Total Project Costs, Mobilization Ratio, GHG emissions reductions and other direct and indirect impact benefits included (on an aggregated basis across the portfolio) summarized in Table 1. As clean energy developments in which NYGB invests are generally long-lived and can take many months and often years to implement, NYGB regularly reviews its portfolio and updates estimated metrics based on available information.

While NYGB continues to focus on mobilizing large amounts of capital for clean energy and sustainable infrastructure in the State, it also prioritizes its market transformation mandate by seeking to create, accelerate, and grow new clean energy asset classes through the successful implementation of projects in the State where such development may not otherwise occur at all, as quickly or at the requisite scale.

For NYGB to be the effective catalyst in the market that the State requires, NYGB is needed to play a number of different roles in the capital structure for proposed projects – often being required to play multiple roles with respect to the same set of developments. As an example, in a nascent asset class, NYGB may be asked to provide construction lending. Where it does so, the dollar value of the construction facility (for example, \$10.0 million) is then calculated as mobilizing the Total Project Costs associated with the overall project (for example, \$50.0 million). Where NYGB participation is also required to take out the construction facility and provide a term loan to the same project (say a term facility of \$20.0 million), the way mobilization is calculated on a cumulative basis, NYGB's total investment of \$30.0 million mobilizes the same Total Project Cost of \$50.0 million - so a 5:1 ratio (i.e., \$50.0 million to \$10.0 million), as calculated under the Metrics Plan, decreases to 5:3 (i.e., \$50.0 million to (\$10.0 million plus \$20.0 million)).

5 Progress Against Plan Deliverables

In its annual Business Plan, filed on June 29, 2018, NYGB identified deliverables (the “**Plan Deliverables**”) that collectively mark its progress in implementing key initiatives in the period April 1, 2018 through March 31, 2019 (the “**Plan Year**”).

³³ While quarterly average Mobilization Ratio has been measured and reported under the Metrics Plan, pursuant to the CEF Order, NYGB is required to satisfy one measure of mobilization at the end of the CEF period in December 2025, namely \$8.0 billion of investment in clean energy in the State as a result of NYGB activity. At nearly one-third the way through the CEF term at March 31, 2019, NYGB activity has mobilized up to nearly \$2.0 billion of investment in the State.

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 March 31, 2019 is summarized in [Table 2](#).

Table 2. Status of Plan Deliverables (2018 – 2019)

Category	Deliverable	Status in Quarter Ending March 31, 2019
Strong Active Pipeline		
<ul style="list-style-type: none"> ▪ Active Pipeline 	<ul style="list-style-type: none"> ▪ Maintain an Active Pipeline of at least \$450.0 million per quarter on average throughout the Plan Year. 	<ul style="list-style-type: none"> ✓ Achieved for this Quarter: Active Pipeline of \$702.7 million. ✓ Achieved for the Plan Year: Average Active Pipeline of \$600.2 million per quarter.
<ul style="list-style-type: none"> ▪ Targeted Solicitation: Energy Storage 	<ul style="list-style-type: none"> ▪ Publicly issue RFI/RFP. 	<ul style="list-style-type: none"> ✓ Achieved for the Plan Year: NYGB issued RFI 4: Financing Arrangements for Energy Storage Projects in New York State in June 2018 targeting energy storage developers and other market participants, in conjunction with the release of the NYS Energy Storage Roadmap.
	<ul style="list-style-type: none"> ▪ Convene energy storage market participants to identify specific market needs and advance product development. 	<ul style="list-style-type: none"> ✓ Achieved for the Plan Year: NYGB participated in all three of the DPS/NYSERDA Technical Conferences on the Energy Storage Roadmap (in Albany, Farmingdale and New York City), presenting on NYGB financing opportunities within the storage sector.
<ul style="list-style-type: none"> ▪ Targeted Solicitation: Solar-Plus-Storage 	<ul style="list-style-type: none"> ▪ Publicly issue RFI/RFP. 	<ul style="list-style-type: none"> ✓ Achieved for the Plan Year: NYGB reissued its RFP 10 to incorporate energy storage as RFP 10: Financing for CDG Solar Projects including Projects Paired with Energy Storage in October 2018. This remains an open solicitation.
	<ul style="list-style-type: none"> ▪ Convene solar-plus-storage market participants to identify specific market needs and advance product development. 	<ul style="list-style-type: none"> ✓ Achieved for the Plan Year: In November 2018, in collaboration with NYSERDA, NYGB participated in and presented at the NYSERDA-hosted conference: "The Power of Synergy: PV + Energy Storage" (in New York City).
<ul style="list-style-type: none"> ▪ Targeted Solicitation: Pay-for-Performance 	<ul style="list-style-type: none"> ▪ Publicly issue RFI/RFP. 	<p>Determined that RFI/RFP Issuance Not Necessary in Plan Year: During 2018, NYGB worked extensively with NYSERDA colleagues on the key strategic Pay-for-Performance initiative – and these coordinated and focused efforts continue as a priority. Having surveyed the market and identified the likely project participants, it was concluded that for the Plan Year, NYSERDA and NYGB are already engaged with the likely universe of</p>

Category	Deliverable	Status in Quarter Ending March 31, 2019
	<ul style="list-style-type: none"> ▪ Convene energy efficiency market participants to identify specific market needs and advance product development. 	<p>market participants and that issuing a formal RFI/RFP document would not be accretive to existing efforts at this stage. When the Plan Year objectives were set in the second quarter of 2018, it was assumed that an RFI/RFP would be the most effective way to identify and engage market participants. The collaborative experience of the NYGB and NYSERDA teams in the period since was that in the case of Pay-for-Performance, relevant market participant identification and engagement occurred through the outreach efforts undertaken.</p> <p>✓ Achieved for the Plan Year: In November 2018, in collaboration with NYSERDA, NYGB participated in and presented at the NYSERDA-hosted “Pay for Performance Commercial Stakeholder Meeting” (in New York City). In addition, as described below, NYGB hosted an LMI stakeholder convening on April 12, 2019 where energy efficiency was a primary topic of discussion.</p>
<ul style="list-style-type: none"> ▪ Targeted Solicitation: Tenant Improvement Financing 	<ul style="list-style-type: none"> ▪ Publicly issue RFI/RFP. ▪ Convene large property owners and related stakeholders to identify specific market needs and advance product development. 	<p>✓ Achieved for the Plan Year: NYGB issued its <u>RFI 6: On-Lease Commercial Tenant Energy Efficiency Financing</u> on March 27, 2019.</p> <p>✓ Achieved for the Plan Year: A webinar for large property owners and related stakeholders was held on April 9, 2019. NYGB continues to interact in a focused manner with large property owners with potential projects and an interest in working with NYGB, to refine potential product offerings and catalyze project proposals.</p>
<ul style="list-style-type: none"> ▪ Targeted Solicitation: Clean Energy for Low-to-Moderate Income End-Users 	<ul style="list-style-type: none"> ▪ Publicly issue RFI/RFP. ▪ Convene LMI stakeholders to identify specific market needs and advance product development. 	<p>✓ Achieved for the Plan Year: In November 2018 NYGB issued <u>RFI 5: Low to Moderate Participation in CDG Projects in NYS</u>. This RFI closed on December 31, 2018 and many responses were received which NYGB has reviewed in the context of targeted product development and NYGB continues to be actively engaged with respondents.</p> <p>✓ Achieved for the Plan Year: The stakeholder convening occurred on April 12, 2019. In addition, in 2018 representatives of NYGB participated in and presented at five Low-to-Moderate-Income Stakeholder Convenings hosted by NYSERDA (in Western New York, the Mid-Hudson, Central New York, Long Island and</p>

Category	Deliverable	Status in Quarter Ending March 31, 2019
		New York City).
Portfolio Driving Material Clean Energy Investments Across NYS		
<ul style="list-style-type: none"> ▪ Committed Funds 	<ul style="list-style-type: none"> ▪ Achieve an average of \$56.25 million in closed transactions per quarter. 	<ul style="list-style-type: none"> ✓ Achieved for this Quarter: \$100.0 million in closed transactions in the quarter. ✓ Achieved for the Plan Year: Average of \$70.0 million in closed transactions per quarter in the fiscal year.
	<ul style="list-style-type: none"> ▪ Commit \$685.0 million (cumulative) to NYGB investments as of March 31, 2019. 	<ul style="list-style-type: none"> ✓ Achieved for the Plan Year: \$737.6 million Overall Investments to Date.
<ul style="list-style-type: none"> ▪ Evaluation 	<ul style="list-style-type: none"> ▪ Select independent consultant(s) and finalize scope(s) of work. 	<ul style="list-style-type: none"> ✓ Achieved for the Plan Year: Independent consultant selected in July 2018 and engagement commenced and completed.
	<ul style="list-style-type: none"> ▪ Work with NYSERDA and the independent consultant(s) to advance the baseline study of financial market transformation in accordance with the evaluation Work Plan. 	<ul style="list-style-type: none"> ✓ Achieved for the Plan Year: Financial Market Evaluation study report and related documents completed in March and filed with DPS.³⁴
	<ul style="list-style-type: none"> ▪ Work with NYSERDA and the independent consultant(s) to advance the impact evaluation. 	<ul style="list-style-type: none"> ✓ Achieved for the Plan Year: NYGB solar PV assets were included in the NY-Sun Solar PV Evaluation study conducted in early 2018. NYSERDA published the “Solar Photovoltaic Program Impact Evaluation for 2011-2016 – Final Report” in 2018.³⁵
Mobilizing Private Capital		
<ul style="list-style-type: none"> ▪ Mobilization Ratio 	<ul style="list-style-type: none"> ▪ Achieve an average, portfolio-wide Mobilization Ratio of at least 3:1, driving towards a ratio of 8:1 across all NYGB investments by the end of the CEF term in 2025. 	<ul style="list-style-type: none"> ✗ Not achieved for the Plan Year: Portfolio Mobilization Ratio at an average of 2.6:1 in Q1 2019.³⁶ See further discussion in Section 4.3.
	<ul style="list-style-type: none"> ▪ Evaluate strategies to provide for third-party capital investment at the portfolio level while continuing to deliver more per ratepayer dollar for the benefit of all New Yorkers. 	<ul style="list-style-type: none"> ✓ Achieved for the Plan Year: NYGB worked with its advisors to evaluate and propose third-party capital opportunities consistent with announcements by Governor Cuomo in Fall 2017 and the 2019 State of the State initiatives.

³⁴ Also available at www.greenbank.ny.gov/Resources/Public-Filings.

³⁵ See full report at www.nyserda.ny.gov/About/Publications/Program-Planning-Status-and-Evaluation-Reports/Evaluation-Contractor-Reports/2018-Reports.

³⁶ Given the range of Total Project Costs that NYGB investments mobilize, the Mobilization Ratio also represents a range; currently of 2.4:1 to 2.7:1.

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 Large Scale Onshore Wind in New York State

BlackRock – Rock Wind Holdings

NY Green Bank (“**NYGB**”) has committed \$31.25 million to the recapitalization of a portfolio of wind farms by BlackRock Global Renewable Power Fund II, including a 55.35 MW project in New York State (“**NYS**” or the “**State**”). NYGB’s participation in this transaction – alongside other commercial banks – supports the long-term financing of a large scale renewable project in NYS that has merchant exposure, as well as the secondary market for assets of this type.¹ The existence of a robust secondary market supports even greater development of large scale renewables through the availability of greater sources 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

Black Rock Renewable Assets, the dedicated renewables investment team of BlackRock Real Assets, recently acquired a portfolio of five operating wind farms located in New York, Pennsylvania, and Illinois totaling 539.0 MW. NYGB has committed \$31.25 million alongside capital from commercial banks to support the long-term financing of these quasi-merchant assets, which include a 55.35 MW project in Steuben County, NYS.

Commercial banks are becoming more comfortable with merchant exposure for thermal facilities, but the market is less developed for merchant renewable projects. NYGB’s participation signals that long-term financings of NYS wind projects with merchant tails are possible, which in turn is expected to encourage more primary wind development in the State. This transaction supports the secondary market for wind projects in NYS at a time when long-term offtake contracts are increasingly scarce. This is NYGB’s second large-scale renewable transaction.

The 55.35 MW project will continue to generate renewable wind energy for the State. NYGB participation in this secondary market transaction is expected to spur further private investment in this type of asset, delivering even more renewable generation options and benefits to ratepayers. The anticipated growth of large scale renewables in the State (including onshore wind) can be expected to be maximized in a market where there is ample capital available for both project developments and the subsequent recapitalization and/or sale of operating assets. Many benefits of Clean Energy Fund initiatives in the State (including NYGB investments consistent with its mission, like this Rock Wind transaction) comprise follow-on market activity as part of quantifying overall impact. In this instance, the provision of secondary financing of operating wind assets is expected to provide confidence to developers and future financiers that there is increasing liquidity in merchant renewable project asset classes, across project lives, spurring even greater interest and activity. NYGB expects to see material indirect benefits from transactions like this one in the form of more large-scale renewable projects for NYS and 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, 2016.² This Transaction Profile contains

¹ Merchant power plants are non-utility owned or independent power generation facilities where energy output is sold into competitive wholesale power markets. Merchant plants may contract for the sale of some of their output, but such arrangements tend to be shorter-term arrangements, rather than longer term power purchase agreements (“**PPAs**”).

² Case 13-M-0412.

specific information in connection with the BlackRock – Rock Wind Holdings transaction entered into on March 29, 2019, as required by the Metrics Plan.³

Form of NYGB Investment

NYGB Product	Product Sub-Type	Committed Capital
Asset Loan & Investment	Term Loan	\$31.25 million

Location(s) of Underlying Project(s)

Steuben County, NY. The project is located in NYISO, Zone C.

Types of Client & Counterparty Organizations that are Transaction Participants

	Name	Participant Type
Client	Rock Wind Holdings, LLC	Project Holding Company
Counterparties (current)	BlackRock Real Assets Other Lenders	Sponsor Commercial Banks

Summary of Financing Market Objectives & Barriers Addressed

Beneficiary	Market Barrier	Financing Solution
Wind Project Developers	Wind developers can face difficulties refinancing assets exposed to merchant revenue risk. To date, the majority of wind financings have been supported by long-term PPAs or hedges with creditworthy offtakers and terms of over 10 years. However, such long-term contracts are becoming increasingly scarce.	NYGB's participation encourages more efficient use of project developer equity. Ideally, there should be a more liquid market for operating projects, where merchant risks are increasingly better understood and managed. NYGB's willingness to support these assets helps to demonstrate to the broader market lender comfort with NYISO merchant exposure.
Capital Market Participants	Many capital market participants are not yet comfortable underwriting merchant revenue from renewable energy assets. The debt financing community has become increasingly familiar with generation assets supported by 5 – 7-year hedges, but principally with thermal generating facilities.	NYGB's participation provides an important market signal that long-term financings of NYS wind projects with merchant tails are possible. Supporting operating assets allows lenders an opportunity to better assess the technology using asset-specific operating data as well as increasing experience of wholesale power markets.
New Yorkers	While renewed interest and activity in wind projects are increasing rapidly in NYS, many are expected to rely on a combination of merchant and REC revenue streams.	By bridging financing gaps in the secondary marketplace, NYGB is encouraging more primary wind development in the State. Ultimately this is expected to provide New Yorkers with greater choices and access to clean energy at a lower cost.

Technologies Involved

Technology	Measures
Renewable Energy	Onshore wind systems

³ See Section 4.0, page 8 and Schedule 3.

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 wind 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 Rock Wind projects are as follows:

Energy/Environmental Indirect Impact	Lifetime Estimate
Estimated clean energy generation installed capacity (MW)	17.6 - 35.1
Estimated clean energy generated (MWh)	1,306,915 - 2,613,831
Estimated GHG emission reductions (metric tons)	687,539 - 1,375,077

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 large scale renewable projects in development and completed;
- Average and aggregate dollar value of projects;
- Location of projects;
- Size of projects (i.e., installed capacity in MW);
- Renewable energy generated (in MWh); 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 large scale renewable projects (both developments and primary/secondary financings);

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 Details with respect to the methodologies and key assumptions for the indirect benefits attribution will be included in NYGB's future Quarterly Metrics & Evaluation Report, with the next such report due to be filed on May 15, 2019.

- 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 merchant renewables;
- Amount and scale of onshore wind investment increases, together with increased end-use market demand;
- Replication of finance model by other developers;
- Decreased project technology costs/increasing output and efficiency;
- Decreased financing costs;
- Increased number of financial participants providing similar capital structures; and
- Reduced time to execute large scale renewable 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 to track information including but not limited to: project scale information, interest in wind 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 performance of the projects funded to verify that the wind systems are 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.

Supporting Large Scale Onshore Wind in New York State

Carlyle Power Partners II – Valcour Wind Energy

NY Green Bank (“NYGB”) has committed \$68.75 million to finance the acquisition of 612.0 MW of operating large-scale wind projects in New York State (“NYS” or the “State”) by funds managed by The Carlyle Group. These assets account for approximately 30% of current wind generation in NYS. As a Joint Lead Arranger in this transaction alongside other commercial banks, NYGB’s participation supports the long-term financing of large scale renewable projects in NYS that have merchant exposure.¹ The recapitalization and proposed operational improvements are expected to extend the useful life of the projects, resulting in additional greenhouse gas (“GHG”) reductions in NYS, and the retention of more than 40 clean energy jobs in the North Country and Western New York.

Transaction Description

Carlyle Power Partners II (“CPP”), a dedicated power investment platform of The Carlyle Group, recently acquired a portfolio of six wind projects in NYS, as originally [announced](#) in September 2018. In late February 2019, NYGB committed financing to Valcour Wind Energy alongside three commercial banks to support the acquisition. In late March 2019 NYGB committed an additional financing to Cogentrix Valcour Intermediate Holdings to further support CPP’s acquisition, for a total aggregate commitment of \$68.75 million from NYGB. The wind projects total 612.0 MW and account for approximately 30% of current wind generation in the State. The first project in the portfolio started operating in 2008 and the final project came online in 2009.

The project finance market is becoming more comfortable with merchant exposure for thermal facilities, but the market is less developed for merchant renewable projects. NYGB’s participation signals that long-term financings of NYS wind projects with merchant tails are possible, which in turn is expected to encourage more primary wind development in the State. This transaction supports the secondary market for wind projects in NYS at a time when long-term offtake contracts are increasingly scarce. This is the first large scale renewable project in which NYGB is participating, and further large scale renewable transactions are expected as NYGB continues to support large scale renewables development in NYISO.

The recapitalization and expected operational improvements associated with this acquisition will allow the 612.0 MW of installed generation to remain operational beyond the original 20-year design life. During these additional years, the projects are expected to generate at least 2,913,810 MWh of clean energy and provide at least 1,532,889 metric tons of avoided GHG emissions. In addition to the environmental benefits, this transaction supports economic development in the State: more than 40 clean energy jobs in the North Country and Western NY will be retained through the continued operation of these wind projects, with continued lease payments made to landowners and property taxes contributed to the local communities.

The 612.0 MW Valcour wind portfolio will continue to generate renewable wind energy for the State. NYGB participation in this secondary market transaction is expected to spur further private investment in this type of asset, delivering even more renewable generation options and benefits to ratepayers. The anticipated growth of large scale renewables in the State (including onshore wind) can be expected to be maximized in a market where there is ample capital available for both project developments and the subsequent recapitalization and/or sale of operating assets. Many benefits of Clean Energy Fund initiatives in the State (including NYGB investments consistent with its mission,

¹ Merchant power plants are non-utility owned or independent power generation facilities where energy is sold into competitive wholesale power markets. Merchant plants may contract for the sale of some of their output, but such arrangements tend to be shorter term arrangements, rather than longer term power purchase agreements (“PPAs”).

such as the Valcour transaction) comprise follow-on market activity as part of quantifying overall impact. In this instance, the provision of secondary financing of operating wind assets is expected to provide confidence to developers and future financiers that there is increasing liquidity in merchant renewable project asset classes across project lives, spurring even greater interest and activity. NYGB expects to see material indirect benefits from transactions like this one in the form of more large-scale renewable projects for NYS and 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, 2016.² This Transaction Profile contains specific information in connection with both Carlyle/Valcour Wind Energy transactions as required by the Metrics Plan³, which transactions were respectively entered into on February 28 and March 29, 2019.

Form of NYGB Investment

NYGB Product	Product Sub-Type	Committed Capital
Asset Loan & Investment	Term Loan	\$61.25 million
Asset Loan & Investment	Revolving Credit Facility	\$7.5 million

Location(s) of Underlying Project(s)

Multiple Regions.⁴ The wind projects are located in the North Country and Western New York.

Types of Client & Counterparty Organizations that are Transaction Participants

	Name	Participant Type
Client	Valcour Wind Energy, LLC	Borrower
	Cogentrix Valcour Intermediate Holdings, LLC	Borrower
Counterparties	Carlyle Power Partners II, LP	Sponsor
Partners	Other Lenders	Commercial Banks

² Case 13-M-0412.

³ See Section 4.0, page 8 and Schedule 3.

⁴ Defined as projects located in two or three regions of the State.

Summary of Financing Market Objectives & Barriers Addressed

Beneficiary	Market Barrier	Financing Solution
Wind Project Developers	Wind developers can face difficulties refinancing assets exposed to merchant revenue risk. To date, the majority of wind financings have been supported by long-term PPAs or hedges with creditworthy offtakers and terms of over 10 years alongside fixed price long-term NYSERDA REC contracts with 20-year terms. However, such long-term contracts are becoming increasingly scarce.	NYGB's participation encourages more efficient use of project developer equity. Ideally, there should be a more liquid market for operating projects, where merchant risks are increasingly better understood and managed. NYGB's willingness to support these assets helps to demonstrate to the broader market lender comfort with NYISO merchant exposure.
Capital Market Participants	Many capital market participants are not yet comfortable underwriting merchant revenue from renewable energy assets. The debt financing community has become increasingly familiar with generation assets supported by 5 – 7-year hedges, but principally with thermal generating facilities.	NYGB's participation provides an important market signal that long-term financings of NYS wind projects with merchant tails are possible. Supporting operating assets allows lenders an opportunity to better assess the technology using asset-specific operating data as well as increasing experience of wholesale power markets.
New Yorkers	While renewed interest and activity in wind projects are increasing rapidly in NYS, many are expected to rely on a combination of merchant and REC revenue streams.	By bridging financing gaps in the secondary marketplace, NYGB is encouraging more primary wind development in the State. Ultimately this is expected to provide New Yorkers with greater choices and access to clean energy at a lower cost.

Technologies Involved

Technology	Measures
Renewable Energy	Onshore wind 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 reductions in support of New York's energy policies".⁵ In addition, the Metrics Plan requires that the following energy and environmental measures, applicable to this transaction, be reported on:⁶

- 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).

⁵ 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.

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

The estimated additional gross lifetime and first-year direct energy and environmental impacts of the supported wind systems 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) ⁷	2,913,810	3,067,169	582,762	611,900
Estimated clean energy generation installed capacity (MW) ⁸	Not Applicable			
Estimated GHG emission reductions (metric tons)	1,532,889	1,613,567	306,578	321,907

Since this transaction involves the secondary market financing of existing wind assets, in addition to the estimated direct incremental impact benefits outlined above, material indirect impact benefits are expected to result for the State from NYGB investments of this nature.⁹ The estimated additional gross lifetime energy and environmental impacts of the Valcour wind projects are as follows:

Indirect Energy/Environmental Impact	Lifetime Estimate
Estimated clean energy generation installed capacity (MW)	34.6 - 69.13
Estimated clean energy generated (MWh)	2,573,876 - 5,147,752
Estimated GHG emission reductions (metric tons)	1,354,057 - 2,708,114

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 large scale renewable projects in development and completed;
- Average and aggregate dollar value of projects;
- Location of projects;
- Size of projects (i.e., installed capacity in MW);
- Renewable energy generated (in MWh); and
- GHG emission reductions (in metric tons).

Outcome indicators will be 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;

⁷ Assuming the installed generation operates for at least 5 years beyond the original 20-year-design life. This does not represent the useful life assumption used for the financial evaluation of the portfolio.

⁸ Built clean energy generation capacity at full deployment of funds is the same for first-year and lifetime duration.

⁹ Details with respect to the methodologies and key assumptions for the indirect benefits attribution will be included in NYGB's future Quarterly Metrics & Evaluation Report, with the next such report due to be filed on May 15, 2019.

- Increasing market volume of large scale renewable projects (both developments 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 merchant renewables;
- Scale of onshore wind investment increases, due to increased end-use market demand;
- Replication of finance model by other developers;
- Decreased project technology costs/increasing output and efficiency;
- Decreased financing costs;
- Increased number of financial participants providing similar capital structures;
- Increased financial market volume for large scale renewable projects; and
- Reduced time to execute large scale renewable financings.

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

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

Market evaluation will address the short, mid, and long-term indicators identified above. Methods will include analysis of program data along with interviews and surveys of market participants to track information including but not limited to: project scale information, interest in wind 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 performance of the projects funded to verify that the wind systems are generating clean energy within the estimated range set forth 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.