Annual Investment Plan and Performance Report through December 31, 2018

Final Report | May 2019

NEW YORK STATE OF OPPORTUNITY. | NYSERDA

NYSERDA's Promise to New Yorkers:

NYSERDA provides resources, expertise, and objective information so New Yorkers can make confident, informed energy decisions.

Mission Statement:

Advance innovative energy solutions in ways that improve New York's economy and environment.

Vision Statement:

Serve as a catalyst – advancing energy innovation, technology, and investment; transforming New York's economy; and empowering people to choose clean and efficient energy as part of their everyday lives.

NYSERDA Record of Revision

Document Title
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Annual Investment Plan and Performance Report through December 31, 2018

Final Report

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1.1 Introduction

The New York State Energy Research and Development Authority (NYSERDA) is pleased to present the second Annual Metrics and Financial Report for New York State's Clean Energy Fund (CEF). This report is a component of the Annual Investment Plan and Performance Report (IPPR).

The CEF is designed to support successes of the Reforming the Energy Vision (REV) strategy by working with market participants to develop clean energy market opportunities at scale to advance progress toward the State's clean energy goals. In particular, the CEF is designed to foster innovation in energy markets by (1) testing new business models and attracting private capital to New York State energy markets, (2) facilitating new customer engagement and choice for clean energy services, and (3) extracting value from distributed energy resources that improve system efficiency and reduce consumer energy costs. The CEF is comprised of four portfolios: Market Development, Innovation and Research, NY Green Bank, and NY-Sun. These portfolios work collectively toward meeting New York State's ambitious energy, environmental, and economic goals and are expected to contribute significantly toward the broader New York State Energy Plan. The CEF offers solutions that will promote the following:

- Reduce barriers to the deployment and adoption of energy efficiency and ultimately foster self-sustaining markets for energy efficiency
- Significantly reduce carbon emissions related to energy efficiency targets
- Deliver billions of dollars in customer bill savings over the life of the CEF
- Accelerate growth of the State's clean energy economy
- Mobilize investment, leveraging $29 billion over the life of the CEF
- Provide more value to the customer, while reducing ratepayer collections by $1.5 billion by 2025

To ensure comprehensive performance reporting on all four CEF portfolios, NYSERDA was directed to file an annual CEF Metrics and Financial Report compiling the performance across the portfolios, including key financial and metrics information in relation to the minimum goals established in the Public

Service Commission's Order Authorizing the Clean Energy Fund Framework.[1] This report fulfills that requirement and provides a view of the CEF progress toward its 10-year goals through December 31, 2018.[2]

Based on the progress to date and the level of achievement currently anticipated to occur in future years, NYSERDA expects to meet or exceed the 10-year minimum goals for all four CEF portfolios over the life of the fund. However, consistent with the commission's directives in the CEF Order, NYSERDA will continue to rigorously monitor the performance of the CEF portfolios and revise strategy where necessary to improve or maximize the potential impact and benefits of CEF efforts.

1.2 Public Policy Context

On April 20, 2018, Governor Cuomo announced the most aggressive energy efficiency strategy in New York State's history, to set the State on a path to accelerate energy efficiency and reduce greenhouse gas (GHG) emissions, decrease consumer energy costs, and create job opportunities. This initiative, known as New Efficiency: New York, will support the growth of energy efficiency businesses and further Reforming the Energy Vision opportunities for market innovation.

Recommendations in the comprehensive energy efficiency initiative white paper were issued by the New York State Department of Public Service (DPS) and NYSERDA on April 26, 2018. The white paper—guided by a new 2025 energy efficiency target of 185 trillion British thermal units (TBtu) of cumulative annual site energy savings—will accelerate progress towards the State's ambitious clean energy goals, including meeting one third of the emissions necessary to achieve 40% reduction of GHG emissions by 2030 (commonly referred to as "40 by 30") from 1990 levels.[3]

In addition, on January 15, 2019. Governor Cuomo's State of the State address announced New York State's nation-leading clean energy and jobs agenda will put the State on a path to carbon neutrality. The Governor proposed the following goals:

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1 Cases 14-M-0094, et al., Order Authorizing the Clean Energy Fund Framework, issued January 21, 2016.

2 Implementation of the CEF Market Development and Innovation and Research portfolios are currently at the 2-year mark of their 10-year authorized timeline. The NY-Sun Program began prior to the launch of the CEF and is at approximately the 4-year mark its 10-year authorized timeline. Similarly, pursuant to Case 13-M-0412, Order Establishing New York Green Bank and Providing Initial Capitalization, NY Green Bank was established in December 2013, and began commercial operations in Summer 2014.

3 NYSERDA and DPS. 2018. "New Efficiency: New York". NYSERDA. https://www.nyserda.ny.gov/About/Publications/New-Efficiency.

- Six thousand megawatts (MW) of solar by 2025
- Seventy percent renewable electricity by 2030
- Nine thousand MW of offshore wind by 2035
- Carbon-free electricity by 2040

With these goals, New York is undertaking one of the most aggressive clean energy agendas in the nation. Through the CEF and its other portfolios, NYSERDA works to foster the transformation of markets, pushing them to accurately value clean energy, energy efficiency, and resilience—while encouraging competition and innovation that delivers value to consumers.

1.3 Progress Summary

1.3.1 Market Development and Innovation and Research Portfolio Development

In its CEF Order, the commission stated the expectation that new approaches undertaken by NYSERDA would achieve significantly more impact per dollar spent than past efforts, thereby reducing the overall cost of achieving clean energy goals. While building the CEF portfolio, NYSERDA actively monitors investment and progress toward its primary return on investment metric: cost-per-ton of carbon dioxide equivalent (CO_2e) emission reductions.[4] The CO_2e cost-per-ton, along with other key drivers such as achievement of energy efficiency goals, inform the design of the CEF. To support the achievement of greater impact per dollar spent, NYSERDA's strategies include pilots and projects intended to maximize indirect impacts. These indirect impacts are the market effects expected to accrue over the longer term as a result of the NYSERDA investment and follow-on market activity.

The Market Development (MD) and Innovation and Research (I&R) portfolios are currently at the three-year mark of their 10-year cycle, and significant build and launch activity have taken place. Through December 2018, 59 out of 64 MD and I&R initiatives developed by NYSERDA and filed with the commission have been launched in the market. Consistent with the guiding philosophy in

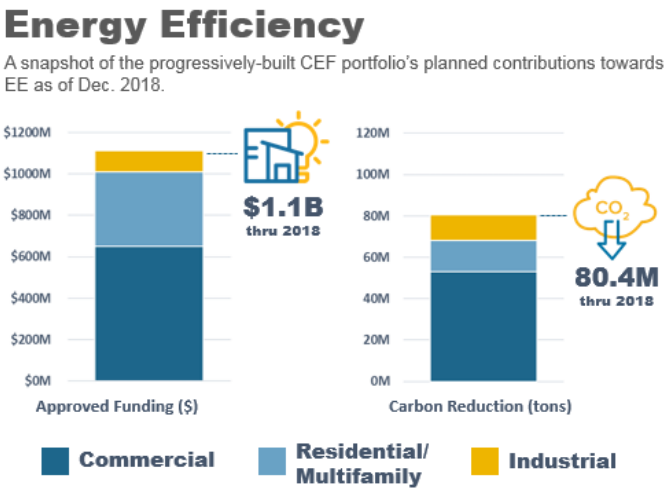
[4] For MD specifically, based on available programmatic funding (approximately $2.5 billion, exclusive of evaluation) and minimum goals for the 10-year CEF period (approximately 97 million lifetime metric tons CO_2e, based on the most current emission factor), the portfolio must achieve CO_2e reductions at or below a cost of $27/$CO_2e$ lifetime metric ton.

creating the CEF, NYSERDA introduced 39 new initiatives in the MD and I&R portfolios that are intended to drive greater impact than traditional program approaches. While these market-transformational efforts are in early phases, NYSERDA believes the initial results are largely positive (as described in further detail below).

In the early years of the CEF, these new initiatives will operate alongside 14 transition initiatives —a purposeful mix intended to incorporate a greater proportion of market-enabling activities without disrupting existing market momentum supported by existing NYSERDA and utility programs. NYSERDA will continue to develop and implement new approaches, while rigorously monitoring the progress of existing market activities and complementary utility programs.

NYSERDA continues to look for new ways to seek economically efficient clean energy strategies from the market. The recently approved Information Products and Brokering Initiative provides a platform to develop information tools and resources needed to increase customer demand and adoption of energy efficient and clean energy solutions. By creating tools that can work across technologies and market sectors, the initiative will increase customer demand for energy efficiency and reduce customer acquisition costs for energy efficiency solution providers.

1.3.2 Energy Efficiency as Key Focus of the MD Portfolio



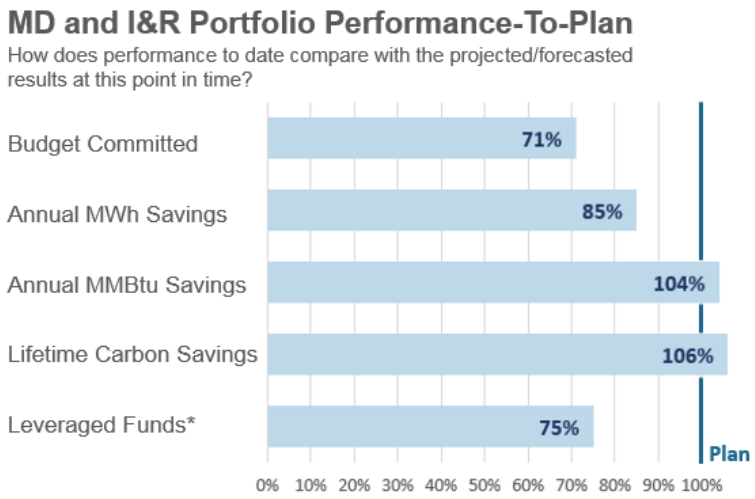
The CEF portfolios emphasize investments in energy efficiency, and NYSERDA is investing approximately $2 billion in funding over the CEF's 10-year life span to support energy efficiency, delivering a minimum of 10.6 million megawatt-hours (MWh) in electric savings and 13.4 million British thermal units (MMBtu) in non-electric fuel savings. NYSERDA's approved investment plans as of December 31, 2018 comprise more than $1.1 billion of investment in energy efficiency across the commercial, residential/multifamily, and industrial sectors. These approved investments in energy efficiency are expected to drive approximately 80 million metric tons of CO_2e savings over the life of the installed measures.

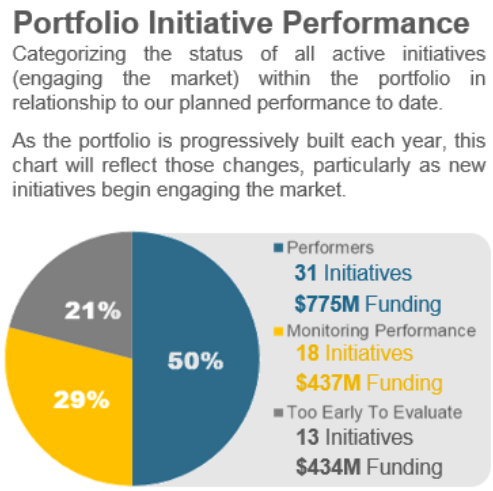
Through the Market Development portfolio, NYSERDA will drive actions to develop a more robust and value-creating market for energy efficiency, with particular attention to reducing energy efficiency retrofit and new construction costs. These actions aim to accelerate innovative solutions that drive deeper energy retrofits and advance targeted financial support to help overcome cost barriers to efficiency investments and ease access for private capital to allow new clean energy interventions to scale. The end goal of CEF MD interventions is to reduce the barriers to energy efficiency deployment and adoption and ultimately foster self-sustaining markets for energy efficiency.

1.3.3 MD and I&R Portfolio Optimization

NYSERDA closely monitors MD and I&R portfolio performance, specifically examining each initiative against its investment plan forecast of benefits over time. NYSERDA's planned benefits through Q4 2018 are defined as 100% of the 2016, 2017, and 2018 annual planned benefits. However, especially for new initiatives in the Market Development portfolio, forecasting market uptake and return on investment can be challenging, so NYSERDA continually gathers and assesses data on progress and reviews its forecasts for accuracy.

Below is a high-level view of NYSERDA's MD and I&R portfolio performance-to-plan. Broadly speaking, committed benefits are exceeding the committed budget at this time, yielding a higher return on investment than anticipated. Nonetheless, with the exception of CO_2e and MMBtu savings, the pace of commitment and attainment of benefits is below 90% of plan at this point in time, so NYSERDA continues to place great emphasis on increasing the pace of project commitments to ensure progress toward achieving long-term targets remains on track.





** "Leveraged Funds" has replaced the prior term "Private Investment" in order to more accurately reflect the original intent of this metric, which is inclusive of non-NYSERDA funding from a variety of sources.*

Achieving greater impact per ratepayer dollar involves experimentation with intervention approaches with tolerance for failure, provided it is addressed swiftly and the portfolio is on track to meet long-term outcomes. Accordingly, NYSERDA is using a "test-measure-adjust" approach to be as responsive to market conditions in real time as possible and to redeploy resources from underperforming efforts when appropriate. Overall the composition of the portfolio—in terms of the criteria: Performers, Monitoring Performance, and Too Early to Evaluate—is aligned with NYSERDA's design and management expectations.

Performers
generally doing well in terms of market uptake and benefits delivery.

Monitoring Performance
may still deliver as planned, but need some degree of confirmation of their market uptake and/or benefits quantification, and potentially some adjustment or corrective action.

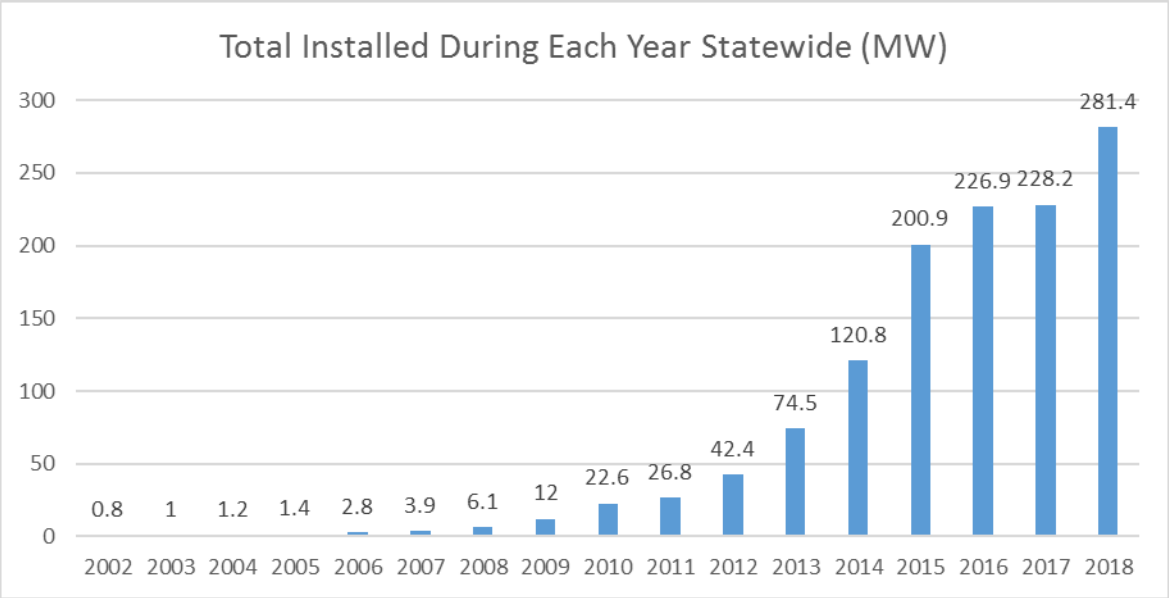
Too Early to Evaluate
expected to deliver as planned, but still too close to launch to effectively assess performance or impact

To better align current plans with actual performance to date and provide increasingly accurate forecasts of future expectations, NYSERDA conducted its first bottom-up reforecast of all investment plans based on performance to date and market intelligence gained through early implementation efforts. The reforecast also took account of the pace of funding approval/commitment/expenditure needed to advance NYSERDA's long-term goals for the CEF. NYSERDA refiled all reforecast investment plans with the PSC on April 19, 2019 and will use these new forecasts in all performance assessments going forward, beginning with Q1 2019.

1.3.4 NY-Sun

NY-Sun represents the most mature of the four CEF portfolios. Approximately five years into the 10-year cycle, the program performs well, with 57% of the approximately $1.2 billion in programmatic funding committed and 63% progress against its ultimate renewable capacity and generation goals. Most notably, NY-Sun is well positioned with nearly 1.9 gigawatts of installed and pipeline projects contributing toward the State's goal to install 3 gigawatts of solar capacity by 2023. There were 281 MW of NYSERDA-supported solar projects installed in 2018, which represents a 23% year-over-year growth from 2017 and makes 2018 NY-Sun's most successful year. Figure 1 highlights the annual NYSERDA-supported statewide electric capacity installations by year beginning in 2002.

Figure 1. Yearly NYSERDA-Supported Statewide Solar Electric Capacity Installations (MW)



Expanding beyond NY-Sun, through December 31, 2018, 1,628 MW of solar, including projects completed without NYSERDA support, were installed statewide. New York State ranked second in the country with 341 MW in distributed solar installations brought online in 2018. Furthermore, the number of full-time solar jobs grew by 8% in 2018, and New York State now ranks 4th in the country with a total of 9,729 full-time solar jobs.

The year 2018 also marked the deployment of a new Solar Plus Storage incentive program and launch of the new Low-Income Community Solar Initiative: Solar for All program. The Solar Plus Energy Storage initiative provides financial support to accelerate solar plus energy storage projects and includes a set of bridge incentives to help spur the energy storage market. NYSERDA is expanding storage offerings in 2019, building on this initial offering. The Low-Income Community Solar initiative will enable low-income New Yorkers to participate in community solar subscriptions that reduce their total electricity bill. This unprecedented program, which is now called Solar for All, will provide no-cost community solar subscriptions to low-income New Yorkers for 10 years.

1.3.5 NY Green Bank

The NY Green Bank began commercial operations in Summer 2014 and during the fiscal year ending March 31, 2017, NY Green Bank achieved self-sufficiency, a year ahead of schedule, with annual revenues exceeding annual expenses for the first time. NYGB's overall investments to date through December 31, 2018 of $637.6 million have so far reduced CO_2e emissions by 137,000 metric tons in New York State, a 45.0% increase year-over-year. These GHG emissions reductions will further increase as NYGB's counterparties continue to draw down on capital commitments to fund new clean energy project installations, and NYGB continues to close new transactions in 2019 and beyond. To put this into perspective, at December 31, 2017, NYGB's portfolio of investments was expected to involve the build-out of 332.1 MW of clean energy over deployment periods averaging two to three years. Since then, NYGB's portfolio of investments has grown to 507.5 MW in underlying projects, and in the past calendar year NYGB's counterparties have delivered 203.4 MW in NYS, averaging 5.8 MW of new systems installed per month (based on the current year increment of 69.1 MW).

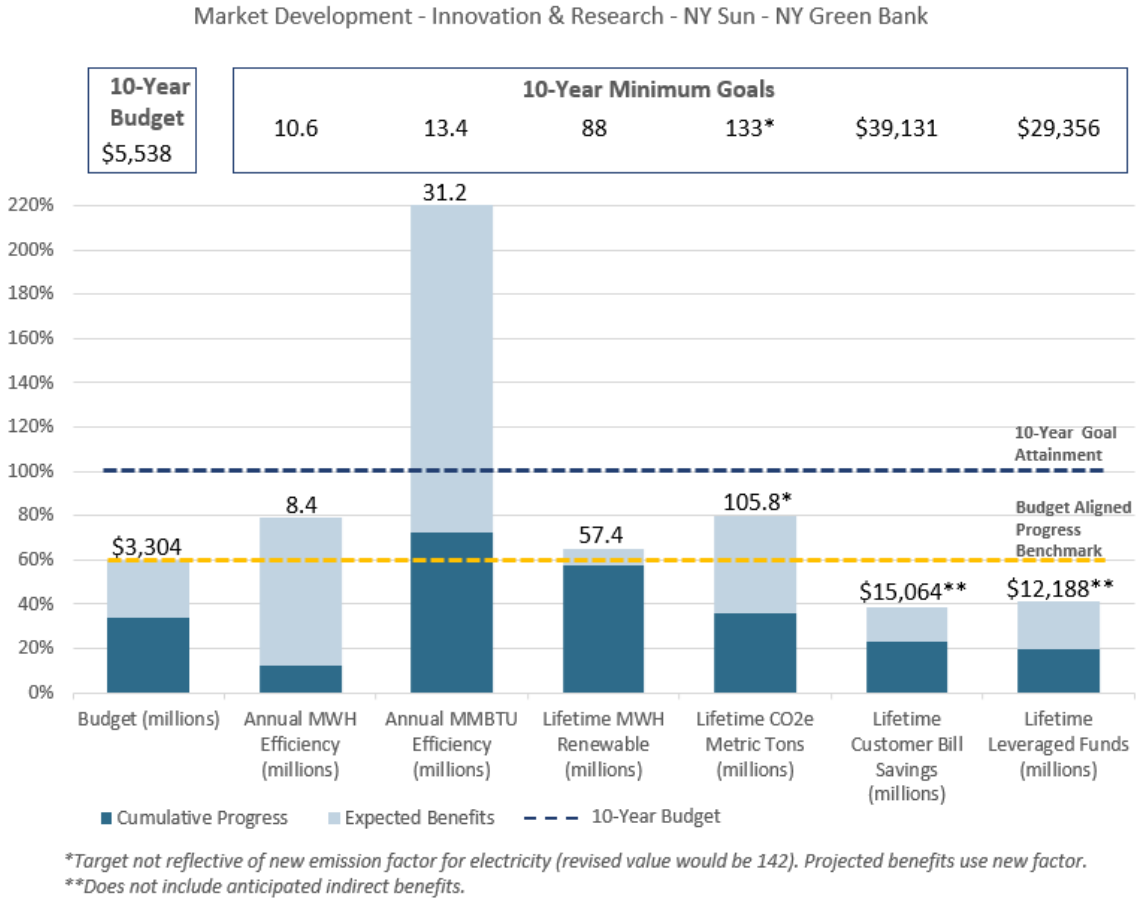
The NY Green Bank expects 2019 to be another strong year, as evidenced by the total value of proposals that have been submitted to NYGB in response to its open solicitations for investment proposals. Through December 31, 2018, proposals requesting over $3.1 billion of NYGB capital have been received. This will build upon NYGB's already active pipeline of $574.0 million as of December 31, 2018.

1.3.6 Overall Performance of the CEF

A comprehensive view of investment and benefits progress, inclusive of all four CEF portfolios, is provided in Figure 2. Progress is set in context of the total 10-year programmatic budget authorization[5] and the 10-year minimum goals from the commission's authorizing order, as shown across the top of Figure 2.

Figure 1. CEF Expected Investment and Benefits versus 10-Year Minimum Projected Goals[6]

As of December 31, 2018 (millions)



**Target not reflective of new emission factor for electricity (revised value would be 142). Projected benefits use new factor.*
***Does not include anticipated indirect benefits.*

5 Less Administration and Evaluation for all portfolios.

6 The energy efficiency values for MWh and MMBtu in Figure 2 include only the energy savings/displacement from measures that involve a fuel switch (i.e., combined heat and power systems, electric vehicles, air-source heat pumps, and ground-source heat pumps). These measures, as they exist currently in the CEF portfolio, represent electricity and fuel requirements of 60,330 cumulative annual MWh, 922,641 lifetime MWh, 1,565,462 cumulative annual MMBtu and 31,309,235 lifetime MMBtu. These electricity and fuel requirements have been netted out of the CO_2e emission reductions and customer bill savings to account for both the energy savings and the energy use of these measures.

The stacked bar labeled Budget reflects the sum of all funds expended or committed for projects that are either completed or in the pipeline (Cumulative Progress—dark blue portion of stacked bar) and the sum of remaining funds not yet associated with completed or pipeline projects but tied to filed investment plans and transaction profiles (Expected Benefits—light blue portion of stacked bar). The other stacked bars present progress on each key metric for the CEF, including benefits from projects completed or in the pipeline (Cumulative Progress—dark blue portion of stacked bar),[7] and benefits associated with filed investment plans and transactions profiles, but not yet associated with specific projects (Expected Benefits—light blue portion of stacked bar).[8]

Cumulative progress data in Figure 2 currently includes estimated direct impacts only (i.e., impacts expected from pilots and projects directly funded by NYSERDA). Many CEF initiatives also anticipate accruing indirect, longer-term market effects from follow-on market activity—this is a foundational premise of the CEF. Indirect impacts are grounded in a theory of change developed for each initiative and NYSERDA will use market evaluation approaches to quantify the indirect impacts as they are expected to accrue over time. Market evaluation approaches involve quantification of baseline adoption levels and market forecast models early in the initiative life and later assessment of market changes related to the interventions undertaken. Market evaluation approaches can include market actor surveys, Delphi panels, comparison group assessments, and other methods. It is anticipated that indirect impacts will generally begin to be measured using these approaches within a few years of initiative launch and continue to be assessed periodically over the duration of the initiative. As these impacts are quantified, they will be incorporated into CEF reporting.

NYSERDA believes that overall CEF planning and deployment of funds is progressing at an appropriate pace given the early stage of this effort. CEF MD and I&R investment plans filed with the commission, NY-Sun commitments, along with NY Green Bank's overall investments through December 31, 2018 represent more than 60% of the total CEF 10-year budget programmed at this time. Approximately three years into the fund, the progressively built MD and I&R portfolios are still ramping up, but they

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7 As pipeline data is not available for NY Green Bank, only actuals are included.

8 With the exception of the NY-Sun Program, which does not have a progressive design/build format and Expected Benefits equals Cumulative Progress.

are expected to meet overall contributions to the CEF goals over the 10-year horizon. With 64 initiatives in MD and I&R, NYSERDA is focused on ensuring they are fully operational and that funds are committed and expended to achieve market benefits.

Progress towards realization of benefits is well aligned with overall goals and deployment of funds, as depicted in Figure 2. Progress is specifically realized in the following:

- Achievement of the energy efficiency MWh and MMBtu goals is on track. These energy efficiency goals are core to the MD portfolio in that they fulfill the "no backsliding from EEPS" achievements required by the CEF Order and help advance State energy policy goals. MMBtu expected benefits are already significantly greater than the minimum projected benefits, due largely to the expansion into all fuels and the significant potential that exists, particularly in the areas of industrial, clean transportation, industry partnerships and across multi-sector solutions.
- Renewable energy MWh generation shows excellent progress largely due to NY-Sun, which began in 2014 and is performing strongly against its goals.
- Carbon dioxide equivalent (CO_2e) emission reduction progress is on track, and NYSERDA is well-positioned to meet the overall goal for the CEF.[9]
- Performance of the customer (participant) bill savings[10] metric is somewhat low, but it is not yet inclusive of estimated indirect bill savings projected to result from the new MD initiatives, which will occur later in the 10-year time frame. NYSERDA's current expectation is that this metric will be attained over the life of the CEF.
- Lifetime private investment benefits are expected to increase in proportion to budget in later stages of the portfolio. At this stage, private investment does not represent recycling (or reinvestment) of NY Green Bank capital nor is progress reflective of indirect private investment, both of which will occur later in the 10-year CEF.

1.3.7 Low- and Moderate-Income Initiatives

The CEF Order directs NYSERDA to allocate a minimum of $234.5 million—inclusive of Administration and Cost Recovery Fee (CRF)—to low- to moderate-income initiatives over the first three years of the CEF.[11] To date, NYSERDA programmed $378 million in funding for 2016–2018, the most

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9 NYSERDA's electricity emission reduction factor of 1,160 pounds CO_2e/MWh is derived using the marginal emission-rate analysis for CO_2 from "Appendix: The Benefits and Costs of Net Energy Metering in New York" Figure 28, and applying a line loss factor of 7.2%. http://documents.dps.ny.gov/public/MatterManagement/CaseMaster.aspx?MatterSeq=49636&MNO=15-E-0703

10 Customer Bill Savings are calculated as direct energy bill savings realized by customers participating in NYSERDA programs.

11 NYSERDA defines the low-income market segment as households with annual incomes at or below 60% of the State Median Income (SMI), and the moderate-income market segment as households with an annual income between 60% and 80% of the SMI or the Area Median Income (AMI), whichever is greater. Together these form the low- to moderate-income (LMI) market segment.

significant portion of which supports continuation of the standard offer incentive programs that provide direct incentives to overcome first cost and incremental cost barriers. Beyond these traditional energy efficiency programs, NYSERDA launched market development initiatives to advance the market for clean energy improvements, provide communities with resources to reduce service delivery costs, and improve awareness and education among customers and service providers. Future allocations within the CEF LMI portfolio will be informed by stakeholder engagements, demonstrated market needs, and the ongoing work with the New York utilities under New Efficiency: New York

For example, NYSERDA is currently developing an investment plan for the New York State Healthy Homes Value-Based Payment Pilot (Pilot) which will seek to develop a replicable model for implementing a healthy homes[12] approach to residential building treatments under the Medicaid Value-Based Payment (VBP) framework. By validating impacts such as healthcare cost savings and benefits to residents, as well as providing market development support such as specification of services and VBP contracting guidance for these interventions, the proposed Pilot will facilitate the adoption of healthy homes treatments by Medicaid managed care organizations (MCO) as part of their Medicaid VBP Arrangements that incorporate social determinants of health. Doing so addresses avoidable medical costs associated with asthma and household injury while encouraging third party capital investment in residential energy efficiency with MCO adoption of healthy homes interventions within the value-based payment social determinants of health framework beyond the Pilot.

1.4 Metrics Reporting

The cumulative progress and expected benefits from all four portfolios, alongside the CEF minimum projected benefits, is shown in Table 1 and reflects similar progress to Figure 2. NYSERDA removes overlap among its CEF portfolios in this roll up, so the sum of individual portfolio tables presented later will not match the totals in Table 1. Direct overlap between NY Green Bank and NY-Sun as well as NY Green Bank and MD has been removed. Also, in terms of total expected indirect benefits in 2025,

[12] A residential healthy homes intervention combines energy efficiency and weatherization measures with measures that address persistent respiratory health conditions such as asthma, and includes additional measures aimed at home injury prevention. When implemented together, these interventions can improve occupant health, reduce energy bills and healthcare costs, and improve the comfort and safety of a home.

consistent with its Budget and Benefits chapter, NYSERDA conservatively included only 50% of the estimated total indirect benefits from market transformation to avoid overlap in these values. An asterisk in the Minimum Projected Benefits columns indicates there is no commission-ordered goal for that particular metric.

Table 1. CEF Minimum Projected Benefits 2016–2025 and Progress to Date through December 31, 2018

		Cumulative Annual Benefits			Lifetime Benefits		
		Cumulative Progress through December 31, 2018[a]	Total Expected Benefits as of December 31, 2018[b]	Minimum Projected Benefits 2016-2025[c]	Cumulative Progress through December 31, 2018[a]	Total Expected Benefits as of December 31, 2018[b]	Minimum Projected Benefits 2016-2025[c]
Energy Efficiency	MWh	1,273,716	8,397,532	10,600,000	18,863,631	97,598,364	*
	MMBtu	9,688,801	31,155,994	13,400,000	149,603,632	447,060,174	*
	MW	87	140	*	86	140	*
Renewable Energy[d]	MWh	2,062,787	2,509,440	*	44,997,398	57,407,672	88,000,000
	MW	1,771	2,150	*	1,567	2,150	*
CO2e Emission Reductions (metric tons)		2,494,304	7,521,836	*	47,664,131	106,561,666	133,000,000
Customer Bill Savings[e] ($ million)		$448	$855	*	$8,903	$15,064	$39,131
Private Investment ($ million)		$5,747	$11,351	*	$5,747	$12,188	$29,356

[a] Across the CEF portfolios, Cumulative Progress through December 31, 2018 generally represents the sum of all benefits from projects that are completed and in the pipeline (pipeline data is not available for NY Green Bank).

[b] Across the CEF portfolio, Total Expected Benefits as of December 31, 2018 is inclusive of all benefits associated with filed investment plans and transactions profiles.

[c] Minimum Projected Benefits are from the Order Authorizing the Clean Energy Fund Framework, Issued and effective January 21, 2016.

[d] NYSERDA makes no claim to the environmental attributes or any NYGATS certificates that may be associated with these projects.

[e] The estimated retail value of the avoided energy use or of the total clean generation produced by a renewable system.

Progress of the MD portfolio is reflected in Table 2. Cumulative progress represents benefits from all projects completed or in the pipeline, and at this early stage of the CEF, does not include any of the indirect benefit expected to accrue and be measured over the longer term. Total expected benefits will be the result in 2025 from full implementation of NYSERDA's filed investment plans, including the estimated indirect benefits (in the form of energy efficiency, renewable energy, and CO_2e emission reductions) from market transformation spurred by the CEF initiatives.

Table 2. Market Development Annual and Lifetime Cumulative Progress and Expected Benefits through December 31, 2018

		Cumulative Annual Benefits		Lifetime Benefits	
		Cumulative Progress through December 31, 2018[a,c]	Total Expected Benefits from Filed Investment Plans as of December 31, 2018[b]	Cumulative Progress through December 31, 2018[a,c]	Total Expected Benefits from Filed Investment Plans as of December 31, 2018[b]
Energy Efficiency	MWh	1,259,780	8,345,909	18,863,631	96,842,367
	MMBtu	9,674,111	30,901,588	149,603,632	443,052,509
	MW	86	138	86	138
Renewable Energy[d]	MWh	68,178	452,434	1,042,647	6,530,860
	MW	47	380	47	380
CO2e Emission Reductions (metric tons)		1,436,691	6,323,909	21,350,905	78,433,273
Customer Bill Savings[e] ($ million)		$226	$618	$3,384	$9,295
Private Investment ($ million)		$1,820	$7,880	$1,820	$7,880

[a] Cumulative Progress through December 31, 2018 represents the sum of all benefits from projects that are completed (installed) and in the pipeline (committed but not yet complete).

[b] Total Expected Benefits from Filed Investment Plans as of December 31, 2018 represents the sum of direct benefits from all investment plans filed with the commission prior to December 31, 2018. For MWh and MMBtu energy efficiency, MWh renewable energy, and CO_2e emission reductions, 50% of the indirect benefits expected by 2025 are also included, based on the sum of those benefits present in investment plans filed with the commission prior to December 31, 2018.

[c] Energy Efficiency MWh and MMBtu values represent only the energy savings from CHP systems, Electric Vehicles, Air-Source Heat Pumps, and Ground-Source Heat Pumps. However, CO_2e emission reductions and customer bill savings are fully net, accounting for both the energy savings and the energy use of these measures.

[d] NYSERDA makes no claim to the environmental attributes or any NYGATS certificates that may be associated with these projects.

[e] The estimated retail value of the avoided energy use or of the total clean generation produced by a renewable system.

NYSERDA's progress in the CEF Market Development portfolio can also be evaluated in the nearer term. When viewed against cumulative annual commitment-based goals through December 31, 2018, the portfolio shows good progress and alignment with these goals, as follows:[13]

- Cumulative annual energy efficiency is at 85% for MWh and 104% for MMBTU
- Lifetime CO_2e reductions is at 106%
- Lifetime customer (participant) bill savings is at 86%
- Lifetime private investment is at 75%

[13] NYSERDA's CEF Quarterly Performance Report for Q4 2017 was filed in the Department of Public Service's Document Matter Management System under case 14-M-0094 on February 14, 2018, and can also be found at: Clean Energy Fund Quarterly Performance Report (Quarter 4, 2017).

Progress of the Innovation and Research portfolio for the metrics applicable to I&R, is shown in Table 3. Cumulative progress represents the benefits from all projects completed or in the pipeline. Total expected benefits will be the result in 2025 from full implementation of all NYSERDA's filed investment plans, and for CO_2e emission reductions, include indirect benefits from market transformation spurred by the CEF initiatives.

Table 3. Innovation and Research Annual and Lifetime Cumulative Progress and Expected Benefits through December 31, 2018

		Cumulative Annual Benefits		Lifetime Benefits	
		Cumulative Progress through December 31, 2018[a,c]	Total Expected Benefits from Filed Investment Plans as of December 31, 2018[b]	Cumulative Progress through December 31, 2018[a,c]	Total Expected Benefits from Filed Investment Plans as of December 31, 2018[b]
Energy Efficiency	MWh	-	N/A	-	N/A
	MMBtu	-	N/A	-	N/A
	MW	-	N/A	-	N/A
Renewable Energy	MWh	-	N/A	-	N/A
	MW	-	N/A	-	N/A
CO2e Emission Reductions (metric tons)		-	75,000	-	750,000
Customer Bill Savings ($ million)		-	N/A	-	N/A
Private Investment ($ million)		$456	$1,444	$456	$1,444

a Cumulative Progress through December 31, 2018 represents the sum of all benefits from projects that are completed (installed) and in the pipeline (committed, but not yet complete).

b Total Expected Benefits from Filed Investment Plans as of December 31, 2018 represents the sum of direct benefits from all investment plans filed with the commission prior to December 31, 2018. For CO_2e emission reductions, 50% of the indirect benefits expected by 2025 are also included, based on the sum of those benefits present in investment plans filed with the commission prior to December 31, 2018.

NYSERDA's progress in the I&R portfolio can also be evaluated in the nearer term against cumulative annual commitment-based goals through December 31, 2018. Currently, progress toward the private investment annual commitment-based goal is slightly exceeding expectations, at 105%.

Progress of the NY-Sun portfolio is shown in Table 4. Cumulative progress represents benefits from all projects completed or in the pipeline. Unlike the other portfolios of the CEF, NY-Sun does not have a progressive build format, therefore Total Expected Benefits as of December 31, 2017 equals Cumulative

Progress through December 31, 2018. That said, NY-Sun is on a path to fully meet the 3GW solar capacity goal and be a major contributor toward the CEF lifetime renewable energy generation goal of 88 million MWh.[14]

Table 4. NY-Sun Annual and Lifetime Cumulative Progress and Expected Benefits through December 31, 2018

		Cumulative Annual Benefits		Lifetime Benefits	
		Cumulative Progress through December 31, 2018[a,c]	Total Expected Benefits from Filed Investment Plans as of December 31, 2018[b]	Cumulative Progress through December 31, 2018[a,c]	Total Expected Benefits from Filed Investment Plans as of December 31, 2018[b]
Energy Efficiency	MWh	-	*	-	*
	MMBtu	-	*	-	*
	MW	-	*	-	*
Renewable Energy	MWh	1,879,721	1,879,721	46,993,035	46,993,035
	MW	1,625	1,625	1,625	1,625
CO2e Emission Reductions (metric tons)		989,049	989,049	24,726,221	24,726,221
Customer Bill Savings ($ million)		$202	$202	$5,044	$5,044
Private Investment ($ million)		$3,471	$3,471	$3,471	$3,471

[a] Cumulative Progress through December 31, 2018 represents the sum of all benefits from projects that are completed (installed) and in the pipeline (contracted but not yet completed as well as applications approved, but not yet contracted).

[b] Unlike the other portfolios of the CEF, NY-Sun does not have a progressive build and approval format, therefore Total Expected Benefits as of December 31, 2018 equals Cumulative Progress through December 31, 2018.

[c] NYSERDA makes no claim to the environmental attributes or any NYGATS certificates that may be associated with these projects.

[d] The estimated retail value of the avoided energy use or of the total clean generation produced by a renewable system.

[e] The sum of all PV project costs reported to NYSERDA by participating contractors, minus the total NYSERDA incentives paid on these projects.

Progress of the NY Green Bank portfolio is shown in Table 5. Cumulative Progress through December 31, 2017 represents benefits from clean energy measures deployed in New York State. Total Expected Benefits from Executed Transactions as of December 31, 2018 will be the result, no later than 2025, from full implementation of all NY Green Bank transactions executed by this date.[15]

[14] NYSERDA's NY-Sun Annual Performance Report for 2017 was filed in the Department of Public Service's Document Matter Management System under Case 03-E-0188 on April 2, 2018 and can also be found at: nyserda.ny.gov/About/Publications/Program-Planning-Status-and-Evaluation-Reports/NY-Sun-Performance-Reports.

[15] NYSERDA's NY Green Bank Metrics, Reporting and Evaluation Report through December 31, 2018 was filed in the Department of Public Service's Document Matter Management System under case 13-M-0412 on February 14, 2019 and can also be found at: NY Green Bank Metrics, Reporting & Evaluation Report (through December 31, 2018).

Table 5. NY Green Bank Annual and Lifetime Cumulative Progress and Expected Benefits through December 31, 2018

		Cumulative Annual Benefits		Lifetime Benefits	
		Cumulative Progress through December 31, 2018[a,c]	Total Expected Benefits from Filed Investment Plans as of December 31, 2018[b]	Cumulative Progress through December 31, 2018[a,c]	Total Expected Benefits from Filed Investment Plans as of December 31, 2018[b]
Energy Efficiency	MWh	13,936	51,623	169,385	755,997
	MMBtu	14,690	254,406	232,175	4,007,665
	MW	1	2	1	2
Renewable Energy[e]	MWh	238,840	601,121	5,859,047	14,468,773
	MW	203	508	203	508
CO2e Emission Reductions (metric tons)		137,286	361,793	3,268,681	8,261,298
Customer Bill Savings[f] ($ million)		$40	$94	$942	$2,200
Total Project Costs[g,h] ($ million)		N/A	N/A	N/A	$1,515

[a] Cumulative Progress is the Actual Clean Energy systems deployed in NYS, reported by NYGB's clients, as a result of NYGB's participation in financing these projects in NYS.

[b] Total Expected Benefits from Executed Transactions as of December 31, 2018 represents the sum of the low end of the range for all First-Year estimated energy savings, energy generation and GHG emissions reductions (as also reported in NYGB Quarterly Metrics Reports).

[c] Energy Efficiency values represent MWh savings from the use of CHP systems; natural gas required to run CHP systems is 1,700 MMBtu cumulative annual and 41,000 MMBtu lifetime. Expected emission reductions and customer bill savings are net, including both MWh that add to the benefits and additional natural gas required to run CHP systems that subtract from the benefits.

[d] Cumulative Progress and Expected Benefits are the same measure as reflected in the corresponding Cumulative Annual Benefits calculations, but for each NYGB investment, the relevant annual measure is multiplied by the expected measure life and summed to total Cumulative Progress or Expected Benefits.

[e] NYSERDA makes no claim to the environmental attributes or any NYGATS certificates that may be associated with these projects.

[f] The estimated retail value of the avoided energy use or of the total clean generation produced by a renewable system.

[g] Total Project Costs representing Expected Benefits on a Lifetime Benefits basis, reflect the low end of the range for estimated system deployment to be achieved by the end of the availability period for each transaction, aggregated across all NYGB investments.

[h] The NYGB Metrics, Reporting & Evaluation Plan (see page 15) and in this table, define Total Project Costs to include fair market value ("FMV") data for a subset of NYGB's investments. FMV is an estimated market valuation of fully installed energy projects provided by NYGB's counterparties and is often required for federal income tax purposes, by institutional investors and for certain grant program purposes unconnected with NYGB. As projects progress and the cost of installed equipment and labor are known and reported to NYGB by its counterparties, NYGB will seek to adjust reported values and replace FMV in its aggregated data sets and periodic reporting with those actual costs.

1.5 Financial Reporting

Portfolio-level financial status information for the MD, I&R and NY-Sun portfolios is provided in Table 6.

Table 6. Market Development, Innovation and Research, NY-Sun Portfolio Level Budgets and Spending[16] ($ million)

Initiative	Total Budget[a]	Budget Approved through December 31, 2018[b]	Expended Funds through December 31, 2018[c]	Committed Funds through December 31, 2018[d]	Total Progress through December 31, 2018[e]	% of Approved Budget Committed through December 31, 2018[f]	Budget Approved Remaining Balance through December 31, 2018[g]
Market Development (2016-2025)							
Program Funds NYS Cost Recovery Fee	$2,346	$1,434	$216	$294	$510	36%	$924
Innovation & Research (2016-2025)							
Program Funds NYS Cost Recovery Fee	$619	$360	$28	$56	$84	23%	$276
NY-SUN (2014-2023)							
Program Funds NYS Cost Recovery Fee	$1,135	$1,135	$306	$339	$646	57%	$490
Total Program Funds and CRF	**$4,101**	**$2,929**	**$549**	**$690**	**$1,239**	**42%**	**$1,690**
Administration	$308	$200	$77	$0.9	$78	39%	$121
Evaluation	$130	$58	$3	$4.47	$7	12%	$51
Total	**$4,538**	**$3,187**	**$629**	**$695**	**$1,325**	**42%**	**$1,862**

a CEF and NY-Sun Order authorized funding.

b Funds approved by DPS as of December 31, 2018.

c Invoices processed for payment by NYSERDA.

d Remaining funding obligated under a contract, purchase order or incentive award and planned funding for contracts awarded and under negotiation.

e The sum of Expended and Committed Funds.

f The percentage of the committed budget.

g The difference between Budget Approved and Committed funds.

Funding and financial status of NY Green Bank is provided in Tables 7 and 8. NY Green Bank is presented separately from the other CEF portfolios to accurately represent NY Green Bank's unique characteristics (e.g., funds invested by NY Green Bank are ultimately returned and recycled, and revenues are generated to support self-sufficiency and re-investment). Table 8 shows NY Green Bank's overall investments to date against the aggregate NY Green Bank CEF 10-year investment goal, which includes the expected recycling of funds.

16 The total Budget has changed from prior amounts reported to reflect the original Public Service Commission Ordered funding authorization less a reduction of $68.3M to the 10-year CEF funding authorization resulting from reduced RGGI funds approved in the 3-year Operating Plan (FY 18-19 through FY 20-21) approved in January 2018.

Table 7. NY Green Bank Portfolio Level Funding and Financial Status ($ million)

	Budgeted Funds	Cumulative Principal Deployed	Cumulative Principal Repaid	Deployed Funds[a]	Committed Funds	Approved Investments	Current Portfolio[b]	Available Capital[c]
Program Costs & Revenue								
NY Green Bank	$ 978.4	$ 599.4	$ 378.5	$ 222.0	$ 168.1	N/A	$ 390.1	$ 588.3
	Budgeted Funds	Cumulative Principal Deployment	Cumulative Principal Repaid	Cumulative Expenses	Open Encumbrances	Pre-Encumbrances	Committed Funds	Remaining Balance[d]
Other Costs								
Operating Expenses (Program Administration)[e]	$ 17.0			$ 17.0			$ 17.0	$ -
Program Evaluation	$ 4.0	N/A		$ 0.1	N/A		$ 0.1	$ 3.9
New York State Cost Recovery Fee	$ 0.6			$ 0.5			$ 0.5	$ 0.1
OTHER COSTS TOTAL	$ 21.6	N/A		$ 17.6	N/A		$ 17.6	$ 4.0
	Budgeted Funds	Cumulative Principal Deployment	Cumulative Principal Repaid	Deployed Funds plus Expenses	Committed Capital plus Open Encumbrances	Pre-Encumbrances	Current Portfolio plus Committed Funds	Available Capital plus Remaining Balance
TOTAL	$ 1,000.0	$ 599.4	$ 378.5	$ 239.6	N/A		$ 407.7	$ 592.3

[a] Sum of Deployed Funds and Committed Capital.

[b] Available Capital reflects the sum of NYGB's initial $1.0 billion capitalization confirmed in the CEF Order, together with Cumulative Revenues, that is not currently Deployed or Committed. As NYGB investments mature and are redeployed into new projects, Available Capital gives a snapshot in time of the funds available for clean energy investment. NYGB's overall investments to date against the goal for aggregate NYGB investment expected over the term of the CEF is shown in Table 8.

[c] Remaining Balance shows the net of expenses against Budgeted Funds consistent with the CEF Order. As NYGB is required to be self-sufficient, revenue generated is expected to fund operating expenses.

[d] NYGB Operating Expenses reflect reporting of the budget and actual expenses from "start-up" administrative funding approved through Public Service Commission Order. Operating expenses in excess of the originally approved amount are being funded from NYGB revenues and are not reported in this table, but are reflected in its annual financial statement.

Table 8. NY Green Bank Investments to Date ($ million)

CEF 10-Year Investment Goal	Overall Investments to Date	Remaining
$1,900.0	**$637.6**	**$1,262.4**

Appendix A. Program Performance Summaries

The fundamental purpose of the Annual Investment Plan & Performance Report (IPPR) is to link the planning of portfolio initiatives with an analysis of performance to date. Using the CEF's key progress metrics, the IPPR highlights the intrinsic link between the performance of an initiative and the plan for continuation, modification, or termination of each initiative.

Following the CEF principles of "test-measure-adjust", performance of each initiative is carefully assessed, along with other information, to adjust future plans, including future budget and benefit estimates. NYSERDA filed with the Public Service Commission all adjusted investments plans within their respective Chapters on April 19th, 2019, constituting the first part of this 2018 IPPR. The collective impact of these reforecasted Market Development and Innovation & Research investment plans as compared to figures reported in the Budget Accounting and Benefits Chapter dated 03/29/19, inclusive of new and revised initiatives, is as follows:

- Total budget increase for approved initiatives of nearly $26M
- Cumulative annual MWh savings decrease of approximately 239,000
- Cumulative annual MMBtu savings increase of just over 3 million
- Lifetime direct carbon savings increase of nearly 5.2 million metric tons

The Program Performance Summaries contained herein, along with the companion Annual Metrics and Financial Report for the CEF portfolios, round out NYSERDA's 2018 IPPR filing. The Program Performance Summaries are organized by Chapter, consistent with NYSERDA's investment plan filings. Performance to date represents a look back at the time period from program launch through December 31, 2018. Therefore, all planned values represent those contained in NYSERDA's approved investment plans as of December 31, 2018.17 Where applicable (for non-Transition programs) performance includes milestones completed during the calendar year 2018 and progress toward output/outcome metrics through 2018.

[17] The electricity emissions factor used for carbon savings calculations is consistent with how NYSERDA has historically reported these values, referencing 1,160 pounds CO2e/MWh for the view of performance to date. NYSERDA's April 19, 2019 filing of investment plans updates the electricity emissions factor to 1,103 lbs/MWh consistent with the July 17, 2017 Metrics, Tracking, & Performance Assessment Work Group's "Final Performance Metrics Report – Phase 1" (see Matter 16-00561, 16-01008; Case 14-M-0094, 15-M-0252).

Clean Energy Fund:

Resource Acquisition Transition Chapter

Portfolio: Market Development

Agriculture Transition

Results to Date - Metrics

Total Plan vs. Progress Thru 2018	Plan	Progress	% To Plan
Budget Commitments ($)	3,600,000	3,564,748	99%
Electricity Savings, Annual (MWh)	14,000	12,923	92%
Beneficial Electrification, Annual (MWh)	-	-	-
Electricity Peak Demand Reductions, (MW)	-	-	-
Fuel Savings, Annual (MMBtu)	7,000	27,733	396%
Fuel Switching, Annual (MMBtu)	-	-	-
Renewable Energy Generation, Annual (MWh)	-	1,027	-
Renewable Energy Capacity (MW)	-	-	-
CO2e Emission Reductions, Lifetime (Metric Tons)	120,000	133,199	111%
Participant Bill Savings, Annual ($)	31,450,000	36,081,611	115%
Leveraged Funds ($)	12,240,000	14,160,621	116%

Expected Timeline Of Funding Commitments

2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Start			End						

Summary of Performance and Future Plans

The initiative is exceeding nearly all planned metrics at this time and is on a strong path to meet or exceed all of its goals.

Program continuing per April 2019 investment plan.

Anaerobic Digesters Transition

Results to Date - Metrics

Total Plan vs. Progress Thru 2018	Plan	Progress	% To Plan
Budget Commitments ($)	20,150,000	4,173,089	21%
Electricity Savings, Annual (MWh)	-	-	-
Beneficial Electrification, Annual (MWh)	-	-	-
Electricity Peak Demand Reductions, (MW)	-	-	-
Fuel Savings, Annual (MMBtu)	-	-	-
Fuel Switching, Annual (MMBtu)	-	-	-
Renewable Energy Generation, Annual (MWh)	86,140	7,444	9%
Renewable Energy Capacity (MW)	-	1	-
CO2e Emission Reductions, Lifetime (Metric Tons)	302,200	39,168	13%
Participant Bill Savings, Annual ($)	75,990,000	12,878,120	17%
Leveraged Funds ($)	101,700,000	8,000,000	8%

Expected Timeline Of Funding Commitments

2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Start			End						

Summary of Performance and Future Plans

Delays to 2017 and 2018 planned activities caused the lag in performance against planned metrics. Market launch occurred December 4, 2018, with proposals due in March of 2019. Project selection (commitments) will occur around mid-2019.

April 2019 investment plan modified timing of funding commitment and benefits to align with experience to date and current expectations. Program continuing per modified plan.

Combined Heat & Power Transition

Results to Date - Metrics

Total Plan vs. Progress Thru 2018	Plan	Progress	% To Plan
Budget Commitments ($)	66,050,000	39,783,195	60%
Electricity Savings, Annual (MWh)	292,900	261,889	89%
Beneficial Electrification, Annual (MWh)	-	-	-
Electricity Peak Demand Reductions, (MW)	56	49	88%
Fuel Savings, Annual (MMBtu)	-	-	-
Fuel Switching, Annual (MMBtu)	(1,773,000)	(1,565,461)	88%
Renewable Energy Generation, Annual (MWh)	-	-	-
Renewable Energy Capacity (MW)	-	-	-
CO2e Emission Reductions, Lifetime (Metric Tons)	1,203,000	1,093,307	91%
Participant Bill Savings, Annual ($)	584,700,000	557,702,520	95%
Leveraged Funds ($)	228,000,000	228,425,568	100%

Expected Timeline Of Funding Commitments

2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Start			End						

Summary of Performance and Future Plans

The initiative is performing strongly. Market uptake (participation) and benefits metrics are closely aligned with expectations at this time, despite budget commitment being lower than planned at this time.

Program continuing per April 2019 investment plan.

Commercial New Construction Transition

Results to Date - Metrics

Total Plan vs. Progress Thru 2018	Plan	Progress	% To Plan
Budget Commitments ($)	30,683,999	28,852,536	94%
Electricity Savings, Annual (MWh)	66,200	66,537	101%
Beneficial Electrification, Annual (MWh)	-	-	-
Electricity Peak Demand Reductions, (MW)	-	17	-
Fuel Savings, Annual (MMBtu)	105,100	371,647	354%
Fuel Switching, Annual (MMBtu)	-	-	-
Renewable Energy Generation, Annual (MWh)	-	-	-
Renewable Energy Capacity (MW)	-	-	-
CO2e Emission Reductions, Lifetime (Metric Tons)	808,000	1,095,336	136%
Participant Bill Savings, Annual ($)	188,300,000	240,068,259	127%
Leveraged Funds ($)	42,070,000	70,556,544	168%

Expected Timeline Of Funding Commitments

2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Start			End						

Summary of Performance and Future Plans

The initiative is performing strongly. Market uptake (participation) and benefits metrics are exceeding expectations at this time.

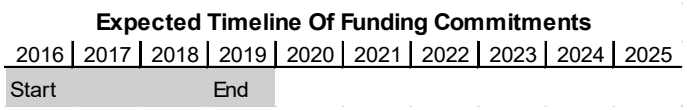
Program continuing per April 2019 investment plan.

Commercial Transition

Results to Date - Metrics

Total Plan vs. Progress Thru 2018	Plan	Progress	% To Plan
Budget Commitments ($)	19,612,500	10,433,866	53%
Electricity Savings, Annual (MWh)	77,600	32,983	43%
Beneficial Electrification, Annual (MWh)	-	-	-
Electricity Peak Demand Reductions, (MW)	-	1	-
Fuel Savings, Annual (MMBtu)	690,000	255,434	37%
Fuel Switching, Annual (MMBtu)	-	-	-
Renewable Energy Generation, Annual (MWh)	-	-	-
Renewable Energy Capacity (MW)	-	-	-
CO2e Emission Reductions, Lifetime (Metric Tons)	1,335,000	509,190	38%
Participant Bill Savings, Annual ($)	287,800,000	106,731,164	37%
Leveraged Funds ($)	68,000,000	29,231,144	43%

Expected Timeline Of Funding Commitments



Summary of Performance and Future Plans

The Commercial Implementation Assistance component of this program closed April 2017. There were only eight approved projects and the original planned benefits for this component will not be met due to the low participation. The FlexTech component has experienced an uptick in interest leading to more projects and savings. Small commercial and not-for-profit energy audits also contribute to the increase in projects and savings.

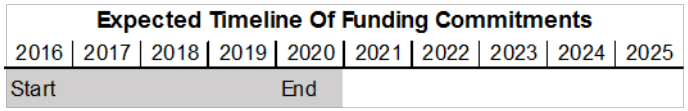
Modifications to program were filed in April 2019 (IPPR) which include transferring funding to Technical Services. 2019 is expected to be the final year of activity for this initiative.

Industrial Transition

Results to Date - Metrics

Total Plan vs. Progress Thru 2018	Plan	Progress	% To Plan
Budget Commitments ($)	51,453,448	51,916,237	101%
Electricity Savings, Annual (MWh)	333,400	309,721	93%
Beneficial Electrification, Annual (MWh)	-	-	-
Electricity Peak Demand Reductions, (MW)	-	-	-
Fuel Savings, Annual (MMBtu)	3,110,000	3,733,624	120%
Fuel Switching, Annual (MMBtu)	-	-	-
Renewable Energy Generation, Annual (MWh)	-	-	-
Renewable Energy Capacity (MW)	-	-	-
CO2e Emission Reductions, Lifetime (Metric Tons)	6,747,000	10,191,478	151%
Participant Bill Savings, Annual ($)	786,000,000	608,535,882	77%
Leveraged Funds ($)	546,000,000	543,851,270	100%

Expected Timeline Of Funding Commitments



Summary of Performance and Future Plans

Most metrics are exceeding expectations at this time, with continued excellent ROI. A small number of very large projects are contributing significantly to benefits at this time.

Program continuing per April 2019 investment plan.

Low-Rise New Construction Transition—Market Rate
(formerly combined with LMI component in RAT Chapter)

Expected Timeline Of Funding Commitments

2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Start			End						

Results to Date - Metrics

Total Plan vs. Progress Thru 2018	Plan	Progress	% To Plan
Budget Commitments ($)	4,837,000	4,423,510	91%
Electricity Savings, Annual (MWh)	7,010	6,211	89%
Beneficial Electrification, Annual (MWh)	-	-	-
Electricity Peak Demand Reductions, (MW)	-	-	-
Fuel Savings, Annual (MMBtu)	78,900	96,255	122%
Fuel Switching, Annual (MMBtu)	-	-	-
Renewable Energy Generation, Annual (MWh)	-	-	-
Renewable Energy Capacity (MW)	-	-	-
CO2e Emission Reductions, Lifetime (Metric Tons)	157,400	168,209	107%
Participant Bill Savings, Annual ($)	37,200,000	32,457,127	87%
Leveraged Funds ($)	17,800,000	10,116,810	57%

Summary of Performance and Future Plans

Market uptake has been strong, and the planned benefits will closely align with the committed values at the conclusion of the program. ROI has also been good, with market rate participant metrics reflecting significant participation of single-family homes, which typically have a higher potential savings per dwelling unit (or participant) in comparison to multifamily dwellings and multiple-unit developments, which are typically smaller square footage.

Funding of new projects will cease in 2019 at which time the New Construction—Market Rate initiative will provide market support.

Multifamily Market Rate Transition

Expected Timeline Of Funding Commitments

2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Start		End							

Results to Date - Metrics

Total Plan vs. Progress Thru 2018	Plan	Progress	% To Plan
Budget Commitments ($)	156,628	156,573	100%
Electricity Savings, Annual (MWh)	41	-	0%
Beneficial Electrification, Annual (MWh)	-	-	-
Electricity Peak Demand Reductions, (MW)	-	-	-
Fuel Savings, Annual (MMBtu)	9,870	829	8%
Fuel Switching, Annual (MMBtu)	-	-	-
Renewable Energy Generation, Annual (MWh)	-	-	-
Renewable Energy Capacity (MW)	-	-	-
CO2e Emission Reductions, Lifetime (Metric Tons)	8,970	661	7%
Participant Bill Savings, Annual ($)	1,630,000	59,732	4%
Leveraged Funds ($)	420,000	71,891	17%

Summary of Performance and Future Plans

The initiative is no longer accepting applications as of July 17, 2017. The program received less funding applications but more housing units than anticipated. The energy conservation measures implemented were low-cost and yielded less savings than initially projected; therefore, relative progress against other benefit metrics is lower than planned.

No additional funding commitments expected.

Multifamily New Construction Transition—Market Rate
(formerly combined with LMI component in RAT Chapter)

Expected Timeline Of Funding Commitments

2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Start			End						

Results to Date - Metrics

Total Plan vs. Progress Thru 2018	Plan	Progress	% To Plan
Budget Commitments ($)	2,734,000	1,950,450	71%
Electricity Savings, Annual (MWh)	5,271	1,745	33%
Beneficial Electrification, Annual (MWh)	-	-	-
Electricity Peak Demand Reductions, (MW)	-	-	-
Fuel Savings, Annual (MMBtu)	28,490	9,776	34%
Fuel Switching, Annual (MMBtu)	-	-	-
Renewable Energy Generation, Annual (MWh)	-	-	-
Renewable Energy Capacity (MW)	-	-	-
CO2e Emission Reductions, Lifetime (Metric Tons)	85,700	28,747	34%
Participant Bill Savings, Annual ($)	17,190,000	6,580,344	38%
Leveraged Funds ($)	20,820,000	5,815,706	28%

Summary of Performance and Future Plans

The market-rate component will not deliver as planned. NYSERDA is incorporating learning from this transition program into the New Construction Chapter of the CEF Investment Plan with the expectation of improved participation and outcomes.

Funding of new projects will cease in 2019 at which time the New Construction—Market Rate initiative will provide market support.

Single-Family Market Rate Transition

Expected Timeline Of Funding Commitments

2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Start			End						

Results to Date - Metrics

Total Plan vs. Progress Thru 2018	Plan	Progress	% To Plan
Budget Commitments ($)	21,937,407	18,067,644	82%
Electricity Savings, Annual (MWh)	3,080	3,083	100%
Beneficial Electrification, Annual (MWh)	-	-	-
Electricity Peak Demand Reductions, (MW)	-	-	-
Fuel Savings, Annual (MMBtu)	183,900	151,184	82%
Fuel Switching, Annual (MMBtu)	-	-	-
Renewable Energy Generation, Annual (MWh)	-	-	-
Renewable Energy Capacity (MW)	-	-	-
CO2e Emission Reductions, Lifetime (Metric Tons)	296,300	248,077	84%
Participant Bill Savings, Annual ($)	73,200,000	59,531,691	81%
Leveraged Funds ($)	59,900,000	56,933,045	95%

Summary of Performance and Future Plans

The program is largely on pace to meet its CEF goals.

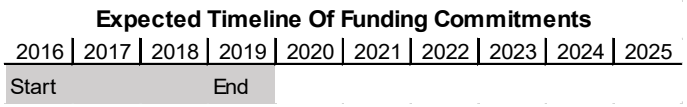
Program continuing per April 2019 investment plan with last funds expected to be committed in 2019.

Small Wind Transition

Results to Date - Metrics

Total Plan vs. Progress Thru 2018	Plan	Progress	% To Plan
Budget Commitments ($)	6,090,000	3,089,375	51%
Electricity Savings, Annual (MWh)	-	-	-
Beneficial Electrification, Annual (MWh)	-	-	-
Electricity Peak Demand Reductions, (MW)	-	-	-
Fuel Savings, Annual (MMBtu)	-	-	-
Fuel Switching, Annual (MMBtu)	-	-	-
Renewable Energy Generation, Annual (MWh)	5,000	1,525	31%
Renewable Energy Capacity (MW)	2	-	0%
CO2e Emission Reductions, Lifetime (Metric Tons)	44,000	16,049	36%
Participant Bill Savings, Annual ($)	14,400,000	4,104,209	29%
Leveraged Funds ($)	7,200,000	3,326,211	46%

Expected Timeline Of Funding Commitments



Summary of Performance and Future Plans

The program has not achieved planned benefits due to smaller-sized projects and fewer developers than anticipated. The program closed 12/31/2018 per plan without exhausting the budget.

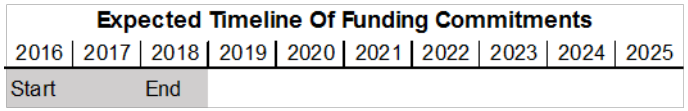
Per the April 2019 investment plan, NYSERDA intends to reopen the program for duration of 2019 or until budget becomes exhausted, whichever comes first.

Solar Thermal Transition

Results to Date - Metrics

Total Plan vs. Progress Thru 2018	Plan	Progress	% To Plan
Budget Commitments ($)	399,000	298,805	75%
Electricity Savings, Annual (MWh)	-	-	-
Beneficial Electrification, Annual (MWh)	-	-	-
Electricity Peak Demand Reductions, (MW)	-	-	-
Fuel Savings, Annual (MMBtu)	-	-	-
Fuel Switching, Annual (MMBtu)	-	-	-
Renewable Energy Generation, Annual (MWh)	830	830	100%
Renewable Energy Capacity (MW)	-	-	-
CO2e Emission Reductions, Lifetime (Metric Tons)	6,550	6,553	100%
Participant Bill Savings, Annual ($)	1,660,000	1,586,759	96%
Leveraged Funds ($)	820,000	820,032	100%

Expected Timeline Of Funding Commitments



Summary of Performance and Future Plans

The program is no longer accepting applications but has projects in the pipeline and is on pace to achieve expected planned benefits.

Per the April 2019 investment plan, the program is no longer awarding funding.

Clean Energy Fund:

Agriculture Chapter

Portfolio: Market Development

Advancing Agricultural Energy Technologies

Expected Timeline Of Funding Commitments

2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
		Start					End		

Results to Date - Metrics

Total Plan vs. Progress Thru 2018	Plan	Progress	% To Plan
Budget Commitments ($)	20,000	1,929	10%
Electricity Savings, Annual (MWh)	-	-	-
Beneficial Electrification, Annual (MWh)	-	-	-
Electricity Peak Demand Reductions, (MW)	-	-	-
Fuel Savings, Annual (MMBtu)	-	-	-
Fuel Switching, Annual (MMBtu)	-	-	-
Renewable Energy Generation, Annual (MWh)	-	-	-
Renewable Energy Capacity (MW)	-	-	-
CO2e Emission Reductions, Lifetime (Metric Tons)	-	-	-
Participant Bill Savings, Annual ($)	-	-	-
Leveraged Funds ($)	-	-	-

Summary of Performance and Future Plans

Initial solicitation is now available to the public with first round responses due in February 2019.

Modified investment plan filed in April 2019 includes new expectations for timing of funding commitments and benefits. Otherwise, the initiative is continuing as planned.
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Key Milestones Completed During 2018

Milestone	Explanation of Progress
Identify technologies to demonstrate.	Conducted voice of customer with multiple stakeholders, vendors, academia, and end-users to identify technologies to demonstrate.
Issue solicitation to select teams of technology vendor and farms to demonstrate technologies.	Program Opportunity Notice 3809 was issued on December 12, 2018 with two due dates; one on February 28, 2019 and the other on September 26, 2019.

Advancing Agricultural Energy Technologies cont.

Results to Date—Outputs/Outcomes

Indicators [a]		Baseline (Before/Current)	2018 (cumulative) Progress	2022 (cumulative) Target
Activity/ Outputs	Number of farm sites hosting demonstration projects	0	0	50
	Number of case studies developed and disseminated	0	0	10
	Number of open houses hosted	0	0	2
Outcomes	Number of farms knowledgeable of energy efficiency opportunities for underused or emerging technologies	0	0	100

Table notes

a. A 0 (zero) denotes that the actual value is currently believed to be zero for baseline/market metrics. These values reflect metrics for this initiative only, and does not include any prior NYSERDA demonstration project efforts which focused on different technologies.

2030 Greenhouse Lighting and Systems Engineering

Expected Timeline Of Funding Commitments

2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Start	End								

Results to Date - Metrics

Total Plan vs. Progress Thru 2018	Plan	Progress	% To Plan
Budget Commitments ($)	5,000,000	5,000,000	100%
Electricity Savings, Annual (MWh)	3,470	3,470	100%
Beneficial Electrification, Annual (MWh)	-	-	-
Electricity Peak Demand Reductions, (MW)	-	-	-
Fuel Savings, Annual (MMBtu)	-	-	-
Fuel Switching, Annual (MMBtu)	-	-	-
Renewable Energy Generation, Annual (MWh)	-	-	-
Renewable Energy Capacity (MW)	-	-	-
CO2e Emission Reductions, Lifetime (Metric Tons)	18,300	18,258	100%
Participant Bill Savings, Annual ($)	2,920,000	3,187,961	109%
Leveraged Funds ($)	9,460,000	9,460,000	100%

Summary of Performance and Future Plans

Consortium membership growing with variety of controlled environmental agriculture market actors.

Program continuing operation per April 2019 investment plan. No additional funding commitments expected.

Key Milestones Completed During 2018

No milestones were completed in 2018.

2030 Greenhouse Lighting and Systems Engineering cont.

Results to Date—Outputs/Outcomes

Indicators [a]		Baseline (Before/Current)	2017 (cumulative) Progress	2018 (cumulative) Progress	2019 (cumulative) Target	2022 (cumulative) Target
Activity/ Outputs	Greenhouse area used for pilot testing (sq ft)	0	0	34,600	26,000	26,000
	Number of paid Consortium memberships	0	0	21	20	25
	Number of products developed	0	0	0	2	4
	Number of services developed	0	0	0	2	3
	Number of product variations tested in pilot systems	0	0	0	5	8
	Number of case studies developed	0	0	0	2	4
Outcomes	Average market penetration of improved technologies in New York greenhouse acreage in the lettuce and tomato sectors	0%	0	0	22%	25%
	Number of provisional patents filed	0	0	0	2	8
	Reduction in greenhouse electricity use in New York (depending on NYS climate zone)	0	0	0	Up to 50%	Up to 70-86%
	Number of acres of greenhouses in New York (beyond pilot participants) adopting the improved technologies	0	0	0	18	23
	Consortium remains viable after NYSERDA milestones are completed	n/a	0	0	0	Projections for Year 8 financials show positive cash flow. Consortium has 25-30 paying members.

Table notes

a. A 0 (zero) denotes that the actual value is currently believed to be zero for baseline/market metrics.

Clean Energy Fund:

Buildings Innovation Chapter

Portfolio: Innovation and Research

NextGen HVAC

Expected Timeline Of Funding Commitments

2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Start						End			

Results to Date - Metrics

Total Plan vs. Progress Thru 2018	Plan	Progress	% To Plan
Budget Commitments ($)	10,000,000	7,503,172	75%
Electricity Savings, Annual (MWh)	-	-	-
Beneficial Electrification, Annual (MWh)	-	-	-
Electricity Peak Demand Reductions, (MW)	-	-	-
Fuel Savings, Annual (MMBtu)	-	-	-
Fuel Switching, Annual (MMBtu)	-	-	-
Renewable Energy Generation, Annual (MWh)	-	-	-
Renewable Energy Capacity (MW)	-	-	-
CO2e Emission Reductions, Lifetime (Metric Tons)	-	-	-
Participant Bill Savings, Annual ($)	-	-	-
Leveraged Funds ($)	50,000,000	28,888,914	58%

Summary of Performance and Future Plans
The initiative is progressing well in terms of budget commitment and participant engagement. The Round 2 innovation challenge focusing on Heat Pumps, HVAC Controls and Compressor-less HVAC was completed in October 2018 resulting in eight awards for a total of $4.5M. Rounds 3 of 4 were launched December 6, 2018 with concept papers due January 17, 2019. Challenge areas include Heat Pumps, Thermal Distribution, and an "Open" challenge intended to capture opportunities not identified by current and past innovation challenges. Modified investment plan filed in April 2019 includes new expectations for timing of funding commitments and benefits. Otherwise, the initiative is continuing as planned.

Key Milestones Completed During 2018

Milestone	Explanation of Progress
Review portfolio of activities, solicit market input and reassess technology challenges areas and targets.	The assessment was undertaken with stakeholders and led to the identification of needs.
Issue 2nd Technology Challenge.	The second challenge was issued on March 22, 2018.
Issue 3rd Technology Challenge.	The third round of innovation challenges was announced on December 6, 2018.

NextGen HVAC cont.

Results to Date—Outputs/Outcomes

Indicators [a]		Baseline (Before/Current)	2017 (cumulative) Progress	2018 (cumulative) Progress	2019 (cumulative) Target	2022 (cumulative) Target
Activity/ Outputs	Number of product development projects initiated	0	0	9	15	15
	Number of product development projects completed	0	0	0	6	15
	Number of demonstration projects	0	0	8	6	15
	Number of companies supported or other partnerships (Joint Development, Joint Venture) with established manufacturers	0	2	18	20	25
Outcomes	Number of products commercialized	0	0	0	4	6
	Revenue to companies commercializing products (millions)	0	0	0	$3.0	$18
	Number of replications from demonstration projects [b]	0	0	0	30	60

Table notes

a. A 0 (zero) as the baseline value denotes that NYSERDA will not count any activities, outputs, and outcomes supported with prior resources (e.g., pre CEF) towards the achievement of the stated goals in this table.

b. Here, replications are defined as known incidences where the innovation was deployed without NYSERDA involvement.

Clean Energy Fund:

Clean Energy Products Chapter

Portfolio: Market Development

Underutilized Product Support

Expected Timeline Of Funding Commitments

2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
	Start								End

Results to Date - Metrics

Total Plan vs. Progress Thru 2018	Plan	Progress	% To Plan
Budget Commitments ($)	7,070,000	6,569,777	93%
Electricity Savings, Annual (MWh)	-	-	-
Beneficial Electrification, Annual (MWh)	(20,639)	(19,635)	95%
Electricity Peak Demand Reductions, (MW)	-	-	-
Fuel Savings, Annual (MMBtu)	310,588	295,527	95%
Fuel Switching, Annual (MMBtu)	-	-	-
Renewable Energy Generation, Annual (MWh)	-	-	-
Renewable Energy Capacity (MW)	-	-	-
CO2e Emission Reductions, Lifetime (Metric Tons)	179,414	172,581	96%
Participant Bill Savings, Annual ($)	70,304,441	58,522,103	83%
Leveraged Funds ($)	60,072,888	29,396,021	49%

Summary of Performance and Future Plans

The Air Source Heat Pump program is performing as expected. Advanced Rooftop Unit program was placed on hold, and the short-term focus has shifted to a wider Commercial HVAC solution, including Variable Refrigerant Flow (VRF) HVAC systems. Research on product and appliance standards continued in Q4 2018.

The Product Standards and ASHP components of the program continuing per the investment plan. The Advanced Rooftop Unit program expected to be modified in 2019 or early 2020. NYSERDA anticipates it will extract the ASHP and Rooftop components from this plan and join it with the Heat Pump and Solar Thermal investment plan in 2019 for tracking purposes.

Key Milestones Completed During 2018

Milestone	Explanation of Progress
Release solicitation for shared awareness and education campaigns as well as customer targeting and acquisition.	The solicitation for co-op marketing was released in December 2017. The solicitation covers marketing, outreach, and training, and will initially focus on supporting efforts to promote cold climate ASHPs and GSHPs but can be expanded to offer programs for other technologies.

Underutilized Product Support cont.

Results to Date—Outputs/Outcomes

Indicators [a]		Baseline (Before/Current)	2017 (cumulative) Progress	2018 (cumulative) Progress	2020 (cumulative) Target
Activity/ Outputs	Vendors using comparison calculator tools	0	0	0	100
	Vendors trained	0	0	0	200
	Peer exchange events	0	0	0	10
	Vendors offering alternative business models for HVAC service	0	0	0	20
	Midstream advanced commercial HVAC incentives offered on individual units	0	0	0	15000
	Customers impacted by midstream incentives [b]	0	0	0	2,200
	Vendors using the enhanced cost-savings calculator	0	0	0	75
	Vendors trained	0	0	50	400
	Upstream ASHP Incentives offered on individual units	0	0	4000	11,433
	Count of completed ASHP control pilot projects related to managing dual systems	0	0	1	2
	Number of technical requirements and protocols finalized	0	0	0	20
	Number of cost/benefit studies completed	0	0	28	30
	Number of compliance and enforcement processes established	0	0	0	1
	Number of standards promulgated	0	0	0	20
Outcomes	Advanced commercial HVAC units sold annually because of intervention	300	0	0	9,000
	Advanced commercial HVAC systems as percentage of standard commercial HVAC installed base, because of the intervention	0.15%	0	0	4%
	Average decrease in first cost	0%	0	0	15%
	Customers using alternative business models for HVAC service	0	0	0	125
	ASHPs sold annually	32000	0	60000	53000
	ASHPs as percentage of installed residential HVAC base	7%	0	9%	15%
	Average decrease in first cost	0%	0	2%	15%
	Vendor use of NYSERDA co-op assistance in promoting ASHPs	0	0	20	25

Clean Energy Fund:

Clean Transportation Chapter

Portfolio: Innovation and Research

Electric Vehicles—Innovation

(formerly Electric Vehicles, I&R Portfolio)

Expected Timeline Of Funding Commitments

2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
	Start				End				

Results to Date - Metrics

Total Plan vs. Progress Thru 2018	Plan	Progress	% To Plan
Budget Commitments ($)	5,850,000	4,233,107	72%
Electricity Savings, Annual (MWh)	-	-	-
Beneficial Electrification, Annual (MWh)	-	-	-
Electricity Peak Demand Reductions, (MW)	-	-	-
Fuel Savings, Annual (MMBtu)	-	-	-
Fuel Switching, Annual (MMBtu)	-	-	-
Renewable Energy Generation, Annual (MWh)	-	-	-
Renewable Energy Capacity (MW)	-	-	-
CO2e Emission Reductions, Lifetime (Metric Tons)	-	-	-
Participant Bill Savings, Annual ($)	-	-	-
Leveraged Funds ($)	14,700,000	9,874,148	67%

Summary of Performance and Future Plans

This initiative is performing well in terms of attracting participants. Progress on budget commitment and leveraged funds is anticipated to ramp up in early 2019 as more contracts are expected to be awarded within that timeframe.

NYSERDA is planning a modification to this initiative in 2019.

Key Milestones Completed During 2018

Milestone	Explanation of Progress
Issue second competitive solicitation for the development and demonstration of EV-enabling technologies.	Proposals for the second round of PON 3578 were received in September 2018.

Electric Vehicles—Innovation cont.

Results to Date—Outputs/Outcomes

Indicators [a]		Baseline [b] (Before/Current)	**2017** (cumulative) Progress	**2018** (cumulative) Progress	**2019** (cumulative) Target	**2022** (cumulative) Target
Activity/ Outputs	Number of product development and demonstration projects initiated	0	0	10	28	50
	Number of product development and demonstration companies supported	0	0	8	18	30
	Number of industry stakeholders engaged in consumer awareness programs	0	6	23	20	50
	Number of aggregate charging station purchase participants	0	0	3	150	400
Outcomes	Number of charging stations installed in NYS	1,639	2,100	3,300	3,000	4,500
	Avg. installed cost of Level 2 charging station per port	$8,774	N/A	N/A	$7,500	$6,500
	Products commercialized	0	0	0	2	4
	Revenue ($millions)	0	0	0	$1	$5
	Replications from demonstration projects	0	0	0	2	6

Table notes

a. N/A denotes that NYSERDA has not previously administered a similar program, so no baseline is available. A 0 (zero) denotes that the actual value is currently believed to be zero for baseline/market metrics.

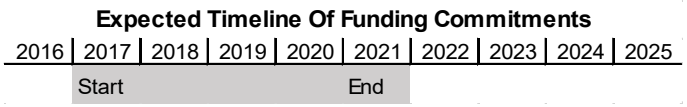
b. Updated baseline metrics reflect the final Clean Transportation Market Characterization study located here: https://www.nyserda.ny.gov/-/media/Files/Publications/PPSER/Program-Evaluation/2017ContractorReports/Clean-Transportation-Market-Characterization-Study-Vol2.pdf. Additional volumes of this study, including the Executive Summary, Electric Vehicles and Transportation Demand Management Market Characterization and Baseline Assessments and report appendices can be found under the Clean Transportation Market Characterization Study heading here: https://www.nyserda.ny.gov/About/Publications/Program-Planning-Status-and-Evaluation-Reports/Evaluation-Contractor-Reports/2017-Reports.

Table notes

Electric Vehicles—Rebate

(formerly Electric Vehicles, I&R Portfolio)

Expected Timeline Of Funding Commitments



Results to Date - Metrics

Total Plan vs. Progress Thru 2018	Plan	Progress	% To Plan
Budget Commitments ($)	22,400,000	12,196,823	54%
Electricity Savings, Annual (MWh)	-	-	-
Beneficial Electrification, Annual (MWh)	(59,900)	(25,950)	43%
Electricity Peak Demand Reductions, (MW)	-	-	-
Fuel Savings, Annual (MMBtu)	810,000	493,527	61%
Fuel Switching, Annual (MMBtu)	-	-	-
Renewable Energy Generation, Annual (MWh)	-	-	-
Renewable Energy Capacity (MW)	-	-	-
CO2e Emission Reductions, Lifetime (Metric Tons)	435,000	217,157	50%
Participant Bill Savings, Annual ($)	-	126,298,111	-
Leveraged Funds ($)	583,000,000	296,695,000	51%

Summary of Performance and Future Plans

There is less direct participation than expected in the NYSERDA rebate program which can be attributed to only ~60% of eligible EV sales utilizing the rebate since the program launched. ROI is as expected for this initiative and broader market growth of EVs is strong and aligned with original forecast. More than 15,000 electric cars were sold in New York in 2018, a 50% increase over 2017. Between March 2017, when the Drive Clean Rebate started, and November 2018, more than 22,000 EVs have been sold in New York, second among states only to California.

Modified investment plan filed in April 2019 includes new expectations for timing of funding commitments and benefits. Otherwise, the initiative is continuing as planned.

Key Milestones Completed During 2018

All milestones have been completed.

Electric Vehicles—Rebate cont.

Results to Date—Outputs/Outcomes

Indicators [a]		Baseline[b] (Before/Current)	2017 (cumulative) Progress	2018 (cumulative) Progress	2019 (cumulative) Target	2022 (cumulative) [c] Target
Activity/ Outputs	Number of rebates issued	n/a	4,696	12,475	33000	46000
	% of rebate recipients completing follow-up surveys	n/a	22%	26%	20%	25%
Outcomes	number of EVs registered in NYS	16,131	24,716	36,990	52,000	150,000
	EV market share (EV sales as a percentage of total car sales in NYS	0.6%	0.9%	1.6%	2%	5%

Table notes

a. N/A denotes that NYSERDA has not previously administered a similar program, so no baseline is available. A 0 (zero) denotes that the actual value is currently believed to be zero for baseline/market metrics.

b. Updated baseline metrics reflect the final Clean Transportation Market Characterization study located here: https://www.nyserda.ny.gov/-/media/Files/Publications/PPSER/Program-Evaluation/2017ContractorReports/Clean-Transportation-Market-Characterization-Study-Vol2.pdf. Additional volumes of this study, including the Executive Summary, Electric Vehicles and Transportation Demand Management Market Characterization and Baseline Assessments and report appendices can be found under the Clean Transportation Market Characterization Study heading here: https://www.nyserda.ny.gov/About/Publications/Program-Planning-Status-and-Evaluation-Reports/Evaluation-Contractor-Reports/2017-Reports.

c. Note that the rebate program is currently anticipated to end by 2020, not 2022. This limits Activity/Output metrics, while Outcome metrics are anticipated to continue growing beyond the end of the rebate program because of momentum generated in the EV market.

Public Transportation and Electrified Rail

Expected Timeline Of Funding Commitments									
2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Start						End			

Results to Date - Metrics

Total Plan vs. Progress Thru 2018	Plan	Progress	% To Plan
Budget Commitments ($)	4,750,000	693,120	15%
Electricity Savings, Annual (MWh)	-	-	-
Beneficial Electrification, Annual (MWh)	-	-	-
Electricity Peak Demand Reductions, (MW)	-	-	-
Fuel Savings, Annual (MMBtu)	-	-	-
Fuel Switching, Annual (MMBtu)	-	-	-
Renewable Energy Generation, Annual (MWh)	-	-	-
Renewable Energy Capacity (MW)	-	-	-
CO2e Emission Reductions, Lifetime (Metric Tons)	-	-	-
Participant Bill Savings, Annual ($)	-	-	-
Leveraged Funds ($)	8,000,000	2,240,370	28%

Summary of Performance and Future Plans

This initiative was launched in early 2018 and is still ramping up activity. Progress is expected to accelerate significantly in 2019 as more contracts are expected to be awarded within that timeframe.

Modified investment plan filed in April 2019 includes new expectations for timing of funding commitments and benefits. Otherwise, the initiative is continuing as planned.

Key Milestones Completed During 2018

Milestone	Explanation of Progress
Issue first competitive solicitation for the development and demonstration of public transportation technologies.	The first solicitation was released in July 2018. NYSERDA received concept papers in August 2018 and invited select proposers to submit full proposals. Full proposals were received in November 2018.

Public Transportation and Electrified Rail cont.

Results to Date—Outputs/Outcomes

Public Transportation and Electrified Rail

Indicators [a]		Baseline (Before/Current)	**2018** (cumulative) Progress	**2019** (cumulative) Target	**2022** (cumulative) Target
Activity/ Outputs	Number of projects initiated	0	2	18	47
	Number of companies supported	0	2	14	28
	Number of transit procurements assisted	0	0	2	5
	Number of third-party partnerships facilitated	0	0	2	5
Outcomes	Private Investment/ Leveraged Funds ($ millions)	$0	$2.2	$16	$42
	Products Commercialized	0	0	1	4
	Revenue ($ millions)	$0	0	$0.5	$5
	Replications from demonstration projects	0	0	2	10

Table notes

a. A 0 (zero) denotes that the actual value is currently believed to be zero for baseline/market metrics.

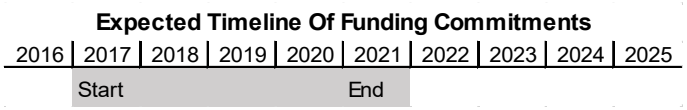
Clean Energy Fund:

Codes Chapter

Portfolio: Market Development

Code to Zero

Expected Timeline Of Funding Commitments



Results to Date - Metrics

Total Plan vs. Progress Thru 2018	Plan	Progress	% To Plan
Budget Commitments ($)	3,480,000	746,631	21%
Electricity Savings, Annual (MWh)	-	-	-
Beneficial Electrification, Annual (MWh)	-	-	-
Electricity Peak Demand Reductions, (MW)	-	-	-
Fuel Savings, Annual (MMBtu)	-	-	-
Fuel Switching, Annual (MMBtu)	-	-	-
Renewable Energy Generation, Annual (MWh)	-	-	-
Renewable Energy Capacity (MW)	-	-	-
CO2e Emission Reductions, Lifetime (Metric Tons)	-	-	-
Participant Bill Savings, Annual ($)	-	-	-
Leveraged Funds ($)	-	-	-

Summary of Performance and Future Plans

The initiative has not yet utilized CEF funding to the degree expected due to the availability of other funding sources. However, significant activity and impact is occurring including:

- Delivered draft NYStretch Energy Code to NY City supporting their Energy Code rulemaking schedule.
- Training for code officials was delivered during 2018.
- Support for NYS Dept of State's energy code update and rulemaking commenced in Q4 2018.
- Road mapping effort to codify stretch-to-zero was initiated in Q3 2018 and has expanded in scope.

NYSERDA filed a revised investment plan in April 2019 to more accurately reflect timing of CEF funding commitment and associated benefits. NYSERDA is planning another modification to this initiative investment plan in 2019.

Key Milestones Completed During 2018

Milestone	Explanation of Progress
Extend training and third-party plan review contracts.	Training and third-party plan review contracts have been extended.

Code to Zero cont.

Results to Date—Outputs/Outcomes

Indicators [a]		Baseline (Before/Current)	2018 (cumulative) Progress	2021 (cumulative) Target
Activity/ Outputs	Number of individuals receiving NYSERDA-supported code training by market segment and building type	7,000	0	13,250
	Number of pilots	0	0	6
	Number of entities NYSERDA supports in the enactment of energy codes	0	0	5
Outcomes	Percentage of market complying with the energy code	TBD	0	[b] %Δ = 10%
	Number of jurisdictions (outside of the pilots) adopting alternative enforcement business structures	0	0	8
	Number of jurisdictions (outsid of the pilots) adopting stretch code	0	0	10

Table notes

a. TBD denotes that NYSERDA requires more data in order to quantify baseline/market metrics to the degree needed to measure against in the future. Baseline measurements of key market indicators are anticipated to occur soon following initiative approval and NYSERDA will update the information in this table as the information becomes available, which is anticipated within 9-12 months of initiative approval. A 0 (zero) denotes that the actual value is currently believed to be zero for baseline/market metrics.

b. A study by Pacific Northwest National Laboratory indicates that for commercial codes, compliance in the first year when a new code is adopted is estimated at 50%. This rate increases asymptotically every year to near 80% after 10 years. For residential codes, compliance in the first year is estimated at 80%, going to 100% (asymptotically) after 10 years. "Impacts of Model Building Energy Codes," p. iv and 9, PNNL-25611 Rev. 1, October 2016, Pacific Northwest National Laboratory.

Clean Energy Fund:

Commercial Chapter

Portfolio: Market Development

Energy Management Technology
(formerly Energy Management)

Expected Timeline Of Funding Commitments

2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Start								End	

Results to Date - Metrics

Total Plan vs. Progress Thru 2018	Plan	Progress	% To Plan
Budget Commitments ($)	17,984,878	15,613,104	87%
Electricity Savings, Annual (MWh)	165,038	106,200	64%
Beneficial Electrification, Annual (MWh)	-	-	-
Electricity Peak Demand Reductions, (MW)	-	-	-
Fuel Savings, Annual (MMBtu)	71,500	95,510	134%
Fuel Switching, Annual (MMBtu)	-	-	-
Renewable Energy Generation, Annual (MWh)	-	-	-
Renewable Energy Capacity (MW)	-	-	-
CO2e Emission Reductions, Lifetime (Metric Tons)	725,540	490,704	68%
Participant Bill Savings, Annual ($)	180,352,000	134,559,065	75%
Leveraged Funds ($)	59,510,000	73,823,664	124%

Summary of Performance and Future Plans

Market interest and adoption of Real-time Energy Management (RTEM) is very promising. Early returns from the RTEM program indicate that customers are interested in investing in energy efficiency improvements through the combination of smart building technology, data analytics, and ongoing consulting services. NYSERDA sees RTEM as a cost-effective approach for driving energy efficiency adoption that goes beyond lighting.

Projects are generally smaller and less costly than anticipated which is illustrated in the metrics to date, but analysis of project data suggests that overall program impact will be attained with a very positive return on investment.

Program continuing per April 2019 investment plan.

Key Milestones Completed During 2018

Milestone	Explanation of Progress
Secure RTEM Advisor and begin development of market standards.	RTEM Advisor is secure and actively participating in the vendor qualification process.
Create and grow a list of qualified RTEM vendors.	RTEM Request for Qualification (RFQ) was launched in mid-April 2016. There has been a steady in-flow of applications. The RTEM RFQ has received over 160 applications from vendors to date, with over 75 vendors approved. RFQ is open until April 2021, so the number of vendors will continue to grow.

Energy Management Technology cont.

Results to Date—Outputs/Outcomes

Indicators[a]		Baseline[b] (Before/Current)	2017 (cumulative) Progress	2018 (cumulative) Progress	2022 (cumulative) Target
Activity/ Outputs	Number of buildings participating in incentive program	0	43	308	2000
	Number of pilots	0	0	0	15
	Number of qualified providers on NYSERDA list	0	45	70	90
	Extent of use of qualified provider list by the market (%increase in NY EM revenue by listed vendors)	0	TBD	65%	90%
	Participation of building owners/ managers in peer-to-peer exchanges (from incentive progam)	0	10	40	120
	Number of Comprehensive building specific data sets submitted to NYSERDA	0	10	40	400
	Number of downloads of EM technical guidance document	0	TBD	100	1000
	Percent of EM providers using the programmatic criteria & technical guidance document (as reported through annual survey)	0	TBD	75%	90%
Outcomes[c]	Awareness of EM among building owners/managers	23.6%	0	0	40%
	Percent of EM projects that are a part of a larger building management portfolio	0	0	0	50%
	Persistence of EM service contracts (i.e how many customers extend their subscription with an RTEM provider beyond 5 years)	TBD	0	0	60%
	Percent in RTEM soft costs and operational costs	TBD	0	0	25%
	Percentage of EM projects that institute an energy efficiency goal	TBD	0	0	65%
	Size of market as indicated by vendor sales	$10M	0	0	$40M
	Percent of decision-makers using EM data to assess operational risk (as reported through annual survey)	4.1%	0	0	45%
	Number of BMS offerings with integrated RTEM	TBD	0	0	50%
	Percent of EM projects that use services for non-energy benefits (e.g long-term asset management, capital investment strategies, risk mitigation analyses)	5.0[d]	0	0	25%

Table notes

a. Because the market transformation efforts with these initiatives, additional time is needed to assess the persistence of adoption. TBD denotes that NYSERDA requires more data in order to quantify baseline/market metrics to the degree needed to measure against in the future. A 0 (zero) denotes that the actual value is currently believed to be zero for baseline metrics.

b. Baseline measurements of the Commercial Energy Management initiatives were evaluated and reported in 2018. The report is available on the NYSERDA website - https://www.nyserda.ny.gov/-/media/Files/Publications/PPSER/Program-Evaluation/2018-12-CEM-Market-Baseline-Evaluation-Report.pdf

c. Cumulative values provided for 2018 are outputs measured and reported using program data.

d. In the 2018 baseline evaluation, all responding BMS providers indicated that their products have the hardware/software features necessary for RTEM (100%). However, most market actors indicated that only a small percentage of installations currently are used in such a manner. Market actors were unable to provide rigorous, quantitative estimates of what percentage of systems are used for RTEM purposes, but most market actors indicated that this would be a very small percentage. The baseline evaluation report is available on the NYSERDA website - https://www.nyserda.ny.gov/-/media/Files/Publications/PPSER/Program-Evaluation/2018-12-CEM-Market-Baseline-Evaluation-Report.pdf

P-12 Schools
(formerly K-12)

Expected Timeline Of Funding Commitments

2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
		Start							End

Results to Date - Metrics

Total Plan vs. Progress Thru 2018	Plan	Progress	% To Plan
Budget Commitments ($)	1,785,000	4,978,477	279%
Electricity Savings, Annual (MWh)	5,800	5,800	100%
Beneficial Electrification, Annual (MWh)	-	-	-
Electricity Peak Demand Reductions, (MW)	-	-	-
Fuel Savings, Annual (MMBtu)	32,300	32,300	100%
Fuel Switching, Annual (MMBtu)	-	-	-
Renewable Energy Generation, Annual (MWh)	-	-	-
Renewable Energy Capacity (MW)	-	-	-
CO2e Emission Reductions, Lifetime (Metric Tons)	73,400	73,542	100%
Participant Bill Savings, Annual ($)	16,100,000	17,757,518	110%
Leveraged Funds ($)	7,140,000	7,200,000	101%

Summary of Performance and Future Plans

The initiative has made good progress against its current implementation milestones. The Benchmarking Program is expected to launch Q1 2019. Development of the first Gap Assistance Program has started.

Program continuing per April 2019 investment plan.

Key Milestones Completed During 2018

Milestone	Explanation of Progress
Develop and launch a competitive solicitation to select an existing benchmarking tool for the benchmarking program.	RFP 3788 was launched on June 14, 2018. A proposal was selected for funding on September 13, 2018.

P-12 Schools cont.

Results to Date—Outputs/Outcomes

Indicators [a]		Baseline (Before/Current)	2018 (cumulative) Progress	2021 (cumulative) Target
Activity/ Outputs	Number of schools engaging with NYSERDA to conduct clean energy benchmarking	0	0	310
	Number of NYS K-12 schools that receive NYSERDA funding [b]	0	5	45
	Number of schools that receive energy efficiency funding from IOUs.	0	0	500
	Number of projects implemented as a result of Gap Assistance offered	0	0	4
	Number of information downloads from website	0	0	1000
	Number of case studies developed and disseminated	0	0	20
Outcomes	Number of NYS K-12 schools utilizing clean energy case studies to make informed decisions towards future clean energy projects	0	0	150
	Number of NYS K-12 schools utilizing benchmarking data and energy master plans to make informed decisions towards future clean energy projects	0	0	75
	Number of NYS K-12 schools reporting a greater understanding of benefits of clean energy at their school	0	0	800
	Number of NYS K-12 schools receiving recognition	0	2	3

Table notes

a. A 0 (zero) is set for the majority of the baseline/market metrics to reflect that these indicators will be tracked and reported from the time the effort begins and are not reporting activities prior to its launch.

b. This metric represents funding that is delivered to schools from other relevant NYSERDA Programs such as those listed in the Dissemination of Resources activity (i.e. technical services, energy management, renewable heating and cooling).

Real Estate Tenant

Expected Timeline Of Funding Commitments

2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Start									End

Results to Date - Metrics

Total Plan vs. Progress Thru 2018	Plan	Progress	% To Plan
Budget Commitments ($)	7,624,314	5,236,081	69%
Electricity Savings, Annual (MWh)	37,321	26,707	72%
Beneficial Electrification, Annual (MWh)	-	-	-
Electricity Peak Demand Reductions, (MW)	-	-	-
Fuel Savings, Annual (MMBtu)	39,428	28,260	72%
Fuel Switching, Annual (MMBtu)	-	-	-
Renewable Energy Generation, Annual (MWh)	-	-	-
Renewable Energy Capacity (MW)	-	-	-
CO2e Emission Reductions, Lifetime (Metric Tons)	173,564	124,441	72%
Participant Bill Savings, Annual ($)	41,334,000	31,515,400	76%
Leveraged Funds ($)	3,631,000	7,193,289	198%

Summary of Performance and Future Plans

The Commercial Tenant program offer saw substantial increase in participation in 2018 compared to 2017. However, projects are smaller than anticipated so most performance metrics are lower than planned.

A third program modification is planned for early 2019 aiming to attract deeper energy saving projects and increase the number of large portfolio projects. Otherwise, the initiative is continuing as planned and filed in the April 2019 investment plan.

Key Milestones Completed During 2018

No milestones were completed in 2018.

Real Estate Tenant cont.

Results to Date—Outputs/Outcomes

Indicators [a]		Baseline [b] (Before/Current)	2017 (cumulative) Progress	2018 (cumulative) Progress	2019 (cumulative) Target
Activity/ Outputs	Number of tenant spaces participating in the modeling and energy efficiency package offer	0	6	345	130
	Number of buildings participating in the modeling and energy efficiency package offer	0	6	142	110
	Square footage of participating tenant spaces in the modeling and energy efficiency package offer	0	688,000	8,310,259	6,500,000
	Percent of energy saved above code (for participants)	0	TBD	TBD	15-20%
	Partner engagement: Number of CRE building owners and manageers that offer building specific packages	0	1	9	130
	Number of case studies developed	0	0	4	7
	Partner engagement: number of brokers and A&E firms trained	0	0	50	20
	Partner engagement: number of brokers and A&E firms that include in depth energy models and package development in their standard practice	0	TBD	TBD	12
Outcomes	Package Development costs of building specific package per square foot	$0.13/SF	0	TBD	$0.06/SF
	Market Engagement: Number of Brokers and A&E firms that include in depth energy models and package development in their standard practice	6	0	TBD	20
	Percent of the total addressable square footage in NYS that is covered by a building specific package	0	<5% of Class A building stock	TBD	7%
	Tenant Spaces completed by the market without NYSERDA funding	141	TBD	TBD	286
	Percentage of Real Estate Broker firms trained on energy efficient space design and including energy in the leasing dialogues with tenant	<5%	<5% of brokers	TBD	10%
	Percentage of Architecture and Engineering firms trained to better incorporate energy efficiency options into tenant space designs and providing packages as standard	TBD	54% of A&E firms	TBD	10%

Table notes

a. TBD denotes preliminary results have been collected but NYSERDA requires additional analysis and/or market evaluation to confirm the values. A 0 (zero) denotes that the actual value is currently believed to be zero for baseline/market metrics.

b. Revised baseline metrics reflect preliminary research and will be updated upon completion of a market evaluation study still underway. Once finalized, the study will be available publicly on NYSERDA's website and in the DPS Document and Matter Management system.

Reforming the Energy Vision (REV) Campus Challenge

Expected Timeline Of Funding Commitments

2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Start									End

Results to Date - Metrics

Total Plan vs. Progress Thru 2018	Plan	Progress	% To Plan
Budget Commitments ($)	7,611,008	6,565,187	86%
Electricity Savings, Annual (MWh)	46,400	18,145	39%
Beneficial Electrification, Annual (MWh)	-	-	-
Electricity Peak Demand Reductions, (MW)	-	-	-
Fuel Savings, Annual (MMBtu)	288,000	111,773	39%
Fuel Switching, Annual (MMBtu)	-	-	-
Renewable Energy Generation, Annual (MWh)	2,940	272	9%
Renewable Energy Capacity (MW)	2	-	0%
CO2e Emission Reductions, Lifetime (Metric Tons)	618,000	234,488	38%
Participant Bill Savings, Annual ($)	116,200,000	50,396,987	43%
Leveraged Funds ($)	26,700,000	12,604,101	47%

Summary of Performance and Future Plans

REV Campus Challenge has achieved its membership goal to date. Approximately 39% of the REV Campus Challenge membership responded to a brief questionnaire assessing recent investments in energy efficiency and renewable energy. Of these respondents, approximately 80% had installed measures such as lighting, wind, HVAC and solar. These preliminary results will inform a more comprehensive impact evaluation in 2019 to ensure the most complete and accurate accounting of benefits from REV Campus Challenge.

Modified investment plan filed in April 2019 includes new expectations for timing of funding commitments and benefits. Otherwise, the initiative is continuing as planned.

Key Milestones Completed During 2018

No milestones were completed in 2018.

Reforming the Energy Vision (REV) Campus Challenge cont.

Results to Date—Outputs/Outcomes

Indicators[a]		Baseline (Before/Current)	2017 (cumulative) Progress	2018 (cumulative) Progress	2019 (cumulative) Target
Activity/ Outputs	Number of REV Campus Challenge Members	0	81	104	120
	Number of NYS institutions participating in AASHE STARS	44 (21 with STARS rating)	60	72	60
	Percent increase in NYS institution attendance at existing clean energy events/conferences	22 institutions (2015 baseline)	59%	109%	20%
	Percent of all NYS institutions participating in REV Campus Challenge initiatives/competitions	0	24%	33%	25%
	Percent of REV Campus Challenge Members collecting and reporting energy usage (as reported through annual survey)	0	44%	89%	25%
	Percent of REV Campus Challenge Members reporting new clean energy projects on campus (as reported through annual survey)	0	71%	77%	60%
	Percent of REV Campus Challenge Members reporting new clean energy curricula or curriculum integration (as reported through annual survey)	0	44%	44%	30%
	Percent of REV Campus Challenge Members reporting new or improved community partnerships to expand clean energy goals (as reported through annual survey)	0	48%	46%	25%
	Percent of REV Campus Challenge Members receiving recognition	0	24%	31%	30%
Outcomes	Percent of REV Campus Challenge Members with new or updated climate action plans, energy master plans, or GHG inventories	82%	38%	52%	15%
	Percent of REV Campus Challenge Members with staff assigned to manage sustainability/clean energy goals (as reported through annual survey)	0	58%	53%	35%
	Percent of REV Campus Challenge Members reporting a greater understanding of clean energy opportunities on their campus (as reported through annual survey)	0	57%	70%	50%
	Percent of REV Campus Challenge Members reporting greater student engagement with clean energy initiatives (as reported through annual survey)	0	51%	58%	40%
	Percent of REV Campus Challenge Members reporting greater buy-in and support from management for clean energy projects and initiatives (as reported through annual	0	51%	63%	50%
	Percent of REV Campus Challenge Members reporting improved community relations because of clean energy strategies (as reported through annual survey)	0	28%	39%	30%

Table notes

a. TBD denotes that NYSERDA requires more data in order to quantify baseline/market metrics to the degree needed to measure against in the future. Baseline measurements of key market indicators are anticipated to occur soon following initiative approval and NYSERDA will update the information in this table as the information becomes available, which is anticipated within 9-12 months of initiative approval. A 0 (zero) denotes that the actual value is currently believed to be zero for baseline/market metrics.

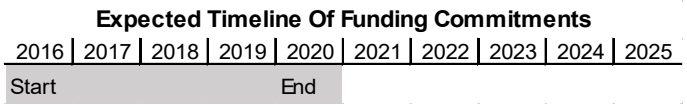
Clean Energy Fund:

Communities Chapter

Portfolio: Market Development

Clean Energy Communities

Expected Timeline Of Funding Commitments



Results to Date - Metrics

Total Plan vs. Progress Thru 2018	Plan	Progress	% To Plan
Budget Commitments ($)	7,967,493	11,132,064	140%
Electricity Savings, Annual (MWh)	66,500	90,768	136%
Beneficial Electrification, Annual (MWh)	-	-	-
Electricity Peak Demand Reductions, (MW)	-	-	-
Fuel Savings, Annual (MMBtu)	374,000	453,895	121%
Fuel Switching, Annual (MMBtu)	-	-	-
Renewable Energy Generation, Annual (MWh)	70,600	48,485	69%
Renewable Energy Capacity (MW)	60	41	68%
CO2e Emission Reductions, Lifetime (Metric Tons)	1,402,000	1,490,747	106%
Participant Bill Savings, Annual ($)	325,000,000	344,189,919	106%
Leveraged Funds ($)	45,200,000	60,757,233	134%

Summary of Performance and Future Plans

Outreach contractors are actively engaging communities. Many local governments are working to complete High-Impact Actions. At end of 2019, 233 communities completed at least four actions and were officially designated Clean Energy Communities. In total, 516 Communities completed 1410 High-Impact Actions, 1218 of which were completed after program launch.

NYSERDA is planning a modification to this initiative in early 2019. Otherwise, the initiative is continuing as planned and filed in April 2019.

Key Milestones Completed During 2018

No milestones were completed in 2018.

Clean Energy Communities cont.

Results to Date—Outputs/Outcomes

Indicators [a]		Baseline [b] (Before/Current)	2017 (cumulative) Progress	2018 (cumulative) Progress	2019 (cumulative) Target
Activity/ Outputs	Number of communities that are aware of the Clean Energy Communities Program	0	TBD	TBD	800
	Number of Communities that have joined the Clean Energy Communities Program	0	521	526	400
	Number of communities that have completed: 1 or more High-Impact Action	467	666 (199 since initiative began)	1178 (711 since initiative began)	800 (333 since initiative began)
	Number of communities that have completed: 2 or more High-Impact Actions	248	405 (157 since initiative began)	753 (505 since initiative began)	498 (250 since initiative began)
	Number of communities that have completed: 3 or more High-Impact Action	128	248 (120 since initiative began)	609 (481 since initiative began)	353 (225 since initiative began)
	Number of communities that have completed: 4 or more High-Impact Action	10	107 (97 since initiative began)	465 (455 since initiative began)	173 (163 since initiative began)
	Number of Designated Clean Energy Communities	0	80	233	163
	Number of registered Climate Smart Communities (indicates interest in going beyond High-Impact Actions)	175	207	245	219
	Partner engagement: Number of organizations helping to promote High-Impact Actions without NYSERDA contracts	0	TBD	TBD	3
Outcomes	Number of communities that indicate clean energy is a priority	473	0	484 (11 since initiative began)	800
	Number of communities regularly accessing Clean Energy Communities Portal and tracking progress	0	0	TBD	80
	Perceived level of difficulty, on the part of community representatives, in implementing each High-Impact Action (1-10, with 10 being most difficult)	See table in section 6.1.7 of Investment Plan	0	Values broken down by action.	4 (or less, on average, for each action)
	Number of communities that have participated in NYS clean energy programs	423	0	0	560
	Number of communities that have completed High-Impact Actions but are not designated Clean Energy Communities	[c] 0	0	270	100
	Percentage of communities in New York State taking advantage of tools and resources provided	0	0	0	75% (1,200)

Table notes

a. TBD denotes preliminary results have been collected but NYSERDA requires additional analysis to confirm the values. A 0 (zero) denotes that the actual value is currently believed to be zero for baseline/market metrics.

b. Revised baseline metrics reflect the recently-completed Clean Energy Communities market baseline evaluation. This study will be available publicly on NYSERDA's website and in the DPS Document and Matter Management system in the near future.

c. At the time of the baseline measurement, some communities had completed High Impact Actions, but since these actions took place prior to the program start, these communities would not have been designated clean energy communities. Thus, the metric value is zero.

Community Energy Engagement

Expected Timeline Of Funding Commitments

2016	2017	2018	2019	2020	2021	2022	2023	2024	2025

Results to Date - Metrics

Total Plan vs. Progress Thru 2018	Plan	Progress	% To Plan
Budget Commitments ($)	4,409,882	4,407,818	100%
Electricity Savings, Annual (MWh)	-	-	-
Beneficial Electrification, Annual (MWh)	-	-	-
Electricity Peak Demand Reductions, (MW)	-	-	-
Fuel Savings, Annual (MMBtu)	-	-	-
Fuel Switching, Annual (MMBtu)	-	-	-
Renewable Energy Generation, Annual (MWh)	-	-	-
Renewable Energy Capacity (MW)	-	-	-
CO2e Emission Reductions, Lifetime (Metric Tons)	-	-	-
Participant Bill Savings, Annual ($)	-	-	-
Leveraged Funds ($)	1,730,000	1,274,696	74%

Summary of Performance and Future Plans

All regions have active Community Energy Advisors providing outreach services. Regional specific pilot mini-bid delayed and is expected to be released early 2019.

Program continuing per April 2019 investment plan.

Key Milestones Completed During 2018

Milestone	Explanation of Progress
Awards from base activity solicitation are contracted.	Ten contracts were awarded, and all have been executed.

Community Energy Engagement cont.

Results to Date—Outputs/Outcomes

Indicators[a]		Baseline[b] (Before/Current)	2017 (cumulative) Progress	2018 (cumulative) Progress	2020 (cumulative) Target
Activity/ Outputs	Amount of funding received by customers (including NYSERDA and non-NYSERDA funding)	$5,190,000	0	$2,001,328	$9,750,000
	Number of new partnerships developed with other locally-based organizations	0	0	35	10
	Number of customers assisted with clean energy applications (audit, grant, and finance applications)	5,230	0	1,132	9,650
	Number of completed (closed) loans	726	0	7	2,020
Outcomes	Number of organizations promoting clean energy and other benefits to households and communities	0	0	10	10
	Number of projects completed with NYSERDA and non-NYSERDA funding	726	0	279	2,020

Table Notes:

a. A 0 (zero) denotes that the actual value is currently believed to be zero for baseline/market metrics.

b. Value shown here is total cumulative Home Performance with ENERGY STAR® audits and incentives and GJGNY financing associated with CBO activity from January 1, 2014 through September 30, 2016, and is not discounted based on a percent attributable to the CBO program vs. the GJGNY program.

Clean Energy Fund:

Energy Related Environmental Research Chapter

Portfolio: Innovation and Research

Energy Related Environmental Research

Expected Timeline Of Funding Commitments

2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
	Start				End				

Results to Date - Metrics

Total Plan vs. Progress Thru 2018	Plan	Progress	% To Plan
Budget Commitments ($)	19,000,000	8,077,854	43%
Electricity Savings, Annual (MWh)	-	-	-
Beneficial Electrification, Annual (MWh)	-	-	-
Electricity Peak Demand Reductions, (MW)	-	-	-
Fuel Savings, Annual (MMBtu)	-	-	-
Fuel Switching, Annual (MMBtu)	-	-	-
Renewable Energy Generation, Annual (MWh)	-	-	-
Renewable Energy Capacity (MW)	-	-	-
CO2e Emission Reductions, Lifetime (Metric Tons)	-	-	-
Participant Bill Savings, Annual ($)	-	-	-
Leveraged Funds ($)	4,750,000	4,255,107	90%

Summary of Performance and Future Plans

Although funding commitment is lower than expected at this point in time, the initiative is still on track to achieve the expected planned benefits for leveraged funds. Progress on budget commitment is accelerating.

Program continuing per April 2019 investment plan.

Key Milestones Completed During 2018

Milestone	Explanation of Progress
Projects contracted from solicitations.	Contracting from both solicitations issued in Q3 2017 was completed in August 2018.
Solicitations issued for research projects consistent with the Research Plan.	PON 3921, a Metocean solicitation, was released July 31, 2018. A second solicitation under PON 3921, focused on Energy-Related Air Quality Health Effects Research, was released on October 10, 2018.
Outreach, technology transfer, and briefings to share research findings.	Outreach supported with CEF and other funding sources for 2018 is complete. Dissemination of research findings is ongoing via workshops, briefings and similar.

Energy Related Environmental Research cont.

Results to Date – Outputs/Outcomes

Indicators		Baseline (Before/Current)	**2017** (cumulative) Progress	**2018** (cumulative) Progress	**2019** (cumulative) Target	**2021** (cumulative) Target
Activity/ Outputs	Update multi-year Research Plan components with input from policymakers, scientists, and other stakeholders	0	0	2	3	6
	Sponsored workshops, conferences, seminars or facilitated meetings to inform decision making	0	0	13	15	25
Outcomes	$9.5M in leveraged funds (co-funding and outside investment) to support projects and sponsored research	0	0	$4,951,407	$6,255,107	$9,567,644

Clean Energy Fund:

Energy Storage Chapter

Portfolio: Market Development

Reducing Barriers to Deploying Distributed Energy Storage

Expected Timeline Of Funding Commitments

2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Start								End	

Results to Date - Metrics

Total Plan vs. Progress Thru 2018	Plan	Progress	% To Plan
Budget Commitments ($)	16,555,000	10,840,207	65%
Electricity Savings, Annual (MWh)			
Beneficial Electrification, Annual (MWh)			
Electricity Peak Demand Reductions, (MW)			
Fuel Savings, Annual (MMBtu)			
Fuel Switching, Annual (MMBtu)			
Renewable Energy Generation, Annual (MWh)			
Renewable Energy Capacity (MW)			
CO2e Emission Reductions, Lifetime (Metric Tons)			
Participant Bill Savings, Annual ($)			
Leveraged Funds ($)			

Note: reporting of benefits for this program and all other storage-related programs have been combined within the annual State of Storage report.

Summary of Performance and Future Plans
The PSC's late 2018 landmark Energy Storage Order established a 3,000 MW target by 2030, building upon the 1,500 MW advanced storage target by 2025 already established by Governor Cuomo. New York City is in the process of promulgating rules for storage permitting in exterior applications and working to develop interior siting guidelines. NYSERDA is completing a storage permitting guide for use by authorities having jurisdiction statewide. This investment plan has been rescoped in April 2019 as required to complement the Storage Order including development of an estimated $400 million in market acceleration bridge incentives for energy storage.

Key Milestones Completed During 2018

Milestone	Explanation of Progress
Expand scope of battery testing lab for additional chemistries to be tested.	Additional testing requirements may be driven by Underwriters Lab 9540/9540A standard. As part of work with FDNY to develop interior siting requirements for advanced batteries, this will become clearer and will not require additional testing at this time.
Public platform is launched including use cases, system performance results, and fact sheets.	DER Portal is live and energy storage system data on deployed projects is being uploaded. Energy storage microsite is launched and contains a variety of resources on storage that have been developed under the soft cost reduction work. Permitting and siting guidelines will be consolidated into broader NYSERDA DER Guidebook and resources for local communities and permitting agencies.
Customers with deployed energy storage systems engaged for post installation quality assurance to validate savings. M&V is occurring on deployed projects, which includes analysis of customer savings.	The technical assistance contractor selected is implementing M&V site plans with initial installations supported by NYSERDA.

Reducing Barriers to Deploying Distributed Energy Storage cont.

Safety testing is completed on additional emerging commercial chemistries.	UL 9540/9540A standard may provide sufficient testing requirements to alleviate the need for additional NYSERDA testing on battery chemistries. This would create a prescriptive testing path for developers to follow when seeking approval for energy storage installations in NYC. Facilitated independent testing at company's expense for a new chemistry by UEP seeking permitting in NYC; specific plans for additional chemistries to be tested.
Market segmentation for NYSERDA customer acquisition activities supported under this investment plan expands to noninterval-metered customers.	Customer leads list developed with technical assistance contractor in NYC and in Westchester including interval and demand metered customers. Expanding into Long Island next. Customers are prioritized based on criteria findings from technoeconomic analysis of interval customers, prior research on best fit load profiles, and practical considerations. The leads list is being used for direct customer outreach and will continue to be updated as customer information becomes available and criteria findings are refined.
Increasing numbers of customers seek information on storage solutions to mitigate their peak demand and electricity requirements, as determined through vendor interviews and the number of permits submitted to authorities having jurisdiction, surveyed at least annually.	Multi-year outreach campaign underway. Technical assistance to best fit customers currently being provided, information on energy storage business models is being released, webinar on behind the meter storage applications published, and potential customers are being discovered and engaged. Increasing numbers of customers are being added to the pipeline from direct engagement and are seeking information on storage solutions. Increasing numbers of customers engaged for technical and economic feasibility analysis and site visits.
Increasing numbers of energy storage vendors are engaged in New York State, as surveyed at least annually.	Vendor outreach underway, including working group meetings, webinars, development of fact sheets, a technology conference, etc. The majority of outreach is focused on providing one-on-one technical assistance for developers on specific projects in various stages of completion. Feedback is continually being collected from vendors. NY-BEST (technical assistance contractor) began outreach program on September 1, 2017. One-on-one guidance and training are concentrated on identifying and advising on the practical requirements to take advantage of current opportunities.
Model permitting guides are updated.	Outdoor energy storage permitting guide for New York City published and being examined as city agencies develop regulations/bulletin.
Convincing use cases and best fit customer characteristics and acquisition tools are publicized.	Working with a soft-cost technical assistance contractor on developing use cases based on deployed projects. Use cases and best fit customer characteristics are being actively shared in presentations and meetings with strategic partners, including industry groups providing outreach to customers on technology options, and business development executives from utilities. Webinars and fact sheets on the behind the meter use case for energy storage are being distributed during active customer outreach and engagement activities. Case studies are in development.

Results to Date—Outputs/Outcomes

Reporting of benefits and activity for this program and all other storage-related programs have been combined within the annual State of Storage report.

Solar Plus Energy Storage

Expected Timeline Of Funding Commitments

2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
			Start	End					

Results to Date - Metrics

Total Plan vs. Progress Thru 2018	Plan	Progress	% To Plan
Budget Commitments ($)	5,000,000	-	0%
Electricity Savings, Annual (MWh)			
Beneficial Electrification, Annual (MWh)			
Electricity Peak Demand Reductions, (MW)			
Fuel Savings, Annual (MMBtu)			
Fuel Switching, Annual (MMBtu)			
Renewable Energy Generation, Annual (MWh)			
Renewable Energy Capacity (MW)			
CO2e Emission Reductions, Lifetime (Metric Tons)			
Participant Bill Savings, Annual ($)			
Leveraged Funds ($)			

Note: reporting of benefits for this program and all other storage-related programs have been combined within the annual State of Storage report.

Summary of Performance and Future Plans
Initiative launched October 2018. First applications and awards anticipated Q1 2019. Modified investment plan filed in April 2019 includes new expectations for timing of funding commitments and benefits. Otherwise, the initiative is continuing as planned.

Key Milestones Completed During 2018

Milestone	Explanation of Progress
Launch changes to the NY-Sun program providing incentives for paired solar plus energy storage projects.	Changes to offer incentives for paired solar plus storage were launched as part of NY-Sun Program Opportunity Notice 3082 and 2112 on October 25, 2018.
Participation in IPWG and ITWG meetings throughout the year to address issues of adding storage to solar.	Solar plus storage issues have been on the ITWG agenda in 2018. Interim Guideline was finalized for adding storage to solar project applications already being processed by the Utilities. Additional topics important to solar plus storage are being drafted and considered for future IPWG/ ITWG meetings.

Results to Date—Outputs/Outcomes

Reporting of benefits and activity for this program and all other storage-related programs have been combined within the annual State of Storage report.

Clean Energy Fund:

Grid Modernization Chapter

Portfolio: Innovation and Research

Distributed Energy Resource (DER) Interconnection

Expected Timeline Of Funding Commitments

2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Start			End						

Results to Date - Metrics

Total Plan vs. Progress Thru 2018	Plan	Progress	% To Plan
Budget Commitments ($)	6,300,000	2,687,409	43%
Electricity Savings, Annual (MWh)	-	-	-
Beneficial Electrification, Annual (MWh)	-	-	-
Electricity Peak Demand Reductions, (MW)	-	-	-
Fuel Savings, Annual (MMBtu)	-	-	-
Fuel Switching, Annual (MMBtu)	-	-	-
Renewable Energy Generation, Annual (MWh)	-	-	-
Renewable Energy Capacity (MW)	-	-	-
CO2e Emission Reductions, Lifetime (Metric Tons)	-	-	-
Participant Bill Savings, Annual ($)	-	-	-
Leveraged Funds ($)	5,830,000	3,681,314	63%

Summary of Performance and Future Plans

Commitment of the remaining funds had been delayed pending completion of projects from PON 3404 (DER Interconnection) and resolution of several technical issues by the New York Interconnection Technical Working Group. Both of these issues have been addressed allowing NYSERDA to identify specific interconnection challenges needing further study with a plan to commit additional funds via competitive solicitation in the first half of 2019.

Modified investment plan filed in April 2019 includes new expectations for timing of funding commitments and benefits. Otherwise, the initiative is continuing as planned.

Key Milestones Completed During 2018

Milestone	Explanation of Progress
Grid Modernization Roadmap complete.	NY Grid Modernization Roadmap complete.

Distributed Energy Resource (DER) Interconnection cont.

Results to Date—Outputs/Outcomes

Indicators [a]		Baseline (Before/Current)	2017 (cumulative) Progress	2018 (cumulative) Progress	2019 (cumulative) Target	2022 (cumulative) Target
Activity/ Outputs	Number of studies, demonstrations, and product development projects initiated	0	10	10	8	8
	Number of studies, demonstrations, and product development projects completed	0	0	0	8	8
	Number of companies or other partnerships with established manufacturers or grid technology companies supported	0	7	7	8	8
Outcomes	Adoption of lower cost methods and devices to reduce DER interconnection costs [b]	0	0	0	4	8
	Reduction in average cost to achieve interconnection for DG projects larger than 500 kW [c]	TBD	0	0	15%	25%
	DER deployment cost savings (via reduced interconnection costs)	TBD	0	0	$18,000,000	$30,000,000

Table notes

a. TBD denotes that NYSERDA requires more data to quantify baseline/market metrics to the degree needed to measure against in the future. Baseline measurements of key market indicators are anticipated to occur soon following initiative approval and NYSERDA will update the information in this table as the information becomes available, which is anticipated within 9-12 months of initiative approval. A 0 (zero) denotes that the actual value is currently believed to be zero for baseline/market metrics.

b. Lower cost methods and devices are advances such as alternatives to direct transfer trip, less expensive grounding bank configurations, and less restrictive flicker mitigation criteria.

c. Progress and Performance Outcome data related to DER interconnection cost and is anticipated to be collected by NY-Sun, the NYS Department of Public Service, and the NY Joint Utilities. Collection of this data began in late 2015 and early 2016, depending on the source. The accuracy and completeness of this data are key to enabling assessment of this metric.

High Performing Grid

Expected Timeline Of Funding Commitments

2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
	Start						End		

Results to Date - Metrics

Total Plan vs. Progress Thru 2018	Plan	Progress	% To Plan
Budget Commitments ($)	43,700,000	13,268,761	30%
Electricity Savings, Annual (MWh)	-	-	-
Beneficial Electrification, Annual (MWh)	-	-	-
Electricity Peak Demand Reductions, (MW)	-	-	-
Fuel Savings, Annual (MMBtu)	-	-	-
Fuel Switching, Annual (MMBtu)	-	-	-
Renewable Energy Generation, Annual (MWh)	-	-	-
Renewable Energy Capacity (MW)	-	-	-
CO2e Emission Reductions, Lifetime (Metric Tons)	-	-	-
Participant Bill Savings, Annual ($)	-	-	-
Leveraged Funds ($)	125,000,000	43,833,547	35%

Summary of Performance and Future Plans

In 2018 the program shifted to a rolling solicitation format, a move praised by the marketplace but one that inadvertently delayed proposals. The format has been adjusted going forward encouraging more timely submissions. December 2018 a solicitation closed with 28 proposals received. These proposals are being reviewed now with awards expected early 2019. The lagging pace of commitments and leveraged funds is due in part to an aggressive forecast and also due to smaller than expected proposals (scale). NYSERDA is incorporating market feedback into forward looking plans and still expects to achieve program goals.

Modified investment plan filed in April 2019 includes new expectations for timing of funding commitments and benefits. Otherwise, the initiative is continuing as planned.

Key Milestones Completed During 2018

Milestone	Explanation of Progress
Issue broad competitive solicitation #3.	PON 3770 was released April 11, 2018.

High Performing Grid cont.

Results to Date—Outputs/Outcomes

Indicators [a]		Baseline (Before/Current)	2017 (cumulative) Progress	2018 (cumulative) Progress	2019 (cumulative) [b] Target	2022 (cumulative) Target
Activity/ Outputs	# of studies, demonstrations, and product development projects initiated	0	11	11	52	109
	# of studies, demonstrations, and product development projects completed	0	0	0	19	67
	# of companies supported, # utility touchpoints/ partnerships, other partnerships with established manufacturers or grid technology companies [c]	0	8	8	31	64
Outcomes	Increased system (enterprise level) intelligence used to predict failures, disruptions and support self-healing (reduced outages).	Partial application of model centricadvanced distribution management system (ADMS) controls at two NY utilities.	0	0	Complete/nearly complete use of model centricADMS controls at one NY utility.	Use of model centric-ADMS controls at two or more NY utilities
	Number of technologies/systems that enable system condition prediction and restoration being tested	Early stage products available; no noteworthy pilots underway in NY.	0	0	One new condition monitoring technology and restoration process management product/service being piloted or in use at a utility.	Multiple condition monitoring and restoration process services in use.
	Data collected through advanced sensing devices used to dynamically manage power flow and other system elements.	Partial functionality in existing / planned near-term pilot.	0	0	Full functionality power flow optimization pilot at one utility.	Full functionality power flow optimization in use at one or more NY utilities.
	Advanced control/integration of DER in the electric grid	Few research projects of modest scope in NY.	0	0	One full functionality pilot project with integration of multiple DER sources.	Integration of DER as standard practice at one or more NY utilities.

Table notes

a. A 0 (zero) denotes that the actual value is currently believed to be zero for baseline/market metrics.

b. Number of expected projects supported is based on historical mix of project type and cost sharing requirements. Should it be decided to fund one or more large demonstration projects with higher NYSERDA cost sharing, the mix of project types supported would likely change materially reducing the number of projects.

c. Participants are duplicative (utilities and academia participate concurrently on different projects) so number attempts to identify the number of unique project participants.

Power Electronics Manufacturing Consortium
(formerly Next Generation Power Electronics)

Expected Timeline Of Funding Commitments

Results to Date - Metrics

Total Plan vs. Progress Thru 2018	Plan	Progress	% To Plan
Budget Commitments ($)	16,700,000	16,700,000	100%
Electricity Savings, Annual (MWh)	-	-	-
Beneficial Electrification, Annual (MWh)	-	-	-
Electricity Peak Demand Reductions, (MW)	-	-	-
Fuel Savings, Annual (MMBtu)	-	-	-
Fuel Switching, Annual (MMBtu)	-	-	-
Renewable Energy Generation, Annual (MWh)	-	-	-
Renewable Energy Capacity (MW)	-	-	-
CO2e Emission Reductions, Lifetime (Metric Tons)	-	-	-
Participant Bill Savings, Annual ($)	-	-	-
Leveraged Funds ($)	80,000,000	135,000,000	169%

Summary of Performance and Future Plans

The initiative is performing very well against its performance metrics and is exceeding planned values.

Program continuing per April 2019 investment plan.

Key Milestones Completed During 2018

Milestone	Explanation of Progress
Business plan completed and submitted to NYSERDA for review.	Business plan presented on May 23, 2018.
Production capacity fab infrastructure complete.	Fab Infrastructure is in place. Equipment qualification final acceptance is complete for all equipment. Tool owner training and qualification is in progress. Total Reflection X-ray Florescence and Foreign Material qualification is complete. Statistic Process Control development and Standard Operating Procedure development is complete.
Three successive batches of SiC MOSFET wafers fabricated.	Completed three qualification lots with record composition yield of ~65% and delivered lots to General Electric for AEC-Q101 reliability testing.
Quality management system implemented.	Quality Management System Implementation has been completed.

Power Electronics Manufacturing Consortium cont.

Results to Date—Outputs/Outcomes

Indicators [a]		Baseline (Before/Current)	2018 (cumulative) Progress	2019 (cumulative) Target	2022 (cumulative) Target
Activity/ Outputs	Number of consortium members	2	2	12	18
	Number of discrete development projects initiated [b]	0	0	5	9
Outcomes	In-field demonstrations of devices/systems developed at PEMC	0	0	3	8
	# of products commercialized	0	0	5	15
	Revenue for PEMC SiC Process Line	0	0	$25M	$45M
	Production Capacity [c]	0	0	4,500	11,000

Table notes

a. A 0 (zero) denotes that the actual value is currently believed to be zero for baseline/market metrics.

b. Development projects refer to development of SiC wafer and subsequent fabrication of full systems and/or projects to pursue new potential applications for SiC materials.

c. Production Capacity refers to the volume of wafers able to be produced at the facility. Full production capacity is expected to be 15,000 wafers per year by 2022, with additional capacity being added as market demand increases.

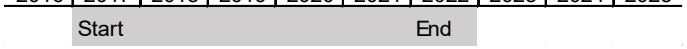
Clean Energy Fund:

Industrial Chapter

Portfolio: Market Development

Continuous Energy Improvement

Expected Timeline Of Funding Commitments



Results to Date - Metrics

Total Plan vs. Progress Thru 2018	Plan	Progress	% To Plan
Budget Commitments ($)	11,130,000	6,318,559	57%
Electricity Savings, Annual (MWh)	87,510	90,543	103%
Beneficial Electrification, Annual (MWh)	-	-	-
Electricity Peak Demand Reductions, (MW)	-	-	-
Fuel Savings, Annual (MMBtu)	794,700	605,704	76%
Fuel Switching, Annual (MMBtu)	-	-	-
Renewable Energy Generation, Annual (MWh)	-	-	-
Renewable Energy Capacity (MW)	-	-	-
CO2e Emission Reductions, Lifetime (Metric Tons)	1,088,200	942,933	87%
Participant Bill Savings, Annual ($)	168,910,000	138,952,577	82%
Leveraged Funds ($)	124,430,000	90,918,950	73%

Summary of Performance and Future Plans

NYSERDA continues industrial stakeholder engagement to build pipeline participation in Continuous Improvement Efforts. Case studies on initial projects in Strategic Energy Management and On-Site Energy Manager illustrating successful energy initiatives are being developed. Energy Management Information Systems participation lagging in applications and NYSERDA is reaching out to market actors to address barriers.

Modified investment plan filed in April 2019 includes new expectations for timing of funding commitments and benefits. Otherwise, the initiative is continuing as planned. NYSERDA is planning a modification to this initiative in 2019.

Key Milestones Completed During 2018

Milestone	Explanation of Progress
C-suite executive buy-in and engagement which provides momentum for energy planning and management activities at industrial sites.	Confirmation of C-suite executive buy-in and engagement is required as part of the application. Fourteen total applications have been received (four this reporting period). Executive buy-in and engagement is continued via Energy Management Plan review (seven approved to date) and meetings.
Industrial end user commitment to energy goal creation and realization is key to successful OsEM engagements.	Energy goals are created as part of the application process and are confirmed in the Energy Management Plans that are submitted in the first quarter of the engagements. Fourteen total applications have been received with energy goals stated and seven Energy Management Plans have been submitted and approved.
Robust tracking and reporting of energy and non-energy benefits of the OsEM role.	Robust tracking and reporting of energy and nonenergy benefits occurs on a quarterly basis for the active industrial projects (three reports approved this reporting period).
Long-term energy resource(s) dedicated to energy management, without NYSERDA support (e.g., manufacturer hires energy manager function in-house; continues contracting with OsEM consultant; or contracts with a new consultant).	Two industrial sites retained the OsEM in a permanent role without additional financial support; the others have indicated a desire to leverage technical assistance offerings or additional contracted support.

Continuous Energy Improvement cont.

Transition of knowledge and tools from pilot OsEM to long-term energy resource.	Six projects have completed the engagement period and have transferred knowledge and tools to either a permanent or contracted long term energy resource.
Facilities understand how energy intensity is embedded in their process and have integrated energy management into their organizational culture. Facilities possess knowledge of Strategic Energy Management (have an energy map, identified goals and metrics, and have developed a project register identifying projects and an action plan for project implementation) and have a system for monitoring, tracking, and making decisions based on their energy use.	The initial Strategic Energy Management solicitation (PON 3411) was released in November 2016. Eight participants were selected to participate in the first industrial cohort. The kick-off workshop for the cohort was held in September 2017. As of May 2018, all participants have an energy map, identified savings opportunities, are developing project registers and plans for project implementation, and are developing employee engagement activities at their facilities. The solicitation for the second industrial cohort was released in December 2017 and eight industrial customers comprise the second pilot which began in Q3 2018. The first Strategic Energy Management solicitation for a Waste Water Cohort was released in Q2 2018. The 2017 Cohort wrapped up Year 1 in September 2018; at the same time the 2018 kicked off Year 1. The 2017 cohort has completed all activities outlined in this milestone.
Facility executives value and adopt Strategic Energy Management due to organizational change and systematic energy management that enables them to identify attractive investments for their facility. Continuation of energy champion and team beyond the cohort (for participating facilities) or the adoption of an energy champion and/or team (for new facilities). Executive support to implement energy-related projects.	All the energy teams and energy champions have continued beyond the end of Year 1 for the 2017 cohort. Facilities participating in SEM have also found they receive executive support, in some facilities this support is greater than prior to their participation in SEM, to implement energy-related projects.
Develop and disseminate a matrix or list of qualified EMIS vendors.	List of approved vendors to be supplied upon receipt and review of qualification applications.
Distribute list of qualified EMIS vendors.	Through RFP 3681, NYSERDA has an established and growing list of service and software vendors available on NYSERDA's website by Market Sector focus. Vendors are engaging the marketplace.

Continuous Energy Improvement cont.

Results to Date—Outputs/Outcomes

Indicators [a]		Baseline [b] (Before/Current)	2017 (cumulative) Progress	2018 (cumulative) Progress	2019 (cumulative) Target
Activity/ Outputs	Number of energy management plans with energy reduction target developed	0	3	7	30
	Number of energy efficiency projects identified and completed during pilot engagement (likely starts with low/no cost and Operations & Maintenance type	0	TBD	79	30
	Number of case studies/testimonials developed	0	TBD	6	30
	Number of qualified SEM providers 0	0	0	1	5
	Number of C-suite executives who engage in SEM	0	8	16	27
	Number of facilities providing internal SEM staff trainings	0	0	6	27
	Number of facilities evaluating projects using an SEM energy intensity metric	0	0	6	27
	Number of requests for standardized SEM resources	0	0	0	9
	Number of qualified EMIS providers	6	0	4	10
	Number of EMISs deployed in NYS as a result of this initiative	0	0	0	50
	EMIS subscription renewal rate	75%	TBD	TBD	85%
	Number of EMIS assessments/audits as a result of this initiative	0	0	0	60
Outcomes	Number of energy managers hired/retained within pilot facilities	0	0	2	20
	Market penetration of on-site Energy Managers: % of the addressable market participating in this strategy; nonparticipant industrial sites hiring an OsEM	15%	0	TBD	16.5%
	Number of projects implemented involving more complex CapEx and process improvements as a result of this strategy	0	TBD	17	40
	Number of industrial plants (beyond pilot participants) adopting on-site Energy Manager role	[c] 0	TBD	TBD	30-45 (10 – 15 per yr.)
	Number of energy teams maintained beyond the cohort (indicating executive support for SEM)	[d] 0	TBD	6	27
	Number of facilities that have adopted a system for monitoring, tracking, and making decisions based on their energy use to assist with their SEM activities as a result of	[e] 1,886 facilities	0	1892	1,913
	Number of industrial facilities (beyond pilot participants) that have adopted SEM	[f] 0	0	0	11
	Number of facility-wide EMIS deployments as a result of this initiative	0	0	0	45
	Number of enterprise-wide EMIS deployments as a result of this initiative	0	0	0	4
	Qualified EMISs with industrial operational control	0	0	0	3-5

Table notes

a. A 0 (zero) denotes that the actual value is currently believed to be zero for baseline/market metrics.

b. Revised baseline metrics reflect the recently-completed Continuous Energy Improvement market baseline evaluation. This study will be available publicly on NYSERDA's website and in the DPS Document and Matter Management system in the near future.

c. Baseline values for post-pilot performance will be measured after the first round of pilot offerings are complete.

d. Ibid.

e. A total of 1,886 facilities, representing 27% of the addressable market, reported having adopted SEM, indicating there is still a large market potential to capture for SEM. The additional 27 facilities adopting a system for monitoring reflect the direct results of the initiative, and does not include anticipated indirect impacts.

f. Baseline values for post-pilot performance will be measured after the first round of pilot offerings are complete.

Clean Energy Fund:

Innovation Capacity and Business Development Chapter

Portfolio: Innovation and Research

Cleantech Startup Growth

Expected Timeline Of Funding Commitments

2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
	Start					End			

Results to Date - Metrics

Total Plan vs. Progress Thru 2018	Plan	Progress	% To Plan
Budget Commitments ($)	23,450,000	18,315,092	78%
Electricity Savings, Annual (MWh)	-	-	-
Beneficial Electrification, Annual (MWh)	-	-	-
Electricity Peak Demand Reductions, (MW)	-	-	-
Fuel Savings, Annual (MMBtu)	-	-	-
Fuel Switching, Annual (MMBtu)	-	-	-
Renewable Energy Generation, Annual (MWh)	-	-	-
Renewable Energy Capacity (MW)	-	-	-
CO2e Emission Reductions, Lifetime (Metric Tons)	-	-	-
Participant Bill Savings, Annual ($)	-	-	-
Leveraged Funds ($)	238,750,000	174,450,313	73%

Summary of Performance and Future Plans

The initial metrics from the individual program components that have already launched are promising. Progress will be reassessed in Q1 2019 when metrics from the prior reporting period are fully collected.

Modified investment plan filed in April 2019 includes new expectations for timing of funding commitments and benefits. Otherwise, the initiative is continuing as planned.

Key Milestones Completed During 2018

Incubators

Milestone	Explanation of Progress
Awards from second solicitation contracted.	The only contract from the second solicitation has been fully executed. Program staff is currently in the process of performing additional customer discovery and market validation work in order to determine whether to launch a third solicitation.

Ignition Grants

Milestone	Explanation of Progress
Solicitation launched.	PON 3871 launched June 1, 2018.
Investment Committee established.	Investment committee has been established.

Cleantech Startup Growth cont.

Entrepreneurs-In-Residence

Milestone	Explanation of Progress
Competitive solicitation launched.	Solicitation was launched February 28, 2018.
Award from solicitation contracted.	Award from solicitation contracted.

Results to Date—Outputs/Outcomes

Indicators [a] [b]		Baseline [c] (Before/Current)	2017 (cumulative) Progress	2018 (cumulative) Progress	2019 (cumulative) Target	2022 (cumulative) Target
Activity/ Outputs	Incubators - Companies Engaged	0	0	89	119	146
	Incubators - Companies Graduated (Graduates)	0	0	20	12	21
	Geographic Coverage - Companies Engaged	0	0	0	24	24
	POCCs - Teams Engaged	0	0	0	15	75
	POCCs - Businesses Formed	0	0	0	10	40
	EIR - Companies Engaged	0	0	28	520	1420
	ICC Engagement - Companies Engaged	0	0	111	141	496
	76West - Companies Engaged	12	0	6	24	24
	Innovation Advisors - Advisors Deployed	3	0	0	7	19
Outcomes	Products Commercialized	293	0	109	93	193
	Investor Agreements Executed	0	0	0	5	25
	Corporate and Strategic Partnerships Formed	0	0	0	3	18
	Customer Agreements Executed	0	0	0	1	10

Table notes

a. There may be some overlap in the Activity/Outputs and/or Outcomes that are achieved and reported through this set of initiatives. For example, a company that is a client of an Incubator may also receive support from the Entrepreneurs-In-Residence program or one of the Investor, Corporate, and Customer Engagement activities.

b. A 0 (zero) denotes that the actual value is currently believed to be zero for baseline/market metrics.

c. Revised baseline values are based on preliminary research and will be updated upon completion of a market evaluation study still underway. Once finalized, this study will be available publicly on NYSERDA's website and in the DPS Document and Matter Management system.

Manufacturing Corps

Expected Timeline Of Funding Commitments

2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
	Start			End					

Results to Date - Metrics

Total Plan vs. Progress Thru 2018	Plan	Progress	% To Plan
Budget Commitments ($)	4,120,850	4,136,924	100%
Electricity Savings, Annual (MWh)	-	-	-
Beneficial Electrification, Annual (MWh)	-	-	-
Electricity Peak Demand Reductions, (MW)	-	-	-
Fuel Savings, Annual (MMBtu)	-	-	-
Fuel Switching, Annual (MMBtu)	-	-	-
Renewable Energy Generation, Annual (MWh)	-	-	-
Renewable Energy Capacity (MW)	-	-	-
CO2e Emission Reductions, Lifetime (Metric Tons)	-	-	-
Participant Bill Savings, Annual ($)	-	-	-
Leveraged Funds ($)	20,000,000	24,342,000	122%

Summary of Performance and Future Plans

Manufacturing Corps is progressing according to plan in terms of budget commitment and has exceeded expectations in terms of participation and leveraged funding.

Program continuing per April 2019 investment plan.

Key Milestones Completed During 2018

Milestone	Explanation of Progress
Awards from pilot site solicitation are contracted. Pilot program launched.	Pilot program awards made and contracted effective April 1, 2018. Pilot launched.

Manufacturing Corps cont.

Results to Date—Outputs/Outcomes

Indicators [a] [b]		Baseline [c] (Before/Current)	**2017** (cumulative) Progress	**2018** (cumulative) Progress	**2021** (cumulative) Target	**2023** (cumulative) Target
Activity/ Outputs	Manufacturing strategies developed for cleantech products	0	0	0	24	66
	Manufacturing agreements signed between startups & manufacturers	0	0	0	24	66
Outcomes	Cleantech products manufactured total [d]	221	0	0	24	66
	Agreements to invest in cleantech startup companies signed [e]	70	0	0	0	14

Table notes

a. An engaged market actor is one who is accessing a specific M-Corps Initiative intervention. All activities, outputs, and outcome metrics outlined in this initiative are stated and will be measured using engaged actors.

b. A 0 (zero) denotes that the actual value is currently believed to be zero for engaged market actors.

c. Revised baseline values are based on preliminary research and will be updated upon completion of a market evaluation study still underway. Once finalized, this study will be available publicly on NYSERDA's website and in the DPS Document and Matter Management system.

d. NYSERDA recognizes that not all cleantech products will be manufactured in NYS. For those engaged in the M-Corps Initiative, NYSERDA will track both the total number of cleantech products manufactured and the subset of those that are manufactured in NYS.

e. In this instance, "Number of agreements to invest in cleantech startup companies signed" refers to the number of agreements between engaged cleantech startup companies and private capital investors and/or strategic corporate partnerships. The value of these agreements depends on the exact mix of cleantech startup companies and cleantech products. This assumes a 3-5-year lag from the time agreements are committed toward realizing the target.

Novel Business Models and Offerings

Expected Timeline Of Funding Commitments

2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
		Start				End			

Results to Date - Metrics

Total Plan vs. Progress Thru 2018	Plan	Progress	% To Plan
Budget Commitments ($)	3,150,000	33,918	1%
Electricity Savings, Annual (MWh)	-	-	-
Beneficial Electrification, Annual (MWh)	-	-	-
Electricity Peak Demand Reductions, (MW)	-	-	-
Fuel Savings, Annual (MMBtu)	-	-	-
Fuel Switching, Annual (MMBtu)	-	-	-
Renewable Energy Generation, Annual (MWh)	-	-	-
Renewable Energy Capacity (MW)	-	-	-
CO2e Emission Reductions, Lifetime (Metric Tons)	-	-	-
Participant Bill Savings, Annual ($)	-	-	-
Leveraged Funds ($)	32,900,000	-	0%

Summary of Performance and Future Plans

Novel Business Models and Offerings launched in Q3 2018 and the first significant funding commitments and benefits are expected to be recorded in 2019.

Program continuing per April 2019 investment plan.

Key Milestones Completed During 2018

Milestone	Explanation of Progress
Release solicitation for New Business Models and Offerings proposals for both scaling and validation support.	PON 3932 launched September 25, 2018.

Novel Business Models and Offerings cont.

Results to Date—Outputs/Outcomes

Indicators [a]		Baseline (Before/Current)	2018 (cumulative) Progress	2019 (cumulative) Target	2022 (cumulative) Target
Activity/ Outputs	Number of companies supported	0	0	16	33
	Number of validation and scaling projects initiated	0	0	19	46
	Number of validation and scaling projects completed	0	0	14	46
Outcomes	Number of supported companies raising additional capital	0	0	0	11
	Number of new business models successfully scaled by supported companies	0	0	4	8

Table notes

a. A 0 (zero) denotes that the actual value is currently believed to be zero for baseline/market metrics.

Clean Energy Fund:

Large-Scale Renewables Chapter

Portfolio: Market Development

Offshore Wind Master Plan

Expected Timeline Of Funding Commitments

2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Start			End						

Results to Date - Metrics

Total Plan vs. Progress Thru 2018	Plan	Progress	% To Plan
Budget Commitments ($)	5,000,000	4,981,421	100%
Electricity Savings, Annual (MWh)	-	-	-
Beneficial Electrification, Annual (MWh)	-	-	-
Electricity Peak Demand Reductions, (MW)	-	-	-
Fuel Savings, Annual (MMBtu)	-	-	-
Fuel Switching, Annual (MMBtu)	-	-	-
Renewable Energy Generation, Annual (MWh)	-	-	-
Renewable Energy Capacity (MW)	-	-	-
CO2e Emission Reductions, Lifetime (Metric Tons)	-	-	-
Participant Bill Savings, Annual ($)	-	-	-
Leveraged Funds ($)	-	-	-

Summary of Performance and Future Plans

The Master Plan was filed in early 2018, but ongoing work continues to advance its goals.

Program continuing per April 2019 investment plan.

Key Milestones Completed During 2018

Milestone	Explanation of Progress
Publish the final Offshore Wind Master Plan, after completion of studies and no later than end of 2017.	The Offshore Wind Master Plan and all underlying studies were completed on schedule by December 31, 2017. The Master Plan and all studies were published on January 29, 2018.

Offshore Wind Master Plan cont.

Results to Date—Outputs/Outcomes

Indicators [a]		Baseline (Before/Current)	2017 (cumulative) Progress	2018 (cumulative) Progress	2019 (cumulative) Target
Activity/ Outputs	OSW Master Plan Blueprint published	0	1	1	1
	Stakeholder meetings to review Blueprint and solicit input for OSW Master Plan	0	3	3	3
	OSW Master Plan published, providing a comprehensive roadmap to reduce the costs of OSW and accelerate the development of OSW for New York and identifies	0	0	1	1

Table notes

a. A 0 (zero) denotes that the actual value is currently believed to be zero for baseline/market metrics.

Offshore Wind Pre-Development

Expected Timeline Of Funding Commitments

2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
	Start				End				

Results to Date - Metrics

Total Plan vs. Progress Thru 2018	Plan	Progress	% To Plan
Budget Commitments ($)	10,000,000	9,318,675	93%
Electricity Savings, Annual (MWh)	-	-	-
Beneficial Electrification, Annual (MWh)	-	-	-
Electricity Peak Demand Reductions, (MW)	-	-	-
Fuel Savings, Annual (MMBtu)	-	-	-
Fuel Switching, Annual (MMBtu)	-	-	-
Renewable Energy Generation, Annual (MWh)	-	-	-
Renewable Energy Capacity (MW)	-	-	-
CO2e Emission Reductions, Lifetime (Metric Tons)	-	-	-
Participant Bill Savings, Annual ($)	-	-	-
Leveraged Funds ($)	-	-	-

Summary of Performance and Future Plans

In addition to significant activity from previous years, NYSERDA is developing plans for deploying one or more buoys for measuring wind, wave, and other data in 2019. NYSERDA has also developed and published a Supply Chain Database, as well as a 2018 Ports Assessment which analyzes some of the port infrastructure opportunities across the State. NYSERDA is scoping additional supply chain and infrastructure-related studies to support the pre-development of offshore wind in New York State.

Program continuing per April 2019 investment plan. NYSERDA is planning a modification to this initiative in 2019.

Key Milestones Completed During 2018

Milestone	Explanation of Progress
Reports resulting from pre-development work validating New York State Offshore Wind resource and proposing potential additional wind energy areas for development.	Planning has been completed for environmental and other studies and surveys. Solicitation issued for offshore wind technical assistance in December 2016. There were 20 environmental, social, regulatory, economic and infrastructural reports, including a report of New York State's Offshore Wind resources, completed by December 31, 2017 and published January 29, 2018. Drafts of all 20 reports were sent to external reviewers and input from reviewers informed final reports. New York State Area for Consideration for the Potential Locating of Offshore Wind Energy Areas completed with report given to the Bureau of Ocean Energy Management and public in October 2017.

Offshore Wind Pre-Development cont.

Results to Date—Outputs/Outcomes

Indicators [a]		Baseline (Before/Current)	2017 (cumulative) Progress	2018 (cumulative) Progress	2019 (cumulative) Target
Activity/ Outputs	Report validating NYS OSW wind resource	0	0	1	1
	Reports providing site-specific data needed to support detailed siting, design, and permitting of an offshore wind project	0	0	3	3
Outcomes	Reduction of site assessment time required for a developer (the Site Assessment Term in BOEM's typical Commercial Leases for Renewable Energy Development on the Outer Continental Shelf)	5 years	0	4 years	4 years

Table notes

a. A 0 (zero) denotes that the actual value is currently believed to be zero for baseline/market metrics.

Clean Energy Fund:

Low- to Moderate-Income Chapter

Portfolio: Market Development

Healthy Homes Feasibility Study

Expected Timeline Of Funding Commitments									
2016	2017	2018	2019	2020	2021	2022	2023	2024	2025

Results to Date - Metrics

Total Plan vs. Progress Thru 2018	Plan	Progress	% To Plan
Budget Commitments ($)	215,000	212,147	99%
Electricity Savings, Annual (MWh)	-	-	-
Beneficial Electrification, Annual (MWh)	-	-	-
Electricity Peak Demand Reductions, (MW)	-	-	-
Fuel Savings, Annual (MMBtu)	-	-	-
Fuel Switching, Annual (MMBtu)	-	-	-
Renewable Energy Generation, Annual (MWh)	-	-	-
Renewable Energy Capacity (MW)	-	-	-
CO2e Emission Reductions, Lifetime (Metric Tons)	-	-	-
Participant Bill Savings, Annual ($)	-	-	-
Leveraged Funds ($)	-	-	-

Summary of Performance and Future Plans
The pilot is substantially designed and funding for the pilot will be included in a new Investment Plan to be filed in 2019. Feasibility study work is winding down and anticipating completion in 2019. Program will continue as outlined in April 2019 investment plan.

Key Milestones Completed During 2018

Milestone	Explanation of Progress
Complete feasibility study and make a determination on whether to continue with the pilot design and implementation phase.	Feasibility study completed.

Results to Date—Outputs/Outcomes

Indicators		Baseline (Before/Current)	2017 (cumulative) Progress	2018 (cumulative) Progress	2019 (cumulative) Target	2025 (cumulative) Target
Activity/ Outputs	Feasibility Study	0	0	1	1	1

Low-Income Forum on Energy

Expected Timeline Of Funding Commitments

2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
	Start								End

Results to Date - Metrics

Total Plan vs. Progress Thru 2018	Plan	Progress	% To Plan
Budget Commitments ($)	320,000	293,989	92%
Electricity Savings, Annual (MWh)	-	-	-
Beneficial Electrification, Annual (MWh)	-	-	-
Electricity Peak Demand Reductions, (MW)	-	-	-
Fuel Savings, Annual (MMBtu)	-	-	-
Fuel Switching, Annual (MMBtu)	-	-	-
Renewable Energy Generation, Annual (MWh)	-	-	-
Renewable Energy Capacity (MW)	-	-	-
CO2e Emission Reductions, Lifetime (Metric Tons)	-	-	-
Participant Bill Savings, Annual ($)	-	-	-
Leveraged Funds ($)	-	-	-

Summary of Performance and Future Plans

The initiative is exceeding planned participation through webinars and events. The team is planning a series of regional meetings to be held in early 2019.

Program continuing per April 2019 investment plan.

Key Milestones Completed During 2018

Milestone	Explanation of Progress
Implement a statewide conference in Q2 of 2018.	A Statewide conference was successfully implemented on May 22-23, 2018.

Results to Date—Outputs/Outcomes

Indicators		Baseline (Before/Current)	2017 (cumulative) Progress	2018 (cumulative) Progress	2019 (cumulative) Target	2025 (cumulative) Target
Activity/ Outputs	Number of meetings and conferences	1 conference every other year and 7 annual meetings occurring in the alternate years	7 regional meetings were held in April-May 2017	7 regional meetings were held in April-May 2017, 1 Statewide Conference was held in May 2018	1 conference and 14 regional meetings	4 biennial conferences and 35 regional meetings
	Number of monthly webinars completed	10 per year	9	19	33	93
	Number of monthly newsletters circulated	10 per year	9	19	33	93
	Number of unique organizations participating in LIFE initiatives on an annual basis	300	0	1169	900	2,700
	Number of unique individuals participating in LIFE initiatives on an annual basis	504	0	1489	1,667	4536
Outcomes	Number of organizations participating in LIFE initiatives on an annual basis	456	0	1782	1,317	3,951
	Number of individuals participating in LIFE initiatives on an annual basis	748	0	2224	2,522	7,629

Low-Rise New Construction Transition—LMI
(formerly combined with Market Rate in RAT Chapter)

Expected Timeline Of Funding Commitments

2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Start			End						

Results to Date - Metrics

Total Plan vs. Progress Thru 2018	Plan	Progress	% To Plan
Budget Commitments ($)	8,487,000	7,013,481	83%
Electricity Savings, Annual (MWh)	7,770	6,124	79%
Beneficial Electrification, Annual (MWh)	-	-	-
Electricity Peak Demand Reductions, (MW)	-	-	-
Fuel Savings, Annual (MMBtu)	66,900	72,417	108%
Fuel Switching, Annual (MMBtu)	-	-	-
Renewable Energy Generation, Annual (MWh)	-	-	-
Renewable Energy Capacity (MW)	-	-	-
CO2e Emission Reductions, Lifetime (Metric Tons)	152,600	141,714	93%
Participant Bill Savings, Annual ($)	37,300,000	29,082,257	78%
Leveraged Funds ($)	25,700,000	18,088,191	70%

Summary of Performance and Future Plans

The scale of projects related to multifamily dwellings and multiple-unit developments, which are typically smaller square footage, has impacted the program's progress against planned benefits.

Funding of new projects will cease in 2019 at which time the New Construction—LMI initiative will provide market support.

Multifamily New Construction Transition—LMI
(formerly combined with Market Rate in RAT Chapter)

Expected Timeline Of Funding Commitments

2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Start			End						

Results to Date - Metrics

Total Plan vs. Progress Thru 2018	Plan	Progress	% To Plan
Budget Commitments ($)	10,879,000	10,707,081	98%
Electricity Savings, Annual (MWh)	15,520	14,067	91%
Beneficial Electrification, Annual (MWh)	-	-	-
Electricity Peak Demand Reductions, (MW)	-	-	-
Fuel Savings, Annual (MMBtu)	81,100	69,712	86%
Fuel Switching, Annual (MMBtu)	-	-	-
Renewable Energy Generation, Annual (MWh)	-	-	-
Renewable Energy Capacity (MW)	-	-	-
CO2e Emission Reductions, Lifetime (Metric Tons)	249,300	222,150	89%
Participant Bill Savings, Annual ($)	50,200,000	51,886,408	103%
Leveraged Funds ($)	62,400,000	45,943,242	74%

Summary of Performance and Future Plans

Results of this initiative are expected to align closely with the original planned values at the conclusion of the program.

This transition initiative will cease funding for new projects in 2019 at which time the New Construction—LMI initiative will provide market support.

Single-Family—Low-Income
(formerly LMI Single-Family)

Expected Timeline Of Funding Commitments

2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Start						End			

Results to Date - Metrics

Total Plan vs. Progress Thru 2018	Plan	Progress	% To Plan
Budget Commitments ($)	97,880,626	69,379,585	71%
Electricity Savings, Annual (MWh)	15,820	11,777	74%
Beneficial Electrification, Annual (MWh)	-	-	-
Electricity Peak Demand Reductions, (MW)	-	-	-
Fuel Savings, Annual (MMBtu)	399,000	332,890	83%
Fuel Switching, Annual (MMBtu)	-	-	-
Renewable Energy Generation, Annual (MWh)	-	-	-
Renewable Energy Capacity (MW)	-	-	-
CO2e Emission Reductions, Lifetime (Metric Tons)	688,000	556,054	81%
Participant Bill Savings, Annual ($)	158,500,000	130,803,506	83%
Leveraged Funds ($)	2,250,000	-	0%

Summary of Performance and Future Plans

The program is making steady progress towards goals. In 2018, the program leveraged other funding sources which put performance for CEF funding commitments and benefits slightly behind plan. The program expects to meet all planned benefits, ramping up pace in 2019.

Modified investment plan filed in April 2019 includes new expectations for timing of funding commitments and benefits. Otherwise, the initiative is continuing as planned.

Key Milestones Completed During 2018

Milestone	Explanation of progress
Host regional contractor meetings to gather stakeholder input.	Four regional meetings were held in August 2018 to engage contractors, collect feedback and provide program redesign updates. Feedback from these regional meetings is being compiled for Program review and action.

Results to Date—Outputs/Outcomes

Not applicable for this initiative.

Single-Family—Moderate Income
(formerly LMI Single-Family)

Expected Timeline Of Funding Commitments

2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Start					End				

Results to Date - Metrics

Total Plan vs. Progress Thru 2018	Plan	Progress	% To Plan
Budget Commitments ($)	36,566,931	27,421,601	75%
Electricity Savings, Annual (MWh)	2,769	2,910	105%
Beneficial Electrification, Annual (MWh)	-	-	-
Electricity Peak Demand Reductions, (MW)	-	-	-
Fuel Savings, Annual (MMBtu)	174,000	139,158	80%
Fuel Switching, Annual (MMBtu)	-	-	-
Renewable Energy Generation, Annual (MWh)	-	-	-
Renewable Energy Capacity (MW)	-	-	-
CO2e Emission Reductions, Lifetime (Metric Tons)	265,200	224,475	85%
Participant Bill Savings, Annual ($)	59,400,000	47,507,859	80%
Leveraged Funds ($)	26,860,000	28,575,527	106%

Summary of Performance and Future Plans

Similar to Low-Income, the Moderate-Income program is making steady progress towards goals. In 2018, the program leveraged other funding sources which put performance slightly behind plan. The program expects to meet all planned benefits, ramping up pace in 2019.

Modified investment plan filed in April 2019 includes new expectations for timing of funding commitments and benefits. Otherwise, the initiative is continuing as planned.

Key Milestones Completed During 2018

Milestone	Explanation of progress
Host regional contractor meetings to gather stakeholder input.	Four regional meetings were held in August 2018 to engage contractors, collect feedback and provide program redesign updates. Feedback from these regional meetings is being compiled for Program review and action.

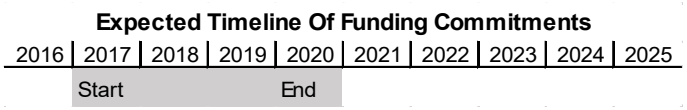
Results to Date—Outputs/Outcomes

Not applicable for this initiative

Solar For All

(formerly Low-Income Community Solar)

Expected Timeline Of Funding Commitments



Results to Date - Metrics

Total Plan vs. Progress Thru 2018	Plan	Progress	% To Plan
Budget Commitments ($)	11,345,000	12,415,251	109%
Electricity Savings, Annual (MWh)	-	-	-
Beneficial Electrification, Annual (MWh)	-	-	-
Electricity Peak Demand Reductions, (MW)	-	-	-
Fuel Savings, Annual (MMBtu)	-	-	-
Fuel Switching, Annual (MMBtu)	-	-	-
Renewable Energy Generation, Annual (MWh)	-	-	-
Renewable Energy Capacity (MW)	-	-	-
CO2e Emission Reductions, Lifetime (Metric Tons)	-	-	-
Participant Bill Savings, Annual ($)	-	-	-
Leveraged Funds ($)	-	-	-

Summary of Performance and Future Plans

The first round of Solar for All projects was contracted during Q4 2018. The first round includes nine community projects with a total capacity of 9 MW dedicated to the Solar for All program and serving customers in the NYSEG, National Grid, Central Hudson, and Orange & Rockland utility territories. In addition to savings on participant electric bills, some of the selected projects have also committed to additional community benefits, including donations to local organizations serving families in need, educational programs for local schools, and committing additional project capacity to subscriptions for moderate-income households.

Modified investment plan filed in April 2019 includes new expectations for timing of funding commitments and benefits. Otherwise, the initiative is continuing as planned.

Key Milestones Completed During 2018

Milestone	Explanation of Progress
Issue solicitation for community solar projects to dedicate generation to low-income customers with a standard offer subscription.	RFP 3802 was released on May 24, 2018.
Initiate low-income customer outreach and enrollment.	Initiate low-income customer outreach and enrollment.

Solar For All cont.

Results to Date—Outputs/Outcomes

Indicators[a]		Baseline (Before/Current)	2018 (cumulative) Progress	2020 (cumulative) Target
Activity/ Outputs	Capacity of community solar projects contracted by NYSERDA for low income customer subscriptions (MW DC).	0	9	16[b]
	Number of program participants enrolled through outreach and marketing activities.[c]	0	131	24,000
Outcomes	Number of community solar subscriptions provided to low income customers through the initiative	0	0	10,0000
	Low income customer acquisition costs[d]	$1000[e]	TBD	$175
	Low income customer management costs[f]	$75[g]	TBD	$15
	Cost savings to low income program participants	0	0	$5 million
	Participation of low income customers in community solar projects post-initiative	0%	TBD	10%

Table notes

a. A 0 (zero) denotes that the actual value is currently believed to be zero for baseline/market metrics.

b. 16 MW DC will generate approximately 18.78 MWh per year.

c. The program targets 10,000 subscriptions for low income customers. However, it is anticipated that as participants move or otherwise leave the program, replacement customers will be enrolled. For planning purposes, NYSERDA is assuming that 20% of participants will leave the program each year, and that up to 24,000 individual households will participate over the course of the program.

d. Per participant.

e. This number reflects a best estimate of average residential customer acquisition costs based on interviews with community solar projects developers conducted by NYSERDA.

f. Per participant, per year.

g. This number reflects a best estimate of average residential customer management costs based on interviews with community solar projects developers conducted by NYSERDA.

Low-to-Moderate Income Multifamily

Expected Timeline Of Funding Commitments

2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Start					End				

Results to Date - Metrics

Total Plan vs. Progress Thru 2018	Plan	Progress	% To Plan
Budget Commitments ($)	22,505,001	14,901,752	66%
Electricity Savings, Annual (MWh)	14,520	14,085	97%
Beneficial Electrification, Annual (MWh)	-	-	-
Electricity Peak Demand Reductions, (MW)	-	10	-
Fuel Savings, Annual (MMBtu)	198,100	151,522	76%
Fuel Switching, Annual (MMBtu)	-	-	-
Renewable Energy Generation, Annual (MWh)	-	-	-
Renewable Energy Capacity (MW)	-	-	-
CO2e Emission Reductions, Lifetime (Metric Tons)	287,900	231,990	81%
Participant Bill Savings, Annual ($)	60,000,000	43,008,292	72%
Leveraged Funds ($)	58,440,000	21,867,872	37%

Summary of Performance and Future Plans

Program intake doubled in 2018 compared to 2017. NYSERDA has launched new communication and outreach efforts to continue to improve program intake. Based on marketing indicators and market insights, intake is expected to continue to increase and reach projected intake in 2019. Early projects in the program were smaller buildings than anticipated, resulting in lower savings than expected.

Modified investment plan filed in April 2019 includes new expectations for timing of funding commitments and benefits. Otherwise, the initiative is continuing as planned.

Key Milestones Completed During 2018

No milestones were completed in 2018.

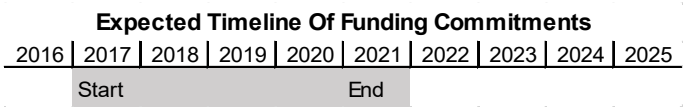
Results to Date—Outputs/Outcomes

Not applicable for this initiative.

New Construction—LMI

(formerly combined under New Construction)

Expected Timeline Of Funding Commitments



Results to Date - Metrics

Total Plan vs. Progress Thru 2018	Plan	Progress	% To Plan
Budget Commitments ($)	6,375,800	628,972	10%
Electricity Savings, Annual (MWh)	2,100	-	0%
Beneficial Electrification, Annual (MWh)	-	-	-
Electricity Peak Demand Reductions, (MW)	-	-	-
Fuel Savings, Annual (MMBtu)	8,820	-	0%
Fuel Switching, Annual (MMBtu)	-	-	-
Renewable Energy Generation, Annual (MWh)	-	-	-
Renewable Energy Capacity (MW)	-	-	-
CO2e Emission Reductions, Lifetime (Metric Tons)	39,600	-	0%
Participant Bill Savings, Annual ($)	9,410,000	-	0%
Leveraged Funds ($)	3,450,000	-	0%

Summary of Performance and Future Plans

The program is behind pace largely due to the extended utilization of RAT funding and a subsequent delay in the launch of Buildings of Excellence program slated for early 2019 release. The program is expected to get back on track and reach planned benefits.

Modified investment plan filed in April 2019 includes new expectations for timing of funding commitments and benefits. Otherwise, the initiative is continuing as planned.

Key Milestones Completed During 2018

No milestones were completed in 2018.

New Construction LMI cont.

Results to Date—Outputs/Outcomes

Indicators[a]		Baseline (Before/Current)	2018 (cumulative) Progress	2019 (cumulative) Target
Activity/ Outputs	Number of advanced clean energy housing units in NYS	5,372	11,154	9,122
	Number of participants attending workshops and trainings	0	0	212
	Number of case studies developed and distributed	0	0	4
	Number of Projects that utilize coach/advisor	0	0	20
	Number of projects that complete a Performance Analysis through the program	0	0	7
	Number of housing units recognized through Buildings of Excellence competition	0	0	580
Outcomes	Projects that utilize model measure packages outside of the program	0	0	11
	Number of LMI Public Housing solicitations that specify use of integrated design and construction practices, and third-party QA/QC standards	0	0	2

Table notes

a. TBD denotes that NYSERDA requires more data in order to quantify baseline/market metrics to the degree needed to measure against in the future. Baseline measurements of key market indicators are anticipated to occur soon following initiative approval and NYSERDA will update the information in this table as the information becomes available, which is anticipated within 9-12 months of initiative approval. A 0 (zero) denotes that the actual value is currently believed to be zero for baseline/market metrics.

RetrofitNY—LMI
(formerly RetrofitNY)

Expected Timeline Of Funding Commitments

2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
	Start								End

Results to Date - Metrics

Total Plan vs. Progress Thru 2018	Plan	Progress	% To Plan
Budget Commitments ($)	12,590,000	1,576,961	13%
Electricity Savings, Annual (MWh)	270	-	0%
Beneficial Electrification, Annual (MWh)	-	-	-
Electricity Peak Demand Reductions, (MW)	-	-	-
Fuel Savings, Annual (MMBtu)	4,840	-	0%
Fuel Switching, Annual (MMBtu)	-	-	-
Renewable Energy Generation, Annual (MWh)	-	-	-
Renewable Energy Capacity (MW)	-	-	-
CO2e Emission Reductions, Lifetime (Metric Tons)	8,380	-	0%
Participant Bill Savings, Annual ($)	1,620,000	-	0%
Leveraged Funds ($)	-	-	-

Summary of Performance and Future Plans

Six design/construction teams designed retrofit solutions on six affordable housing buildings in early June 2018 under RFP 3750. Final deliverables have been received by NYSERDA in December 2018 and are under review.

It is anticipated that some or all of the six buildings for which solutions were designed under RFP 3760 will be the first pilot buildings and will go to construction in 2019.

This investment plan has been modified in the April 2019 filing to reflect a revised timeframe and characterization of benefits.

Key Milestones Completed During 2018

Milestone	Explanation of Progress
Competitive solicitation for the first round of the design-build competition is released.	The solicitation was released on February 6, 2018. 22 applications were received the first month. Six projects have been competitively selected and contracts were awarded.
First solutions are being designed.	The six design/build teams selected under RFP 3750 started design work in late May/early June 2018.
First solutions are designed.	Final design deliverables were received in December 2018 and are being reviewed by NYSERDA and its partners.

RetrofitNY—LMI cont.

Results to Date—Outputs/Outcomes

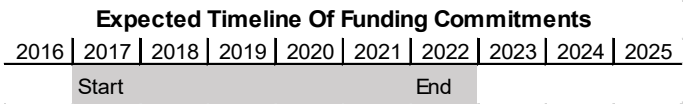
Indicators[a]		Baseline (Before/Current)	2017 (cumulative) Progress	2018 (cumulative) Progress	2019 (cumulative) Target	2025 (cumulative) Target
Activity/ Outputs	Number of units committed by affordable housing organizations and private owners	0	0	0	50,000	100,000
	Number of valid solutions evaluated by the competition jury	0	0	6	5	15
	Funding and financing committed by the private sector	0	0	0	$605,000	$1,410,680,000
	Number of retrofit packages tested through pilots	0	0	0	1	4
	Number of units retrofitted or in the pipeline	0	0	0	430	100,000
Outcomes	Number of cost effective retrofit solutions available in the market	0	0	0	0	2 or more

Table notes

a. A 0 (zero) denotes that the actual value is currently believed to be zero for baseline/market metrics.

REVitalize

Expected Timeline Of Funding Commitments



Results to Date - Metrics

Total Plan vs. Progress Thru 2018	Plan	Progress	% To Plan
Budget Commitments ($)	725,000	310,780	43%
Electricity Savings, Annual (MWh)	-	-	-
Beneficial Electrification, Annual (MWh)	-	-	-
Electricity Peak Demand Reductions, (MW)	-	-	-
Fuel Savings, Annual (MMBtu)	-	-	-
Fuel Switching, Annual (MMBtu)	-	-	-
Renewable Energy Generation, Annual (MWh)	2,990	2,352	79%
Renewable Energy Capacity (MW)	2	2	100%
CO2e Emission Reductions, Lifetime (Metric Tons)	31,500	24,751	79%
Participant Bill Savings, Annual ($)	9,460,000	6,251,616	66%
Leveraged Funds ($)	5,880,000	4,629,714	79%

Summary of Performance and Future Plans

A decision to hold tool kit development, ensuring alignment with the solar predevelopment and technical assistance program, has resulted in the program falling behind planned commitments pace. It is expected to gain traction in 2019.

Modified investment plan filed in April 2019 includes new expectations for timing of funding commitments and benefits. Otherwise, the initiative is continuing as planned.

Key Milestones Completed During 2018

Milestone	Explanation of Progress
Selection of five communities to receive financial and technical support, contract development, and contract execution by Q4 2017.	Four contracts are fully executed and proposals received didn't justify the award of a fifth contract: • Sustainable Binghamton • People United for Sustainable Housing (PUSH) • West Harlem Environmental Action, Inc. (WE ACT) • City of Utica

REVitalize cont.

Results to Date—Outputs/Outcomes

Indicators[a]		Baseline (Before/Current)	2017 (cumulative) Progress	2018 (cumulative) Progress	2019 (cumulative) Target	2025 (cumulative) Target
Activity/ Outputs	Number of LMI and EJ communities undertaking clean energy planning efforts	0	0	4	5	80
	Number of toolkits developed to reduce the learning curve associated with community energy planning in LMI and EJ communities	0	0	0	1-3	1-3
Outcomes	Use of tools by LMI and EJ communities in community energy planning	0	0	0	1-3	1-3
	Reduction in time necessary to plan and implement a community-scale clean energy project in LMI and EJ communities	1-2 years	0	0	6-12 months	6-12 months
	Number of LMI/EJ customers benefitting from community-scale clean energy projects	202	0	542	1,000	16,300

Table notes

a. A 0 (zero) denotes that the actual value is currently believed to be zero for baseline/market metrics.

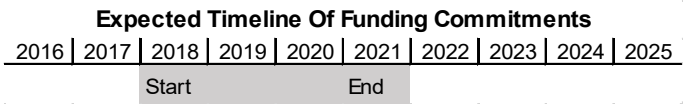
Clean Energy Fund:

Multi-Sector Solutions Chapter

Portfolio: Market Development

Clean Energy Siting and Soft Cost Reduction

Expected Timeline Of Funding Commitments



Results to Date - Metrics

Total Plan vs. Progress Thru 2018	Plan	Progress	% To Plan
Budget Commitments ($)	2,965,000	614,084	21%
Electricity Savings, Annual (MWh)	-	-	-
Beneficial Electrification, Annual (MWh)	-	-	-
Electricity Peak Demand Reductions, (MW)	-	-	-
Fuel Savings, Annual (MMBtu)	-	-	-
Fuel Switching, Annual (MMBtu)	-	-	-
Renewable Energy Generation, Annual (MWh)	-	-	-
Renewable Energy Capacity (MW)	-	-	-
CO2e Emission Reductions, Lifetime (Metric Tons)	-	-	-
Participant Bill Savings, Annual ($)	-	-	-
Leveraged Funds ($)	-	-	-

Summary of Performance and Future Plans

The initiative has made good progress on its milestones to date and is experiencing greater than expected market demand and requests from local officials. The program has been able to deliver on objectives more cost-effectively than planned.

The investment plan has been updated in April 2019 to reflect expanded technology focus areas and adjust timeframe in the market.

Key Milestones Completed During 2018

Milestone	Explanation of Progress
Issue competitive solicitation	RFP 3757 launched May 14, 2018 with proposals due in early Q3 2018.

Clean Energy Siting and Soft Cost Reduction cont.

Results to Date—Outputs/Outcomes

Indicators [a]		Baseline (Before/Current)	2018 (cumulative) Progress	2020 (cumulative) Target
Activity/ Outputs	Number of NYSERDA-led meetings on soft costs with market stakeholders	0	12	12
	Number of soft cost solutions created	3	8	8
	Number of outreach and education campaigns	1	2	3
	Number of soft cost reduction incentive grants awarded	0	0	50
	Number of regional LSR community meetings	0	25	6
	Number of Distributed Solar Soft Cost Innovation awards made	0	0	5
Outcomes	Percentage of working group members reporting improved communication and collaboration among market stakeholders, based on a pre- and post- intervention	N/A	N/A	50%
	Number of AHJs receiving up to 100 hours of direct technical assistance on distributed solar projects and battery energy storage projects	0	50	50
	Number of AHJs receiving direct technical assistance on LSR wind and solar projects	0	5	10
	Number of AHJs completing additional Clean Energy Community-specified steps to reduce soft costs	0	N/A	50
	Number of research projects and pilot projects completed	0	0	5
	Reduce distributed solar soft costs in New York State 20% by 2020	[b] 2016 Baseline Soft Costs:40 Residential: Con Ed: $2.46/W Long Island: $2.00/W Rest of State (ROS): $2.18/W Commercial Roof-Mount: Con Ed: $0.97/W Long Island: $0.42/W ROS: $1.66/W Commercial Ground-Mount: ROS Fixed: $1.01/W ROS Tracking: $1.03/W	n/a	20% reduction in average distributed solar soft costs relative to baseline data
	Percentage of developers that experience a reduction in project delays and failures due to local issues as compared to prior development experiences in NYS	N/A	n/a	80%
	Percentage of AHJs expressing satisfaction with hosting an LSR energy project, based on a pre- and post- intervention survey	N/A	n/a	80%

Table notes

a. A 0 (zero) denotes that the actual value is currently believed to be zero for baseline/market metrics.

b. Manson, Cynthia. “Solar Balance-Of-System Costs Baseline Cost Study.” Prepared for NYSERDA by Industrial Economics, Incorporated (IEc). May 2017.

Commercial and Industrial Carbon Challenge

(formerly Clean Energy AMP Challenge)

Expected Timeline Of Funding Commitments

2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
		Start				End			

Results to Date - Metrics

Total Plan vs. Progress Thru 2018	Plan	Progress	% To Plan
Budget Commitments ($)	10,500,000	9,785,150	93%
Electricity Savings, Annual (MWh)	25,900	38,953	150%
Beneficial Electrification, Annual (MWh)	-	-	-
Electricity Peak Demand Reductions, (MW)	-	-	-
Fuel Savings, Annual (MMBtu)	152,000	832,808	548%
Fuel Switching, Annual (MMBtu)	-	-	-
Renewable Energy Generation, Annual (MWh)	4,690	823	18%
Renewable Energy Capacity (MW)	4	-	0%
CO2e Emission Reductions, Lifetime (Metric Tons)	370,000	978,845	265%
Participant Bill Savings, Annual ($)	51,900,000	130,664,750	252%
Leveraged Funds ($)	54,500,000	21,811,100	40%

Summary of Performance and Future Plans

Initial clean energy projects from the first round of energy projects indicate very cost-effective carbon reductions.

This plan was modified in early 2019 to expand impact which can be referenced in the April 2019 IPPR filing of all investment plans.

Key Milestones Completed During 2018

Milestone	Explanation of Progress
Issue competitive solicitation.	RFP 3757 launched May 14, 2018 with proposals due in early Q3 2018.

Commercial and Industrial Carbon Challenge cont.

Results to Date—Outputs/Outcomes

Indicators[a]		Baseline (Before/Current)	2018 (cumulative) Progress	2020 (cumulative) Target
Activity/ Outputs	Number of sites impacted	0	2	2
Outcomes	Lifetime carbon savings from selected participants meet or exceed CEF program benchmark [b]	$22/ton	$11/ton	$22/ton

Table notes

a. A 0 (zero) denotes that the actual value is currently believed to be zero for baseline/market metrics.

b. NYSERDA's CEF Market Development portfolio funding and minimum carbon savings target serves as the minimum benchmark for this initiative. The Commercial and Industrial Carbon Challenge strives to equal, and hopefully exceed, this benchmark. NYSERDA derived the $27/ton (lifetime) benchmark for the CEF Market Development portfolio based on the funding authorized (Appendix E) and the lifetime CO2 tons expected to be contributed by Market Development (pp 41) within the Commission's Order Authorizing the Clean Energy Fund, Issued and Effective June 21, 2016. $2,610 million for Market Development program, administration and cost recovery fees, exclusive of Evaluation funds, divided by 96.6 million lifetime tons (restated from 76 million lifetime tons based on application of the most current electricity grid emission factor) gives this benchmark.

Pay for Performance

Expected Timeline Of Funding Commitments

2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
		Start							End

Results to Date - Metrics

Total Plan vs. Progress Thru 2018	Plan	Progress	% To Plan
Budget Commitments ($)	4,000,000	2,364,103	59%
Electricity Savings, Annual (MWh)	-	-	-
Beneficial Electrification, Annual (MWh)	-	-	-
Electricity Peak Demand Reductions, (MW)	-	-	-
Fuel Savings, Annual (MMBtu)	-	-	-
Fuel Switching, Annual (MMBtu)	-	-	-
Renewable Energy Generation, Annual (MWh)	-	-	-
Renewable Energy Capacity (MW)	-	-	-
CO2e Emission Reductions, Lifetime (Metric Tons)	-	-	-
Participant Bill Savings, Annual ($)	-	-	-
Leveraged Funds ($)	-	-	-

Summary of Performance and Future Plans
New initiative that is anticipated to launch in Q3 2019. Program continuing per April 2019 investment plan.

Key Milestones Completed During 2018

Milestone	Explanation of Progress
Make available historical program performance data utilizing CalTRACK results.	On September 17, 2018, performance data from Home Performance with Energy Star Market Rate and Assisted projects from 2007-2012 was published on OpenNY. The savings data was calculated using the CalTRACK methodology. Measure specific data about these projects was posted shortly thereafter.

Pay for Performance cont.

Results to Date—Outputs/Outcomes

Indicators [a]		Baseline (Before/Current)	**2018** (cumulative) Progress	**2022** (cumulative) Target
Activity/ Outputs	Number of participating aggregators	0	0	8
	Total number of projects implemented (by sector)	0	0	Residential: 7,000 Commercial: 5,575
	Number of Utility Administrators with an executed MOU participating in P4P pilot	0	1	3
	Number of data sets published on OpenNY	0	0	4
Outcomes	Number of additional market actors involved in P4P pilot (nonaggregator involvement such as financial institutions, subcontractors, etc.)	0	0	8
	Number of utilities committed to offering P4P programs postpilot	0	0	3

Table notes

a. A 0 (zero) denotes that the actual value is currently believed to be zero for baseline/market metrics.

(EE) Soft Cost Challenge

Expected Timeline Of Funding Commitments

2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
				Start		End			

Results to Date - Metrics

Total Plan vs. Progress Thru 2018	Plan	Progress	% To Plan
Budget Commitments ($)	6,342,000	111,916	2%
Electricity Savings, Annual (MWh)	8,860	-	0%
Beneficial Electrification, Annual (MWh)	-	-	-
Electricity Peak Demand Reductions, (MW)	-	-	-
Fuel Savings, Annual (MMBtu)	295,000	-	0%
Fuel Switching, Annual (MMBtu)	-	-	-
Renewable Energy Generation, Annual (MWh)	-	-	-
Renewable Energy Capacity (MW)	-	-	-
CO2e Emission Reductions, Lifetime (Metric Tons)	233,000	-	0%
Participant Bill Savings, Annual ($)	55,600,000	-	0%
Leveraged Funds ($)	3,660,000	-	0%

Summary of Performance and Future Plans

The EE Soft Cost Challenge remains on hold in an effort to better align with other market interventions and learning from planned market studies.

NYSERDA is planning a modification to this initiative, to be informed by completion of a statewide energy efficiency soft cost baseline study in late 2019 or early 2020.

Key Milestones Completed During 2018

No milestones were completed in 2018.

(EE) Soft Cost Challenge cont.

Results to Date—Outputs/Outcomes

Indicators[a]		Baseline (Before/Current)	2018 (cumulative) Progress	2020 (cumulative) Target
Activity/ Outputs[b]	Number of recipients of phase 1 development funding	0	0	20
	Number of Phase 2 grand prize-winning solutions	0	0	10
	Number of companies utilizing winning solutions	0	0	15
Outcomes	Number of companies that are early adopters of similar solutions outside of the Challenge	0	0	100
	Increase in number of contracts signed with Service Providers utilizing winning EE solutions	0%	0	45%

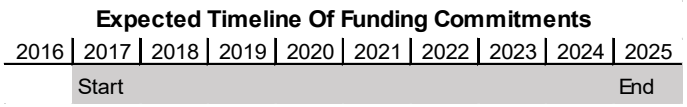
Table notes

a. A 0 (zero) denotes that the actual value is currently believed to be zero for baseline/market metrics.

b. Level 1 Activity/Outputs represent indicators that can be measured during the Challenge and are not dependent on the types of solutions that are proposed. Level 2 Activity/Outputs (noted below) are defined by indicators that cannot be measured until after the Challenge has ended and various proposed solutions have been implemented. Furthermore, solutions will differ in the specific Activity/Outputs that are targeted and thus the impact on the associated indicators listed will vary.

Aggregated Technical Services
(formerly Technical Services)

Expected Timeline Of Funding Commitments



Results to Date - Metrics

Total Plan vs. Progress Thru 2018	Plan	Progress	% To Plan
Budget Commitments ($)	3,070,000	3,834,456	125%
Electricity Savings, Annual (MWh)	20,220	14,299	71%
Beneficial Electrification, Annual (MWh)	-	-	-
Electricity Peak Demand Reductions, (MW)	-	-	-
Fuel Savings, Annual (MMBtu)	114,540	121,041	106%
Fuel Switching, Annual (MMBtu)	-	-	-
Renewable Energy Generation, Annual (MWh)	185	26	14%
Renewable Energy Capacity (MW)	-	-	-
CO2e Emission Reductions, Lifetime (Metric Tons)	287,100	237,609	83%
Participant Bill Savings, Annual ($)	58,200,000	48,387,015	83%
Leveraged Funds ($)	19,280,000	9,148,566	47%

Summary of Performance and Future Plans

The initiative has made good progress against its current implementation milestones. Performance of the On-Site Energy Manager Program exceeded expectations after one year of operation. The second component of Technical Services, the Energy Study Aggregation Program, which launched at the end of Q2 2018, is currently lagging. NYSERDA is evaluating opportunities to refine the offering to increase uptake with changes expected the first half of 2019.

Funding from Commercial and Industrial Transition programs will be transferred into this program per investment plans filed in April 2019 to expand impact. Otherwise, the program is continuing per investment plan.

Key Milestones Completed During 2018

Milestone	Explanation of Progress
Award funding to initial entities selected under On-Site Energy Manager pilot.	Initial projects have been awarded.
Issue solicitation, New Aggregation Models pilot.	Energy Study Aggregation program launched June 29, 2018.
Award funding to initial entities selected under New Aggregation Models pilot.	First project awarded September 2018.
Issue revised open enrollment Agriculture Energy Audit component of FlexTech.	PON 3846 Agriculture Energy Audit Program was released in June 2018. This was completed in advance of what was planned to provide continuity to the market.

Aggregated Technical Services cont.

Results to Date—Outputs/Outcomes

Indicators [a]		Baseline (Before/Current)	2018 (cumulative) Progress	2019 (cumulative) Target
Activity/ Outputs	Number of buildings participating in the pilots	0	15	26
	Number of qualified and active energy-focused firms (FlexTech Consultants)	39	45	49
	Number of case studies developed	0	0	2
	Number of best practice guides delivered	0	0	2,330
Outcomes	Number of energy-focused firms participating in pilots	0	6	5
	Increase or maintain the rate at which clean energy technologies are adopted by participants [b]	65%	TBD - pending impact evaluations	65%
	Increase the rate at which clean energy technologies are adopted by non-participants through sharing of best practices and case studies	[c] 25%	TBD - pending impact evaluations	30

Table notes

a. A 0 (zero) denotes the actual value is currently believed to be zero for baseline/market metrics.

b. The FlexTech Program has had the highest measure adoption rate (MAR) in the nation for individual cost-shared energy studies. Technical Services strives to maintain, and hopefully increase, this notable MAR through various cost-effective pilots.

c. The FlexTech Program has a current spillover rate of 25%, this initiative will strive to improve this.

Clean Energy Fund:

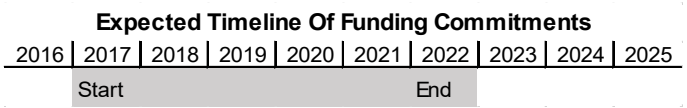
New Construction Chapter

Portfolio: Market Development

New Construction—Market Rate

(formerly New Construction and combined with LMI)

Expected Timeline Of Funding Commitments



Results to Date - Metrics

Total Plan vs. Progress Thru 2018	Plan	Progress	% To Plan
Budget Commitments ($)	28,377,300	7,780,025	27%
Electricity Savings, Annual (MWh)	39,560	5,394	14%
Beneficial Electrification, Annual (MWh)	-	-	-
Electricity Peak Demand Reductions, (MW)	-	-	-
Fuel Savings, Annual (MMBtu)	67,100	-	0%
Fuel Switching, Annual (MMBtu)	-	-	-
Renewable Energy Generation, Annual (MWh)	7,660	5,394	70%
Renewable Energy Capacity (MW)	-	-	-
CO2e Emission Reductions, Lifetime (Metric Tons)	629,000	124,881	20%
Participant Bill Savings, Annual ($)	127,400,000	36,127,562	28%
Leveraged Funds ($)	12,900,000	9,515,759	74%

Summary of Performance and Future Plans

The program is behind pace largely due to the extended utilization of RAT funding and a subsequent delay in the launch of Buildings of Excellence program slated for early 2019 release. The program is expected to get back on track and reach planned benefits, although the timeframe will change as indicated in the annual IPPR plan update.

Program continuing per April 2019 investment plan.

Key Milestones Completed During 2018

Milestone	Explanation of Progress
Issue Solicitation for Net Zero Energy Commercial/Industrial Competition.	The solicitation for the Net Zero Energy for Economic Development program was released as part of the Consolidated Funding Application on May 1, 2018.

New Construction—Market Rate cont.

Results to Date—Outputs/Outcomes

Indicators [a]		Baseline (Before/Current)	2018 (cumulative) Progress	2019 (cumulative) Target
Activity/ Outputs	Number of advanced clean energy housing units in NYS	1,584	2974	6,017
	Number of advanced clean energy commercial buildings in NYS	9	33	69
	Number of projects awarded through the Net Zero Energy/Carbon Competition	0	10	32
	Number of participants attending workshops and trainings	0	0	660
	Number of case studies developed and distributed	0	0	9
	Number of model measure packages available	0	0	9
	Number of Projects that utilize coach/advisor	0	0	60
	Number of projects that complete a Performance Analysis through the program	0	0	17
	Incremental cost of building a Net Zero Energy building over standard construction practices	5-10% cost above standard construction	0	3-8% cost above standard construction
	Number of housing units recognized through Buildings of Excellence competition	0	0	2320
Outcomes	Percent market penetration of projects utilizing integrated design and construction practices to achieve Net Zero Energy and Net Zero Energy-capable performance	TBD	0	4%
	Number of LMI Public Housing solicitations that specify use of integrated design and construction practices, and thirdparty QA/QC standards	0	0	2
	Projects that utilize model measure packages outside of the program	0	0	22
	Discrepancies between predicted and actual savings	TBD	0	Within 18% accuracy for more than 50% of projects

Table notes

a. TBD denotes that NYSERDA requires more data in order to quantify baseline/market metrics to the degree needed to measure against in the future. Baseline measurements of key market indicators are anticipated to occur soon following initiative approval and NYSERDA will update the information in this table as the information becomes available, which is anticipated within 9-12 months of initiative approval. A 0 (zero) denotes that the actual value is currently believed to be zero for baseline/market metrics.

Clean Energy Fund:

On-Site Power Chapter

Portfolio: Market Development

Fuel Cells

Expected Timeline Of Funding Commitments

2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
		Start	End						

Results to Date - Metrics

Total Plan vs. Progress Thru 2018	Plan	Progress	% To Plan
Budget Commitments ($)	7,500,000	1,035,733	14%
Electricity Savings, Annual (MWh)	33,300	4,369	13%
Beneficial Electrification, Annual (MWh)	-	-	-
Electricity Peak Demand Reductions, (MW)	4	1	25%
Fuel Savings, Annual (MMBtu)	-	-	-
Fuel Switching, Annual (MMBtu)	(259,000)	(34,035)	13%
Renewable Energy Generation, Annual (MWh)	-	-	-
Renewable Energy Capacity (MW)	-	-	-
CO2e Emission Reductions, Lifetime (Metric Tons)	75,000	9,790	13%
Participant Bill Savings, Annual ($)	59,900,000	10,221,211	17%
Leveraged Funds ($)	20,500,000	688,122	3%

Summary of Performance and Future Plans

Although market uptake appears to be lagging plans, additional applications have been received and are under review (the magnitude of these additional applications brings the program nearly on-par with planned progress).

Program continuing per April 2019 investment plan, with final funding commitments expected to be made in 2019.

Key Milestones Completed During 2018

Milestone	Explanation of Progress
Issue open enrollment solicitation.	The CEF Stationary Fuel Cell Program (PON 3841) was released May 3, 2018 and will be open through December 31, 2019. PON 3841 will support the installation of a large fuel cell module with a nameplate rating greater than 25 kW. A list of eligible equipment is available in Appendix E of PON 3841.

Results to Date—Outputs/Outcomes

Indicators		Baseline (Before/Current)	**2018** (cumulative) Progress	**2019** (cumulative) Target
Activity/ Outputs	Number of fuel cell project incentives provided through program	0	0	27
Outcomes	Number of OEMs active in NYS	3	0	3

Clean Energy Fund:

Clean Heating and Cooling Chapter

Portfolio: Market Development

Heat Pumps and Solar Thermal

Expected Timeline Of Funding Commitments

2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
	Start				End				

Results to Date - Metrics

Total Plan vs. Progress Thru 2018	Plan	Progress	% To Plan
Budget Commitments ($)	18,580,743	17,686,079	95%
Electricity Savings, Annual (MWh)	-	1,187	-
Beneficial Electrification, Annual (MWh)	(6,990)	(14,744)	211%
Electricity Peak Demand Reductions, (MW)	-	-	-
Fuel Savings, Annual (MMBtu)	266,200	323,161	121%
Fuel Switching, Annual (MMBtu)	-	-	-
Renewable Energy Generation, Annual (MWh)	-	-	-
Renewable Energy Capacity (MW)	-	-	-
CO2e Emission Reductions, Lifetime (Metric Tons)	301,800	292,062	97%
Participant Bill Savings, Annual ($)	51,300,000	45,941,762	90%
Leveraged Funds ($)	20,260,000	75,300,431	372%

Summary of Performance and Future Plans

Benefits remain on target or exceeding due to larger impact per project than expected.

Program was modified in March 2019 to ensure continued funding/operation through 2019 and to provide additional support for natural gas moratorium impacted areas.

Key Milestones Completed During 2018

Milestone	Explanation of Progress
Release competitive solicitation to select community campaigns (repeat annually).	PON 3723 was released on 11/16/17.
Provide marketing toolkit and installer selection model solicitations to pilot community campaigns.	The marketing toolkit is under development using the Solarize marketing toolkit as a starting point. Installer selection model RFP will be developed by the Technical Assistance contractor using the HeatSmart RFP as a starting point.
Provide standardized contracts and best practices manual to market.	Development of the best practices and lessons learned guides, relating to the Geothermal Campus Challenge eligible facilities, are included in the contractor's (ICF) scope of work and are in process.

Heat Pumps and Solar Thermal cont.

Results to Date—Outputs/Outcomes

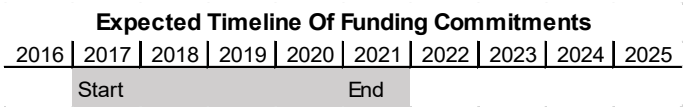
Indicators[a]		Baseline (Before/Current)	2017 (cumulative) Progress	2018 (cumulative) Progress	2019 (cumulative) Target	2022 (cumulative) Target
Activity/ Outputs	# of community campaigns	1	TBD	8	8	72
	# of community campaign enrollees	200	TBD	331	800	2,900
	# of program-qualified GSHP consultants and designers	0	3	69	10	15
	# of installers and drillers qualified by community campaigns and GSHP incentive program	0	29	46	40	50
	# of large commercial/institutional facility and campus screening studies completed	0	75	75	30	75
	# of large commercial/institutional facility and campus schematic designs completed	0	0	0	30	72
	# of large commercial/institutional facility and campus installations completed	0	0	0	7	36
	# of projects completed by community campaign participants	90	TBD	26	240	3660
	# of completed projects through the GSHP incentive program	0	TBD	457	1000	1100
	# of case studies demonstrating successful cost reduction strategies and/or customer value	0	TBD	0	5	20
Outcomes	Increased awareness of RH&C technologies in communities with campaigns	0%	0	0	10%	20%
	Cost ($ per ton) in installed systems in community campaigns and for college and university campuses is reduced	0%	0	0	10% decrease	20% decrease
	# of communities continuing campaigns without NYSERDA direct financial support	0	0	0	0	8
	# of International Ground Source Heat Pump Association (IGSHP) - certified designers, installers and drillers active in NYS	82	0	0	100	110

Table notes

a. A 0 (zero) denotes that the actual value is currently believed to be zero for baseline/market metrics.

Renewable Heat NY

Expected Timeline Of Funding Commitments



Results to Date - Metrics

Total Plan vs. Progress Thru 2018	Plan	Progress	% To Plan
Budget Commitments ($)	5,214,000	4,437,066	85%
Electricity Savings, Annual (MWh)	-	-	-
Beneficial Electrification, Annual (MWh)	-	-	-
Electricity Peak Demand Reductions, (MW)	-	-	-
Fuel Savings, Annual (MMBtu)	7,590	20,201	266%
Fuel Switching, Annual (MMBtu)	-	-	-
Renewable Energy Generation, Annual (MWh)	-	-	-
Renewable Energy Capacity (MW)	-	-	-
CO2e Emission Reductions, Lifetime (Metric Tons)	11,160	22,606	203%
Participant Bill Savings, Annual ($)	3,880,000	8,414,659	217%
Leveraged Funds ($)	5,810,000	3,353,921	58%

Summary of Performance and Future Plans

NYSERDA continues to see strong interest and market uptake on wood pellet stoves while biomass boiler activity lags.

Program continuing per April 2019 investment plan.

Key Milestones Completed During 2018

No milestones were completed in 2018.

Renewable Heat NY cont.

Results to Date—Outputs/Outcomes

Indicators[a]		Baseline (Before/Current)	2017 (cumulative) Progress	2018 (cumulative) Progress	2019 (cumulative) Target	2021 (cumulative) Target
Activity/ Outputs	Large commercial Projects (>88 kW)	4	0	0	0	9
	Residential / Small Commercial Projects (<88 kW)	23	0	33	0	170
	Residential Pellet Stove Projects	89	0	867	0	1450
	Workforce Development – Training (Individuals Trained)	279	0	35	0	400
	Supply Chain Support – R&D (Projects Completed)	0	0	0	0	20
Outcomes[b]	Reduction in PM2.5 from funded systems	15.8 tons/yr	0	91	0	140.5 tons/yr
	Reduction in CO from funded systems	114.8 tons/yr	0	610	0	981.8 tons/yr
	Reduction in SO2 from funded systems	0.087 tons/yr	0	0.45	0	0.7 tons/yr

Table notes

a. A 0 (zero) denotes that the actual value is currently believed to be zero for baseline/market metrics.

b. Baseline value for reductions in PM2.5, CO, and SO2 reflect reductions achieved through Renewable Heat New York to date. 2021 cumulative value reflects reductions based on targeted program activity.

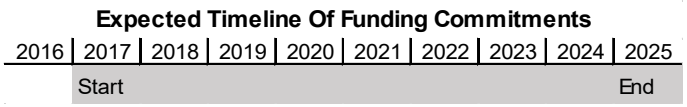
Clean Energy Fund:

Renewables Optimization Chapter

Portfolio: Innovation and Research

Energy Storage Technology and Product Development

Expected Timeline Of Funding Commitments



Results to Date - Metrics

Total Plan vs. Progress Thru 2018	Plan	Progress	% To Plan
Budget Commitments ($)	6,300,000	5,649,486	90%
Electricity Savings, Annual (MWh)	-	-	-
Beneficial Electrification, Annual (MWh)	-	-	-
Electricity Peak Demand Reductions, (MW)	-	-	-
Fuel Savings, Annual (MMBtu)	-	-	-
Fuel Switching, Annual (MMBtu)	-	-	-
Renewable Energy Generation, Annual (MWh)	-	-	-
Renewable Energy Capacity (MW)	-	-	-
CO2e Emission Reductions, Lifetime (Metric Tons)	-	-	-
Participant Bill Savings, Annual ($)	-	-	-
Leveraged Funds ($)	31,500,000	27,936,732	89%

Summary of Performance and Future Plans

This initiative is slightly behind the planned timeframe for awarding contracts from competitive solicitations. Progress on this metric is anticipated to catch up to plan as more contracts are expected to be awarded early 2019.

Program continuing per April 2019 investment plan.

Key Milestones Completed During 2018

Milestone	Explanation of Progress
Review portfolio of activities, solicit market input and reassess technology challenges areas and targets.	Learning from first four rounds is being used to design next solicitation targeted for Q1 2019.
Issue 3rd Competitive Solicitation.	Solicitation Issued.
Issue 4th Competitive Solicitation.	Ten (10) Projects have been selected and are currently under review.

Energy Storage Technology and Product Development cont.

Results to Date—Outputs/Outcomes

Indicators [a]		Baseline [b] (Before/Current)	2017 (cumulative) Progress	2018 (cumulative) Progress	2019 (cumulative) Target	2022 (cumulative) Target
Activity/ Outputs	Number of studies, demonstrations, and product development projects initiated	0	0	13	30	60
	Number of studies, demonstrations, and product development projects completed	0	0	0	10	46
	Number of strategic partnerships between small/medium sized companies and large OEMs formed	0	0	0	5	23
	Number of companies supported	0	0	24	25	55
Outcomes	Number of products commercialized	0	0	0	3	14
	Number of test sites for new technologies	0	0	2	9	18
	Revenue to companies commercializing products ($millions)	0	0	0	$3	$23
	Number of replications from demonstration projects	0	0	0	10	30
	Hardware BOS cost including power electronics for energy storage systems and Hardware Installation cost	[c] [d] Lead acid system: $1000/kWh for 4 hr. duration. Lithium ion system: $667-$670/kW.	0	0	10% cost reduction	20% cost reduction
	Hardware cost for energy storage devices	[e] [f] Lead acid system: $600-$650/kWh for 4 hr. duration. Lithium ion system Hardware (excluding battery): $369-$380/kW Battery only: $350-$500/kWh	0	0	10% cost reduction	20% cost reduction
	Performance of energy storage systems (efficiency, life, energy/power density, etc.)	2016 data unavailable	0	0	10% improvement	20% improvement

Table notes

a. A 0 (zero) denotes that the actual value is currently believed to be zero for baseline/market metrics.

b. Revised baseline metrics reflect the recently-completed Energy Storage market baseline evaluation which included research on Renewables Optimization. This study will be available publicly on NYSERDA's website and in the DPS Document and Matter Management system in the near future.

c. Within the recently-completed Energy Storage and Renewables Optimization market baseline evaluation, these values are from New York State installations in 2016.

d. Within the recently-completed Energy Storage and Renewables Optimization market baseline evaluation, these values are from secondary data and do not reflect New York State specific costs. Baseline data will be updated when New York State installations are available.

e. Within the recently-completed Energy Storage and Renewables Optimization market baseline evaluation, these values are from New York State installations in 2016.

f. Within the recently-completed Energy Storage and Renewables Optimization market baseline evaluation, these values are from secondary data and do not reflect New York State specific costs. Baseline data will be updated when New York State installations are available.

National Offshore Wind Consortium

Expected Timeline Of Funding Commitments

2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
		Start							End

Results to Date - Metrics

Total Plan vs. Progress Thru 2018	Plan	Progress	% To Plan
Budget Commitments ($)	2,250,000	2,581	0%
Electricity Savings, Annual (MWh)	-	-	-
Beneficial Electrification, Annual (MWh)	-	-	-
Electricity Peak Demand Reductions, (MW)	-	-	-
Fuel Savings, Annual (MMBtu)	-	-	-
Fuel Switching, Annual (MMBtu)	-	-	-
Renewable Energy Generation, Annual (MWh)	-	-	-
Renewable Energy Capacity (MW)	-	-	-
CO2e Emission Reductions, Lifetime (Metric Tons)	-	-	-
Participant Bill Savings, Annual ($)	-	-	-
Leveraged Funds ($)	11,300,000	1,195,081	11%

Summary of Performance and Future Plans

This newly launched initiative is progressing well, laying the groundwork for engaging the marketplace.

Modified investment plan filed in April 2019 includes new expectations for timing of funding commitments and benefits. Otherwise, the initiative is continuing as planned.

Key Milestones Completed During 2018

Milestone	Explanation of Progress
National Offshore Wind Research and Development Consortium incorporated.	The National Offshore Wind Research and Development Consortium was incorporated in New York State as a 501(c)(3) not-for-profit corporation on March 15, 2018.
Approval of Consortium bylaws, governance procedures, membership procedures, and operating procedures by Consortium Board of Directors and DOE.	Amendments to the Consortium bylaws were approved by the Board of Directors on October 18, 2018. The Bylaws include Consortium governance, membership and operating procedures. Operating procedures are expected to be revised and expanded following the hiring of a Consortium Executive Director in Q1 2019.
Consortium kickoff meeting held.	An informal gathering of Consortium board members and program staff was held on August 27, 2018 in New York City to kick off the Consortium. Ad hoc working groups were formed at this kickoff meeting to begin work on various procedures documents necessary to achieve future milestones.

National Offshore Wind Consortium cont.

Contract establishing Consortium fully executed with DOE.	The Collaborative Award with the Department of Energy was executed in October 2018.
Release of initial R&D priorities.	The initial Research and Development Roadmap prioritizing technical research and development efforts has been completed and was approved by the Consortium Board of Directors on October 18, 2018. The Roadmap was published in November 2018.
Consortium staff and membership structure approved by Consortium Board of Directors.	Initial staff and membership structures were approved by the Consortium Board of Directors on October 18, 2018. The staff structure may be revised and expanded following hiring of a Consortium Executive Director in 1Q 2019.

Results to Date--Outputs/Outcomes

Indicators [a]		Baseline (Before/Current)	2018 (cumulative) Progress	2021 (cumulative) Target	2025 (cumulative) Target
Activity/ Outputs	Number of studies, demonstrations, and product development projects initiated	0	0	25	31
	Number of studies, demonstrations, and product development projects completed	0	0	6	31
	Number of companies supported	0	0	12	15
Outcomes	Number of products commercialized	0	0	0	3
	Non-NYSERDA revenue to companies commercializing products ($ millions)	0	0	$0.5	$10
	Number of replications from demonstration projects [b]	0	0	0	4

Table notes

a. A 0 (zero) as the baseline value denotes that NYSERDA will not count any activities, outputs, and outcomes supported with prior resources (e.g., pre CEF) towards the achievement of the stated goals in this table.

b. Here, replications are defined as known incidences where the innovation was deployed without NYSERDA involvement.

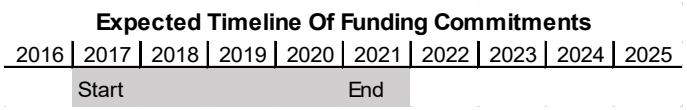
Clean Energy Fund:

Residential Chapter

Portfolio: Market Development

Engaging New Markets

Expected Timeline Of Funding Commitments



Results to Date - Metrics

Total Plan vs. Progress Thru 2018	Plan	Progress	% To Plan
Budget Commitments ($)	8,205,305	3,756,098	46%
Electricity Savings, Annual (MWh)	25	-	0%
Beneficial Electrification, Annual (MWh)	-	-	-
Electricity Peak Demand Reductions, (MW)	-	-	-
Fuel Savings, Annual (MMBtu)	1,880	-	0%
Fuel Switching, Annual (MMBtu)	-	-	-
Renewable Energy Generation, Annual (MWh)	-	-	-
Renewable Energy Capacity (MW)	-	-	-
CO2e Emission Reductions, Lifetime (Metric Tons)	2,970	-	0%
Participant Bill Savings, Annual ($)	733,000	-	0%
Leveraged Funds ($)	760,000	-	0%

Summary of Performance and Future Plans

The initial consumer education and awareness activities to update NYSERDA's website have been completed. The home energy rating pilots are expected to be in market Q2 2019.

Planning is underway for additional strategies for Engaging New Markets which will result in a modification to the current plan. Otherwise, the initiative is continuing as planned and filed in April 2019 investment plan.

Key Milestones Completed During 2018

Milestone	Explanation of Progress
Deploy new content on NYSERDA website.	As of 12/12/2018, all content has been deployed.

Engaging New Markets cont.

Results to Date—Outputs/Outcomes

Indicators [a]		Baseline (Before/Current)	2018 (cumulative) Progress	2020 (cumulative) Target
Activity/ Outputs	Number of upstream partners that include energy efficiency training resulting from this initiative	0	0	10
	Number of residential contractors whose staff have been trained and/or certified in [b] new skills as a result of this initiative	0	0	332
	Number of home inspectors providing home energy ratings in NYS as a result of this initiative	0	0	32
	Number of home energy ratings delivered in NYS as a result of this initiative	0	0	3,844
	Number of energy efficiency projects contracted, as a result of this initiative	0	0	8,200
Outcomes	Home improvement retailer adopts energy efficiency sales as a business model	0	0	1
	Real estate market actors offer energy efficiency basics and home energy training	0	0	3
	Increase in sales of energy efficient equipment, products and materials by upstream manufacturing or wholesale partners	TBD	0	2% increase

Table notes

a. TBD denotes that NYSERDA requires more data in order to quantify baseline/market metrics to the degree needed to measure against in the future. Baseline measurements of key market indicators are anticipated to occur soon following initiative approval and NYSERDA will update the information in this table as the information becomes available, which is anticipated within 9-12 months of initiative approval. A 0 (zero) denotes that the actual value is currently believed to be zero for baseline/market metrics.

b. Certified and qualified contractors refers to those with professional credentials, training certifications, or other evidence of manufacturer or professional trade association-approved training. Such credentials may include, but are not limited to, Building Performance Institute (BPI) certifications or completion of training that supports those certifications, North American Technician Excellence (NATE) certifications, training to become a Residential Energy Services Network (RESNET) auditor or rater, and manufacturer training certificates.

Clean Energy Fund:

REV Technical Assistance Chapter

Portfolio: Market Development

REV Connect

Expected Timeline Of Funding Commitments									
2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Start			End						

Results to Date - Metrics

Total Plan vs. Progress Thru 2018	Plan	Progress	% To Plan
Budget Commitments ($)	2,500,000	2,466,430	99%
Electricity Savings, Annual (MWh)	-	-	-
Beneficial Electrification, Annual (MWh)	-	-	-
Electricity Peak Demand Reductions, (MW)	-	-	-
Fuel Savings, Annual (MMBtu)	-	-	-
Fuel Switching, Annual (MMBtu)	-	-	-
Renewable Energy Generation, Annual (MWh)	-	-	-
Renewable Energy Capacity (MW)	-	-	-
CO2e Emission Reductions, Lifetime (Metric Tons)	-	-	-
Participant Bill Savings, Annual ($)	-	-	-
Leveraged Funds ($)	500,000	66,400	13%

Summary of Performance and Future Plans

REV Connect was recognized in the 4th Quarter as the winner of Utility Dive 2018 National Project of the Year; REV Connect was also profiled in a three-part Public Utility Fortnightly feature story.

Leveraged Funds to date by solution providers in the market (facilitated by REV Connect) is proving to be very difficult to quantify. That said, leveraged funds is expected to surge as the 11+ partnerships in formation increase in number and begin to move closer to market deployment in 2019.

Program continuing per April 2019 investment plan which included expanding budget for operation into 2019.

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Key Milestones Completed During 2018

No milestones were completed in 2018.

REV Connect cont.

Results to Date—Outputs/Outcomes

Indicators [a]		Baseline (Before/Current)	2017 (cumulative) Progress	2018 (cumulative) Progress	2019 (cumulative) Target
Activity/ Outputs	Central mechanism for submitting project ideas is designed, implemented and maintained	0	0	0	1
	Evaluation criteria and process are developed and published	0	1 (completed)	0	1
	"Areas of interest" for future REV demo projects are developed	0	1 (completed)	0	1
	Information resources including web links, reports, white papers and potentially videos and workshops to help DER providers navigate and engage with REV are	0	1 (completed)	0	1
	Time from project idea submission to execution of business agreement between a utility and DER provider(s)	N/A	6 months	0	10 months
	Number of best practices sharing "events", e.g., publishing analysis, webcasts	0	0	0	7
	Number of presentations/workshops focused on interest areas (LMI, EV etc.) or emerging potential	0	0	0	7
Outcomes	New utility business models identified and executed in a business agreement between a utility and DER provider(s) since initiative began [b]	0	3	0	7
	New DER provider proposals and solutions via both digital and physical channel	0	60	0	400

Table notes

a. A 0 (zero) denotes that the actual value is currently believed to be zero for baseline/market metrics.

b. Before the REV Connect initiative began, utilities had initiated 12 REV Demonstration Projects which similarly pursue business model innovation in partnership with DER providers

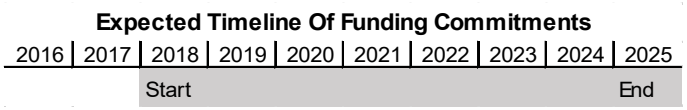
Clean Energy Fund:

Workforce Development Chapter

Portfolio: Market Development

Clean Technology and Energy Efficiency Talent Pipeline

Expected Timeline Of Funding Commitments



Results to Date - Metrics

Total Plan vs. Progress Thru 2018	Plan	Progress	% To Plan
Budget Commitments ($)	1,000,000	707,789	71%
Electricity Savings, Annual (MWh)	-	-	-
Beneficial Electrification, Annual (MWh)	-	-	-
Electricity Peak Demand Reductions, (MW)	-	-	-
Fuel Savings, Annual (MMBtu)	-	-	-
Fuel Switching, Annual (MMBtu)	-	-	-
Renewable Energy Generation, Annual (MWh)	-	-	-
Renewable Energy Capacity (MW)	-	-	-
CO2e Emission Reductions, Lifetime (Metric Tons)	-	-	-
Participant Bill Savings, Annual ($)	-	-	-
Leveraged Funds ($)	25,000	107,789	431%

Summary of Performance and Future Plans

Three talent pipeline solicitations were successfully launched Q4 2018 in coordination with the release of the 2018 Clean Energy Industry Report.

Modified investment plan filed in April 2019 includes new expectations for timing of funding commitments and benefits. Otherwise, the initiative is continuing as planned.

Key Milestones Completed During 2018

No milestones were completed in 2018.

Clean Technology and Energy Efficiency Talent Pipeline cont.

Results to Date—Outputs/Outcomes

Indicators [a]		Baseline (Before/Current)	2017 (cumulative) Progress	2018 (cumulative) Progress	2022 (cumulative) Target
Activity/ Outputs	Students placed in internships by training providers as part of training through this initiative	0	0	0	600
	Interns hired directly by businesses through Internship Program [b]	0	0	0	700
	New hires through OJT Program	0	0	13	1,500
	Total workers trained through this initiative	0	0	0	10,000
	Curriculum developed or modified through this initiative	0	0	0	9
	Number of trainers trained through this initiative	0	0	0	90
	Decreased time for new workers to reach full productivity (i.e. work independently, fewer errors, increased job retention)	0	0	0	20%
	Create new businesses and training provider partnerships through this initiative	0	0	0	25
Outcomes	Reduced time to hire and train new workers	0	0	0	20%
	Reduced cost to recruit and hire new workers	0	0	0	30%

Table notes

a. NYSERDA will update the information in this table as the information becomes available. A 0 (zero) denotes that the actual value is currently believed to be zero for baseline/market metrics.

b. Interns hired directly by business through the Internship Program will be separate and unique from students placed in internships by training providers.

Workforce Development Industry Partnerships
(formerly Industry Partnerships)

Expected Timeline Of Funding Commitments

2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Start					End				

Results to Date - Metrics

Total Plan vs. Progress Thru 2018	Plan	Progress	% To Plan
Budget Commitments ($)	5,895,000	6,422,696	109%
Electricity Savings, Annual (MWh)	85,300	101,436	119%
Beneficial Electrification, Annual (MWh)	-	-	-
Electricity Peak Demand Reductions, (MW)	-	-	-
Fuel Savings, Annual (MMBtu)	564,000	689,345	122%
Fuel Switching, Annual (MMBtu)	-	-	-
Renewable Energy Generation, Annual (MWh)	-	-	-
Renewable Energy Capacity (MW)	-	-	-
CO2e Emission Reductions, Lifetime (Metric Tons)	598,000	720,153	120%
Participant Bill Savings, Annual ($)	115,600,000	153,965,255	133%
Leveraged Funds ($)	7,590,000	7,267,806	96%

Summary of Performance and Future Plans

Program is currently exceeding expectations for benefits, due in large part to increased participation by portfolio companies with multiple buildings impacted.

Modified investment plan filed in April 2019 includes new expectations for timing of funding commitments and benefits. Otherwise, the initiative is continuing as planned.

Key Milestones Completed During 2018

Milestone	Explanation of Progress
Identify one additional area (by sectors, industry or technology) to initiate industry partnership strategy to address workforce development and training needs to advance goals of CEF.	Offshore wind, HVAC, renewable heating and cooling, and energy storage have been identified as topics for industry partnerships to address talent pipeline and skill gaps issues.

Workforce Development Industry Partnerships cont.

Results to Date—Outputs/Outcomes

Indicators [a]		Baseline (Before/Current)	2017 (cumulative) Progress	2018 (cumulative) Progress	2019 (cumulative) Target	2022 (cumulative) Target
Activity/ Outputs	Increase in number of workers trained	20	0	505	435	2,550
	Increase in the percent of trainees obtaining national certifications	15%	0	81	20%	30%
Outcomes	Increase number of staff qualified to train others	4322	0	4	90	210
	Increase in number of industry partnerships	1	0	3	3	3
	Increase number of new curricula available	370 organizations	0	20	3	11
	Improve performance and efficiency of building systems	0%	0	0	5%	10%
	Number of incumbent workers advanced/promoted	8327	0	0	108	250
	Number of individuals placed into paid internships/OJT/apprenticeships	3169	0	21	136	210
	Number of disadvantaged (LMI) workers placed in building operations and maintenance jobs	263	0	0	35	45

Table notes

a. A 0 (zero) denotes that the actual value is currently believed to be zero for baseline/market metrics.

NYSERDA, a public benefit corporation, offers objective information and analysis, innovative programs, technical expertise, and support to help New Yorkers increase energy efficiency, save money, use renewable energy, and reduce reliance on fossil fuels. NYSERDA professionals work to protect the environment and create clean-energy jobs. NYSERDA has been developing partnerships to advance innovative energy solutions in New York State since 1975.

To learn more about NYSERDA's programs and funding opportunities, visit nyserda.ny.gov or follow us on Twitter, Facebook, YouTube, or Instagram.

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