

Clean Energy Fund Quarterly Performance Report through December 2022

Final Report | March 2023



NYSERDA

NYSERDA's Promise to New Yorkers:

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

Our Vision:

New York is a global climate leader building a healthier future with thriving communities; homes and businesses powered by clean energy; and economic opportunities accessible to all New Yorkers.

Our Mission:

Advance clean energy innovation and investments to combat climate change, improving the health, resiliency, and prosperity of New Yorkers and delivering benefits equitably to all.

NYSERDA Record of Revision

Document Title
Clean Energy Fund Quarterly Performance Report through December 31, 2022

Revision Date	Description of Changes	Revision on Page(s)
March 1, 2023	Original Issue	
March 31, 2023	<p>Corrections were made to the Q4 2022 Scorecard which impacts a report figure (2) and tables (1, 9). The following updates were made to the Scorecard:</p> <ol style="list-style-type: none"> 1. NY-Sun data on Progress – Programs and Progress – Indirect tabs have been revised to remove duplicate rows and correct benefits totals. 2. Program Mapping tab was updated to introduce a unique scorecard ID for Regional Clean Energy Hubs to ensure proper reporting associated with the NYS Clean Heat Implementation Plan. 	3, 5, 20

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March 2023

About This Report

The Clean Energy Fund (CEF), approved by the Public Service Commission (PSC) Order on January 21, 2016¹ and later modified on September 9, 2021,² was established as a commitment to clean energy and efficiency measures, recognizing that deploying programs at scale has potential to address the pressing environmental and energy challenges, while providing enormous economic opportunity for New York State. The CEF is comprised of four distinct portfolios (CEF Portfolio):

- Market Development (MD)
- Innovation & Research (IR)
- NY-Sun
- NY Green Bank

This report provides a collective view of progress for all four portfolios against CEF targets (Figures 1 and 2) and further details quarterly and cumulative activity for the MD and IR portfolios through December 31, 2022 (Figure 3). The September 9, 2021, PSC Order requires quarterly reporting for the MD and IR portfolios which continue to include the following:

- Progress toward cumulative and annually prorated incremental targets and budgets.
- Progress toward the CEF's contribution to New Efficiency: New York (NE:NY) targets.
- A performance summary discussion of key CEF initiatives.
- A summary of acquired benefits and projected benefits committed, compared to investment plan projections.

To meet these reporting requirements, this report document is accompanied by a scorecard (spreadsheet) that contains all plan and progress information related to CEF activity, also filed quarterly. This New York State Energy Research and Development Authority (NYSERDA) scorecard is consolidated with each State utility scorecard to publish data on [Open NY](#), where it is available to all stakeholders. Finally, the publishing of these data sets coincides with a similar update to the [Clean Energy Dashboard \(CED\)](#), an interactive and dynamic tool first published in 2019 to improve accessibility and transparency of ratepayer-funded clean energy program reporting statewide.

NY-Sun reports progress quarterly within the NYSERDA scorecard and CED and is summarized in section 3 of this report. Quarterly reporting for NY Green Bank is similarly provided within NYSERDA's quarterly scorecard and the CED, but also within a separately filed report.³

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1 Clean Energy Fund Performance Overview

The Clean Energy Fund (CEF) supports New York State’s advancement of clean energy and climate goals along with a more affordable and resilient energy system. Energy efficiency is a cornerstone of the State’s strategy to promote clean energy solutions for consumers while addressing climate change. The New Efficiency New York recommendations, as advanced in the white paper, issued by the Department of Public Service (DPS) and New York State Energy Research and Development Authority (NYSERDA or the Authority) on April 26, 2018, and as adopted by the Public Service Commission in its December 13, 2019 order, establishes a new 2025 energy efficiency target of 185 trillion British thermal units (TBtu) of cumulative annual site energy savings.⁴ The Climate Leadership and Community Protection Act (Climate Act), signed July 2019 and effective January 1, 2020, adopted this energy efficiency target, which puts the State on a path to complete carbon-neutrality across all sectors of the economy, including power generation, transportation, buildings, industry, and agriculture. In April 2022, the PSC approved an expansion to the NY-Sun program to further support efforts meeting the State’s clean electricity goals. The Climate Act mandates the following:

- 85% Reduction in GHG Emissions by 2050
- 100% Zero-emission Electricity by 2040
- 70% Renewable Energy by 2030
- 9,000 MW of Offshore Wind by 2035
- 3,000 MW of Energy Storage by 2030⁵
- 6,000 MW of Solar by 2025 and 10,000 MW of Solar by 2030
- 22 million tons of carbon reduction through Energy Efficiency and Electrification
- Minimum 35 percent of the benefits of clean energy investments are directed to disadvantaged communities

With these goals, New York State 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 resiliency, while encouraging competition and innovation that delivers value to consumers.

1.1 Progress toward Aggregate Clean Energy Fund Goals

Figures 1 and 2 present a comprehensive picture of progress against the CEF authorized budget and associated benefit targets reflecting all four CEF Portfolios (MD, IR, NY-Sun, and NY Green Bank). Progress shown against each key performance metric represents results through December 31, 2022, and nets out overlap across portfolios where it is known to occur.

Figure 1 captures the status of CEF funding while Figure 2 depicts progress of the combined portfolios against the latest CEF ordered benefit targets. The summary of benefit progress reflects evaluated totals, incorporating verified gross acquired savings where evaluations have been completed, and reflects gross savings values elsewhere. Indirect benefits from market transformation are included in acquired totals where they have been quantified through evaluation. Indirect benefits are also included in the remaining plans, discounted by 50 percent, as consistent with other plan filings to account for uncertainty in timing and potential overlap across the portfolio that has yet to be fully evaluated. Figures 1 and 2 should be viewed together to properly relate investments to results. In each of these visuals, combining what has been expended/acquired with encumbered/committed results demonstrates NYSERDA’s progress toward CEF targets, while adding in the remaining expected (planned) values serves to illustrate the full potential in NYSERDA’s programmed portfolios.

Figure 1. Clean Energy Fund Portfolio Expected Investment versus Targets

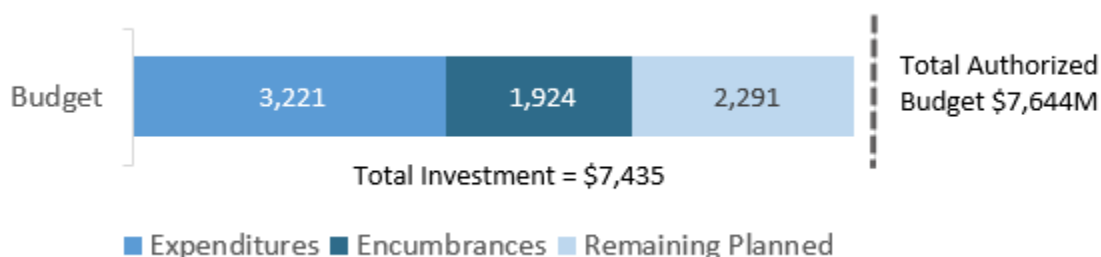


Figure 1 Supporting data		Total Authorized Budget	Budget Approved		Expended Funds		Encumbered Funds		Remaining Planned		Funding Not Yet Approved
			Current Total	% of Authorized	Current Total	% of Authorized	Current Total	% of Authorized	Total Balance	% of Authorized	
Market Development (MD)	Program Funds	\$ 2,399.7 M	\$ 2,320.7 M	98%	\$ 988.3 M	42%	\$ 662.1 M	28%	\$ 670.2 M	29%	\$ 51.9 M
	NYS Cost Recovery Fee		\$ 27.2 M		\$ 12.7 M		\$ 0.0 M		\$ 14.4 M		
Innovation & Research (IR)	Program Funds	\$ 631.7 M	\$ 524.3 M	84%	\$ 200.7 M	32%	\$ 238.6 M	38%	\$ 85.0 M	14%	\$ 101.4 M
	NYS Cost Recovery Fee		\$ 5.9 M		\$ 2.4 M		\$ 0.0 M		\$ 3.6 M		
MD and IR combined	Administration	\$ 274.4 M	\$ 257.7 M	94%	\$ 163.0 M	59%	\$ 0.0 M	0%	\$ 94.7 M	35%	\$ 16.7 M
	Evaluation	\$ 124.2 M	\$ 85.5 M	69%	\$ 27.3 M	22%	\$ 18.7 M	15%	\$ 39.4 M	32%	\$ 38.7 M
	MD and IR Total	\$ 3,430.0 M	\$ 3,221.3 M	94%	\$ 1,394.5 M	41%	\$ 919.4 M	27%	\$ 907.3 M	28%	\$ 208.7 M
NY-Sun	Program Funds	\$ 3,162.8 M	\$ 3,162.8 M	100%	\$ 849.5 M	27%	\$ 1,002.8 M	32%	\$ 1,310.5 M	41%	\$ 0.0 M
	NYS Cost Recovery Fee	\$ 41.8 M	\$ 41.8 M	100%	\$ 8.1 M	19%	\$ 0.0 M	0%	\$ 33.7 M	81%	\$ 0.0 M
	Administration	\$ 58.8 M	\$ 58.8 M	100%	\$ 20.9 M	36%	\$ 0.3 M	0%	\$ 37.6 M	64%	\$ 0.0 M
	Evaluation	\$ 3.5 M	\$ 3.5 M	100%	\$ 0.8 M	24%	\$ 1.2 M	33%	\$ 1.5 M	43%	\$ 0.0 M
	NY-Sun Total	\$ 3,266.8 M	\$ 3,266.8 M	100%	\$ 879.3 M	27%	\$ 1,004.2 M	31%	\$ 1,383.3 M	42%	\$ 0.0 M
NY Green Bank	Total	\$ 947.1 M	\$ 947.1 M	100%	\$ 947.1 M	100%	\$ 0.0 M	-	\$ 0.0 M	-	-
CEF Total		\$ 7,643.9 M	\$ 7,435.2 M	97%	\$ 3,220.9 M	42%	\$ 1,923.6 M	25%	\$ 2,290.6 M	30%	\$ 208.7 M

- Authorized Funding per Order: Approving Clean Energy Fund Modifications, issued and effective September 9, 2021 and inclusive of the approved 10 GW Distributed Solar Roadmap in April 2022.
- NY-Sun totals shown here exclude \$655 million in non-CEF NYSERDA funded solar projects.

Figure 2. Clean Energy Fund Portfolio Expected Benefits versus Targets

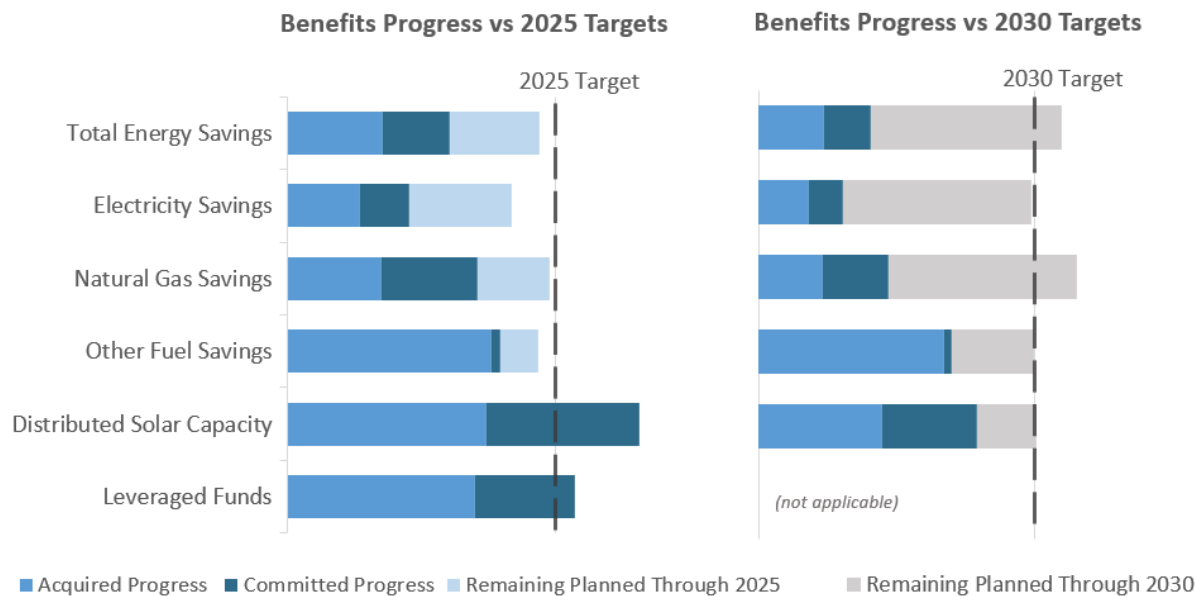


Figure 2 Supporting Data	Acquired Progress	Committed Progress	Remaining Planned Through 2025	Total Expected Through 2025	2025 Order Target	Remaining Planned Through 2030	Total Expected Through 2030	2030 Order Target
Total Energy Savings (MMBtu equivalent, millions)	18.7	13.4	17.7	49.8	53.0	54.6	86.8	79.0
Electricity Savings (MWh, millions)	1.8	1.2	2.6	5.6	6.7	6.9	9.9	10.0
Natural Gas Savings (MMBtu, millions)	8.8	9.0	6.6	24.4	25.0	26.1	43.9	38.0
Other Fuels Savings (MMBtu, millions)	11.4	0.5	2.1	14.0	15.0	5.1	16.9	17.0
Distributed Solar Capacity (Renewable MW)	4,460	3,426	-	7,886	6,000	2,158	10,044	10,000
Leveraged Funds (\$ millions)	\$14,024	\$7,460	-	\$21,484	\$20,000	-	\$21,484	n/a

Benefits Metrics Progress as Percent of Totals	Acquired + Committed (values summed from above)	→	Acquired + Committed as a Percentage of the Expectations / Targets			
			Total Expected Through 2025	2025 Order Target	Total Expected Through 2030	2030 Order Target
Total Energy Savings (MMBtu equivalent, millions)	32.2		65%	61%	37%	41%
Electricity Savings (MWh, millions)	3.0		54%	45%	31%	30%
Natural Gas Savings (MMBtu, millions)	17.8		73%	71%	40%	47%
Other Fuels Savings (MMBtu, millions)	11.9		85%	79%	70%	70%
Distributed Solar Capacity (Renewable MW)	7,886		100%	131%	79%	79%
Leveraged Funds (\$ millions)	\$21,484		100%	107%	100%	n/a

Table notes are on the next page

- Energy savings values are annual; Total Energy Savings measures the combined Electricity and Fuel savings net of usage; therefore, values will not sum to the total of individual electric and fuel savings values.
- CEF initiatives not dedicated to building energy efficiency (Electric Vehicles - Rebate, Combined Heat and Power, and Fuel Cells) have been excluded from progress and plans toward the first four energy saving targets shown above.
- Overlap where it is known or perceived to exist between portfolios has been removed from progress reported.
- Since the CEF launched in 2016 NYSERDA has maintained a single MMBtu Fuel Savings plan to forecast and measure performance for all fuel types. With the September 2021 CEF Order revision, NYSERDA is now required to break out reporting (and subsequently planning) of fuel savings for both natural gas and all other fuels (grouped). Until this planning can be fully implemented in each individual plan through NYSERDA's annual reforecast process that culminates in a filing of the Compiled Investment Plans, November 1, 2022, NYSERDA will estimate the plans for these two distinct fuel groups at the portfolio level for performance management and reporting purposes.
- Distributed Solar Capacity includes 1,093 MW of non-NYSERDA installations taken from the Statewide Solar Projects dashboard, which is populated with data from utility interconnection inventories. This data set includes all distributed solar interconnected in NYS, including hundreds of MWs which did not receive NYSERDA funding. Committed project data is maintained by NYSERDA independently of interconnection data. Since the two data sets define project completion date differently, some projects reported as committed may also be included as acquired under the "Non-NYSERDA Statewide Installations" (interconnection balance) figure. As the pipeline of NYSERDA commitments are drawn down over time (projects are considered acquired in both data sources), this overlap will be systematically eliminated.
- Leveraged Funds progress here includes non-CEF NYSERDA funded solar projects of \$1,918 million acquired and \$120 million committed, consistent with overall reporting toward CEF distributed solar targets which include all solar statewide.
- Leveraged Funds Total Expected benefit values do not currently include any anticipated indirect impacts.
- Neither Distributed Solar or Leveraged Funds Total Expected Through 2025 and 2030 values include forward-looking estimates from NY Sun or NY Green Bank portfolios at this time.
- Benefits metrics that have not been given 2030 Targets in the Order are shown as "not applicable."

As Figures 1 and 2 illustrate, the sum of expended and committed budget progress continues to align well with the sum of acquired and committed benefits progress reported through this point in time in all areas except electric savings, where the latest plans convey a longer timeline for achieving the megawatt-hour target. An explanation of progress and the current portfolio mix is as follows:

- Total Energy Savings (MMBtu equivalent) is a measure of NYSERDA effectiveness in delivering site energy efficiency savings, primarily through the combined MD/IR portfolios, to meet the expected contribution toward overall NE:NY goals. Unlike the individual energy savings goals, this metric accounts for both savings and usage to measure overall net impact and trends here are reflective of the individual MWh and MMBtu components.
- NYSERDA maintains confidence in the ability of the CEF portfolio to deliver the overall impact outlined by CEF 2030 Targets as illustrated in that Total Energy Savings bar; however, the updated forecast of all MD/IR initiatives illustrates NYSERDA's expectation that the delivery of near-term benefits will continue to be impacted by current challenges facing the clean energy market today, specifically challenges with supply chain, skilled labor availability, and rising construction costs, all of which are delaying or slowing projects and contributing to NYSERDA's lower outlook for the 2025 timeframe. NYSERDA will continue to counter-balance this outcome with active and adaptive portfolio management, as well as new evaluations to quantify expected large amounts of indirect benefits that may not have been fully accounted for in its investment plans.
- Electricity savings in megawatt hours acquired and committed total has lagged the pace of fuel savings and the 2025 target, but is still expected to reach the threshold established for 2030.
- Fuel Savings continues to show strong momentum to deliver in both 2025 and 2030 timelines, of which significant savings are already considered acquired in the portfolio.

- Renewable energy capacity MW is dominated by NY-Sun contributions, which began in 2014 and is performing exceedingly well against the 2025 target, on a trajectory to achieve the target early. The portfolio is also well positioned to achieve the new 2030 target of 10 GW.
- Leveraged funding acquired and committed progress is outpacing other metrics due to some strong Innovation & Research returns reported in 2022.

The September 2021 CEF Order also included a target regarding equity for disadvantaged communities, specifically that a minimum of 35 percent of the benefits of CEF investments would accrue to disadvantaged communities. Currently, NYSERDA is working along with other State agencies and stakeholders, including the Climate Justice Working Group, to establish a benefits/metrics framework and reporting system for the Climate Act disadvantaged community mandate. NYSERDA will follow and maintain consistency with this State-level framework for its reporting on the status of CEF investments and will begin including information on this CEF target once the framework is finalized and State-level reporting begins.

Additionally, NYSERDA is required to track and report other reference metrics outlined in appendix C of the CEF Order. Carbon emissions reductions and bill saving metrics are presented below for the combined CEF portfolios.

Table 1. Other Anticipated Benefits through 2025 and 2030

Annual Benefits Metrics ** Direct + Indirect Benefits ** Overlap Accounted	Acquired Progress	Committed Progress	Total Progress as of Current Reporting Period	2025 Order Expectation (Anticipated Benefit)	2030 Order Expectation (Anticipated Benefit)
Emissions Reductions (CO2e Metric Tons, millions)	4.9	3.4	8.2	9.0	14.0
Participant Bill Savings (\$ millions)	\$966	\$725	\$1,691	n/a	n/a

- These metrics reflect all the same inclusions/exclusions and assumptions, including overlap—where known or perceived—between the four CEF portfolios and their reported benefits, as is applied to Figures 1 and 2 above.

2 Market Development and Innovation & Research Performance

On May 20, 2022, NYSERDA filed a comprehensive update to all MD and IR portfolio plans in the first edition of the Compiled Investment Plans (CIP), as prescribed in the CEF Order. These plans convey expected funding and benefit progress for each initiative which are used to gauge progress over time as outlined in these quarterly reports and elsewhere. Each fall NYSERDA completes its annual update to forecasts for all CEF initiatives, which incorporates reported historical progress and revises forward looking plans to account for that history as well as to learn from the market. On November 1, 2022 NYSERDA completed the annual filing of CEF plans within the Compiled Investment Plans. These plans were later approved and have been adopted for 2023 reporting. NYSERDA will continue to make periodic CIP filings as initiatives require plan updates.

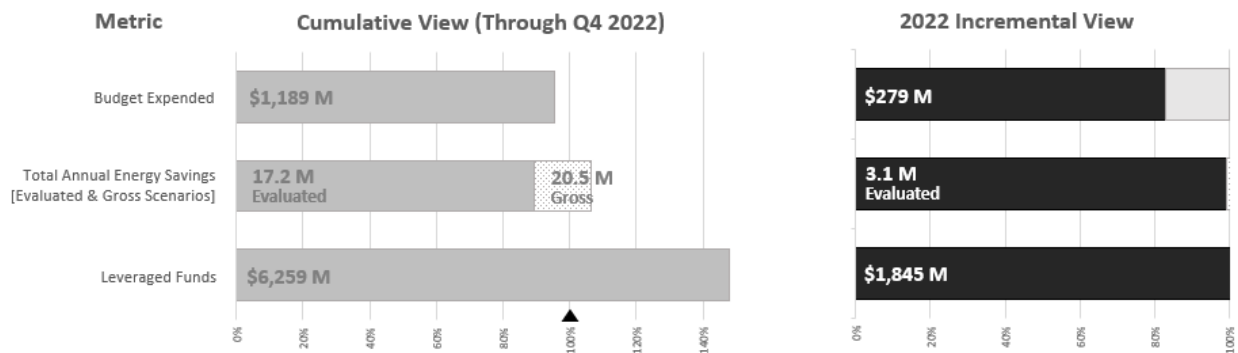
Cumulative performance against the current approved (filed) plans remains the ultimate measure of success for delivering on the CEF benefits targets. As a secondary measure, NYSERDA also monitors incremental progress toward the current year goal to provide another viewpoint from which to assess performance, including how quickly funds are put to work in the market based on near-term expectations. Both cumulative and incremental values can be reviewed in granular detail for the portfolio and for each program and metric within the [Clean Energy Dashboard](#).

Figure 3 provides a high-level view of NYSERDA's MD and IR portfolio performance to plan, measuring progress toward expended funding and acquired direct benefit plans through Q4 2022. The plans used to measure progress herein reflect the September 9, 2022 filing of the CIP. As noted above, subsequent filings have been made and will be incorporated for measuring progress in 2023 and beyond.

Key points to interpret Figure 3 include:

- The Cumulative View (through Q4 2022) represents years 2016–2022, plus all four quarters of 2022; 100 percent in this view represents the cumulative *planned* amounts for that timeframe.
- The 2022 Incremental View represents progress made in the current calendar year against the current calendar year plan, with an expectation that 100 percent of the plan should be achieved by year-end. Note that the incremental goal for the current year reflects any under or over-performance to plan reported in Q4 of the previous year.
- Total Annual Energy Savings is measured in MMBtu equivalents consistent with Figure 2; Gross and Evaluated (Verified Gross) reported savings scenarios are reflected in these progress bars to illustrate both viewpoints of progress as the results from evaluation studies become more prominent in NYSERDA progress reporting.
- For each of these metrics all CEF, MD, and IR initiatives are included (no exclusions); CEF Admin, Evaluation, and NYS Cost Recovery Fees are excluded from the budget totals.

Figure 3. Market Development/Innovation & Research Progress and Performance



No new evaluation studies for direct benefits impacts were concluded in the final quarter of 2022, however previous measurement and verification have reduced the gross energy savings reported for the portfolio in aggregate. Some of the lower savings from early studies can be attributed to delays impacting the construction market broadly, and this will be further understood through continued study efforts. Several of the evaluation studies have follow-on analysis for subsequent years (more mature CEF operations) and NYSERDA anticipates realization rates will improve and close much of the gap noted above. NYSERDA has incorporated this verified gross savings data into the forecast of all initiatives filed within the Compiled Investment Plans, November 1, 2022.

Budget expenditures finished 2022 below plan, attributed to delays for project completion that have been noted throughout this report.

NYSERDA acquired a sharp increase in leveraged funds in 2022 from the opening of a new Silicon-Carbide chip manufacturing facility, which was supported by the Power Electronics Manufacturing Consortium initiative, and the strong trend for leveraged funds continues now.

As NYSERDA noted during the 2021 CEF review conducted by the PSC, strengthening the processes and tools used to effectively manage the portfolio has been a key focus of the organization. NYSERDA has taken steps to improve both process and tools, refining the focus of quarterly performance discussions and bolstering the annual planning process used to set expectations for the immediate year ahead as well as the longer-term view of individual initiative and collective portfolio goals. A more detailed assessment of the portfolio’s top programs with energy saving impact can be found in the following section.

2.1 Top Energy Impact Initiative Performance Summary

In NYSERDA’s Market Development portfolio, 15 key initiatives currently account for approximately 90 percent of the expected total energy saving benefits (represented by equivalent annual MMBtu) and 46 percent of the total approved budget. These initiatives warrant special attention due to the weight they carry in terms of the overall success of the CEF in delivering expected benefits and are characterized in greater detail in Table 2 that follows.

Table 2. Performance Summary for Market Development’s Top Energy Impact Initiatives

Cumulative progress to plan is measured on a prorated basis through Q4 as described in detail for Figure 3 above. Budget Percent Performance is progress against approved funding expenditure plans while Energy Percent Performance is progress against the equivalent annual MMBtu acquired plan. Benefits analysis conducted with both Gross and Verified Gross (evaluated) direct savings where applicable.

MMBtu Impact Rank	Initiative	Cumulative Progress (% Performance To Plan)			Progress Narrative
		Budget %	Savings Type	Energy %	
1	Energy Management Technology	101%	Gross: Evaluated:	74% 20%	Progress of expenditures was on target to the plan for 2022. Gross energy savings progress continues to lag plan; funding is expended 12-18 months prior to reporting acquired gross savings, and the plan was adjusted during the recent annual reforecast to better reflect the real lag observed on projects. Data collection efforts ongoing for all projects. A verified gross savings analysis significantly reduced energy performance from the gross values reported. A notable amount of this reduction is due to delayed installation of capital improvement measures (observed across several NYSERDA initiatives) and a longer-than-anticipated timeline for measure installations. An update to this study is underway to reassess performance and is anticipated to be complete Q1 2023.
2	Building Operations and Maintenance Partnerships	89%	Gross: Evaluated:	79% 96%	While progress of expenditures and gross reported energy savings finished the year below plan, verified gross savings have propelled the initiative to achieve the target energy savings for 2022. Three new proposals were received, and eighteen projects were completed in the final quarter, while another four projects are expected to be completed in Q1 2023. Market and impact evaluations were completed for this initiative in Q3 2022. Realization rates were high and indirect impacts were assessed; both have been incorporated into reporting. An update to these evaluation studies is in development now.

Table 2 continued

MMBtu Impact	Initiative	Cumulative Progress (% Performance To Plan)			Progress Narrative
		Rank	Budget %	Savings Type	
3	Product and Appliance Standards	58%	Gross: Evaluated:	n/a n/a	NYSERDA successfully adopted 21 appliance standards for NYS by 1/1/23. The core work to implement those standards is now underway. Commitments and expenditures have steadily increased throughout the year and are expected to further ramp up as the program is expanded. Given the late date of passage and current resource levels, NYSERDA expenditures for 2022 did not reach the original plan. This initiative plan consists of only indirect benefits, which will be reported in the future as measured by evaluation studies.
4	Electric Vehicles - Rebate	100%	Gross: Evaluated:	100% 72%	CEF funding for this initiative has been fully committed and all rebates have been paid out as of Q1 2021. A verified gross savings analysis reduced energy performance from the gross values reported. This reduction is attributed to lower vehicle miles traveled as compared to the program assumptions. An initial assessment of indirect benefits was completed on EV-Rebates. However, given the ongoing presence of rebates through RGGI funding, no indirect savings were estimated as part of this study. Evaluation studies will continue to assess indirect impacts going forward.
5	Technical Services	105%	Gross: Evaluated:	163% n/a	This initiative finished 2022 in good standing with respect to both budget and energy benefits. NYSERDA continues to see strong participation from each commercial, industrial, multifamily, and agriculture sectors served. During the recent Compiled Investment Plan (CIP) filing on 2/1 funding was added to Technical Services to ensure studies will have adequate support in future quarters. Multiple evaluations reflecting the various sectors are assessing this effort or will be soon. Future reports will detail results from these studies.
6	LMI Multifamily	81%	Gross: Evaluated:	50% 42%	This initiative finished the year behind the original plan as a result of several unanticipated market forces, namely construction delays in the Multifamily Performance Program and contracting delays in the Direct Injection Program. Construction delays are largely caused by building owners deprioritizing energy efficiency retrofits as they face competing priorities and rising construction costs. Other projects are finding greater incentive offerings with other energy programs and are dropping from the LMI Multifamily commitments as a result. During the recent CIP filing on 2/1 funding originally committed to the Multifamily Performance Program was reduced to reflect this project attrition. Additionally, both Multifamily Performance Program and Real Time Energy Management closed to new applications in 2022.

Table 2 continued

MMBtu Impact Rank	Initiative	Cumulative Progress (% Performance To Plan)			Progress Narrative
		Budget %	Savings Type	Energy %	
7	Industrial Transition	95%	Gross: 105% Evaluated: 98%	105% 98%	The program is performing well on both budget and energy benefits, noting that NYSERDA anticipates some level of attrition over time as open projects move to closure—either completion or cancellation. Prior gross savings analysis confirmed the energy performance of this program with a strong realization rate; a final assessment of performance is in scoping now.
8	Market Challenges	92%	Gross: 0% Evaluated: n/a	0% n/a	Progress of expenditures fared well against the 2022 plan. To-date, all spending has been toward engineering studies, which do not claim energy benefits. Demonstration projects for C&I Carbon Challenge are lagging due to various economic factors and anticipating additional expenditures and acquiring the first project benefits in 2023. During the recent CIP filing on 2/1 \$15M funding was added to the Challenges within this initiative to support additional projects. The first projects funded under the Empire Building Challenge are in the very initial stages of implementation, and benefits are not expected to be acquired until 2024 at the earliest.
9	Energy Management Practices	91%	Gross: 77% Evaluated: 83%	77% 83%	Strategic Energy Management market response continues to increase over the previous quarter. The methodology behind savings assumptions for projects in this program was recently updated, requiring a reduction to the reported amount. An evaluation study concluded earlier in the year has confirmed the energy performance of this program with a strong realization rate. Evaluation updates are in development now and future reports will detail results.
10	Clean Energy Communities	111%	Gross: 144% Evaluated: 57%	144% 57%	Progress of expenditures finished the year in good standing relative to plan. An initial evaluation showed that many high impact actions are performing exceedingly well, however verified gross energy savings fell below plan expectations. The study concluded that the savings shortfall can be attributed in large part to a persistent time lag in the full implementation of certain high impact actions. It also informed that tracking of another specific action and the direct benefits planned for it are better suited as indirect benefits going forward which will be considered in the forecast of benefits for the initiative. The follow up impact evaluation for this program is currently in the planning stages and is expected to kick-off in Q4 2023.

Table 2 continued

MMBtu Impact	Initiative	Cumulative Progress (% Performance To Plan)			Progress Narrative
		Budget %	Savings Type	Energy %	
11	New Construction Market Rate	85%	Gross: Evaluated:	84% n/a	The initiative exceeded projections on new commitments for both open enrollment programs and competitive programs. Both of the large competitive programs, Carbon Neutral Community for Economic Development and Buildings of Excellence, received extremely large response from the market and NYSERDA expects to easily commit both programs completely by Q1 2023. Supply chain issues and broader economic issues continue to hamper new construction market activity, materializing in the moderate lag against the plan for both expenditures and energy savings shown here through year-end. A robust review of projects under contract was completed and high-risk projects unlikely to advance were closed. The remaining projects are expected to advance, but at a slower and rather unpredictable rate due to the challenges noted above and other variables such as financial deal closings, code reviews, and approvals, etc. During the recent CIP filing on 2/1 \$10M funding was added to expand support for Buildings of Excellence (Multifamily Housing) and Carbon Neutral Community Economic Development. Single-family new construction evaluation results will be finalized in Q1 2023.
12	P-12 Schools	104%	Gross: Evaluated:	156% n/a	Progress of both expenditures and energy savings finished the year in good standing compared to plan. Further analysis of evaluation results are being conducted through a subsequent study and expected to result in updates to realization rates for reporting of verified gross savings in the near future.
13	RetrofitNY - LMI	48%	Gross: Evaluated:	90% n/a	The first pilot project from round 1 has completed construction while two other pilots remain at the financing stage. One of these projects has been rebid due to substantial increases in development costs relative to those provided during the design stage. A revised development budget for this project was submitted in February 2023. The remaining pilot has experienced closing delays and is now scheduled to close in June 2023. A NYC project in round 2 has advanced to the feasibility assessment stage. If this project proves viable, it will proceed to a six-month design phase to develop an all-electric panelized deep energy retrofit solution for this four-story building. Construction costs continue to present substantial challenges for the pipeline with major factors including labor and material costs and more recently interest rate increases. Despite some project attrition for early pilots, the RetrofitNY initiative continues to entice new technologies and solution providers to the carbon-neutral retrofit opportunity space. The recent NextGen HVAC Round-6 challenge received 18 total concept proposals for RetrofitNY challenge areas with six proposals selected for awards. The RetrofitNY program is continuing its collaboration with the Advanced Building team into NextGen HVAC Challenge round-7.

Table 2 continued

MMBtu Impact	Initiative	Cumulative Progress (% Performance To Plan)			Progress Narrative
		Budget %	Savings Type	Energy %	
14	Codes and Standards for Carbon Neutral Buildings	82%	Gross: Evaluated:	n/a n/a	Core work for code advancement and training continues to move forward expeditiously and proposals for the next State code update are underway. Contracts were finalized for two pilots and for updated code training offerings. All of these items are moving forward, but expenditures finished below 2022 plan as result of the delays. Initiative plan and progress to date consist of indirect benefits only, and through the initial study completed, indirect benefits measured exceeded plan for the period of study: the recent study shows that NYSERDA's long-standing engagement in this space is responsible for more than 3 TBtu of energy savings, of which approximately 1.2 TBtu is reflective of CEF-specific efforts.
15	REV Campus Challenge	109%	Gross: Evaluated:	97% 211%	Progress of both expenditures and energy savings finished the year in good standing compared to plan. A verified gross savings analysis has confirmed the energy performance of this program with a strong realization rate. The very high realization rate suggests that program methods to account for acquired savings may be overly conservative; future savings projections were adjusted accordingly during the recent annual reforecast and will be reflected in 2023 planning.

2.2 Quarterly Benefits Progress Versus Plan

Table 3. Market Development and Innovation & Research Portfolio—Annual Direct Benefits

The table that follows represents the Market Development and Innovation & Research initiatives and their associated direct benefits. Progress reported here is a blend of verified gross and gross savings. Where evaluation studies have been completed and yield realization rates, verified gross acquired savings are reported. Where studies are not yet complete, those initiatives and/or time periods will continue reporting gross savings.

Annual Benefits Metrics	Evaluated Totals (verified gross where evaluated; gross where not)								
	Planned Incremental Acquired Benefits in Current Year	Current Year Acquired Benefits Through Current Quarter	Cumulative Acquired Benefits Through Current Quarter	Committed Benefits as of Current Quarter (Committed but not acquired)	Total Progress as of Current Quarter (Total Acquired + Committed)	Total Expected Benefits Through 2025	Total Progress as % of Total Expected Benefits Thru 2025	Total Expected Benefits Through 2030	Total Progress as % of Total Expected Benefits Thru 2030
Total Energy Savings (MMBtu)	4,518,830	3,083,345	17,228,381	12,642,965	29,871,346	34,001,825	88%	44,539,328	67%
Electricity Savings (MWh)	578,138	353,721	1,644,551	1,451,767	3,096,318	3,776,244	82%	4,560,824	68%
Total Fuel Savings (MMBtu)	3,492,265	2,150,239	20,445,023	9,492,649	29,937,672	31,766,358	94%	39,692,706	75%
Natural Gas Fuel Savings (MMBtu)	3,115,850	1,440,586	8,036,133	8,982,664	17,018,797	17,692,713	96%	24,816,211	69%
Other Fuel Savings (MMBtu)	376,414	709,652	12,408,890	509,985	12,918,875	14,073,646	92%	14,876,495	87%
Renewable Energy Generation (MWh)	208,738	31,846	254,206	59,273	313,479	1,269,573	25%	1,272,092	25%
Renewable Energy Capacity (MW)	113	25	531	116	647	1,047	62%	1,050	62%
Total Leveraged Funds (\$M)	\$935	\$1,845	\$6,259	\$3,624	\$9,883	\$7,684	129%	\$9,646	102%

- Verified savings as a percent of total reported savings varies by metric and includes electricity (64% verified), natural gas (75%), and other fuels (12%). The measurement and verification work to verify savings is done on a periodic basis, most commonly covering at least 1-2 years of program activity. This work can only begin once adequate post-installation operation has occurred. Additionally, methods and data availability vary significantly between electricity, natural gas, and other fuels, which is one of the underlying causes of varying percentages of savings verified.
- Total Energy Savings measures the combined electricity and fuel savings net of usage; therefore, may not sum to the total of individual electric and fuel savings values.
- As noted earlier in the report, fuel savings are currently only planned at the total fuels level; NYSERDA will be implementing new CEF Order requirements to break out reporting of natural gas and other fuels in 2022 with the annual refiling of plans due November 1.
- NYSERDA makes no claim to the environmental attributes or any New York Generation Attribute Tracking System (NYGATS) certificates that may be associated with these projects.

Table 4. Market Development and Innovation & Research Portfolio—Annual Indirect Benefits

Indirect benefits are defined as long-term market effects from follow-on market activity not directly funded by NYSERDA. Progress is reported as market impacts are verified through the completion of market studies which will occur gradually and grow over time, depending upon the period of each study, which varies from one initiative to another. More information on the Evaluation, Measurement, and Verification can be found in section 4 of this report. Expected benefits shown through 2025 and 2030 are discounted by 50 percent to account for uncertainty in timing and potential overlap that has not yet been assessed across the portfolio.

Market Development ** Indirect Only **	Cumulative Indirect Benefits Evaluated Through Previous Period	Indirect Benefits Evaluated in Current Reporting Period	Total Indirect Benefits Evaluated Through Current Reporting Period	Total Indirect Benefits Expected Through 2025	Total Indirect Benefits Evaluated as % of Total Expected Through 2025	Total Indirect Benefits Expected Through 2030	Total Indirect Benefits Evaluated as % of Total Expected Through 2030
Total Energy Savings (MMBtu equivalent)	1,585,260	320,133	1,905,393	18,383,217	10%	48,421,188	4%
Electricity Savings (MWh)	262,075	57,811	319,886	2,216,260	14%	5,716,541	6%
Total Fuel Savings (MMBtu)	693,551	122,882	816,433	11,520,449	7%	30,490,988	3%
Natural Gas Fuel Savings (MMBtu)	625,391	122,882	748,273	6,715,124	11%	19,064,395	4%
Other Fuel Savings (MMBtu)	68,160	-	68,160	4,805,324	1%	11,426,593	1%
Renewable Energy Generation (MWh)	478,683	-	478,683	365,751	131%	497,806	96%
Renewable Energy Capacity (MW)	58	-	58	301	19%	406	14%

- Indirect benefits are reported for the initiatives and specific time periods for which studies have concluded; these impacts will be added over time as additional studies conclude, regularly growing these evaluated totals.
- Cumulative Indirect Benefits Evaluated Through Previous Period reflects the total reported indirect benefits as of the period, but not necessarily all indirect savings anticipated through the reporting period, since additional studies will likely conclude for past periods and add to these overall figures.
- Indirect plans as represented in the “Total Expected” columns conservatively include only 50 percent of the estimated total indirect benefits from market transformation to avoid overlap in these values and to account for uncertainty associated with the forecasting and measurement of indirect benefits over time.
- Total Indirect Benefits Evaluated Through Current Reporting Period, Total Energy Savings updated to include Energy Usage which is not presented as its own metric on this table. Of reported Electricity Usage, 730 MWh is netted in the Total Energy Savings calculation.
- Indirect leveraged funding will be captured with future assessments.

2.3 Quarterly Budgets Progress versus Plan

Table 5. Market Development Initiatives by Focus Area—Budgets and Spending

See endnote section for more information.^{6,7,8}

Market Development Focus Area Initiative	Current Year Expenditures Plan	Current Year Expenditures Through Current Quarter	Encumbrances as of Current Quarter	Total Progress as of Current Quarter (Expended + Encumbered)	Total Expected Expenditures Through 2025	Total Progress as % of Total Expenditures Through 2025	Total Expected Expenditures Through 2030	Total Progress as % of Total Expenditures Through 2030
Clean Heat & Cooling								
Heat Pumps Phase 1 (2017)	\$2,989,859	\$3,481,309	\$4,936,472	\$57,346,777	\$57,491,685	100%	\$57,491,685	100%
Heat Pumps Phase 2 (2020)	\$12,987,944	\$10,962,353	\$26,857,508	\$46,295,000	\$44,212,243	86%	\$56,985,000	80%
Renewable Heat NY - Clean and Efficient Biomass Heating	\$709,001	\$553,301	\$624,454	\$13,410,580	\$13,487,000	100%	\$13,487,000	100%
Solar Thermal Transition	-	-	-	\$287,513	\$287,513	100%	\$287,513	100%
Clean Heat & Cooling Total	\$16,686,804	\$14,996,962	\$32,418,434	\$117,339,869	\$115,478,441	102%	\$128,251,198	91%
Codes and Standards, & Other Multisector Initiatives								
Codes and Standards for Carbon Neutral Buildings	\$7,275,000	\$4,786,500	\$10,244,288	\$21,412,035	\$42,753,020	57%	\$57,000,000	38%
Information Products and Brokering	\$450,000	\$605,487	\$1,079,396	\$2,980,253	\$5,500,000	61%	\$5,500,000	54%
Market Characterization & Design Market Development	\$7,030,738	\$2,859,713	\$6,821,030	\$21,710,373	\$30,219,957	72%	\$30,452,510	71%
Product and Appliance Standards	\$2,500,000	\$1,221,292	\$2,196,722	\$4,196,713	\$16,798,730	24%	\$25,699,000	16%
REV Connect	\$1,497,500	\$488,335	\$3,772,133	\$8,241,389	\$13,000,000	63%	\$13,000,000	63%
Codes and Standards, & Other Multisector Initiatives Total	\$18,753,238	\$9,961,326	\$24,113,568	\$58,540,762	\$108,271,707	54%	\$131,651,510	44%
Commercial / Industrial / Agriculture								
Advancing Agricultural Energy Technologies	\$300,000	\$15,000	\$1,783,555	\$2,089,603	\$3,760,000	56%	\$3,760,000	56%
Agriculture Transition	-	-	-	\$3,598,821	\$3,598,821	100%	\$3,598,821	100%
Commercial Transition	\$1,027,668	\$916,918	\$1,122,198	\$12,524,396	\$12,559,148	102%	\$12,559,148	100%
Energy Management Practices	\$4,124,913	\$2,962,212	\$8,027,979	\$21,010,492	\$25,960,538	83%	\$28,876,778	73%
Energy Management Technology	\$9,811,639	\$12,427,443	\$31,156,197	\$74,943,118	\$95,875,191	88%	\$108,298,862	69%
Greenhouse Lighting and Systems Engineering	\$1,025,928	\$609,125	\$2,066,665	\$5,000,000	\$5,000,000	103%	\$5,000,000	100%
Industrial Transition	\$5,314,928	\$3,696,410	\$4,475,638	\$48,026,810	\$55,381,114	100%	\$55,381,114	100%
Market Challenges	\$6,071,725	\$2,677,845	\$60,053,065	\$72,601,363	\$83,578,135	119%	\$105,955,956	64%
P-12 Schools	\$2,737,914	\$1,989,532	\$19,020,564	\$25,807,970	\$23,659,997	144%	\$57,600,000	45%
Pay for Performance	\$1,100,000	\$196,270	\$8,310,441	\$9,934,967	\$18,053,771	55%	\$33,969,049	29%
Real Estate Tenant	\$750,000	\$1,521,791	\$1,661,950	\$14,909,579	\$15,798,390	98%	\$15,798,390	94%
REV Campus Challenge	\$2,550,000	\$2,394,963	\$7,616,366	\$19,015,777	\$18,891,070	107%	\$21,650,002	88%
Technical Services	\$10,506,840	\$9,646,555	\$34,532,360	\$59,479,192	\$52,530,609	119%	\$71,597,185	78%
Commercial / Industrial / Agriculture Total	\$45,321,555	\$39,054,065	\$179,826,978	\$368,942,088	\$414,646,784	89%	\$524,045,305	70%
Communities								
Clean Energy Communities	\$5,986,360	\$5,409,618	\$13,103,234	\$37,557,202	\$52,459,612	70%	\$81,271,963	46%
Community Energy Engagement	\$195,471	\$69,690	-	\$4,388,546	\$4,407,818	100%	\$4,407,818	100%
Communities Total	\$6,181,831	\$5,479,308	\$13,103,234	\$41,945,749	\$56,867,430	74%	\$85,679,781	49%

Table 5 continued

Market Development Focus Area Initiative	Current Year Expenditures Plan	Current Year Expenditures Through Current Quarter	Encumbrances as of Current Quarter	Total Progress as of Current Quarter (Expended + Encumbered)	Total Expected Expenditures Through 2025	Total Progress as % of Total Expenditures Through 2025	Total Expected Expenditures Through 2030	Total Progress as % of Total Expenditures Through 2030
Low-to-Moderate Income								
Healthy Homes Feasibility Study	\$35,021	\$2,156	\$32,865	\$212,147	\$212,147	100%	\$212,147	100%
Heat Pumps Phase 2 (2020)	\$3,868,000	\$2,203,112	\$6,876,810	\$12,937,546	\$27,198,889	53%	\$30,000,000	43%
LMI Multifamily	\$14,614,972	\$8,219,897	\$40,546,900	\$68,624,916	\$142,036,679	65%	\$164,190,126	43%
LMI Outreach & Engagement	\$1,984,526	\$1,037,866	\$1,636,927	\$3,882,141	\$7,506,130	52%	\$8,467,401	46%
LMI Pilots	\$213,166	\$468,966	\$383,699	\$852,665	\$1,648,099	52%	\$2,443,533	35%
Low Rise New Construction Transition - LMI	\$383,620	\$336,403	\$801,677	\$7,833,507	\$7,970,376	98%	\$7,970,376	98%
Multifamily New Construction Transition - LMI	\$980,081	\$1,554,393	\$2,624,976	\$8,192,862	\$8,420,981	97%	\$8,420,981	97%
New Construction - LMI	\$6,816,422	\$15,872,357	\$86,663,489	\$109,181,301	\$71,328,909	174%	\$124,631,362	81%
NYS Healthy Homes Value Based Payment Pilot	\$2,149,780	\$527,521	\$1,563,410	\$3,298,814	\$9,791,294	34%	\$9,791,294	34%
Regional Clean Energy Hubs	\$4,652,223	\$1,625,688	\$29,678,924	\$31,332,452	\$32,921,931	95%	\$42,000,000	75%
RetrofitNY - LMI	\$5,240,869	\$477,072	\$2,178,695	\$6,518,410	\$26,110,984	22%	\$30,503,499	21%
REVitalize	-	-	-	\$291,424	\$291,424	100%	\$291,424	100%
Single Family - Low Income	\$36,462,976	\$57,854,560	\$6,562,803	\$235,791,174	\$234,877,453	98%	\$235,627,453	98%
Single Family - Moderate Income	\$14,379,942	\$14,260,364	\$2,754,007	\$94,345,112	\$102,431,003	92%	\$102,751,836	92%
Solar for All	\$1,300,000	\$836,644	\$8,293,514	\$12,606,047	\$8,523,937	148%	\$13,011,046	97%
Low-to-Moderate Income Total	\$93,081,598	\$105,276,999	\$190,598,695	\$595,900,518	\$681,270,236	87%	\$780,312,478	76%
Multifamily Residential								
Energy Management Technology	\$1,500,000	\$1,243,899	\$4,135,594	\$10,420,254	\$13,283,522	79%	\$14,099,239	74%
Market Challenges	\$275,000	\$1,470,639	\$7,521,550	\$9,642,910	\$9,825,000	97%	\$10,000,000	96%
Multifamily Low Carbon Pathways	\$1,746,532	\$292,544	\$3,428,112	\$3,954,362	\$17,224,847	23%	\$24,638,016	16%
Multifamily Market Rate Transition	-	-	-	\$156,214	\$156,214	100%	\$156,214	100%
Technical Services	\$2,732,647	\$2,823,364	\$10,639,146	\$14,732,434	\$16,241,258	83%	\$25,749,999	57%
Multifamily Residential Total	\$6,254,179	\$5,830,446	\$25,724,402	\$38,906,173	\$56,730,841	69%	\$74,643,468	52%
New Construction								
Commercial New Construction Transition	\$1,710,000	\$561,742	\$5,718,131	\$14,259,060	\$14,536,566	109%	\$15,058,836	97%
Low Rise New Construction Transition - Market Rate	\$245,000	\$166,987	\$351,166	\$4,402,552	\$4,381,285	100%	\$4,381,285	100%
Multifamily New Construction Transition - Market Rate	\$145,800	\$163,492	\$273,049	\$1,622,984	\$1,626,873	100%	\$1,626,873	100%
New Construction - Market Rate	\$7,798,401	\$5,398,196	\$80,177,158	\$94,727,067	\$82,389,925	170%	\$142,150,505	67%
New Construction Total	\$9,899,201	\$6,290,416	\$86,519,506	\$115,011,662	\$102,934,649	112%	\$163,217,499	70%

Table 5 continued

Market Development Focus Area Initiative	Current Year Expenditures Plan	Current Year Expenditures Through Current Quarter	Encumbrances as of Current Quarter	Total Progress as of Current Quarter (Expended + Encumbered)	Total Expected Expenditures Through 2025	Total Progress as % of Total Expenditures Through 2025	Total Expected Expenditures Through 2030	Total Progress as % of Total Expenditures Through 2030
Renewables / Distributed Energy Resources (DER)								
Anaerobic Digesters Transition	\$2,490,347	\$992,775	\$8,202,687	\$13,388,516	\$9,489,197	113%	\$13,634,032	98%
Clean Energy Siting and Soft Cost Reduction	\$337,808	\$415,111	\$2,004,201	\$3,724,455	\$6,245,732	60%	\$8,795,000	42%
Combined Heat & Power Transition	\$13,543,017	\$5,164,045	\$20,713,607	\$57,093,980	\$59,485,543	98%	\$59,485,543	98%
Fuel Cells	\$2,691,556	\$500,005	\$3,912,500	\$7,199,144	\$8,310,030	100%	\$8,310,030	100%
Offshore Wind Master Plan	\$5,227	\$10,227	-	\$4,965,882	\$4,965,882	100%	\$4,965,882	100%
Offshore Wind Pre-Development Activities	\$930,000	\$767,697	\$170,232	\$9,641,453	\$9,865,411	98%	\$9,865,411	98%
ORES Support	\$3,700,000	\$444,482	\$2,348,954	\$4,690,489	\$9,000,000	56%	\$9,000,000	52%
Reducing Barriers to Distributed Deployment	\$1,050,000	\$150,322	\$3,047,531	\$12,313,732	\$14,148,714	92%	\$15,450,000	80%
Small Wind Transition	\$491,098	\$230,404	\$230,400	\$3,554,073	\$3,569,207	100%	\$3,569,207	100%
Solar Plus Energy Storage	\$30,114,500	\$10,971,772	\$24,424,500	\$36,820,771	\$40,000,000	100%	\$40,000,000	100%
Renewables / Distributed Energy Resources (DER) Total	\$55,353,553	\$19,646,841	\$65,054,611	\$153,392,495	\$165,079,716	93%	\$173,075,105	89%
Single Family Residential								
Consumer Awareness	\$866,454	\$365,825	-	\$2,251,671	\$2,803,610	100%	\$2,803,610	100%
Heat Pumps Phase 2 (2020)	\$1,865,000	\$986,308	\$2,512,501	\$4,112,590	\$11,183,096	38%	\$12,000,000	34%
Pay for Performance	\$450,186	\$246,490	\$7,215,288	\$8,095,841	\$7,644,249	106%	\$9,430,163	86%
Residential	\$6,305,606	\$5,284,450	\$5,703,436	\$18,076,806	\$53,063,697	34%	\$56,998,862	32%
Single Family Market Rate Transition	-	\$12,275	-	\$23,528,344	\$23,532,771	100%	\$23,532,771	100%
Single Family Residential Total	\$9,487,246	\$6,895,347	\$15,431,225	\$56,065,252	\$98,227,423	57%	\$104,765,406	54%
Transportation								
Electric Vehicles - Rebate	\$326,299	\$182,538	\$134,388	\$39,498,889	\$39,500,000	100%	\$39,500,000	100%
EV Charging and Engagement	\$435,000	-	-	-	\$7,200,000	0%	\$7,200,000	0%
Transportation Total	\$761,299	\$182,538	\$134,388	\$39,498,889	\$46,700,000	85%	\$46,700,000	85%
Workforce Development								
Building Operations and Maintenance Partnerships	\$3,777,416	\$2,653,417	\$10,355,283	\$21,074,434	\$24,026,886	95%	\$33,345,000	63%
Talent Pipeline	\$10,281,906	\$9,419,805	\$18,838,551	\$43,832,918	\$69,077,358	73%	\$75,000,000	58%
Workforce Development Total	\$14,059,322	\$12,073,222	\$29,193,834	\$64,907,352	\$93,104,244	70%	\$108,345,000	60%
NYS Cost Recovery Fee Market Development	\$3,086,849	\$2,601,576	-	\$12,748,666	\$23,088,992	58%	\$27,154,523	46%
Total Market Development	\$278,926,675	\$228,289,047	\$662,118,877	\$1,663,199,476	\$1,962,400,463	85%	\$2,347,841,273	71%

Table 6. Innovation & Research Initiatives by Focus Area—Budgets and Spending

See endnote section for more information.^{9,10 11}

Innovation & Research Focus Area Initiative	Current Year Expenditures Plan	Current Year Expenditures Through Current Quarter	Encumbrances as of Current Quarter	Total Progress as of Current Quarter (Expended + Encumbered)	Total Expected Expenditures Through 2025	Total Progress as % of Total Expenditures Through 2025	Total Expected Expenditures Through 2030	Total Progress as % of Total Expenditures Through 2030
Buildings Innovation								
Climatetech Commercialization Support	\$766,666	\$325,000	\$9,175,000	\$9,500,000	\$10,000,000	95%	\$10,000,000	95%
NextGen Buildings	\$6,491,894	\$2,899,137	\$30,751,028	\$39,761,108	\$41,811,724	91%	\$50,000,000	61%
Buildings Innovation Chapter Total	\$7,258,560	\$3,224,137	\$39,926,028	\$49,261,108	\$51,811,724	95%	\$60,000,000	82%
Clean Transportation Innovation								
Electric Vehicle Innovation	\$2,620,000	\$994,211	\$12,392,773	\$18,597,013	\$27,846,503	70%	\$31,850,000	58%
Public Transportation and Electrified Rail	\$2,700,000	\$1,974,542	\$4,807,981	\$10,140,995	\$15,215,890	78%	\$18,500,000	55%
Clean Transportation Innovation Total	\$5,320,000	\$2,968,753	\$17,200,754	\$28,738,008	\$43,062,393	67%	\$50,350,000	57%
Climate Resilience Innovation								
Market Characterization & Design Innovation & Research	\$525,815	\$45,350	\$529,115	\$1,050,817	\$1,750,653	60%	\$1,750,653	60%
Climate Resilience Innovation Total	\$525,815	\$45,350	\$529,115	\$1,050,817	\$1,750,653	60%	\$1,750,653	60%
Energy Focused Environmental Research								
Energy-Related Environmental Research	\$6,200,000	\$5,629,399	\$15,610,774	\$39,198,048	\$39,806,740	99%	\$47,800,000	82%
Energy Focused Environmental Research Total	\$6,200,000	\$5,629,399	\$15,610,774	\$39,198,048	\$39,806,740	98%	\$47,800,000	82%
Gas Innovation								
Long Duration Energy Storage	-	-	\$14,172,133	\$14,172,133	\$10,880,000	130%	\$17,000,000	83%
Utility Thermal Network Technical Support	-	-	-	-	\$3,000,000	0%	\$3,000,000	0%
Gas Innovation Total	-	-	\$14,172,133	\$14,172,133	\$13,880,000	102%	\$20,000,000	71%
Grid Modernization								
Future Grid Performance Challenge	\$1,350,000	\$5,487,156	\$27,957,493	\$33,444,650	\$29,425,000	127%	\$43,000,000	78%
Grid ClimateTech Ready Capital	\$140,000	-	-	-	\$6,540,000	0%	\$9,000,000	0%
High Performing Electric Grid	\$7,139,000	\$6,468,217	\$26,975,475	\$63,417,889	\$64,800,000	109%	\$64,800,000	98%
Power Electronics Manufacturing Consortium	-	-	-	\$16,694,490	\$16,694,490	100%	\$16,694,490	100%
Grid Modernization Chapter Total	\$8,629,000	\$11,955,373	\$54,932,969	\$113,557,028	\$117,459,490	97%	\$133,494,490	85%
Negative Emissions Technologies								
CarbonTech Development	\$128,495	\$152,500	\$4,722,500	\$5,000,000	\$5,113,980	100%	\$5,113,980	98%
Natural Carbon Solutions	\$2,875,000	\$25,160	\$11,874,840	\$11,900,000	\$11,457,500	199%	\$12,500,000	95%
Negative Emissions Technologies Total	\$3,003,495	\$177,660	\$16,597,340	\$16,900,000	\$16,571,480	102%	\$17,613,980	96%
Renewables Optimization								
Energy Storage Technology and Product Development	\$2,450,000	\$3,316,028	\$22,163,281	\$32,378,651	\$34,549,342	94%	\$39,500,000	82%
National Offshore Wind Research & Development Consortium	\$3,179,988	\$5,563,910	\$9,916,740	\$21,941,002	\$22,500,000	98%	\$22,500,000	98%
Renewables Optimization Total	\$5,629,988	\$8,879,939	\$32,080,021	\$54,319,653	\$57,049,342	95%	\$62,000,000	88%
Technology to Market								
CarbonTech Development	\$2,054,005	\$1,277,500	\$12,693,500	\$14,146,000	\$14,362,020	99%	\$14,362,020	98%
Catalytic Capital for Climatetech	\$4,659,439	\$4,159,411	\$2,174,025	\$19,221,178	\$19,360,229	99%	\$19,360,229	99%
Climatetech Commercialization Support	\$6,654,253	\$8,179,324	\$24,316,937	\$55,011,010	\$55,106,761	101%	\$55,106,761	100%
Climatetech Expertise & Talent	\$2,500,374	\$2,598,110	\$312,787	\$7,452,523	\$12,049,276	62%	\$12,049,276	62%
Manufacturing Corps	\$1,515,000	\$2,123,230	\$875,911	\$13,102,465	\$17,000,000	77%	\$17,000,000	77%
Novel Business Models and Offerings	\$1,590,777	\$1,678,415	\$7,180,297	\$13,209,583	\$13,442,354	99%	\$13,442,354	99%
Technology to Market Total	\$18,973,848	\$20,015,989	\$47,553,457	\$122,142,759	\$131,320,640	93%	\$131,320,640	93%
NYS Cost Recovery Fee Innovation & Research	\$621,089	\$571,564	-	\$2,369,194	\$5,377,602	44%	\$5,927,272	37%
Total Innovation and Research	\$56,161,795	\$53,468,164	\$238,602,592	\$441,708,747	\$478,090,064	92%	\$530,257,035	83%

3 NY-Sun Performance

As represented in Figure 2 above, NYSERDA's NY-Sun Portfolio continues to show strong progress toward the CEF distributed solar capacity targets. Progress in the following tables is conveyed in both capacity (megawatts direct current) and generation (megawatt-hours). Additional detail around progress by year can be found in the [NYSERDA-Supported Solar Projects dashboard](#). Major highlights that speak to progress through the current quarter include:

- In April, the PSC issued an Order expanding the NY-Sun program to target 10 GW of installed distributed solar capacity by 2030. Robust uptake of NY-Sun incentives continued through Q4 2022, as illustrated in the Quarterly Benefits Table.
- In August, President Biden signed into law the Inflation Reduction Act (IRA), which includes provisions that NYSERDA anticipates will have major, positive impacts on distributed solar development and the implementation of the NY-Sun program. On November 30, 2022, the Treasury Department and the IRS issued preliminary guidance on prevailing wage and labor requirements for projects funded through the IRA. Additional guidance is forthcoming on other topics.
- By November 17, 2022, incentive uptake achieved one of the thresholds set in the April 2022 Order (commitment of more than 50% of new Upstate capacity) to trigger a Mid-Point Review of the NY-Sun program. NYSERDA and DPS staff jointly filed the Mid-Point Review in January 2023. The Mid-Point Review included an analysis of the expected impacts of the IRA and proposed program adjustments.
- As of the end of Q4 2022, NY-Sun has installed more distributed solar capacity than in any previous year, making it the most successful year for the program in terms of new renewable energy generating capacity.

Quarterly benefit and budget progress is conveyed in the tables that follow.

3.1 Quarterly Benefits Progress

Table 7. NY-Sun—Installed Capacity and Production (NY-Sun Only)

Table 7 shows installed solar capacity (MW) and production (MWh) across major market sectors. The table includes all projects receiving NY-Sun funding, including those that are supported by the Solar Energy Equity Framework (SEEF). Projects included in SEEF benefit low- to moderate-income (LMI) households, affordable housing providers, residents of disadvantaged communities (DACs), and public schools serving DACs. As an example, a solar installation at the residence of an eligible LMI homeowner in Albany would be included in the “Upstate-Residential” category in Table 7, as well as in the “SEEF Only” Table 8. Community solar projects are categorized based on their location and size, with most of the State’s total community solar capacity categorized as “Upstate-Commercial/Industrial” for the purpose of this table.

Annual Benefits		Evaluated Totals (verified gross where evaluated; gross where not)						
NY-Sun ** Includes SEEF and non-SEEF Projects **		Projects Completed (Installed) through Prior Year	Projects Completed (Installed) in Current Year	Cumulative Projects Completed (Installed Units) through Current Quarter	Projects Approved or Contracted But Not Yet Completed (Current Pipeline)	Total Progress (Installed + Pipeline) through Current Quarter	Total Expected Installed Projects through 2030	Total Progress as % of 2030 Goal
Distributed Solar Energy Capacity (MW)	Commercial/Industrial (Competitive)	117.6	-	117.6	-	117.6	117.6	100%
	Upstate - Residential	375.4	52.0	427.4	32.9	460.4	527.0	87%
	Upstate - Nonresidential	108.1	15.0	123.1	28.3	151.4	279.0	54%
	Upstate - Commercial/Industrial	1,141.1	563.6	1,704.6	3,107.2	4,811.8	6,213.0	77%
	Con Ed - Residential	224.5	45.6	270.1	35.5	305.6	441.0	69%
	Con Ed - Nonresidential	89.6	45.6	135.2	172.4	307.6	735.0	42%
	Capacity Total	2,056.2	721.8	2,778.1	3,376.3	6,154.3	8,312.6	74%
Distributed Solar Energy Production (MWh)	Commercial/Industrial (Competitive)	136,652	-	136,651.9	-	136,652	n/a	
	Upstate - Residential	393,895	52,025.5	445,920.8	32,355.6	478,276		
	Upstate - Nonresidential	122,233	16,848.2	139,081.3	32,023.0	171,104		
	Upstate - Commercial/Industrial	1,351,061	691,268.5	2,042,329.3	4,076,782.7	6,119,112		
	Con Ed - Residential	240,155	47,213.0	287,368.3	36,102.9	323,471		
	Con Ed - Nonresidential	103,696	53,191.8	156,888.3	203,716.9	360,605		
	Production Total	2,347,693	860,547	3,208,240	4,380,981	7,589,221		

Table 8. NY-Sun—Installed Capacity and Production (NY-Sun SEEF Only)

Table 8 is limited to projects that are supported by SEEF, which includes “adder” incentives for qualifying projects that are offered in addition to the “base” NY-Sun incentives received by all qualifying projects in the applicable market sector. The projects included in Table 8 are a subset of those in Table 7.

Annual Benefits		Evaluated Totals (verified gross where evaluated; gross where not)				
NY-Sun ** Solar Energy Equity Framework ONLY **		Projects Completed (Installed Units) Through Prior Year	Projects Completed (Installed Units) in Current Year	Cumulative Projects Completed (Installed Units) Through Current Quarter	Projects Approved or Contracted But Not Yet Completed (Current Pipeline)	Total (Installed + Pipeline) Through Current Quarter
Distributed Solar Energy Capacity (MW)	Upstate - Residential	4.7	0.9	5.5	0.3	5.8
	Upstate - Nonresidential	0.7	0.1	0.8	1.3	2.0
	Upstate - Commercial/Industrial	3.0	12.5	15.5	466.1	481.5
	Con Ed - Residential	0.8	0.8	1.6	0.9	2.4
	Con Ed - Nonresidential	7.1	10.0	17.1	14.6	31.6
	Capacity Total	16.2	24.1	40.4	483.1	523.5
Distributed Solar Energy Production (MWh)	Upstate - Residential	5,095	918.9	6,013.4	308.3	6,322
	Upstate - Nonresidential	740	88.7	828.3	1,625.6	2,454
	Upstate - Commercial/Industrial	3,488	14,467.9	17,956.2	611,473.8	629,430
	Con Ed - Residential	860	877.1	1,736.9	925.0	2,662
	Con Ed - Nonresidential	8,181	11,804.1	19,984.8	18,140.6	38,125
	Production Total	18,363	28,157	46,520	632,473	678,993

Table 9. All Other Solar—Installed Capacity and Production Beyond NY-Sun

Table 9 tracks all other reported progress toward the statewide solar deployment goals of 6 GW by 2025 and 10 GW by 2030. It includes projects that received non-CEF NYSERDA funding as well as projects installed independent of NYSERDA funding. NYSERDA utilizes data from utility interconnection inventories published by the Department of Public Service to determine non-NYSERDA reported installations.

Annual Benefits		Gross Totals				
Other Solar Installations		Projects Completed (Installed Units) Through Prior Year	Projects Completed (Installed Units) in Current Year	Cumulative Projects Completed (Installed Units) Through Current Quarter	Projects Approved or Contracted But Not Yet Completed (Current Pipeline)	Total (Installed + Pipeline) Through Current Quarter
Distributed Solar Energy Capacity (MW)	NYSERDA (non-CEF) Installations	565.1	23.6	588.7	49.7	638.4
	Non-NYSERDA Statewide Installations	987.5	105.2	1,092.7	n/a	1,092.7
	Capacity Total	1,552.6	128.8	1,681.5	49.7	1,731.2
Distributed Solar Energy Production (MWh)	NYSERDA (non-CEF) Installations	628,512	27,201	655,714	59,563	715,276
	Non-NYSERDA Statewide Installations	1,215,065	97,136	1,312,201	n/a	1,312,201
	Production Total	1,843,577	124,338	1,967,915	59,563	2,027,477

3.2 Quarterly Budgets Progress

Table 10. NY-Sun—Budgets and Spending

Table 10 shows encumbrances and expenditures across major market sectors and programmatic areas with the NY-Sun initiative. The “MW Block Incentives & Adders” section breaks down encumbrances and expenditures across the major market sectors, excluding funding with the Solar Energy Equity Framework. All SEEF encumbrances and expenditures, including “adder” incentives, are tracked as a line item. As an example, for a solar installation at the residence of an eligible LMI homeowner in Albany the expenditure of the “base” NY-Sun incentive would be included in the “Upstate-Residential” sub-category in the “MW Block Incentives & Adder” section, while the “adder” incentive from the SEEF budget would be included in the “Solar Energy Equity Framework (SEEF)” line item. Table 11 provides a more in-depth look at SEEF encumbrances and expenditures and tracks the total NY-Sun funding committed to SEEF-eligible projects.

NY-Sun	Expenditures through Prior Year	Current Year Expenditures through Current Quarter	Cumulative Expenditures through Current Quarter	Encumbrances as of Current Quarter	Total Progress as of Current Quarter (Expended + Encumbered)	Total Expected Expenditures	Total Progress as % of Total Expected Expenditures
MW Block Incentives & Adders							
Commercial/Industrial (Competitive)	\$48,281,846	\$334,420	\$48,616,265	\$299,343	\$48,915,609	n/a	n/a
Upstate - Residential	\$181,171,491	\$22,485,999	\$203,657,491	\$13,029,760	\$216,687,251	n/a	n/a
Upstate - Nonresidential	\$50,082,787	\$5,759,582	\$55,842,370	\$11,634,593	\$67,476,963	n/a	n/a
Upstate - Commercial/Industrial	\$233,403,643	\$113,690,941	\$347,094,584	\$807,531,938	\$1,154,626,522	n/a	n/a
Con Ed - Residential	\$83,347,071	\$8,388,585	\$91,735,655	\$6,838,388	\$98,574,043	n/a	n/a
Con Ed - Nonresidential	\$52,149,502	\$21,349,893	\$73,499,396	\$92,563,847	\$166,063,243	n/a	n/a
MW Block Subtotal	\$648,436,340	\$172,009,420	\$820,445,760	\$931,897,870	\$1,752,343,630	\$2,485,201,000	71%
Solar Energy Equity Framework (SEEF) Adder	\$8,276,457	\$4,500,357	\$12,776,814	\$63,058,525	\$75,835,339	\$399,764,000	19%
Funds to Assist Transition to Prevailing Wage	\$0	\$0	\$0	\$1,438,079	\$1,438,079	\$238,725,000	1%
Consumer Education	\$1,501,301	\$26,657	\$1,527,958	\$3,944,085	\$5,472,042	\$6,500,000	84%
Implementation and Quality Assurance	\$12,872,825	\$1,913,720	\$14,786,545	\$2,456,362	\$17,242,907	\$32,600,000	53%
Administration	\$17,883,512	\$2,996,571	\$20,880,083	\$262,475	\$21,142,558	\$58,756,000	36%
Evaluation	\$394,947	\$443,017	\$837,964	\$1,171,798	\$2,009,762	\$3,500,000	57%
NYS Cost Recovery	\$6,229,861	\$1,823,774	\$8,053,635	\$0	\$8,053,635	\$41,800,000	19%
NY-Sun Total	\$695,595,243	\$183,713,517	\$879,308,760	\$1,004,229,194	\$1,883,537,954	\$3,266,846,000	58%

Table 11. NY-Sun—Solar Energy Equity Framework (SEEF) Spending Details

This table is a subset of budget and spending data reported in Table 9, intended to provide greater detail on SEEF and Other Incentive investments relative to the broader NY-Sun budget. Other Incentives shown here reflect the base MW Block and non-SEEF incentive adders and are a subset of spending shown in Table 10 under MW Block Incentives & Adders.

Solar Energy Equity Framework (SEEF)	SEEF Adder Expenditures	Other Incentive Expenditures	SEEF Adder Encumbrances	Other Incentive Encumbrances	SEEF Adder Total Progress	Other Incentive Total Progress	SEEF Total Progress
Upstate - Residential	\$1,879,505	\$2,064,515	\$118,825	\$137,169	\$1,998,330	\$2,201,684	\$4,200,014
Upstate - Nonresidential	\$194,066	\$321,500	\$417,976	\$487,144	\$612,042	\$808,644	\$1,420,686
Upstate - Commercial/Industrial	\$0	\$2,219,192	\$51,107,999	\$108,150,392	\$51,107,999	\$110,369,584	\$161,477,583
Con Ed - Residential	\$853,794	\$364,114	\$513,889	\$174,992	\$1,367,682	\$539,106	\$1,906,788
Con Ed - Nonresidential	\$6,500,532	\$7,276,842	\$8,023,473	\$8,061,996	\$14,524,004	\$15,338,838	\$29,862,842
Technical Assistance and Implementation	\$3,348,918	\$0	\$2,876,364	\$0	\$6,225,282	\$0	\$6,225,282
Total	\$12,776,814	\$12,246,164	\$63,058,525	\$117,011,692	\$75,835,339	\$129,257,856	\$205,093,195

Table 12. Non-CEF NYSERDA Solar Spending

This table quantifies NYSERDA investments in solar projects that are funded outside of the Clean Energy Fund. Project costs related to other non-NYSERDA installed solar (statewide interconnections) is not available and therefore not included.

Other Solar Installations	Expenditures through Prior Year	Current Year Expenditures through Current Quarter	Cumulative Expenditures through Current Quarter	Encumbrances as of Current Quarter	Total Progress as of Current Quarter (Expended + Encumbered)
NYSERDA (non-CEF) Installations	\$629,615,901	\$25,148,739	\$654,764,639	\$29,049,731	\$683,814,371

4 Evaluation, Measurement, and Verification Summary

In accordance with CE-05: Evaluation, Measurement, & Verification (EM&V) Guidance, NYSERDA is required to file all final EM&V Reports in the Document and Matter Management system. This section will include a compilation of the high-level summaries of the EM&V reports due for filing within the reporting period.

For the 2022 Q4 reporting period, one study was finalized as presented in Table 7. For more information on the schedule of studies as they pertain to NYSERDA’s Market Development and Innovation & Research initiatives, please reference the Compiled Investment Plan or view reporting for historical periods to see past summaries both on NYSERDA’s website.

Table 7. Evaluations Completed Q4 2022

Evaluated Program	Evaluation type	Evaluated program year(s)
Codes and Standards for Carbon Neutral Buildings Market Evaluation	Market	2021-2022

Depending on the research objectives, presentation of report findings and recommendations may vary by study. The status of each NYSERDA recommendation response is categorized as follows:

- **Implemented:** NYSERDA has incorporated the recommendation into its offering(s).
- **Pending:** NYSERDA is reviewing the recommendation for consideration.
- **Rejected:** NYSERDA will not be implementing the recommendation.

NYSERDA will continue to periodically review and track the status of recommendations from these studies moving forward, particularly for those deemed “pending.” This review will occur as part of the Q1 and Q3 quarterly reports each year.

The latest Compiled Investment Plans:

<https://www.nyserderda.ny.gov/About/Funding/Clean-Energy-Fund/>

Clean Energy Fund Reports:

<https://www.nyserderda.ny.gov/About/Publications/Program-Planning-Status-and-Evaluation-Reports/Clean-Energy-Fund-Reports>

Note that NYSERDA began providing these summaries with the 2021 Annual CEF Performance Report.

4.1 Codes and Standards for Carbon Neutral Buildings Market Evaluation

Summary of Report Findings, Recommendations, and NYSERDA Response to Recommendations.

Key findings and associated recommendations from the Codes and Standards for Carbon Neutral Buildings Market Evaluation include¹²:

Finding #1. Estimated code compliance is increasing overall across the state since 2015. According to Delphi Panels conducted in 2015, 2020, and 2022, code compliance has generally increased between 2015 and 2020 in both the residential and commercial building sectors and in construction activity (new construction or additions and alterations). However, code compliance increases have varied by year, building sector, and construction activity; from no increase for residential new construction between 2015 and 2020 to a 14% increase for commercial additions and alterations between 2020 and 2022.

Training survey respondents stated that they have seen an increase in code compliance and that NYSERDA played a role in this increase. However, the Delphi Panel also noted several building code components where compliance was below 80%, including commercial sector code provisions that require expert installation or other expert knowledge, such as thermal bridging, continuous air barrier installation quality, envelope insulation installation quality, and continuous air barrier, as well residential sector provisions for documentation, recessed lighting, and duct testing. Insights related to the timing of code changes and the impact on compliance for these components were not addressed in this evaluation.

Recommendation: NYSERDA should review the component-level jurisdiction compliance rates to identify specific opportunities for more targeted training to increase code compliance for building components where compliance is low. In the commercial sector, these components include thermal bridging, continuous air barrier installation quality, envelope insulation installation quality, and continuous air barriers. In the residential sector, these components include documentation, recessed lighting, and duct testing.

NYSERDA response to recommendation: Implemented. NYSERDA has used Delphi Panel findings to inform the currently offered training and other programmatic efforts and will continue to do so going forward. Thermal bridging, in particular, will be an area of focus in future trainings.

Finding #2. Jurisdictions continue to adopt stretch codes, and NYSERDA plays a key role in stretch code adoption. Since the prior evaluation report, the number of jurisdictions adopting stretch codes has more than

doubled, from 15 to 42 jurisdictions. NYSERDA has played a key role in promoting stretch code adoption, through code development and technical and financial assistance. NYSERDA's stretch code adoption technical expert support activities received mixed reviews: interviewees found the support provided by Clean Energy Community Coordinators and NYSERDA staff to be valuable, while several respondents were critical of the support provided by regional circuit rider contractors. Several jurisdictions also provided recommendations on improving how NYSERDA provides support, including making changes to the way the stretch code is presented and how training is provided.

Recommendation: NYSERDA should convene jurisdictions that have adopted NYStretch in a short online debriefing session or focus group to deepen understanding of jurisdictional experience with program support—particularly with circuit riders/consultants—and identify opportunities for improvements with the greatest potential to increase program impact. These improvements can enhance NYSERDA's future stretch code support work.

NYSERDA response to recommendation: Pending. NYSERDA plans to issue a survey to NYStretch adopters and the stakeholders NYSERDA worked with in this effort to better understand their experiences and explore areas for improvement.

Finding #3. The Codes and Standards for Carbon Neutral Buildings Initiative continues to reach a very significant number of code officials and building professionals with trainings. Trainings resulted in a significant increase in self-reported understanding of energy codes, and more than half of training participants report that the trainings have influenced their approach to code compliance.

Training records indicate that Code to Zero Initiative trained at least 9,220 code officials and building professionals since March 2020, filling 48,854 seats. Survey respondents reported a higher level of understanding of the ECCCNY and stretch codes following the training, that they applied what they learned in their work, and that they shared information with others. Survey results also suggest that there may be opportunities to improve the impact of specific trainings. While 91% of training participants said they intended to use what they learned, a smaller proportion (57%) of participants reported having made one or more changes the way they address code compliance issues six months after the training.

Finding #4. While training attendees rated the courses highly overall, a few trainings received lower ratings and specific recommendations for improvement. These trainings included the “Performance-

Based Compliance with ASHRAE Standard 90.1 2016” and the “2020 ECCCNYs for Commercial Buildings: Overview” training.

Specific recommendations from training participants were to improve the topic of what documentation must be submitted by code officials in the “Performance-Based Compliance with ASHRAE Standard 90.1 2016” and the inspection checklist topic in the “2020 ECCCNYs for Commercial Buildings: Overview” training.

Recommendation: Conduct follow-up analysis to identify the specific trainings that generated lower reported impact in terms of behavior changes and information sharing, as well as trainings with lower ratings, to identify and prioritize potential improvements. Review analysis with implementers to determine potential adjustments to the training materials.

NYSERDA response to recommendation: Pending. This recommendation will be implemented in the next planned evaluation.

Finding #5. The initiative logic model would benefit by some minor refinements, to ensure that it and the evaluation fully capture NYSERDA’s market influence.

Recommendation: Refine the initiative logic model to include the influence of the New Construction and Buildings of Excellence Initiatives, align outputs and outcomes to reflect expected near- and mid- to long-term outcomes, and complete an evaluability map.

NYSERDA response to recommendation: Pending. This recommendation will be implemented as part of the next planned evaluation.

Endnotes

- ¹ Order Authorizing the Clean Energy Fund Framework, issued and effective January 21, 2016. [[LINK](#)]
- ² Order Approving Clean Energy Fund Modifications, issued and effective September 9, 2021. [[LINK](#)]
- ³ <https://greenbank.ny.gov/Resources/Public-Filings> [NY Green Bank Public Filings]
- ⁴ <http://documents.dps.ny.gov/public/MatterManagement/CaseMaster.aspx?Mattercaseno=18-M-0084> [NYS Department of Public Service Commission Files]
- ⁵ Governor Hochul announces new framework to achieve nation-leading energy storage target (6GW by 2030), which can be referenced in the PSC filing of the Energy Storage Roadmap
<https://documents.dps.ny.gov/public/Common/ViewDoc.aspx?DocRefId={7D4753BA-916B-483E-9E35-6749B20384A6}>
- ⁶ If solicitations with upcoming due dates were factored into the total NYSEDA commitments in the Market Development Budgets and Spending table, an additional \$106,645,804 or 75.7% of the total approved budget to date, would be included with total NYSEDA commitments.
- ⁷ The Market Characterization and Design initiative includes funds to support overarching, non-initiative-specific evaluation studies.
- ⁸ Initiative commitments that are in excess of their total budgets are in anticipation of program attrition. No initiative will have total expenditures in excess of that initiative's total budget at the close of the program.
- ⁹ If solicitations with upcoming due dates were factored into the total NYSEDA commitments in the Innovation and Research Budget and Spending table, an additional \$67,175,463 or 96.6% of the total approved budget to date, would be included with total NYSEDA commitments.
- ¹⁰ The Market Characterization and Design initiative includes funds to support overarching, non-initiative-specific evaluation studies.
- ¹¹ A modification on September 9, 2022 to the Renewables Optimization Investment Plan expanded the activities and budget of the Energy Storage Technology and Product Development initiative to focus on solutions providing 10 to 100+ hours of storage for various grid applications to enable the transition away from natural gas infrastructure. In a subsequent filing on November 1, 2022 this new portion of the initiative was renamed to Long Duration Energy Storage as its own initiative the Gas Innovation focus area.
- ¹² This study will be posted to NYSEDA's website soon.

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.

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