

## 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.