



**NY Green Bank**  
A Division of NYSERDA

# NY Green Bank

---

## Metrics, Reporting & Evaluation

Quarterly Report No. 11  
(Through March 31, 2017)

Case 13-M-0412

May 15, 2017

**Contents**

1 Performance at a Glance – As of March 31, 2017 ..... 1
2 Introduction..... 2
3 Business Update ..... 2
3.1 Overview ..... 2
3.2 Investment Portfolio ..... 3
3.2.1 Highlights..... 3
3.2.2 New Investments..... 3
3.3 Active Pipeline..... 6
3.4 Operational & Risk Matters ..... 8
4 Quarterly Metrics ..... 11
5 Progress Against Plan Deliverables..... 14

**Tables & Figures**

Table 1. Quarterly Metrics..... 11
Table 2. Status of Plan Deliverables (2016 – 2017) ..... 14
Figure 1. Transaction Status & Active Pipeline (\$ Millions) ..... 3
Figure 2. Active Pipeline by Technology ..... 7
Figure 3. Active Pipeline by End-Use Customer Segment ..... 7
Figure 4. Active Pipeline by Geographic Distribution..... 8

**Schedule**

*Transaction Profiles:*

- Building Energy Holding US & Distributed Sun (Commercial & Industrial Solar)
▪ Distributed Sun & SUNEIGHT (Community Solar)
▪ Spruce Finance (Residential Solar)
▪ BQ Energy – Esopus (Municipal Solar)
▪ Vivint Solar (Residential Solar)

# 1 Performance at a Glance – As of March 31, 2017

## Stimulating New Clean Energy Proposals in the State

NY Green Bank (“NYGB”) has received **\$2.0 billion** in investment proposals since inception.

## Strong Active Pipeline

The Active Pipeline of potential investments proceeding to close is **\$591.7 million**.<sup>1</sup>

## Driving Material Clean Energy Investments Across NYS

NYGB's investments support clean energy projects with a total project cost of **between \$1.0 and \$1.4 billion** in aggregate, based on Overall Investments to Date of **\$346.1 million**.

## Mobilizing Capital

NYGB's investment portfolio as a whole represents an expected mobilization ratio of Total Project Costs to NYGB funds in line with the target level of **3:1**<sup>2</sup>, which will be realized as planned clean energy projects are successfully implemented by NYGB's clients and counterparties. Over 10 years, assuming periodic reinvestment in comparable transactions, the expected mobilization ratio remains on track to meet or exceed **8:1**.

## Revenue Growth Paving the Way to Self-Sufficiency

Continued revenue growth – **\$12.9 million** in revenues has been generated since NYGB's inception.

## Contributing to CEF Objectives, REV & the CES

NYGB's investments to date drive estimated gross lifetime GHG reductions of **between 4.3 and 6.4 million metric tons**, equivalent to removing **between 50,000 and 70,000 cars** from the road for a period of **20 years**.

<sup>1</sup> Note that at any time, the value of the Active Pipeline is separate from the value of the investment portfolio. So, for example, as of March 31, 2017, the \$591.7 million in Active Pipeline does not include the \$346.1 million in closed transactions that comprises NYGB's Overall Investments to Date.

<sup>2</sup> Given the range of Total Project Costs that NYGB investments mobilize, the Mobilization Ratio also represents a range; currently of 2.9:1 to 4.1:1.

## 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 Commission<sup>3</sup> (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, respectively 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 processes.

NYGB closed **six new investments** during the quarter ending March 31, 2017, adding **\$40.6 million** to NYGB’s growing investment portfolio. These transactions are discussed in Section 3.2.<sup>4</sup>

NYGB’s overall transaction status and Active Pipeline are summarized in Figure 1,<sup>5</sup> showing that since inception through March 31, 2017:

- (a) **\$2.0 billion** of proposals have been received and evaluated by NYGB’s Scoring Committee;
- (b) **\$1.8 billion** of proposals have passed Scoring Committee evaluation – representing potential investments that meet NYGB’s mandate and proposal evaluation criteria;
- (c) **\$783.6 million** of proposals have received Greenlight Committee recommendation for advancement;
- (d) **\$382.5 million** of proposals have been vetted by the IRC and approved by NYSERDA’s President & CEO; and
- (e) **\$346.1 million** of transactions have been closed - comprising NYGB’s Overall Investments to Date - mobilizing public and private investments to support in the range of **\$1.0 to \$1.4 billion** in Total Project Costs for new clean energy deployment in the State.

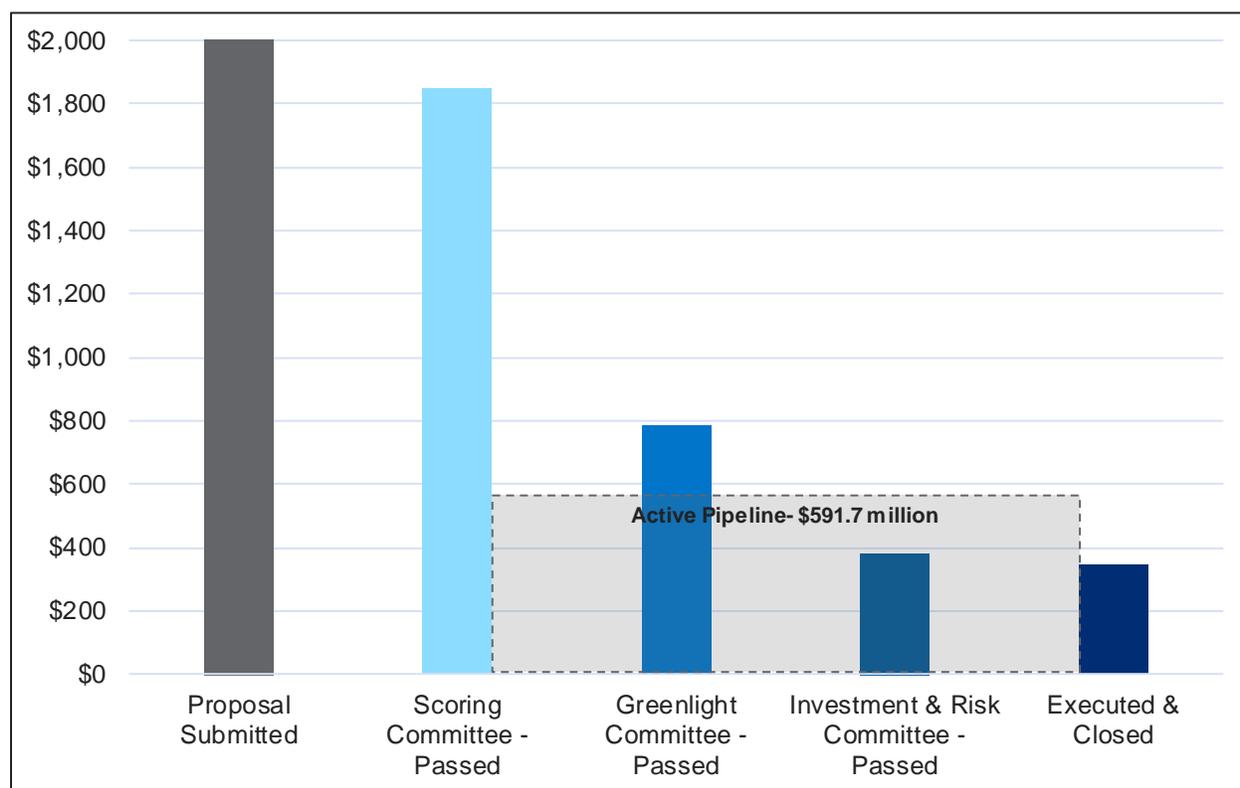
Also, as shown in Figure 1, NYGB currently has an Active Pipeline of **\$591.7 million**.

<sup>3</sup> Case 13-M-0412, “NY Green Bank – Metrics, Reporting & Evaluation Plan”, Version 3.0, dated June 20, 2016.

<sup>4</sup> The press release, entitled “NY Green Bank Closed Record \$40.6 Million in New Transactions During First Quarter of 2017 Bringing Total Amount of Committed Funds to \$346.1 Million since 2015”, issued April 27, 2017, is available on NYGB’s website at [www.greenbank.ny.gov/News/In-The-News](http://www.greenbank.ny.gov/News/In-The-News).

<sup>5</sup> Note that all these amounts change over time as proposals and transactions evolve.

Figure 1. Transaction Status & Active Pipeline (\$ Millions)



## 3.2 Investment Portfolio

### 3.2.1 Highlights

In the period covered by this Report, NYGB closed six transactions, respectively sponsored by Distributed Sun, Distributed Sun’s affiliate SUNEIGHT (two investments related to a bridge loan facility), Spruce Finance, BQ Energy and Vivint Solar. Each transaction, combined into NYGB’s growing portfolio, contributes to the primary CEF outcomes of GHG emissions reductions, customer bill savings, energy efficiency, clean energy generation and mobilization of private sector capital.<sup>6</sup> In turn, the CEF objectives support the NYS Clean Energy Standard (“**CES**”) goal of 50.0% energy generation from renewable sources, and the State Energy Plan (“**SEP**”) goal of 23.0% reduction in energy consumption by buildings from 2012 levels, which together further the SEP goal of 40.0% reduction in GHG emissions from 1990 levels by 2030.

### 3.2.2 New Investments

#### **Distributed Sun & Building Energy Holding US – Long-Term Financing for Solar Projects Supplying Clean Energy to Cornell University**

- Reduces up to 132,000 metric tons of GHG emissions over the 25-year life of the underlying solar projects
- Generates up to 251,000 MWh of renewable energy over the life of the underlying projects
- Increases renewable energy installed generation capacity in the State by up to 7.76 MW

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

On February 23, 2017, NYGB entered into a 15-year, \$10.5 million financing with Distributed Sun (“**DSUN**”), a national energy services provider, and Building Energy, a multinational company in the renewable energy industry, for four solar projects (“**Odyssey**”) located in and around Ithaca. These projects have a total installed capacity of 7.76 MW and provide Cornell University clean energy under separate 20-year power purchase agreements (“**PPAs**”). Odyssey is part of NYGB’s objective to bring scale and standardization to the Municipal, University, Schools, and Hospitals (“**MUSH**”) and Commercial and Industrial (“**C&I**”) solar sectors.

This transaction aims to drive growth in the small to mid-sized solar sector by encouraging the standardization of contractors, contracts, and equipment thereby increasing underwriting efficiency and reducing overall transaction costs. Developing standardized projects within a portfolio makes the overall financing opportunity more attractive to a larger potential investor group, ultimately providing more funding options and influencing financing costs. Further, a standardized approach to project development enables developers to establish a track record within their portfolio as well as create scale to appeal more broadly to traditional private capital providers. This in turn will create additional familiarity with the asset class and greater scale, resulting in increasing refinancing options and liquidity.

In providing long-term financing to four projects, this transaction signals to the market that such long-term financing is possible, in turn enhancing the confidence of power purchasers in entering long-term PPAs for clean energy.

#### ***Distributed Sun & SUNEIGHT – Bridge Loan to Support the Deployment of Community Solar Projects***

- *Reduces up to 323,000 metric tons of GHG emissions over the life of the underlying projects*
- *Generates up to 613,000 MWh of renewable energy over the life of the underlying projects*
- *Increases renewable energy installed generation capacity in the State by up to 22.5 MW*

In the period to which this Report relates, NYGB closed two separate investments with DSUN and SUNEIGHT. In January 2017, NYGB provided a 12-month senior secured \$1.0 million bridge loan facility to DSUN and its affiliate SUNEIGHT. Upon DSUN’s request, NYGB increased the bridge loan size by \$2.0 million in March 2017 to a total of \$3.0 million. Bridge loan proceeds are being used to finance project interconnection advance payments to New York State Electric & Gas Corporation for community distributed generation (“**Community DG**”) solar projects. These interconnection advance payments<sup>7</sup> are due under the Commission’s Standardized Interconnection Requirements and Application Process.

This transaction is intended to encourage a more efficient use of sponsor equity and support development efforts in NYS by bridging the period in which sponsors need to finalize financing arrangements for projects for which the CESIR process has been completed. NYGB’s role is expected to create an easier pathway forward for developers that will enable greater deployment of community and other distributed generation assets throughout the State. 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. By supporting the deployment of Community DG solar projects, this transaction provides those who are not otherwise able to install solar energy generation systems on their property with increased access to clean, low-cost energy, regardless of where their home or business is located.

This first-of-its-kind transaction is expected 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, and

---

<sup>7</sup> 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.

capital providers are expected to recognize the value in providing financing to enable the deployment of these projects.

### ***Spruce Finance & Investec Bank – Providing New Yorkers with Greater Access to Solar Opportunities***

- *Reduces up to 91,000 metric tons of GHG emissions over the 25-year life of the underlying projects<sup>8</sup>*
- *Generates up to 173,000 MWh of renewable energy over the life of the underlying projects*
- *Increases renewable energy installed generation capacity by up to 5.87 MW (~760 systems across the State)*

On March 10, 2017, NYGB committed \$6.0 million to participate in a five-year term loan for Spruce Finance (“**Spruce**”), a national provider of residential solar and energy efficiency financing. Among its product offerings, Spruce makes residential solar energy systems available to homeowners pursuant to 20 to 25-year PPAs and lease agreements. Spruce engaged Investec Bank (“**Investec**”) to structure, arrange, and syndicate a \$99.4 million senior, secured term loan to refinance an existing aggregation credit facility. The credit facility will refinance 86.0 MW of generating capacity across 12,711 homes in 11 states. Over 6.2% of Spruce’s current portfolio is located in NYS and Spruce has placed an emphasis on growing its business in the State.

By participating with other banks in the credit facility, NYGB capital will help to establish a new medium-term lending market, finance existing residential solar systems in NYS, and provide liquidity for Spruce to develop additional projects in the State. The up to 5.87 MW of new projects financed through this transaction represent approximately 760 NYS residential solar installations. In addition, NYGB’s investment helps to establish a medium-term lending market as an alternative to refinancing through securitization. NYGB’s participation in this transaction is expected to help demonstrate that competitive risk-return profiles can be achieved for scalable residential solar investments. As a result, the transaction is expected to draw new investors and financial institutions into the marketplace, enhancing liquidity. Such liquidity is expected to drive lower capital costs for developers, reducing the lease or PPA costs to NYS homeowners beyond those currently offered.

### ***BQ Energy (Esopus) – Driving Standardization in the New York Solar Market***

- *Reduces up to 14,800 metric tons of GHG emissions over the life of the underlying project*
- *Generates up to 28,100 MWh of renewable energy over the life of the underlying project*
- *Increases renewable energy installed generation capacity in the State by up to 0.87 MW*

BQ Energy (“**BQ**”) is a renewable energy project developer specializing in landfill and brownfield site redevelopment. As the second of a larger portfolio of projects to be financed in collaboration with NYGB, BQ has received a \$1.1 million construction and term loan facility to complete a 0.87 MW solar project being constructed on a remediated landfill located in Esopus, Ulster County. Solar power from this project will be sold to the Town of Esopus and will generate a significant percentage of its total power needs.

This transaction aims to drive growth in the small to mid-sized solar sector by encouraging the standardization of contractors, contracts, and equipment thereby increasing underwriting efficiency and reducing overall transaction costs. Developing standardized projects within a portfolio makes the overall financing opportunity more attractive to a larger potential investor group, ultimately providing more funding options and influencing financing costs. Institutional investors and other private sector capital providers have shown limited interest in financing small to mid-sized solar project developers which may have more limited operating histories. NYGB’s participation in this transaction will help this NYS-based developer further consolidate its track record and achieve the scale needed for broader appeal to

---

<sup>8</sup> In calculating and reporting energy and environmental benefits expected from syndicate transactions, NYGB reports only those benefits referable to developments within NYS.

traditional capital providers. In turn, this can be expected to enable more refinancing options which will provide the market with greater levels of familiarity with this asset class –a prerequisite to increasing liquidity. By bridging certain financing gaps in the marketplace, NYGB is enabling a larger group of solar developers to participate in New York’s clean energy marketplace. This gives end-users more choice in terms of how they pay for their systems and who they select as their provider/installer. Greater choice and competition in the market will promote reduced costs, ultimately facilitating a greater number of New Yorkers and New York businesses in going solar.

### ***Vivint Solar – Providing New Yorkers with Greater Access to Residential Solar Opportunities***

- *Reduces up to 980,000 metric tons of GHG emissions over the 25-year life of the underlying projects<sup>9</sup>*
- *Generates up to 1.85 million MWh of renewable energy over the life of the underlying projects*
- *Increases renewable energy installed generation capacity by up to 63.0 MW (at least 6,700 residential solar systems across the State)*

On March 31, 2017, NYGB committed \$20.0 million to participate in a \$375.0 million revolving back leverage aggregation facility arranged by Bank of America Merrill Lynch (“**BAML**”) for Vivint Solar (“**Vivint Solar**”), a national residential solar installer. This represents an expansion of NYGB’s support for Vivint Solar’s development efforts in NYS after NYGB provided \$37.5 million in a term loan to Vivint Solar arranged by Investec in August 2016. As a participant with other banks in the aggregation facility, NYGB’s capital will help to provide incremental liquidity for Vivint Solar to develop additional projects in NYS. Up to 25.0 MW of new projects are expected to be financed as a result of the aggregation facility and represent approximately 2,100 residential solar systems in the State. When added to the systems supported by the existing term loan, the total impact to NYS is expected to be at least 52.0 MW and 6,700 residential systems.

NYGB’s role as a specialty clean energy lender in both Vivint Solar transactions provides other financing parties with greater confidence, making it both a key component to drawing in other private sector financiers and critical in supporting both Investec’s and BAML’s respective syndication efforts. NYGB’s participation in the term loan helps to establish a medium-term lending market as an alternative to refinancing through the securitization market. NYGB’s participation in the aggregation facility provides incremental liquidity to a developer active in NYS to increase transaction size. Both Vivint Solar transactions are expected to draw new investors and financial institutions into the marketplace, resulting in enhanced liquidity. Enhanced liquidity will drive lower capital costs for developers, reducing the lease or PPA costs to NYS homeowners beyond those currently offered.

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/Transaction-Profiles](http://www.greenbank.ny.gov/Investments/Transaction-Profiles), and the Transaction Profiles for the investments described above are also included in the [Schedule](#) to this Report.

### **3.3 Active Pipeline**

Demand for NYGB investments and participation in transactions is evidenced by proposals that have been submitted to NYGB in response to its open solicitation for investment proposals (the “**Investment RFP**”).<sup>10</sup> Through March 31, 2017, proposals requesting \$2.0 billion of NYGB capital have been received, in connection with total proposed clean energy investments in New York State of multiples of that amount. NYGB’s Active Pipeline at the end of the period to which this Report relates is \$591.7 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.

<sup>9</sup> In calculating and reporting energy and environmental benefits expected from syndicate transactions, NYGB reports only those benefits referable to developments within New York State.

<sup>10</sup> Clean Energy Financing Arrangements – Request for Proposals (RFP) No. 1, available at [www.greenbank.ny.gov/Partnering-With-Us/Propose-an-Investment](http://www.greenbank.ny.gov/Partnering-With-Us/Propose-an-Investment).

Figure 2. Active Pipeline by Technology

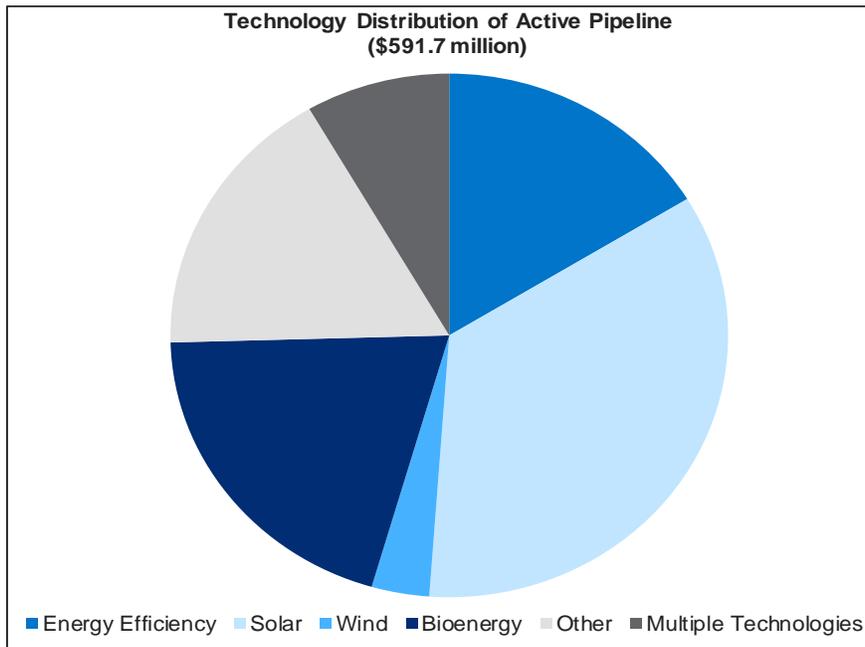


Figure 3. Active Pipeline by End-Use Customer Segment

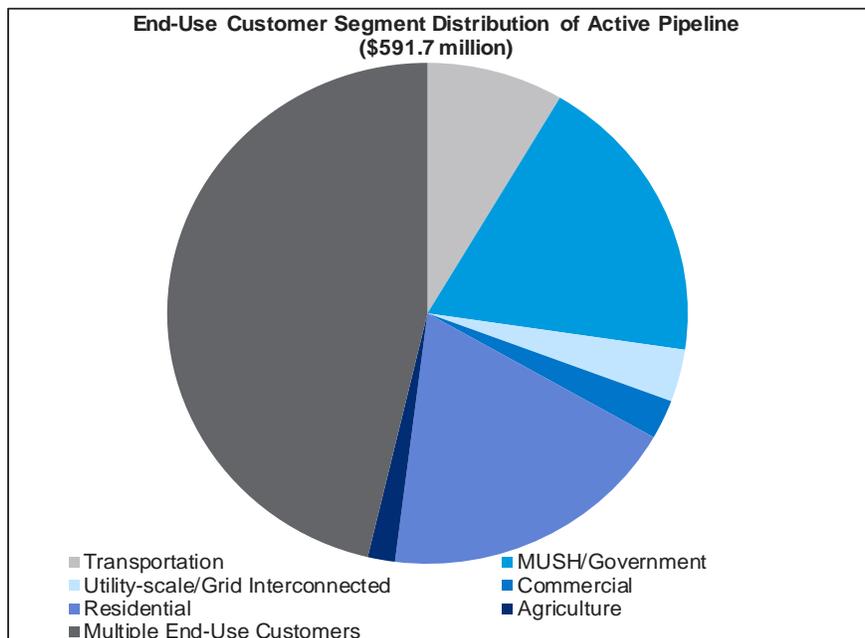
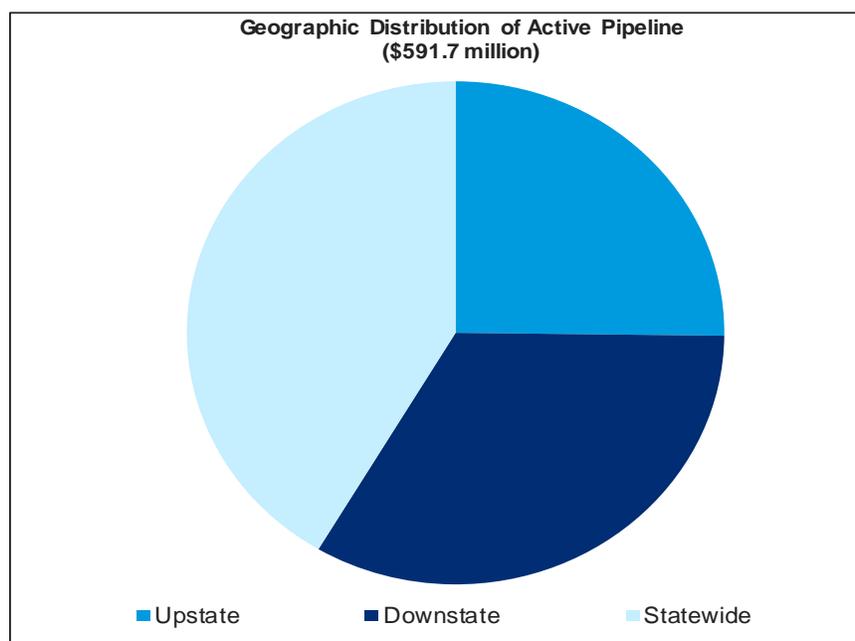


Figure 4. Active Pipeline by Geographic Distribution



### 3.4 Operational & Risk Matters

In the last calendar quarter, 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) New Investment Solicitations Launched: To complement the Investment RFP, in March 2017, NYGB launched two additional product-specific RFPs – as the culmination of separate multi-month processes (each including extensive industry meetings and input).<sup>11</sup> NYGB’s activity in the clean energy financing market in the State enables it to identify project types constrained due to financing barriers that NYGB is positioned to address with a targeted offering. In the past quarter, NYGB released the following investment opportunities, both of which are ongoing (i.e., without any specified closing date, such that proposals are reviewed on a rolling basis as received):
- i. *RFP 7: Construction & Back-Leveraged Financing for Ground-Mounted Solar Generation Systems Targeting Corporate & Industrial End Users.* RFP 7 is targeted at developers of photovoltaic (“PV”) solar projects selling to commercial, industrial and other institutional organizations in New York State that plan to utilize third-party tax equity and seek back-leveraged<sup>12</sup> financing for projects that: (1) generate revenue by selling net metering credits to C&I power users under applicable laws, regulations or administrative proceedings; (2) use “tier 1” technology; (3) are in an advanced stage of development; and (4) are ground-mounted, canopy-mounted and non-residential rooftop PV solar projects; and
  - ii. *RFP 8: Financing Arrangements for Renewable & Energy Efficiency Projects: Office, Commercial & Industrial, and Multi-Family Real Estate Properties.* RFP 8 is targeted at commercial and multi-family building owners, relevant lenders and investors, and clean

<sup>11</sup> NYGB’s “Metrics, Reporting & Evaluation – Quarterly Report No. 8 (Through June 30, 2016)” described the public issuance of Requests for Information soliciting input for the development of the two new investment RFPs.

<sup>12</sup> “Back-leverage” refers to a lender financing against revenues received by the managing member (i.e., the non-tax equity partner) of a tax equity partnership-type structure, rather than financing directly at the project level.

energy contractors/service providers focused on such properties, who seek to finance the purchase of energy efficiency and/or renewable energy assets.

Both new investment solicitations, together with all related documentation and instructions, are publicly available on NYGB's website at [www.greenbank.ny.gov/Working-with-Us/Propose-an-Investment](http://www.greenbank.ny.gov/Working-with-Us/Propose-an-Investment).

- (b) Critical Fund Administration & Loan/Investment Servicing “Go-Live” Achieved: In March 2016, NYGB publicly issued its “Request for Proposals – Fund Administration, Loan/Investment Servicing; RFP No. 4”. RFP 4 was launched to retain independent fund administration and loan/investment servicing to help meet and manage NYGB's middle and back-office needs consistent with industry best practices for comparable funds (in both the private and public sectors), while taking into account the unique aspects of NYGB. This represented a refinement and relaunch of a process commenced in Spring 2015 that failed to yield an arrangement with a suitably qualified counterparty on acceptable terms and conditions. RFP 4 submissions were due March 28, 2016 and NYGB's evaluation of the responses received occurred in the second quarter of 2016, with the selection of SS&C Technologies (“**SS&C**”) as the preferred provider. Following execution of a service contract between SS&C and NYGB last summer, the NYGB, NYSERDA and SS&C teams have been fully engaged in building and implementing the platform for NYGB and loading all historical financial and investment data. In January 2017, this significant undertaking was completed, with the effect that NYGB now has centralized and sophisticated fund administration and loan and investment servicing systems in place and fully operational.<sup>13</sup>
- (c) Public Reporting & Metrics: Filing with the Commission, on February 15, 2017, the Quarterly Report for the period ending December 31, 2016, including the first report of Annual Installed Energy & Environmental Benefits, as required by the Metrics Plan. This report is available at [www.greenbank.ny.gov/About/Public-Filings](http://www.greenbank.ny.gov/About/Public-Filings).
- (d) Continuing Stakeholder Outreach & Communications: Highlights of specific outreach initiatives in the period to which this Report relates include:
- i. Participation in 12 events, including: multiple events examining potential roles for NYGB in addressing financing issues around energy storage and low to moderate income barriers; and the NYS Economic Development Council's Annual Meeting in Albany where NYGB spoke to innovative financing structures to support economic development in the State through clean energy finance;
  - ii. Held the second in a series of webinars to review NYGB's quarterly results on March 7, 2017.<sup>14</sup> Similar webinars presenting NYGB's most recent Quarterly Reports generally occur within a month after each Quarterly Report is filed; and
  - iii. Nine interviews with journalists, researchers, and industry stakeholders seeking NYGB input into issues around environmental, social and governance (“**ESG**”) investing, public-private partnerships, NYGB's role in New York's evolving clean energy transition, and other areas of focus.

---

<sup>13</sup> SS&C issued a press release on May 10, 2017 - “NY Green Bank Selects SS&C for Loan Servicing, Investment Servicing, and Fund Administration” - in connection with its engagement to provide fund administration and loan/investment servicing to NYGB pursuant to a competitive solicitation process. The press release is available at [www.ssctech.com/AboutUs/PressRelease/tabid/593/Default.aspx?N=857&yr](http://www.ssctech.com/AboutUs/PressRelease/tabid/593/Default.aspx?N=857&yr) and further information about SS&C is available at [www.ssctech.com](http://www.ssctech.com).

<sup>14</sup> The presentation from this webinar is available on NYGB's website at [www.greenbank.ny.gov/Resources/Publications-and-Events](http://www.greenbank.ny.gov/Resources/Publications-and-Events).

- (e) NYS Continuing to Provide International Leadership in Clean Energy Financing: In response to growing numbers of inquiries from interested parties around the world, NYGB made numerous presentations on its mission, investment process, and other aspects of its business and lessons learned to groups and individuals including:
- i. An Australian firm focused on the role of financing in electricity market transition;
  - ii. A group of high-level Ukrainian officials seeking a better understanding of low emissions development strategies at the state level – particularly how to address market barriers for greater private investment mobilization into clean energy technologies;
  - iii. Representatives from the International Finance Corporation and Tata Clean Tech Group, interested in innovative clean energy financing opportunities;
  - iv. Multiple meetings with representatives from the Private Sector Facility of the Green Climate Fund, interested in public-private partnership models to advance climate finance solutions; and
  - v. High-level Canadian government officials on the topic of ESG investing and finance.
- (f) Advisory Committee: No Advisory Committee meeting was held in the first quarter of 2017. Advisory Committee meetings occur at least semi-annually. Information regarding NYGB's Advisory Committee – including its membership and charter - is accessible on NYGB's website at [www.greenbank.ny.gov/About/Advisory-Committee](http://www.greenbank.ny.gov/About/Advisory-Committee).

## 4 Quarterly Metrics

Required metrics for the period January 1, through March 31, 2017 are set out in Table 1<sup>15</sup> below.

Table 1. Quarterly Metrics

Quarterly Metric	Prior Quarter	Current Quarter
<b>Capital Position</b>		
▪ Authorized Capital (\$)	\$1.0 billion	\$1.0 billion
▪ Authorized Administrative Expenses (\$)	\$17.5 million	\$17.5 million
▪ Authorized Evaluation Expenses (\$)	\$4.0 million	\$4.0 million
▪ Available Capital (\$) <sup>16</sup>	\$127.7 million	\$106.2 million
<b>Operational Matters</b>		
▪ Cumulative Revenues (\$) <sup>17</sup>	\$9.6 million	\$12.9 million
▪ Cumulative Operating Expenses (\$)	\$14.7 million	\$16.7 million
▪ Direct Operating Expenses (\$) <sup>18</sup>	\$8.3 million	\$9.5 million
▪ Allocated Expenses (\$)	\$6.4 million	\$7.2 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
<b>Investment Portfolio</b>		
▪ Committed Funds (Cumulative) (\$)	\$68.4 million	\$85.8 million
▪ Deployed Funds (Cumulative) (\$) <sup>19</sup>	\$235.7 million	\$258.5 million
▪ Current Portfolio (\$)	\$304.1 million	\$344.3 million
▪ Overall Investments to Date (\$)	\$304.7 million	\$346.1 million
▪ Total Project Costs (Cumulative) (\$) <sup>20</sup>	Up to ~\$1.3 billion	In the range of \$1.0 - \$1.43 billion

<sup>15</sup> Energy and environmental metrics included in this Report reflect rounding for ease of representation. In April 2017, NYGB undertook a review and revision of its metrics reporting, including to reflect rounding to three significant digits, consistent with NYSERDA's approach and methodology for the CEF. All metrics reported under "Current Quarter" in Table 1 reflect these updates. The figures included under "Prior Quarter" are unchanged from those set out in the "Metrics, Reporting & Evaluation – Quarterly Report No. 10" for the period ending December 31, 2016, filed on February 15, 2017. Transaction Profiles will be updated as needed to also reflect this adjustment in rounding and going forward, all Quarterly Reports and Transaction Profiles will incorporate data reflecting this methodology.

<sup>16</sup> This is the last Quarterly Report in which "Available Capital" will be included. "Available Capital" was previously reported on to identify the proportion of NYGB's \$1.0 billion that had actually been funded (i.e., initially \$218.5 million, which in Summer 2016 became \$368.5 million). "Available Capital" was most relevant to the early stages of NYGB's existence as it provided assurance to potential clients and counterparties that NYGB had funding immediately available to invest in clean energy in NYS. As a more established investment fund, with its capital of \$1.0 billion fully authorized, this measure is no longer considered to be a relevant or useful metric for NYGB's clients, counterparties and stakeholders. NYGB's ongoing funding and liquidity needs are fully addressed through access to funded capital installments in accordance with the CEF and pursuant to a credit facility, if and when required.

<sup>17</sup> Historically, NYGB revenue figures in Quarterly Reports have not reflected quarterly fair market value adjustments (either increases or decreases) relating to NYGB capital held in U.S. Treasury securities. These valuation adjustments are (and have been) included in NYGB's quarterly and year-end financial statements based on generally accepted accounting principles ("GAAP"). In this Report and going forward, NYGB is bringing this reporting treatment into alignment across its financial statements and Quarterly Reports. As a result, the Cumulative Revenue measure now reflects quarterly fair market value adjustments related to NYGB capital held in U.S. Treasury securities, consistent with GAAP.

<sup>18</sup> Currently includes ~\$42,000 in Evaluation Expenses.

<sup>19</sup> Deployed Funds (Cumulative) as presented in Table 1 is net of all capital repaid to the reporting date.

<sup>20</sup> 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 some 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.

Quarterly Metric	Prior Quarter	Current Quarter
▪ <b>Mobilization Ratio</b>	At least 3:1	Tracking at least 3:1 on average across portfolio <sup>21</sup>
▪ <b>Commitment Ratio (%)</b> <sup>22</sup>	82.5%	99.2%
▪ <b>Portfolio Concentrations (%)</b> <sup>23</sup>	72.0% Renewable Energy	75.0% Renewable Energy
	17.0% Energy Efficiency	15.0% Energy Efficiency
	12.0% Other <sup>24</sup>	11.0% Other <sup>25</sup>
▪ <b>Number &amp; Type of NYGB Investments</b>	10 – Renewable Energy	16 – Renewable Energy
	6 – Energy Efficiency	6 – Energy Efficiency
	2 – Other	2 – Other
▪ <b>Number &amp; General Type of NYGB Counterparties</b> <sup>26</sup>	41 – Local Development Corporation; Global Corporate & Investment Banks; Commercial/Regional Banks; Specialty Finance Company; Energy Project Developers; Municipal, University, Schools & Hospitals; Energy Technology Provider & Vendors; Government Authority	45 – Local Development Corporation; Global Corporate & Investment Banks; Commercial/Regional Banks; Specialty Finance Company; Energy Project Developers; Municipal, University, Schools & Hospitals; Energy Technology Provider & Vendors; Government Authority; Insurance Companies
▪ <b>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 &amp; Deployed Funds</b>	Estimated Gross Lifetime Energy Saved by Fuel Type (Energy Efficiency): 1.1 – 1.2 million MWh; and 9.4 – 10.3 million MMBtu	Estimated Gross Lifetime Energy Saved by Fuel Type (Energy Efficiency): 1.12 – 1.23 million MWh; and 9.43 – 10.3 million MMBtu
	Estimated Gross Lifetime Clean Energy Generated: 4.7 – 7.9 million MWh	Estimated Gross Lifetime Clean Energy Generated: 5.89 – 9.71 million MWh
▪ <b>Estimated Gross First Year</b> <sup>27</sup> <b>Energy Saved</b>	Estimated Gross First Year	Estimated Gross First Year

<sup>21</sup> Given the range of Total Project Costs that NYGB investments mobilize, the Mobilization Ratio also represents a range; currently of 2.9:1 to 4.1:1.

<sup>22</sup> This is the last Quarterly Report in which “Commitment Ratio” will be included. “Commitment Ratio” was previously reported on to identify the proportion of NYGB’s “Available Capital” that had been committed to clean energy investments in the State. Like “Available Capital”, “Commitment Ratio” was most relevant as a measure of progress in the earlier stages of NYGB’s existence as it showed NYGB’s investments as a proportion of the capital that was actually funded at the relevant time rather than against the full authorized capital of \$1.0 billion. Having effectively committed an amount equal to all the initial funded capital as at the date of this Report, and with NYGB’s ongoing funding and liquidity needs fully addressed through access to further funded capital installments in accordance with the CEF and pursuant to a credit facility (if and when required), “Commitment Ratio” no longer provides a useful indicator of NYGB performance.

<sup>23</sup> 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.

<sup>24</sup> “Other” technology classification includes: CHP, electric vehicle infrastructure, 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.

<sup>25</sup> “Other” technology classification includes: CHP, electric vehicle infrastructure, 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.

<sup>26</sup> 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).

<sup>27</sup> All “estimated gross first year” metrics refer to the first year of estimated gross benefits (e.g., energy saved, installed capacity, GHGs etc.) which 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

Quarterly Metric	Prior Quarter	Current Quarter
<b>by Fuel Type from Energy Efficiency Projects (MWh/MMBtu) and/or Estimated Gross First Year Clean Energy Generated (MWh) for Committed Funds &amp; Deployed Funds</b>	Energy Saved by Fuel Type (Energy Efficiency): 90,000 – 97,000 MWh; and 800,000 – 870,000 MMBtu	Energy Saved by Fuel Type (Energy Efficiency): 89,400 – 97,500 MWh; and 801,000 – 873,000 MMBtu
	Estimated Gross First Year Clean Energy Generated: 210,000 – 340,000 MWh	Estimated Gross First Year Clean Energy Generated: 256,000 – 413,000 MWh
▪ <b>Estimated Gross Lifetime Energy Saved from CHP (MWh) for Committed Funds &amp; Deployed Funds</b>	Estimated Gross Lifetime Energy Saved from CHP: 7,100 – 8,600 MWh	Estimated Gross Lifetime Energy Saved from CHP: 7,070 – 8,640 MWh
▪ <b>Estimated Gross First Year Energy Saved from CHP (MWh) for Committed Funds &amp; Deployed Funds</b>	Estimated Gross First Year Energy Saved from CHP: 290 - 360 MWh	Estimated Gross First Year Energy Saved from CHP: 293 - 358 MWh
▪ <b>Estimated Gross Lifetime Energy Savings from CHP (MMBtu)<sup>28</sup> for Committed Funds &amp; Deployed Funds</b>	Estimated Gross Lifetime Energy Savings from CHP: -(41,000 – 50,000) MMBtu	Estimated Gross Lifetime Energy Savings from CHP: -(41,000 – 50,100) MMBtu
▪ <b>Estimated Gross First Year Energy Savings from CHP (MMBtu)<sup>29</sup> for Committed Funds &amp; Deployed Funds</b>	Estimated Gross First Year Energy Savings from CHP: -(1,700 – 2,100) MMBtu	Estimated Gross First Year Energy Savings from CHP: -(1,700 – 2,070) MMBtu
▪ <b>Estimated Gross Clean Energy Generation Installed Capacity (MW), if applicable, for Committed Funds &amp; Deployed Funds</b>	1.6 MW	1.6 MW
▪ <b>Estimated Gross Clean Energy Generation Installed Capacity (MW), if applicable, for Committed Funds &amp; Deployed Funds</b>	173.2 – 279.2 MW	217.0 – 341.0 MW
▪ <b>Estimated Gross Lifetime GHG Emission Reductions (metric tons)<sup>30</sup> for Committed Funds &amp; Deployed Funds</b>	3.5 – 5.4 million metric tons	4.26 – 6.37 million metric tons
<b>Investment Pipeline</b>		
▪ <b>Active Pipeline (In the Quarter) (\$)</b>	\$597.7 million	\$591.7 million
<b>Investment Process</b>		
▪ <b>Proposals Received – Value (Cumulative) (\$)</b>	\$1.8 billion	\$2.0 billion
▪ <b>Approvals - Scoring Committee (Cumulative) (\$)</b>	\$1.6 billion	\$1.8 billion
▪ <b>Approvals - Greenlight Committee (Cumulative) (\$)</b>	\$686.1 million	\$783.6 million
▪ <b>Approvals - IRC (Cumulative) (\$)</b>	\$342.1 million	\$382.5 million

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.

<sup>28</sup> 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](http://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.

<sup>29</sup> 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](http://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.

<sup>30</sup> NYSERDA utilizes a 1,160 lbs/MWh conversion factor to estimate GHG emissions reductions for electric generation and energy efficiency savings across all components of the CEF.

## 5 Progress Against Plan Deliverables

In its annual Business Plan, filed on June 27, 2016, NYGB identified specific deliverables (the “**Plan Deliverables**”) that collectively mark its progress in implementing key initiatives in the period April 1, 2016 through March 31, 2017 (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 March 31, 2017 is summarized in Table 2 below. Since this Report covers the period that marks the end of the Plan Year, the summary commentary contained in Table 2 also addresses the corresponding annual achievements.

Table 2. Status of Plan Deliverables (2016 – 2017)

Category	Deliverable	Status in Quarter Ending March 31, 2017 [End of 2016 – 2017 Plan Year]
<b>Strong Active Pipeline</b>		
<ul style="list-style-type: none"> <li>▪ <b>Active Pipeline</b></li> </ul>	<ul style="list-style-type: none"> <li>▪ Maintain an Active Pipeline of at least \$300.0 million.</li> </ul>	<ul style="list-style-type: none"> <li>✓ <b>Achieved for this Quarter:</b> Active Pipeline of <b>\$591.7 million</b>.</li> <li>✓ <b>Achieved for the Plan Year:</b> Average Active Pipeline <b>\$588.1 million</b> per quarter.</li> </ul>
<ul style="list-style-type: none"> <li>▪ <b>CRM, Transaction Pipeline &amp; Portfolio Management Infrastructure</b></li> </ul>	<ul style="list-style-type: none"> <li>▪ Implementation of third-party platform, full “go-live”.</li> </ul>	<ul style="list-style-type: none"> <li>✓ <b>Achieved for the Plan Year:</b> In December 2016 NYGB and DealCloud launched this customized system and achieved “Go Live”.<sup>31</sup> NYGB continues to fully optimize and customize the system to maximize effectiveness, efficiencies and user experience in line with NYGB’s growing business and evolving needs.</li> </ul>
<b>Portfolio Driving Material Clean Energy Investments Across NYS</b>		
<ul style="list-style-type: none"> <li>▪ <b>Committed Funds</b></li> </ul>	<ul style="list-style-type: none"> <li>▪ Commit \$200.0 million to NYGB investments per year, equating to an average of \$50.0 million in closed transactions per quarter.</li> </ul>	<ul style="list-style-type: none"> <li>✓ <b>Achieved for this Quarter:</b> <b>\$40.6 million</b> of closed transactions in the quarter, given an average of <b>\$73.0 million</b> across all four quarters of the Plan Year.</li> <li>✓ <b>Achieved for the Plan Year:</b> In 2016 - 2017 NYGB committed <b>\$292.0 million</b> to new clean energy investments in the State – well in excess of the targeted \$200.0 million.</li> </ul>
<ul style="list-style-type: none"> <li>▪ <b>Financing Commercial Real Estate &amp; Multi-Family Solar System &amp;/or Energy Efficiency Purchases</b></li> </ul>	<ul style="list-style-type: none"> <li>▪ Publicly issue RFP.</li> </ul>	<ul style="list-style-type: none"> <li>✓ <b>Achieved for the Plan Year:</b> RFP publicly issued and launched in March 2017 and available on NYGB and NYSERDA websites.</li> </ul>
<ul style="list-style-type: none"> <li>▪ <b>Financing Ground-Mounted Solar Systems Targeting Corporate &amp; Industrial End-Users</b></li> </ul>	<ul style="list-style-type: none"> <li>▪ Publicly issue RFP.</li> </ul>	<ul style="list-style-type: none"> <li>✓ <b>Achieved for the Plan Year:</b> RFP publicly issued and launched in March 2017 and available on NYGB and NYSERDA websites.</li> </ul>
<ul style="list-style-type: none"> <li>▪ <b>Fund Administration &amp; Loan/Investment Servicing Infrastructure</b></li> </ul>	<ul style="list-style-type: none"> <li>▪ Implementation of third-party platform, full “go-live”.</li> </ul>	<ul style="list-style-type: none"> <li>✓ <b>Achieved for the Plan Year:</b> In January 2017 NYGB and SS&amp;C completed detailed system</li> </ul>

<sup>31</sup> DealCloud was selected as NYGB’s preferred platform provider pursuant to an extensive public solicitation, evaluation and contract negotiation process in 2016. DealCloud’s press release in connection with implementation of NYGB’s platform is available at: [www.dealcloud.com/Insights/PressAndMedia/NYGreenBank](http://www.dealcloud.com/Insights/PressAndMedia/NYGreenBank).

Category	Deliverable	Status in Quarter Ending March 31, 2017 [End of 2016 – 2017 Plan Year]
		design and implementation to accommodate all NYGB processes and procedures – as well as reflect all historic data and transactions since inception, including achieving “Go Live”. SS&C now represents NYGB’s source for fund administration and loan/investment servicing, consistent with industry best practice among comparable public and private funds and financing entities. NYGB is already realizing material efficiencies from implementation of this platform and the creation of more end-to-end processes and reduction of duplicative and/or highly manual activities.
<ul style="list-style-type: none"> <li>▪ <b>Available Capital</b></li> </ul>	<ul style="list-style-type: none"> <li>▪ Satisfy the Cash Release Trigger pursuant to the 2015 Capitalization Order through achieving a portfolio size of \$150.0 million.</li> </ul>	<ul style="list-style-type: none"> <li>✓ <b>Achieved for the Plan Year:</b> In Summer 2016, the \$150.0 million threshold was met and a further capital installment funded to NYGB pursuant to Commission Order.</li> </ul>
<b>Mobilizing Private Capital</b>		
<ul style="list-style-type: none"> <li>▪ <b>Mobilization Ratio</b></li> </ul>	<ul style="list-style-type: none"> <li>▪ 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.</li> </ul>	<ul style="list-style-type: none"> <li>✓ <b>Achieved for this Quarter:</b> Current quarter Mobilization Ratio on track at at least <b>3:1</b> on average across NYGB’s portfolio.<sup>32</sup></li> <li>✓ <b>Achieved for the Plan Year:</b> Mobilization Ratio across all quarters of the Plan Year consistent with maintaining at least a 3:1 ratio on average across NYGB’s portfolio.</li> </ul>

<sup>32</sup> Given the range of Total Project Costs that NYGB investments mobilize, the Mobilization Ratio also represents a range; currently of 2.9:1 to 4.1:1.

**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.

## Long-Term Financing for Solar Projects Supplying Clean Energy to Cornell University

### Odyssey Solar

NY Green Bank (“**NYGB**”) is providing 15-year financing for four solar projects (“**Odyssey**”) located in and around Ithaca, NY. These projects have a total installed capacity of 7.76 MW and provide Cornell University clean energy under separate 20-year power purchase agreements (“**PPAs**”). Odyssey is part of NYGB’s objective to bring scale and standardization to the Municipal, University, Schools, and Hospitals (“**MUSH**”) and Commercial and Industrial (“**C&I**”) solar sectors.

### Transaction Description

Building Energy Holding US LLC (as sponsor), and Distributed Sun (“**DSUN**”), partnered to develop, finance, build, and operate four solar energy systems (Snyder Road, Harford, Musgrave East, and Musgrave West) located in and around Ithaca, NY. NYGB has provided a term loan of \$10.5 million in connection with these developments. Each project provides up to 2.0 MW (AC) of installed capacity and has a separate 20-year PPA with Cornell University. Snyder Road commenced operations in 2014, and the other three projects began operations in 2016. Each project is owned through an inverted lease tax equity structure with Building Energy Holding US and Distributed Sun as the owners and the tax equity investor providing private capital.

The clean energy generated by Odyssey is estimated to result in up to 4,330 metric tons of greenhouse gas (“**GHG**”) emissions reductions annually or 108,000 metric tons of GHG emissions reductions in NYS over a 25-year project life.

This Transaction Profile is provided pursuant to the “NY Green Bank – Metrics, Reporting & Evaluation Plan, Version 3.0” (the “**Metrics Plan**”) developed in collaboration with the NYS Department of Public Service and filed with the NYS Public Service Commission (the “**Commission**”) on June 20, 2016.<sup>2</sup> This Transaction Profile contains specific information in connection with the DSUN transaction entered into on February 23, 2017, as required by the Metrics Plan.<sup>3</sup>

### Form of NYGB Investment

NYGB Product	Product Sub-Type	Committed Capital
Asset Loan & Investment	Term Loan	\$10.5 million

### Location(s) of Underlying Project(s)

Southern Tier and Finger Lakes Regions: Projects are located in Tompkins, Cortland, and Cayuga Counties.

<sup>1</sup> Refer to the Summary of Changes document for details of updates, available at [www.greenbank.ny.gov/Investments/Transaction-Profiles](http://www.greenbank.ny.gov/Investments/Transaction-Profiles).

<sup>2</sup> Case 13-M-0412.

<sup>3</sup> See Section 4.0, page 8 and Schedule 3.

## Types of Client & Counterparty Organizations that are Transaction Participants

	Name	Participant Type
<b>Clients</b>	Distributed Sun	Energy Project Developer
	Building Energy Holding US	Independent Power Producer, Sponsor
<b>Counterparties</b>	Cornell University	Power Purchaser

## Summary of Financing Market Objectives & Barriers Addressed

Beneficiary	Market Barrier	Financing Solution
Solar Project Developers	Project sponsors find it difficult to get long-term debt financing for one-off or small portfolios of solar projects.	This transaction aims to drive growth in the small to mid-sized solar sector by encouraging the standardization of contractors, contracts, and equipment thereby increasing underwriting efficiency and reducing overall transaction costs. Developing standardized projects within a portfolio makes the overall financing opportunity more attractive to a larger potential investor group, ultimately providing more funding options and influencing financing costs.
Capital Market Participants	Underwriting the credit of a one-off or small portfolio of solar projects is often too expensive for large financial institutions and is not typically done by the smaller or more localized financial institutions.	A standardized approach to project development will enable developers to establish a track record within their portfolio as well as create scale to appeal more broadly to traditional private capital providers. This in turn will create additional familiarity with the asset class and greater scale, resulting in increasing refinancing options and liquidity.
Clean Energy Purchasers	Uncertainty in connection with the long-term financeability of small solar projects limits the volume and speed of deployment of such projects and therefore the options available to clean energy purchasers in managing their energy supply, cost and footprint.	This transaction provides long-term financing to four projects and signals to the market that long-term financing is possible. This type of growing track record will enhance the confidence of power purchasers in entering long-term PPAs for clean energy.

## Technologies Involved

Technology	Measures
Renewable Energy	Solar photovoltaic ("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 [GHG] reductions in support of New York’s energy policies”.<sup>4</sup> In addition, the Metrics Plan requires that the following energy and environmental measures, applicable to this transaction, be reported on<sup>5</sup>:

- 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 term 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)	206,000	251,000	8,220	10,000
Estimated clean energy generation installed capacity (MW) <sup>6</sup>	7.76	7.76	Not Applicable	
Estimated GHG emission reductions (metric tons) <sup>7</sup>	108,000	132,000	4,330	5,290

### Planned Market Characterization Baseline & Market Transformation Potential

The Metrics Plan requires that market evaluation will occur when a critical mass of NYGB financing and investment arrangements are in place. This market evaluation will be conducted on sectors that NYGB has supported and will occur approximately three to five years following initial NYGB capital deployments.<sup>8</sup> Baseline data will be collected in 2017 for most indicators as a comparison point against which to assess market progress in the later studies. Progress indicators are defined below for the short, mid and long-terms.

Short-term progress indicators will identify early activity levels and will be regularly tracked for the duration of the transaction. These include aggregate energy generation for all projects.

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:

- Additional one-off or small portfolios receive long-term financing;
- General understanding of renewable energy benefits by financial community increases;
- Increased awareness and use of project/technology performance data by financing entities;
- Demonstration of competitive risk-return profiles for solar PV investment with MUSH/C&I offtakers;
- Decreased project costs;
- Volume of secondary market financing of MUSH/C&I solar assets; and
- Number of secondary capital markets participants.

### 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 which it delivers.

**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 (developers, power purchasers, financial community) to track information including but not limited to: development rates, project scale information, interest in solar financing (generally and with regard to the MUSH/C&I sectors specifically), and influence of NYGB’s participation

<sup>4</sup> 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.

<sup>5</sup> See Metrics Plan, Section 2.0, pages 2 - 6.

<sup>6</sup> Installed clean energy generation capacity at full deployment of funds is the same for first-year and lifetime duration.

<sup>7</sup> As of January 1, 2016, the New York State Energy Research and Development Authority (“NYSERDA”) utilizes a 1,160 lbs./MWh conversion factor to estimate GHG emissions reductions for electric generation and energy efficiency savings across all components of the Clean Energy Fund. NYSERDA previously utilized a 625 lbs./MWh conversion factor.

<sup>8</sup> See Metrics Plan, Section 3.3 at page 7.

on financial markets. As noted, baseline data will be collected on most key indicators in 2017 and later follow-up studies will assess progress against baseline levels. The specific timing of these efforts may be revised based on experience or other factors as the investment evolves.

**Impact evaluation** will use actual system performance data to understand energy and environmental outcomes. Impact evaluation is expected to include quarterly review and analysis of actual PV portfolio production data collected by Odyssey. Actual PV portfolio 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 better understanding risk in this technology area.

As with all NYGB investments, Odyssey 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 of activity or benefits on a consolidated basis. Pursuant to the Metrics Plan, evaluation sampling approaches will also be used as a mechanism to estimate overlap and minimize double counting. Attempts will also be made to coordinate market and impact evaluation activities for projects that receive support from multiple sources in order 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

*In January 2017, NY Green Bank (“NYGB”) provided a 12-month senior secured \$1.0 million bridge loan facility (the “Bridge Loan”) to Distributed Sun, LLC. (“DSUN”), a national energy services provider, and its affiliate SUNEIGHT LLC. Upon DSUN’s request, NYGB increased the Bridge Loan size by \$2.0 million in March 2017. Bridge Loan proceeds will finance project interconnection advanced payments to New York State Electric & Gas Corporation (“NYSEG”) 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 is developing a portfolio of Community DG solar projects in NYS and requested NYGB provide a \$3.0 million Bridge Loan to finance interconnection advance payments<sup>2</sup> to NYSEG for such projects, due under the New York State Public Service Commission (the “Commission”) Standardized Interconnection Requirements and Application Process.

This first-of-its-kind transaction is expected 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, and capital providers are expected to recognize the value in providing financing 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.<sup>3</sup> This Transaction Profile contains specific information in connection with the DSUN transactions entered into on January 9 and March 22, 2017, as required by the Metrics Plan.<sup>4</sup>

### Form of NYGB Investment

NYGB Product	Product Sub-Type	Committed Capital
Asset Loan & Investment	Bridge Loan	\$3.0 million

### Location(s) of Underlying Project(s)

Southern Tier Region. The first projects in the Bridge Loan will be located in Dryden, Middlesex, and Spencer, NY.

<sup>1</sup> Refer to the Summary of Changes document for details of updates, available at [www.greenbank.ny.gov/Investments/Transaction-Profiles](http://www.greenbank.ny.gov/Investments/Transaction-Profiles).

<sup>2</sup> 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.

<sup>3</sup> Case 13-M-0412.

<sup>4</sup> See Section 4.0, page 8 and Schedule 3.

## Types of Client & Counterparty Organizations that are Transaction Participants

	Name	Participant Type
<b>Client</b>	DSUN and SUNEIGHT	Energy Project Developer
<b>Counterparties (current)</b>	NYSEG, a subsidiary 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 will create an easier pathway forward for developers and will enable 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 [‘GHG’] reductions in support of New York’s energy policies”.<sup>5</sup> In addition, the Metrics Plan requires that the following energy and environmental measures, applicable to this transaction, be reported on<sup>6</sup>:

- 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)	245,000	613,000	10,400	26,100
Estimated clean energy generation installed capacity (MW) <sup>7</sup>	9.0	22.5	Not Applicable	
Estimated GHG emission reductions (metric tons) <sup>8</sup>	129,000	323,000	5,490	13,700

### Planned Market Characterization Baseline & Market Transformation Potential

The Metrics Plan requires that market evaluation will occur when a critical mass of NYGB financing and investment arrangements are put in place. This market evaluation will be conducted on sectors that NYGB has supported and will occur approximately three to five years following initial NYGB capital deployments.<sup>9</sup> Baseline data will be collected in 2017 for most indicators as a comparison point against which to assess market progress in the later studies. Progress indicators are defined below for the short, mid and long-terms.

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

- 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 and SUNEIGHT 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;

<sup>5</sup> 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.

<sup>6</sup> See Metrics Plan, Section 2.0, pages 2 - 6.

<sup>7</sup> Installed clean energy generation capacity at full deployment of funds is the same for first-year and lifetime duration.

<sup>8</sup> As of January 1, 2016, the New York State Energy Research and Development Authority (“NYSERDA”) utilizes a 1,160 lbs./MWh conversion factor to estimate GHG emissions reductions for electric generation and energy efficiency savings across all components of the Clean Energy Fund. NYSERDA previously utilized a 625 lbs./MWh conversion factor.

<sup>9</sup> See Metrics Plan, Section 3.3 at page 7.

- Volume of secondary market financing of Community DG solar assets; and
- Number of new lending participants.

### **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 which it delivers.

**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 solar financing (generally and with regard to residential specifically), and influence of NYGB's participation on financial markets. As noted, baseline data will be collected on most key indicators in 2017 and later follow-up studies will assess progress against baseline levels. The specific timing of these efforts may be revised based on experience or other factors as the investment 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.

## Providing New Yorkers with Greater Access to Solar Opportunities

### Spruce Finance Inc. & Investec Bank PLC

NY Green Bank (“**NYGB**”) is committing \$6.0 million to participate in a five-year term loan for Spruce Finance Inc. (“**Spruce**”), a national provider of residential solar and energy efficiency financing. By participating with other banks in a \$99.4 million credit facility, NYGB capital will help to establish a new medium-term lending market, finance existing residential solar systems in New York State (“**NYS**”), and provide liquidity for Spruce to develop additional projects in NYS. The up to 5.87 megawatts (“**MW**”) of new projects financed through this transaction represent approximately 760 NYS residential solar installations.

### Transaction Description

Spruce is a consumer finance company that provides U.S. homeowners with financing for residential solar and energy efficiency improvements. Among its product offerings, Spruce makes residential solar energy systems available to homeowners pursuant to 20 to 25-year Power Purchase Agreements (“**PPAs**”) and lease agreements. Spruce engaged Investec Bank PLC (“**Investec**”) to structure, arrange, and syndicate a \$99.4 million senior, secured term loan (the “**Credit Facility**”) to refinance an existing aggregation credit facility. The Credit Facility will refinance 86.0 MW of generating capacity across 12,711 homes in 11 states. Over 6.2% of Spruce’s current portfolio is located in NYS and Spruce has placed an emphasis on growing its business in the State. NYGB is committing \$6.0 million to this transaction.

NYGB’s participation in the Credit Facility provides additional liquidity to support Spruce’s ongoing expansion. It also helps to establish a medium-term lending market as an alternative to refinancing through the traditional asset-backed security market, which currently has limited capacity for these types of assets.

NYGB’s commitment will refinance an existing portfolio of 5.87 MW of solar assets in NYS, or approximately 760 residential solar systems. This translates to an estimated reduction of 2,980 metric tons of greenhouse gas (“**GHG**”) emissions annually or 74,400 metric tons of GHG emissions over a 25-year project life.

This Transaction Profile is provided pursuant to the “NY Green Bank – Metrics, Reporting & Evaluation Plan, Version 3.0” (the “**Metrics Plan**”) developed in collaboration with the NYS Department of Public Service and filed with the NYS Public Service Commission (the “**Commission**”) on June 20, 2016.<sup>2</sup> This Transaction Profile contains specific information in connection with the Spruce transaction entered into on March 10, 2017, as required by the Metrics Plan.<sup>3</sup>

### Form of NYGB Investment

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

<sup>1</sup> Refer to the Summary of Changes document for details of updates, available at [www.greenbank.ny.gov/Investments/Transaction-Profiles](http://www.greenbank.ny.gov/Investments/Transaction-Profiles).

<sup>2</sup> Case 13-M-0412.

<sup>3</sup> See Section 4.0, pages 8 and Schedule 3.

## Location(s) of Underlying Project(s)

Statewide.<sup>4</sup> Spruce customers are homeowners with leases or PPA structures in connection with solar installations on their properties in regions across NYS.

## Types of Client & Counterparty Organizations that are Transaction Participants

	Name	Participant Type
<b>Client</b>	Investec, Inc.	Global Corporate & Investment Bank
<b>Counterparties</b>	Spruce Finance Inc.	Energy Project Developer
<b>Financiers</b>	Various Tax Equity Providers & Commercial/Regional Banks	Global Corporate & Investment Banks, Commercial/Regional Banks

## Summary of Financing Market Objectives & Barriers Addressed

Beneficiary	Market Barrier	Financing Solution
Capital Market Participants	There is currently a small (but growing) number of lenders actively financing residential solar projects.	NYGB's role as a specialty clean energy lender in the Credit Facility provides other financing parties with greater confidence in this asset class, making it both a key component to drawing in other private sector financiers and critical in supporting Investec's syndication efforts.
	Today's capital markets are not yet liquid nor large enough to efficiently support all potential securitizations of residential solar assets. In the interim, as development of this new asset class catches up with demand, additional sources of liquidity – like the Credit Facility – are needed to maintain market growth and meet customer demand.	NYGB participation in the Credit Facility helps to establish a medium-term lending market as an alternative to refinancing through securitization. This transaction is expected to draw new investors and financial institutions into the marketplace, resulting in enhanced liquidity.
	It can be difficult for private sector capital providers to accurately assess performance due to a lack of volume precedents in residential solar financing.	NYGB's participation in this transaction is expected to help demonstrate that competitive risk-return profiles can be achieved for scalable residential solar investments.
Solar Project Developers	Many solar developers face the challenge of securing sufficient financing to meet customer demand – hampering their ability to grow and achieve economies of scale, which in turn will exert downward pressure on costs for homeowners.	NYGB's participation in the Credit Facility provides additional needed liquidity to support Spruce's ongoing expansion. The medium-term refinancing enables Spruce to use its capital to process project backlog.
Homeowners	Homeowners are skeptical about savings from "going solar."	Enhanced liquidity will result in lower capital costs for developers, reducing the lease or PPA costs to NYS homeowners beyond those currently offered.

<sup>4</sup> Defined as projects located in four or more regions of the State.

## Technologies Involved

Technology	Measures
Renewable Energy	Solar photovoltaic (“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 [“GHG”] reductions in support of New York’s energy policies”.<sup>5</sup> In addition, the Metrics Plan requires that the following energy and environmental measures, applicable to this transaction, be reported on<sup>6</sup>:

- 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).

Existing projects financed by the Credit Facility are not included in the energy and environmental metrics for this transaction, as they are already installed and contributing to GHG emission reductions in NYS. The estimated gross lifetime and first-year energy and environmental impacts of Spruce’s new development in NYS, facilitated by the increased liquidity due to NYGB’s participation in the Credit Facility, 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)	141,000	173,000	5,660	6,920
Estimated clean energy generation installed capacity <sup>7</sup> (MW)	4.81	5.87	Not Applicable	
Estimated GHG emission reductions <sup>8</sup> (metric tons)	74,400	91,000	2,980	3,640

### Planned Market Characterization Baseline & Market Transformation Potential

The Metrics Plan requires that market evaluation will occur when a critical mass of NYGB financing and investment arrangements are put in place. This market evaluation will be conducted on sectors that NYGB has supported and will occur approximately three to five years following initial NYGB capital deployments.<sup>9</sup> Baseline data will be collected in 2017 for most indicators as a comparison point against which to assess market progress in the later studies. Progress indicators are defined below for the short, mid and long-terms.

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

- Size (i.e., generation capacity and dollar value) and location of *existing* projects financed by the Credit Facility;
- Performance of the underlying customer agreements for existing projects financed by the Credit Facility;

<sup>5</sup> 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.

<sup>6</sup> See Metrics Plan, Section 2.0, page 2 - 6.

<sup>7</sup> Installed clean energy generation capacity at full deployment of funds is the same for first-year and lifetime duration.

<sup>8</sup> As of January 1, 2016, the New York State Energy Research and Development Authority (“NYSERDA”) utilizes a 1,160 lbs/MWh conversion factor to estimate GHG emissions reductions for electric generation and energy efficiency savings across all components of the Clean Energy Fund. NYSEDA previously utilized a 625 lbs/MWh conversion factor.

<sup>9</sup> See Metrics Plan, Section 3.3 at page 7.

- Size (i.e., generation capacity and dollar value) and location of *new* projects deployed as a result of additional liquidity provided by this transaction; and
- Aggregate energy generation for new projects deployed as a result of additional liquidity provided by this transaction.

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:

- Overall number of Spruce's projects increases;
- General understanding of renewable energy benefits by financial community increases;
- Increased awareness and use of loan performance data by financing entities;
- Increased awareness and use of project/technology performance data by financing entities;
- Demonstration of competitive risk-return profiles for solar investment;
- Decreased project costs;
- Replication of the medium-term loan financing structure;
- Volume of secondary market financing of residential solar assets; and
- Number of new lending participants.

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

**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 (homeowners, financial community) to track information including but not limited to: participation rates, project scale information, interest in solar financing (generally and with regard to residential specifically), and influence of NYGB's participation on financial markets. As noted, baseline data will be collected on most key indicators in 2017 and later follow-up studies will assess progress against baseline levels. The specific timing of these efforts may be revised based on experience and other relevant factors as the investment evolves.

**Impact evaluation** will use actual system performance data to understand energy and environmental outcomes. Impact evaluation is expected to include quarterly review and analysis of actual PV portfolio installation data collected by Spruce. Actual PV portfolio 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 better understanding and pricing risk in this technology area.

As with all NYGB investments, Spruce 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 of activity or benefits on a consolidated basis. Pursuant to the Metrics Plan, evaluation sampling approaches will also be used as a mechanism to estimate overlap and minimize double counting. Attempts will also be made to coordinate market and impact evaluation activities for Projects that receive support from multiple sources in order to maximize the efficiency of data collection and avoid participant survey fatigue.

## Driving Standardization in the New York Solar Market

### BQ Energy – Esopus

*BQ Energy (“BQ”) is a renewable energy project developer specializing in landfill and brownfield site redevelopment. As the second of a larger portfolio of projects to be financed in collaboration with NY Green Bank (“NYGB”), BQ will receive a \$1.1 million construction loan and term loan facility to complete a 0.87 megawatt (“MW”) solar project to be constructed on a remediated landfill located in the Town of Esopus, NY (the “Town”). Solar power from this project will be sold to the Town and will generate a significant percentage of its total power needs.*

### Transaction Description

BQ is a Poughkeepsie, New York-based renewable energy project developer specializing in landfill and brownfield site redevelopment. NYGB’s \$1.1 million construction loan and term loan facility (the “**Credit Facility**”) enables BQ to complete the 0.87 MW project, (the “**Project**”), to be constructed on a remediated landfill located in, and owned by, the Town which is in Ulster County. All Electric will construct the Project under a standardized balance of plant (“**BOP**”) contract utilizing top tier panels, inverters, and racking systems. The Project will generate revenue by selling clean power (or, more specifically, selling the value of clean power evidenced by net metering credits) to the Town.

The Project is the second of several similar developments in BQ’s pipeline that NYGB anticipates financing as part of a larger portfolio. In an effort to standardize this particular type of construction loan, BQ retained Solar Landscape for construction services for the majority of the portfolio projects, using similar equipment and contractual arrangements. BQ expects the majority of projects in the portfolio to be located on landfill and brownfield sites in Western NY, Central NY, Hudson Valley, and Long Island with the power generated providing non-profit organizations, municipalities, universities, schools and hospitals, as well as utilities, with clean power.

NYGB’s participation in the Project – and in similar future developments included in the proposed portfolio arrangement – will help expand financing opportunities for smaller (less than 10.0 MW) solar systems, by fostering standardization in the underwriting process (which is the process a lender uses to assess the creditworthiness or risk of a potential borrower) including a streamlined, uniform approach to integrating contractors, developing contracts, and utilizing standardized equipment.

This Transaction Profile is provided pursuant to the “NY Green Bank – Metrics, Reporting & Evaluation Plan, Version 3.0” (the “**Metrics Plan**”) developed in collaboration with the NYS Department of Public Service and filed with the NYS Public Service Commission (the “**Commission**”) on June 20, 2016.<sup>2</sup> This Transaction Profile contains specific information in connection with the BQ transaction (which was entered into on March 17, 2017), as required by the Metrics Plan.<sup>3</sup>

<sup>1</sup> Refer to the Summary of Changes document for details of updates, available at [www.greenbank.ny.gov/Investments/Transaction-Profiles](http://www.greenbank.ny.gov/Investments/Transaction-Profiles).

<sup>2</sup> Case 13-M-0412.

<sup>3</sup> See Section 4.0, page 8 and Schedule 3.

## Form of NYGB Investment

NYGB Product	Product Sub-Type	Committed Capital
Asset Loan & Investment	Construction & Term Loans	\$1.1 million

## Location(s) of Underlying Project(s)

Ulster County. The Project is located in the Town of Esopus, New York, with future portfolio projects expected to be located in various counties throughout New York State.

## Types of Client & Counterparty Organizations that are Transaction Participants

	Name	Participant Type
<b>Client</b>	BQ Energy	Energy Project Developer
<b>Partners</b>	All Electric	Industry Vendor
	The Town	Commercial End-User

## Summary of Financing Market Objectives & Barriers Addressed

Beneficiary	Market Barrier	Financing Solution
Smaller-Scale Solar Developers	Many smaller-scale solar developers face challenges in securing adequate construction and long-term financing, particularly for smaller to mid-sized solar projects (i.e., less than 10.0 MW), as these developers are restricted in their access to capital by their size and comparatively limited track record.	This transaction aims to drive growth in the small to mid-size solar sector by encouraging the standardization of contractors, contracts, and equipment thereby increasing underwriting efficiency and reducing overall transaction costs. Developing standardized projects within a portfolio makes the overall financing opportunity more attractive to a larger potential investor group, ultimately providing more funding options and influencing financing costs.
Capital Market Participants	Limited private capital interest to date in supporting the construction of distributed energy projects in New York's clean energy marketplace, due to limited history and track record of such financings.	Institutional investors and other private sector capital providers have shown less interest in financing small to mid-size solar project developers which may have more limited operating histories. NYGB's participation in this transaction will help this NYS-based developer further consolidate its track record and achieve the scale needed to appeal more broadly to traditional capital providers. In turn, this can be expected to enable more refinancing options which will provide the market with greater levels of familiarity with this asset class –a prerequisite to increasing liquidity.
New Yorkers	While interest and activity in solar projects are increasing rapidly in NYS, only a relatively small number of companies and financial models are being used. Fewer options in the marketplace generally translate into higher prices for end-users and more limited consumer choice.	By bridging certain financing gaps in the marketplace, NYGB is enabling a larger group of solar developers to participate in New York's clean energy marketplace. This gives end users more choice in terms of how they pay for their systems and who they select as their installer. Greater choice and competition in the market will lead to reduced costs, allowing a greater number of New Yorkers and New York businesses to go solar.

## Technologies Involved

Technology	Measures
Renewable Energy	Solar photovoltaic (“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”.<sup>4</sup> In addition, the Metrics Plan requires that the following energy and environmental measures, applicable to this transaction, be reported on<sup>5</sup>:

- 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	First-Year Low Estimate	First-Year High Estimate
Estimated clean energy generated (MWh)	23,000	28,100	920	1,120
Estimated clean energy generation installed capacity (MW) <sup>6</sup>	0.87	0.87	Not Applicable	
Estimated GHG emission reductions (metric tons)	12,100	14,800	484	591

### Planned Market Characterization Baseline & Market Transformation Potential

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

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

- Size (generation capacity and dollar value) of the Project if different from proposed plans; and
- Performance of installed system.

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:

<sup>4</sup> 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.

<sup>5</sup> See Metrics Plan, Section 2.0, pages 2 – 6.

<sup>6</sup> Installed clean energy generation capacity at full deployment of funds is the same for first-year and lifetime durations.

<sup>7</sup> See Metrics Plan, Section 3.3, page 7.

- Access to, and accessibility of, solar project performance data produced by the Project and similar developments comprising a single portfolio, particularly in any refinancing of a BQ project;
- Greater availability of construction loan options for small PV projects;
- Decreased project cost for BQ and other developers (e.g., procurement, permitting, fees), due to increased experience and scale; and
- Demonstration of competitive risk-return profiles for solar investment in NYS.

The above listed indicators will remain in development until market characterization and baseline activity commences. Additional aspects may be tracked to further support baseline and market measurements.

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

**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 financial markets. As noted, baseline data will be collected on most key indicators in 2017 and later follow-up studies will assess progress against baseline levels. The specific timing of these efforts may be revised based on experience or other relevant factors as the investment evolves.

**Impact evaluation** will use actual system performance data to understand energy and environmental outcomes. Impact evaluation is expected to include periodic review and analysis of actual PV portfolio installation data collected by BQ. Actual project 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 better understanding and pricing risk in this technology area.

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

## Providing New Yorkers with Greater Access to Residential Solar Opportunities

### Vivint Solar Inc.

*In March 2017, NY Green Bank (“NYGB”) committed \$20.0 million to participate in a \$375.0 million revolving back leverage aggregation facility (“Aggregation Facility”) for Vivint Solar Inc. (“Vivint Solar”), a national residential solar installer. This represents an expansion of NYGB’s support for Vivint Solar’s development efforts in New York State (“NYS”) after NYGB provided \$37.5 million in a term loan (“Term Loan”) to Vivint Solar in August 2016. As a participant with other banks in the Aggregation Facility, NYGB’s capital will help to provide incremental liquidity for Vivint Solar to develop additional projects in NYS. Up to 25.0 megawatts (“MW”) of new projects are expected to be financed as a result of the Aggregation Facility and represent approximately 2,100 residential solar systems in the State. When added to the systems supported by the Term Loan, the total impact to NYS is expected to be at least 52.0 MW and 6,700 systems.*

### Transaction Description

Vivint Solar is a national residential solar provider that installs solar systems at no upfront cost to customers, and generates revenue through 20-year power purchase agreements (“PPAs”) and lease agreements. Over 11% of Vivint Solar’s current portfolio is located in NYS and Vivint Solar has placed an emphasis on growing its business in the State. Vivint Solar engaged Bank of America Merrill Lynch (“BAML”) to structure, arrange, and syndicate a \$375.0 million Aggregation Facility, to which NYGB has committed \$20.0 million, in addition to its participation in the Term Loan arranged by Investec.

NYGB’s participation in this transaction provides liquidity to support Vivint Solar’s ability to provide additional solar deployment capital in NYS. The additional liquidity helps the market to continue to grow, lower the cost of capital, and encourage further development of renewable energy and private sector participation.

With NYGB’s \$20.0 million participation in the Aggregation Facility and \$37.5 million participation in the Term Loan, NYGB’s total commitment will help Vivint Solar finance at least 52.0 MW or 6,700 residential solar systems in NYS. This is anticipated to result in the reduction of 32,000 metric tons of greenhouse gas (“GHG”) emissions annually or 800,000 metric tons of GHG emissions over a 25-year project life.

This Transaction Profile is provided pursuant to the “NY Green Bank – Metrics, Reporting & Evaluation Plan, Version 3.0” (the “Metrics Plan”) developed in collaboration with the NYS Department of Public Service and filed with the NYS Public Service Commission (the “Commission”) on June 20, 2016.<sup>2</sup> This Transaction Profile contains specific information in connection with the Vivint Solar transactions entered into on August 4, 2016 and March 31, 2017, as required by the Metrics Plan.<sup>3</sup>

---

<sup>1</sup> Refer to the Summary of Changes document for details of updates, available at [www.greenbank.ny.gov/Investments/Transaction-Profiles](http://www.greenbank.ny.gov/Investments/Transaction-Profiles).

<sup>2</sup> Case 13-M-0412.

<sup>3</sup> See Section 4.0, page 8 and Schedule 3.

## Form of NYGB Investment

NYGB Product	Product Sub-Type	Committed Capital
Asset Loan & Investment	Medium Term Loan	\$37.5 million
	Aggregation Facility	\$20.0 million

## Location(s) of Underlying Project(s)

Statewide.<sup>4</sup> Vivint Solar customers are homeowners with leases or PPA structures in regions across NYS.

## Types of Client & Counterparty Organizations that are Transaction Participants

	Name	Participant Type
<b>Client</b>	Bank of America Merrill Lynch (Aggregation Facility)	Global Corporate & Investment Bank
	Investec (Term Loan)	Global Corporate & Investment Bank
<b>Counterparties (current)</b>	Vivint Solar	Energy Project Developer
	Various tax equity providers and commercial banks	Global Corporate & Investment Banks, Commercial/Regional Banks

## Summary of Financing Market Objectives & Barriers Addressed

Beneficiary	Market Barrier	Financing Solution
Capital Market Participants	There is a limited (but growing) number of lenders actively financing residential solar projects.	NYGB's role as a specialty clean energy lender in both transactions provides other financing parties with greater confidence, making it both a key component to drawing in other private sector financiers and critical in supporting syndication efforts.
	Today's markets are neither liquid nor large enough for broadly syndicated term securitizations. Therefore, additional sources of liquidity are needed.	NYGB participation in the term loan helps to establish a medium term lending market as an alternative to refinancing through the securitization market. NYGB participation in the Aggregation Facility provides incremental liquidity to a developer active in NYS to increase transaction size. Both transactions are expected to draw new investors and financial institutions into the marketplace, resulting in enhanced liquidity.
	It is difficult for private sector capital providers to accurately assess performance due to lack of precedents in residential solar financing.	NYGB's participation in the transactions is expected to help demonstrate that competitive risk-return profiles can be achieved for solar investments.
Solar Project Developers	Many solar developers face challenges securing sufficient financing to meet customer demand – hampering their ability to grow and achieve economies of scale.	NYGB's participation in the Term Loan and Aggregation Facility provides additional needed liquidity to support Vivint Solar's growing demand from homeowners. Both transactions enable Vivint Solar to use its capital to process project backlog.
Homeowners	Homeowners are skeptical about savings from "going solar."	Enhanced liquidity will result in lower capital costs for developers, reducing the lease or PPA costs to NYS homeowners beyond those currently offered.

<sup>4</sup> Defined as projects located in four or more regions of the State.

## Technologies Involved

Technology	Measures
Renewable Energy	Solar photovoltaic (“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 [GHG] reductions in support of New York’s energy policies”.<sup>5</sup> In addition, the Metrics Plan requires that the following energy and environmental measures, applicable to this transaction, be reported on<sup>6</sup>:

- 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).

Existing projects financed by the Term Loan are not included in the energy and environmental metrics for this transaction, as they are already installed and contributing to GHG emission reductions in NYS. The estimated gross lifetime and first-year energy and environmental impacts of Vivint Solar’s new development in NYS, facilitated by the increased liquidity due to NYGB’s participation in the Term Loan, and the participation in the Aggregation Facility, 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)	1,520,000	1,860,000	60,800	74,300
Estimated clean energy generation installed capacity (MW) <sup>7</sup>	52.0	63.0	Not Applicable	
Estimated GHG emission reductions (metrics tons) <sup>8</sup>	800,000	978,000	32,000	39,100

### Planned Market Characterization Baseline & Market Transformation Potential

The Metrics Plan requires that market evaluation will occur when a critical mass of NYGB financing and investment arrangements are in place. This market evaluation will be conducted on sectors that NYGB has supported and will occur approximately three to five years following initial NYGB capital deployments.<sup>9</sup> Baseline data will be collected in 2017 for most indicators as a comparison point against which to assess market progress in the later studies. Progress indicators are defined below for the short, mid and long-terms.

Short-term progress indicators will identify early activity levels and will be regularly tracked for the duration of the transaction. These include:

- Size (i.e., generation capacity and dollar value) and location of existing projects financed by the term loan;
- Performance of the underlying customer agreements for existing projects financed by the term loan;

<sup>5</sup> 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.

<sup>6</sup> See Metrics Plan, Section 2.0, pages 2 - 6.

<sup>7</sup> Installed clean energy generation capacity at full deployment of funds is the same for first-year and lifetime duration.

<sup>8</sup> As of January 1, 2016, the New York State Energy Research and Development Authority (“**NYSERDA**”) utilizes a 1,160 lbs/MWh conversion factor to estimate GHG emissions reductions for electric generation and energy efficiency savings across all components of the Clean Energy Fund. NYSERDA previously utilized a 625 lbs/MWh conversion factor.

<sup>9</sup> See Metrics Plan, Section 3.3 at page 7.

- Size (i.e., generation capacity and dollar value) and location of new projects deployed as a result of additional liquidity provided by this transaction; and
- Aggregate energy generation for new projects deployed as a result of additional liquidity provided by this transaction.

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 Vivint Solar projects increases;
- General understanding of renewable energy benefits by financial community increases;
- Increased awareness and use of PPA performance data by financing entities;
- Increased awareness and use of project/technology performance data by financing entities;
- Demonstration of competitive risk-return profiles for solar investment;
- Decreased project costs;
- Replication of the medium-term loan financing structure;
- Volume of secondary market financing of residential solar assets; and
- Number of new lending participants.

### **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 which it delivers.

**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 (homeowners, financial community) to track information including but not limited to: participation rates, project scale information, interest in solar financing (generally and with regard to residential specifically), and influence of NYGB's participation on financial markets. As noted, baseline data will be collected on most key indicators in 2017 and later follow-up studies will assess progress against baseline levels. The specific timing of these efforts may be revised based on experience or other factors as the investment evolves.

**Impact evaluation** will use actual system performance data to understand energy and environmental outcomes. Impact evaluation is expected to include quarterly review and analysis of actual PV portfolio production data collected by Vivint Solar. Actual PV portfolio 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 better understanding risk in this technology area.

As with all NYGB investments, Vivint Solar 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 of activity or benefits on a consolidated basis. Pursuant to the Metrics Plan, evaluation sampling approaches will also be used as a mechanism to estimate overlap and minimize double counting. Attempts will also 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.