

Clean Energy Fund Quarterly Performance Report through March 2024

Final Report | May 2024



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

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Clean Energy Fund Quarterly Performance Report through March 31, 2024

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Clean Energy Fund Quarterly Performance Report through March 31, 2024

Final Report

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About The Clean Energy Fund and 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 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.³ 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 2030⁴
- 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.

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 March 31, 2024 (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.⁵

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1 Clean Energy Fund Performance Overview

1.0 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 March 31, 2024, and nets out overlap across portfolios where it is known to occur. Plans depicted throughout this report reflect the November 1, 2023 Compiled Investment Plan (CIP) filing made by NYSERDA and later approved by DPS December 4, 2023.

Figure 1 captures the status of CEF funding while Figure 2 depicts progress of the combined portfolios against the latest CEF ordered benefit targets. 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 total 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

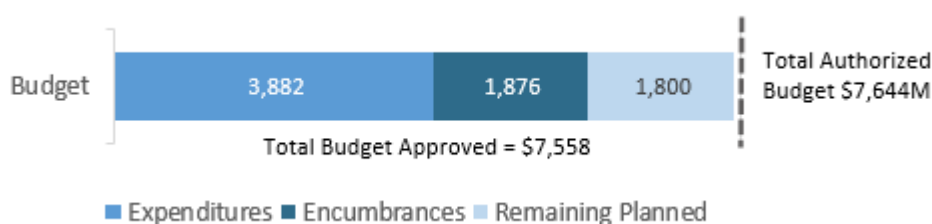


Figure 1 Supporting data		Total Authorized Budget	Budget Approved		Expended Funds		Encumbered Funds		Remaining Planned		Funding Not Yet Approved
			Current Total	% of Authorized	Current Total	% of Authorized	Current Total	% of Authorized	Total Balance	% of Authorized	
Market Development (MD)	Program Funds	\$ 2,399.7 M	\$ 2,327.6 M	98%	\$ 1,237.3 M	52%	\$ 628.8 M	26%	\$ 461.6 M	20%	\$ 44.4 M
	NYS Cost Recovery Fee		\$ 27.7 M		\$ 15.5 M		\$ 0.0 M		\$ 12.2 M		
Innovation & Research (IR)	Program Funds	\$ 631.7 M	\$ 590.2 M	94%	\$ 263.9 M	42%	\$ 226.4 M	36%	\$ 99.8 M	16%	\$ 34.8 M
	NYS Cost Recovery Fee		\$ 6.7 M		\$ 2.9 M		\$ 0.0 M		\$ 3.8 M		
MD and IR combined	Administration	\$ 274.4 M	\$ 267.5 M	97%	\$ 196.7 M	72%	\$ 0.0 M	0%	\$ 70.8 M	26%	\$ 6.9 M
	Evaluation	\$ 124.2 M	\$ 124.2 M	100%	\$ 42.1 M	34%	\$ 12.6 M	10%	\$ 69.5 M	56%	\$ 0.0 M
	MD and IR Total	\$ 3,430.0 M	\$ 3,343.9 M	97%	\$ 1,758.5 M	51%	\$ 867.7 M	25%	\$ 717.7 M	21%	\$ 86.1 M
NY-Sun	Program Funds	\$ 3,162.8 M	\$ 3,162.8 M	100%	\$ 1,138.6 M	36%	\$ 1,008.0 M	32%	\$ 1,016.2 M	32%	\$ 0.0 M
	NYS Cost Recovery Fee	\$ 41.8 M	\$ 41.8 M	100%	\$ 10.8 M	26%	\$ 0.0 M	0%	\$ 31.0 M	74%	\$ 0.0 M
	Administration	\$ 58.8 M	\$ 58.8 M	100%	\$ 25.7 M	44%	-\$ 0.1 M	0%	\$ 33.2 M	56%	\$ 0.0 M
	Evaluation	\$ 3.5 M	\$ 3.5 M	100%	\$ 1.5 M	42%	\$ 0.6 M	16%	\$ 1.5 M	42%	\$ 0.0 M
	NY-Sun Total	\$ 3,266.8 M	\$ 3,266.8 M	100%	\$ 1,176.5 M	36%	\$ 1,008.5 M	31%	\$ 1,081.9 M	33%	\$ 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	\$ 7,557.9 M	99%	\$ 3,882.1 M	51%	\$ 1,876.2 M	25%	\$ 1,799.6 M	24%	\$ 86.1 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 \$687 million in non-CEF NYSERDA funded solar projects (see Table 12).

The summary of benefit progress reflects evaluated totals, incorporating verified gross acquired savings where evaluations have been completed, and reflects gross savings values elsewhere. Through Q1 2024, measurement and verification activities have resulted in an adjustment to gross energy savings by approximately -3.2 TBtu. Indirect benefits from market transformation are included in acquired totals where they have been quantified through evaluation, now totaling approximately 5.9 TBtu energy savings. Conservative estimates of indirect benefits are also included in the remaining plans generally reflecting 50 percent of the anticipated achievement as is consistent with other plan filings that account for uncertainty in timing and potential overlap across the portfolio that has yet to be fully evaluated.

Figure 2. Clean Energy Fund Portfolio Expected Benefits versus Targets

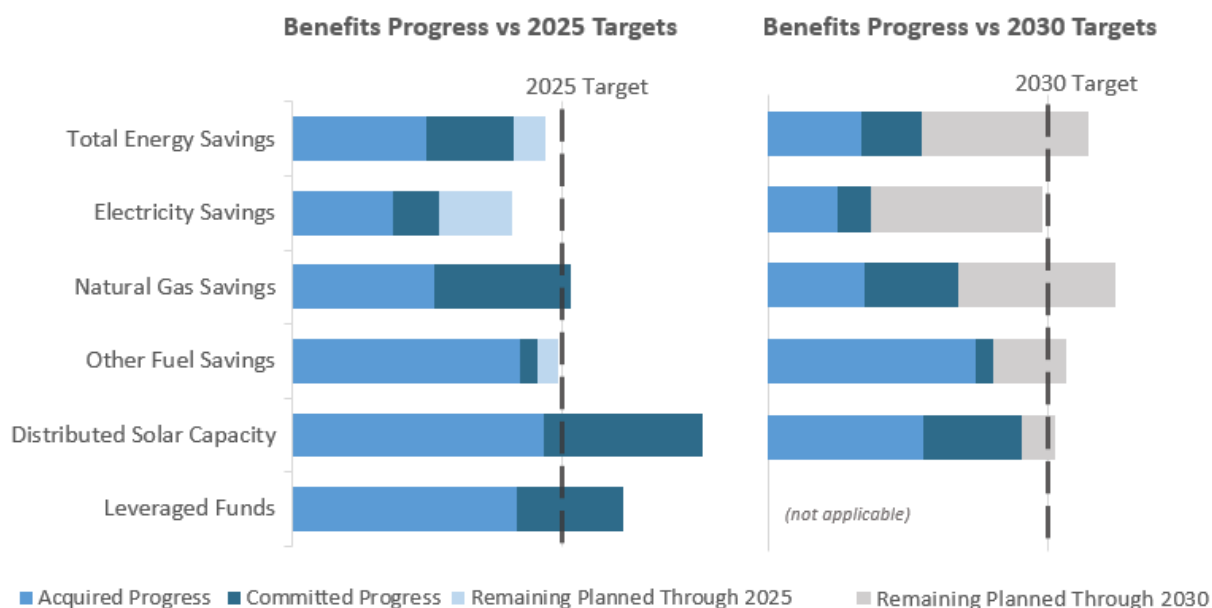


Figure 2 Supporting Data	Acquired Progress	Committed Progress	Remaining Planned Through 2025	Total Expected Through 2025	2025 Order Target	Remaining Planned Through 2030	Total Expected Through 2030	2030 Order Target
Total Energy Savings (MMBtu equivalent, millions)	26.4	17.1	6.0	49.5	53.0	46.9	90.4	79.0
Electricity Savings (MWh, millions)	2.5	1.2	1.8	5.4	6.7	6.2	9.8	10.0
Natural Gas Savings (MMBtu, millions)	13.2	12.7	-	24.4	25.0	21.4	47.2	38.0
Other Fuels Savings (MMBtu, millions)	12.7	1.0	1.1	14.8	15.0	4.5	18.1	17.0
Distributed Solar Capacity (Renewable MW)	5,576	3,519	-	9,095	6,000	1,169	10,265	10,000
Leveraged Funds (\$ millions)	\$16,663	\$7,814	-	\$24,476	\$20,000	-	\$24,476	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)	43.6		88%	82%	48%	55%
Electricity Savings (MWh, millions)	3.7		67%	54%	37%	37%
Natural Gas Savings (MMBtu, millions)	25.8		106%	103%	55%	68%
Other Fuels Savings (MMBtu, millions)	13.6		92%	91%	75%	80%
Distributed Solar Capacity (Renewable MW)	9,095		100%	152%	89%	91%
Leveraged Funds (\$ millions)	\$24,476		100%	122%	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.
- Distributed Solar Capacity includes 1,293 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 NYSEERDA funding. Committed project data is maintained by NYSEERDA 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 NYSEERDA 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 NYSEERDA funded solar projects of \$2,002 million acquired and \$113 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, NYSEERDA has made significant progress positioning the collective portfolios to achieve the CEF Order Targets on both 2025 and 2030 timelines. An explanation of progress and the current portfolio mix is as follows:

- Just over eight years into the ten-year CEF commitment timeline (~80%), every metric with the exception of electricity savings is at or above a linear 80% measure of progress when comparing the total committed benefits through the current quarter, and this progress will only be bolstered as more evaluation studies enable reporting of indirect impacts from earlier years of the CEF.
- Near-term projections for Total Energy Savings (MMBtu equivalent) through 2025 continue to show the effects of current clean energy and broader market challenges (supply chain disruptions, skilled labor availability, increased construction costs) however NYSEERDA maintains confidence in the ability of the CEF portfolio to deliver the overall impact outlined by CEF 2030 Targets.
- Projects delivering electricity savings remain behind the pace of fuel savings as illustrated by the Figure 2 visual, but the strong foundation of fuel-related projects, of which significant savings are already considered acquired in the portfolio, is boosting the near-term 2025 view and firming up the overall potential for 2030 achievement.
- Renewable energy capacity MW continues to progress well against the 2025 target as a result of the continued success of NY-Sun which is on a trajectory to achieve the target early. The portfolio is also well positioned to achieve the expanded 2030 target of 10 GW.
- Leveraged funding acquired and committed progress is outpacing other metrics due to strong NY-Sun and Innovation & Research returns.

The September 2021 CEF Order included a target regarding equity for disadvantaged communities (DACs), specifically that a minimum of 35 percent of the benefits of CEF investments would accrue to disadvantaged communities. On November 15, 2023 NYSEERDA filed with the PSC its first

Disadvantaged Communities Report for ratepayer funded programs, which included place-based investments and benefits across the Clean Energy Fund portfolio covering years 2020 - 2022. Another filing spanning years 2020 – 2023 was made in March 2024 and summarized in NYSERDA’s CEF Annual Report. Reporting requirements outlined by DPS are aligned with a broader statewide effort, where NYSERDA is working with other State agencies and stakeholders, including the Climate Justice Working Group and the Department of Environmental Conservation, to establish a statewide benefits/metrics framework and reporting system for the Climate Act disadvantaged community mandate. This annual statewide report would include place-based investments across all funds, not just CEF, and is expected to be compiled and released later in 2024.

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)	6.2	3.6	9.8	9.0	14.0
Participant Bill Savings (\$ millions)	\$1,165	\$748	\$1,913	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.

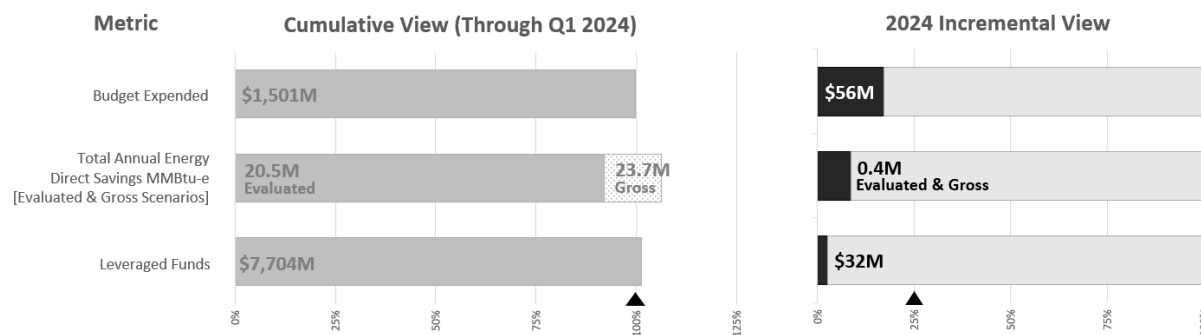
2 Market Development and Innovation & Research Performance

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, 2023, NYSERDA completed the annual filing which was approved by DPS in December and took effect on January 1, 2024. More recently, NYSERDA filed an update to the CIP on February 28, 2024 which was later approved by DPS in March. These plans will be reflected in NYSERDA's Q2 2024 CEF Report. NYSERDA closely monitors progress of the portfolios towards CEF benefits targets using both cumulative and incremental measures, which 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 Q1 2024. Key points to understand the data presented in Figure 3 include:

- The Cumulative View (Through Q1 2024) represents years 2016–2023, plus one quarter of 2024; 100 percent in this view represents the cumulative *planned* amounts for that timeframe, prorated to enable comparison of progress through the current quarter.
- The 2024 Incremental View represents progress reported in the current calendar year against the current calendar year plan in total, with an expectation that 100 percent of the plan should be achieved by year-end. This secondary measure helps NYSERDA monitor and assess specific trends throughout the year. Progress illustrated in this view can be influenced by how NYSERDA finishes the previous year as those plans represent an estimate; the portfolio may start the new year either ahead or behind the forecasted finish 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



Through Q1 2024, NYSERDA’s cumulative progress of these three benchmark measures remains strong, though the incremental view shows slower progress toward the 2024 plan. NYSERDA finished 2023 ahead of the reforecasted year-end plan for expenditures and continued that pace into Q1 as noted by the cumulative progress near 100%. Incremental progress shown in this calendar year will appear to lag pace through Q1 but is on track overall as result of exceeding the 2023 plan. Similarly for incremental leveraged funding, Innovation & Research projects report progress on a lag with additional 2023 results now available and reported in Q1 2024, boosting the overall portfolio above 100% on cumulative progress through this quarter even though incremental progress appears to be stagnant. Additional detail on programs contributing the largest impact to energy savings targets can be found in the next section. Reporting of leveraged funding progress is on a lag for the Innovation & Research portfolio, with expectations that the current gap to plan will close once these project updates are collected and reported.

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 continues to employ improved 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 below.

Top Energy Impact Initiative Performance Summary

In NYSERDA’s Market Development portfolio, 15 key initiatives currently account for approximately 91 percent of the expected total energy saving benefits (represented by equivalent annual MMBtu) and 51 percent of the total approved Market Development 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 Q1 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	103%	Gross: Evaluated:	98% 42%	Progress of budget expenditures are trending favorably through Q1 2024 though energy benefits still lag plan. 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 was finalized in Q2 2023 with realization rates for electric savings (which represent the majority of program savings) more than doubling for more recent years. Realization rates for MMBtus remained fairly constant, however, an additional update to this study is in process now to address data challenges that have persistently made verifying historical progress difficult. The Real Time Energy Management program still has a robust pipeline of projects that are in various stages of implementation. Several large projects anticipated for completion early in 2024 have experienced some delays but are expected to wrap up in the next few months. An evaluation study is also commencing to quantify indirect benefits from this program, which have yet to be assessed. This combined impact and market evaluation will be undertaken on Real Time Energy Management in 2024 and future quarterly reports will detail results.

Table 2 continued

MMBtu Impact	Initiative	Cumulative Progress (% Performance To Plan)			Progress Narrative
		Rank	Budget %	Savings Type	
2	Technical Services	111%	Gross: Evaluated:	120% n/a	Progress of budget expenditures and benefits remains strong. Commercial funds may be fully committed by Q2 2024 so additional funding will be sought in an upcoming investment plan update. An impact evaluation is planned to begin Q4 2024.
3	Product and Appliance Standards	98%	Gross: Evaluated:	n/a n/a	Progress of budget expenditures is trending well through Q1. NYSERDA successfully adopted 21 appliance standards for the State by the 1/1/23 statutory deadline and the standards went into effect on 6/26/23. The core work to implement those standards is now underway with the launch and expansion of the statewide compliance program. This initiative forecasts all impacts as indirect savings; those benefits will be reported in the future as evaluation studies conclude and the market impact over time is understood. Scoping has begun on evaluation activities which expect to conclude in mid-2025. Future quarterly reports will detail findings.
4	Building Operations and Maintenance Partnerships	106%	Gross: Evaluated:	72% 88%	While acquired energy savings is tracking slightly behind plan due to some project delays and some projects completing only partial training scopes of work, the program continues to receive new applications each month through the open enrollment process and new service providers are bringing in new participants. The current pipeline of projects expected to close in 2024 will likely fall below forecasted values due to some cancellations, reduced training scopes, and extensions into 2025. An updated impact evaluation is underway and is projected to be completed later in 2024.
5	Market Challenges	116%	Gross: Evaluated:	80% n/a	Commercial and Industrial Carbon Challenge and Commercial and Industrial Accelerated Efficiency programs received a strong market response for competitive funding and awarded over \$37 million in incentives for new projects in Q4 2023 and projects are proceeding to contract. Preparation for the next round of Carbon Challenge is underway with anticipated release in Q2 2024. The first projects funded under the Empire Building Challenge are in the early stage of implementation and benefits are expected to be acquired in 2024.
6	Electric Vehicles – Rebate	100%	Gross: Evaluated:	139% 100%	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, and no identified sales increase beyond incentives that could be linked to program funding, no indirect savings were estimated as part of this study. Evaluation studies will continue to assess indirect impacts going forward.

Table 2 continued

MMBtu Impact Rank	Initiative	Cumulative Progress (% Performance To Plan)			Progress Narrative
		Budget %	Savings Type	Energy %	
7	LMI Multifamily	103%	Gross: Evaluated:	71% 65%	The program saw significant progress in new funding commitments for Q1 2024 for this portfolio. However, acquired savings continue to lag due to close out of the Multifamily Performance Program and associated project cancellations. Much of that clean-up is complete. Direct Injection programs continue with the New York City Housing Preservation and Development (HPD) and New York State Homes and Community Renewal (HCR). HPD retrofit programs are progressing well with expenditures expected to increase significantly in Q3 and Q4 2024. HCR has a robust pipeline of existing buildings projects likely to enter the program in Q3 and Q4 2024. The multifamily technical services offering was updated in Q4 2023 and increased the cost share for affordable housing projects to 75%. The program is seeing an uptick in demand for LMI studies through increased outreach and partnerships. An impact evaluation is planned to begin Q2 2024 and the team expects expenditures to trend favorably over the remainder of 2024 due to large project pipelines from NYS and NYC housing agencies as well as uptake of the Flex Tech program within the LMI Multifamily segment.
8	Industrial Transition	99%	Gross: Evaluated:	106% 98%	This program has been inactive since the end of 2019. 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 currently underway and future reports will detail results.
9	Energy Management Practices	104%	Gross: Evaluated:	77% 84%	Slow participation in Industrial On-site Energy Manager led NYSERDA to make a modification to the program in Q4 2023, resulting in positive market response and increased interest in Q1 2024. However, a few projects completed and acquired less savings during the period due to economic conditions, resulting in the lag this quarter. Anticipated applications into Industrial On-site Energy Manager are expected to make up the lag in Q2. An evaluation study for Energy Management Practices will be complete in Q2 2024.
10	Codes and Standards for Carbon Neutral Buildings	104%	Gross: Evaluated:	n/a n/a	Core work for code advancement and training is moving forward expeditiously and proposals for the next State code update are underway in partnership with DOS. This initiative forecasts all impacts as indirect savings and through evaluation studies, , measured indirect benefits have exceeded plan for the period of study (260%). The latest study completed Q1 2024 (and summarized in Section 4 of this report) shows that NYSERDA's long-standing engagement in this space is responsible for approximately 3.4 TBTu of energy savings during the period 2017-2023, of which approximately 1.7 TBTu is reflective of CEF-specific efforts. An update to this study is underway now with results anticipated Q1 2025.

Table 2 continued

MMBtu Impact	Initiative	Cumulative Progress (% Performance To Plan)			Progress Narrative
		Budget %	Savings Type	Energy %	
11	New Construction – Market Rate	106%	Gross: Evaluated:	94% 94%	The initiative continues to perform well on both budget and energy benefits, with the greatest expenditure activity this quarter coming from the Carbon Neutral Community Economic Development program and significant expenditures also coming from the New Construction-Commercial, New Construction-Housing, and Buildings of Excellence programs as projects advance through construction stages toward completion. A study focusing on multifamily and commercial projects is underway now and future quarterly reports will detail results.
12	Clean Energy Communities	101%	Gross: Evaluated:	252% 101%	Progress of budget expenditures and energy benefits continues to trend favorably in Q1 2024 with 57% of the municipalities in the state participating in the program. A surge of program activity has taken place since the program update took effect on December 14, 2023 and communities remain engaged in the program as they actively work toward grant thresholds. With the shift of program impacts from direct to indirect proposed in the November 2023 CIP filing, NYSERDA is undertaking an evaluation assessment that is anticipated to be complete Q2 2024 that will confirm the shift from direct to indirect and to quantify indirect.
13	Clean Green Campuses	99%	Gross: Evaluated:	46% 99%	All funding is now fully committed. As projects are completed, excess funding will be recommitted to complete a College Decarbonization Playbook underway and provide continued outreach support to the sector.
14	P-12 Schools	98%	Gross: Evaluated:	80% n/a	Progress of budget expenditures is trending well while benefits show a moderate lag through Q1. Uptake of this program saw an increase when Clean Green Schools relaunched, announcing new installation funds in January 2024. A market evaluation of this initiative was completed in Q1 2024 and Section 4 of this report details findings.
15	Heat Pumps Phase 2 (2020)	96%	Gross: Evaluated:	n/a n/a	Progress of expenditures is generally strong. This initiative forecasts all impacts as indirect savings and to date, NYSERDA has measured 932,885 MMBtu equivalent energy savings covering period 2020 - 2022, which is 410% higher than the forecast savings for that same time period.

2.0 Quarterly Benefits Progress Versus Plan

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

The table that follows represents all 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. Note measurement and verification activities have reduced gross savings by approximately 3.2 TBtu through the first quarter.

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)	4,591,294	402,980	20,517,323	16,783,789	37,301,113	32,175,206	116%	46,900,630	80%
Electricity Savings (MWh)	627,022	40,635	2,070,692	1,285,443	3,356,135	3,438,563	98%	4,269,196	79%
Total Fuel Savings (MMBtu)	3,217,504	287,969	22,956,429	13,645,076	36,601,505	30,710,831	119%	42,833,288	85%
Natural Gas Fuel Savings (MMBtu)	2,816,674	245,322	9,996,506	12,669,834	22,666,340	16,805,389	135%	27,601,923	82%
Other Fuel Savings (MMBtu)	400,830	42,647	12,959,923	975,242	13,935,165	13,905,442	100%	15,231,365	91%
Renewable Energy Generation (MWh)	38,483	1,093	276,993	52,962	329,955	311,921	106%	313,321	105%
Renewable Energy Capacity (MW)	1	1	423	2	425	798	53%	2,593	16%
Total Leveraged Funds (\$M)	\$1,193	\$32	\$7,404	\$3,742	\$11,146	\$9,580	116%	\$12,845	87%

- Verified savings as a percent of total reported direct savings varies by metric and includes electricity (60% verified), natural gas (64%), 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.
- 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. Note approximately 5.9 TBtu of indirect benefits have been quantified through evaluation. NYSERDA makes conservative estimates of indirect benefits, generally reflecting 50 percent of the remaining planned, anticipated achievement, accounting for uncertainty in timing and potential overlap across the portfolio that has yet to be fully evaluated.

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)	3,795,561	2,130,332	5,925,893	19,789,917	30%	49,590,256	12%
Electricity Savings (MWh)	429,741	228,993	658,734	2,360,097	28%	5,918,118	11%
Total Fuel Savings (MMBtu)	2,616,422	1,349,008	3,965,430	12,899,165	31%	31,430,770	13%
Natural Gas Fuel Savings (MMBtu)	1,807,402	1,349,008	3,156,410	7,620,755	41%	19,614,530	16%
Other Fuel Savings (MMBtu)	809,020	-	809,020	5,278,410	15%	11,816,240	7%
Renewable Energy Generation (MWh)	478,683	-	478,683	640,347	75%	1,013,935	47%
Renewable Energy Capacity (MW)	58	-	58	122	48%	270	21%

- 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.
- 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, 84,155 MWh is netted in the Total Energy Savings calculation.
- Indirect leveraged funding will be captured with future assessments.

2.1 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)	\$1,579,931	\$208,101	\$2,993,087	\$57,630,354	\$57,341,685	101%	\$57,491,685	100%
Heat Pumps Phase 2 (2020)	\$9,074,502	\$1,335,913	\$17,610,730	\$48,383,726	\$45,951,366	105%	\$61,193,408	79%
Renewable Heat NY - Clean and Efficient Biomass Heating	\$256,728	\$29,055	\$257,776	\$13,410,576	\$13,410,575	100%	\$13,410,575	100%
Solar Thermal Transition	-	-	-	\$287,513	\$287,513	100%	\$287,513	100%
Clean Heat & Cooling Total	\$10,911,161	\$1,573,069	\$20,861,593	\$119,712,168	\$116,991,139	102%	\$132,383,181	90%
Codes and Standards, & Other Multisector Initiatives								
Codes and Standards for Carbon Neutral Buildings	\$9,650,000	\$1,740,861	\$10,201,356	\$28,097,381	\$34,613,243	81%	\$52,000,000	54%
Information Products and Brokering	\$350,000	(241,200)	\$452,088	\$2,644,049	\$3,216,057	82%	\$5,500,000	48%
Market Characterization & Design Market Development	\$3,573,106	\$226,908	\$4,613,917	\$22,768,587	\$24,345,245	94%	\$24,758,269	92%
Product and Appliance Standards	\$4,525,000	\$984,535	\$7,629,126	\$12,653,994	\$13,574,991	93%	\$20,699,000	61%
REV Connect	\$2,800,000	\$321,843	\$6,092,817	\$12,199,666	\$10,740,000	114%	\$13,000,000	94%
Codes and Standards, & Other Multisector Initiatives Total	\$20,898,106	\$3,032,948	\$28,989,304	\$78,363,677	\$86,489,537	91%	\$115,957,269	68%
Commercial / Industrial / Agriculture								
Advancing Agricultural Energy Technologies	\$500,000	-	\$1,297,760	\$2,104,449	\$2,104,449	100%	\$2,104,449	100%
Agriculture Transition	-	-	-	\$3,598,821	\$3,598,821	100%	\$3,598,821	100%
Clean Green Campuses	\$2,350,000	\$321,119	\$6,649,336	\$20,961,329	\$18,436,772	114%	\$21,650,002	97%
Commercial Transition	\$80,000	\$76,797	\$446,127	\$12,359,688	\$12,261,797	101%	\$12,424,397	99%
Energy Management Practices	\$3,474,680	\$1,122,440	\$5,750,719	\$22,942,008	\$22,777,326	101%	\$26,976,778	85%
Energy Management Technology	\$8,698,116	\$1,711,674	\$25,092,199	\$82,594,665	\$79,191,678	104%	\$108,298,861	76%
Greenhouse Lighting and Systems Engineering	\$487,486	\$222,789	\$795,513	\$5,000,000	\$4,917,724	102%	\$5,000,000	100%
Industrial Transition	\$329,867	\$4,361	\$478,088	\$45,255,901	\$46,046,872	98%	\$46,046,872	98%
Market Challenges	\$23,208,869	\$9,538,565	\$81,033,207	\$110,959,851	\$68,048,118	163%	\$130,132,457	85%
P-12 Schools	\$2,950,000	\$777,063	\$21,001,253	\$31,357,382	\$18,637,406	168%	\$57,600,000	54%
Pay for Performance	-	\$2,076	\$82,165	\$1,778,747	\$1,709,226	104%	\$1,709,226	104%
Real Estate Tenant	\$282,757	\$74,648	\$604,588	\$14,688,136	\$15,003,316	98%	\$15,798,390	93%
Technical Services	\$9,967,990	\$3,010,414	\$35,716,301	\$74,947,921	\$55,884,390	134%	\$88,252,737	85%
Commercial / Industrial / Agriculture Total	\$52,329,764	\$16,861,945	\$178,947,256	\$428,548,897	\$348,617,895	123%	\$519,592,988	82%
Communities								
Clean Energy Communities	\$9,111,101	\$1,302,355	\$16,402,026	\$48,410,123	\$48,245,638	100%	\$66,271,963	73%
Community Energy Engagement	-	-	-	\$4,388,546	\$4,388,546	100%	\$4,388,546	100%
Communities Total	\$9,111,101	\$1,302,355	\$16,402,026	\$52,798,669	\$52,634,184	100%	\$70,660,509	75%

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	-	-	\$32,865	\$212,147	\$212,147	100%	\$212,147	100%
Heat Pumps Phase 2 (2020)	\$5,305,840	\$121,901	\$2,519,405	\$10,507,368	\$19,581,902	54%	\$30,000,000	35%
LMI Multifamily	\$21,793,068	\$1,817,444	\$54,465,659	\$99,349,812	\$90,265,270	110%	\$179,328,622	55%
LMI Outreach & Engagement	\$1,864,482	\$290,775	\$1,571,928	\$4,719,220	\$7,418,473	64%	\$8,467,401	56%
LMI Pilots	\$397,717	-	\$106,583	\$852,665	\$1,648,099	52%	\$2,443,533	35%
Low Rise New Construction Transition - LMI	\$375,000	\$30,852	\$496,823	\$7,899,647	\$7,920,376	100%	\$7,920,376	100%
Multifamily New Construction Transition - LMI	\$1,540,000	\$65,665	\$1,065,944	\$7,644,472	\$7,970,981	96%	\$7,970,981	96%
New Construction - LMI	\$12,041,800	\$3,381,397	\$70,381,907	\$113,882,722	\$68,100,606	167%	\$135,131,363	84%
NYS Healthy Homes Value Based Payment Pilot	\$4,159,810	\$471,295	\$669,781	\$3,509,685	\$9,791,294	36%	\$9,791,294	36%
Regional Clean Energy Hubs	\$14,698,862	\$1,039,727	\$29,233,279	\$35,849,728	\$36,062,733	99%	\$47,000,000	76%
RetrofitNY - LMI	\$700,000	\$192,714	\$3,186,584	\$8,137,297	\$7,772,759	105%	\$8,918,410	91%
REVitalize	-	-	-	\$291,424	\$291,424	100%	\$291,424	100%
Single Family - Low Income	-	\$260,811	\$979,215	\$248,850,707	\$249,028,568	100%	\$249,028,568	100%
Single Family - Moderate Income	\$3,450,000	\$1,041,385	\$783,491	\$97,953,322	\$102,751,836	95%	\$102,751,836	95%
Solar for All	\$1,348,048	\$132,986	\$7,022,967	\$12,697,024	\$8,360,581	152%	\$13,011,046	98%
Low-to-Moderate Income Total	\$67,674,627	\$8,846,953	\$172,516,430	\$652,357,240	\$617,177,049	106%	\$802,267,000	81%
Multifamily Residential								
Energy Management Technology	\$1,627,603	\$859,518	\$3,153,123	\$10,728,176	\$11,164,276	96%	\$14,099,239	76%
Market Challenges	\$2,986,634	\$1,176,178	\$5,820,116	\$9,830,327	\$9,680,748	102%	\$13,300,000	74%
Multifamily Low Carbon Pathways	\$4,173,801	\$394,250	\$6,876,170	\$8,770,749	\$10,540,699	83%	\$19,670,380	45%
Multifamily Market Rate Transition	-	-	-	\$156,214	\$156,214	100%	\$156,214	100%
Technical Services	\$4,739,021	\$1,451,235	\$12,526,886	\$22,514,670	\$17,477,400	129%	\$30,717,634	73%
Multifamily Residential Total	\$13,527,058	\$3,881,180	\$28,376,294	\$52,000,135	\$49,019,336	106%	\$77,943,466	67%
New Construction								
Commercial New Construction Transition	\$1,570,000	\$42,504	\$2,025,384	\$11,648,265	\$12,453,705	94%	\$12,645,983	92%
Low Rise New Construction Transition - Market Rate	\$180,000	\$11,740	\$208,406	\$4,327,391	\$4,381,285	99%	\$4,381,285	99%
Multifamily New Construction Transition - Market Rate	\$170,000	\$6,880	\$165,152	\$1,592,735	\$1,626,873	98%	\$1,626,873	98%
New Construction - Market Rate	\$7,030,929	\$1,697,711	\$101,226,797	\$125,149,053	\$46,072,335	272%	\$159,150,505	79%
New Construction Total	\$8,950,929	\$1,758,836	\$103,625,739	\$142,717,444	\$64,534,198	221%	\$177,804,647	80%

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	\$4,460,000	\$73,012	\$7,063,072	\$13,414,066	\$11,840,829	113%	\$13,388,516	100%
Clean Energy Siting and Soft Cost Reduction	\$1,399,598	\$272,007	\$1,914,272	\$4,960,397	\$5,674,035	87%	\$8,795,000	56%
Combined Heat & Power Transition	\$9,510,500	\$406,730	\$15,133,476	\$54,853,459	\$56,056,729	98%	\$56,056,729	98%
Fuel Cells	\$1,706,250	-	\$500,000	\$4,786,644	\$7,199,144	66%	\$7,199,144	66%
Offshore Wind Master Plan	-	-	-	\$4,965,882	\$4,965,882	100%	\$4,965,882	100%
Offshore Wind Pre-Development Activities	\$170,000	-	\$181,646	\$9,715,747	\$9,789,462	99%	\$9,789,462	99%
ORES Support	\$2,500,000	-	\$1,653,971	\$4,304,117	\$6,541,535	66%	\$9,000,000	48%
Reducing Barriers to Distributed Deployment	\$1,200,000	\$48,063	\$3,337,004	\$12,958,736	\$12,566,201	103%	\$15,450,000	84%
Small Wind Transition	-	-	-	\$3,323,673	\$3,323,673	100%	\$3,323,673	100%
Solar Plus Energy Storage	\$10,424,500	-	\$6,924,500	\$36,820,771	\$36,820,772	100%	\$36,820,772	100%
Renewables / Distributed Energy Resources (DER) Total	\$31,370,848	\$799,811	\$36,707,942	\$150,103,492	\$154,778,263	97%	\$164,789,178	91%
Single Family Residential								
Consumer Awareness	-	-	-	\$2,251,671	\$2,251,671	100%	\$2,251,671	100%
Heat Pumps Phase 2 (2020)	\$5,800,000	\$450,164	\$4,463,009	\$8,084,863	\$16,505,089	49%	\$17,537,698	46%
Pay for Performance	-	-	-	\$885,489	\$886,553	100%	\$886,553	100%
Residential	\$17,225,086	\$3,633,633	\$12,133,535	\$38,823,320	\$53,300,174	73%	\$56,998,862	68%
Single Family Market Rate Transition	-	-	-	\$23,528,344	\$23,528,344	100%	\$23,528,344	100%
Single Family Residential Total	\$23,025,086	\$4,083,796	\$16,596,545	\$73,573,688	\$96,471,831	76%	\$101,203,128	73%
Transportation								
Electric Vehicles - Rebate	\$84,388	-	\$109,449	\$39,498,889	\$39,498,889	100%	\$39,498,889	100%
EV Charging and Engagement	\$2,900,000	\$6,469	\$416,231	\$422,700	\$5,325,000	8%	\$7,200,000	6%
Transportation Total	\$2,984,388	\$6,469	\$525,680	\$39,921,589	\$44,823,889	89%	\$46,698,889	85%
Workforce Development								
Building Operations and Maintenance Partnerships	\$3,367,669	\$1,172,162	\$10,115,035	\$25,460,095	\$22,568,513	113%	\$33,345,000	76%
Talent Pipeline	\$11,324,453	\$2,423,640	\$15,103,397	\$50,522,299	\$59,941,727	84%	\$85,000,000	59%
Workforce Development Total	\$14,692,122	\$3,595,802	\$25,218,432	\$75,982,395	\$82,510,240	92%	\$118,345,000	64%
NYS Cost Recovery Fee Market Development	\$2,894,467	\$426,894	-	\$15,517,124	\$21,026,187	74%	\$27,712,611	56%
Total Market Development	\$258,369,657	\$46,170,058	\$628,767,241	\$1,881,596,516	\$1,735,073,747	108%	\$2,355,357,866	80%

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	\$2,600,000	-	\$8,320,000	\$9,500,000	\$7,525,000	126%	\$10,000,000	95%
NextGen Buildings	\$9,375,963	\$839,724	\$42,428,323	\$56,720,382	\$35,738,806	159%	\$65,000,000	87%
Buildings Innovation Chapter Total	\$11,975,963	\$839,724	\$50,748,323	\$66,220,382	\$43,263,806	153%	\$75,000,000	88%
Clean Transportation Innovation								
Electric Vehicle Innovation	\$7,100,000	\$827,328	\$14,485,723	\$24,001,191	\$24,804,240	97%	\$31,850,000	75%
Public Transportation and Mobility	\$2,900,000	\$73,550	\$2,101,076	\$9,620,694	\$15,086,837	64%	\$22,500,000	43%
Clean Transportation Innovation Total	\$10,000,000	\$900,878	\$16,586,799	\$33,621,885	\$39,891,077	84%	\$54,350,000	62%
Climate Resilience Innovation								
Grid ClimateTech Ready Capital	\$200,000	-	-	-	\$2,400,000	0%	\$12,000,000	0%
Hydrogen Innovation	\$145,000	\$28,386	\$91,148	\$281,372	\$1,550,000	18%	\$7,000,000	4%
Market Characterization & Design Innovation & Research	\$318,287	\$123,187	\$255,399	\$1,474,440	\$1,750,653	84%	\$1,750,653	84%
Climate Resilience Innovation Total	\$663,287	\$151,573	\$346,547	\$1,755,812	\$5,700,653	31%	\$20,750,653	8%
Energy Focused Environmental Research								
Energy-Related Environmental Research	\$6,550,000	\$1,063,192	\$10,330,296	\$41,218,887	\$41,787,274	99%	\$47,800,000	86%
Energy Focused Environmental Research Total	\$6,550,000	\$1,063,192	\$10,330,296	\$41,218,887	\$41,787,274	99%	\$47,800,000	86%
Gas Innovation								
Hydrogen Innovation	\$1,920,000	\$785,242	\$10,724,136	\$12,005,401	\$4,712,891	255%	\$20,000,000	60%
Long Duration Energy Storage	\$3,000,000	-	\$14,171,765	\$14,818,443	\$10,140,000	146%	\$17,000,000	87%
Utility Thermal Network Technical Support	\$625,000	\$94,291	\$905,997	\$1,049,045	\$1,625,000	65%	\$3,000,000	35%
Gas Innovation Total	\$5,545,000	\$879,533	\$25,801,898	\$27,872,889	\$16,477,891	169%	\$40,000,000	70%
Grid Modernization								
Future Grid Performance Challenge	\$5,700,000	\$2,055,348	\$26,448,467	\$38,167,450	\$23,587,156	162%	\$43,000,000	89%
Grid ClimateTech Ready Capital	\$962,000	\$67,555	\$3,501,316	\$3,684,791	\$4,152,000	89%	\$17,000,000	22%
High Performing Electric Grid	\$5,000,000	\$1,047,375	\$14,424,029	\$57,564,189	\$52,300,156	110%	\$64,800,000	89%
Power Electronics Manufacturing Consortium	-	-	-	\$16,694,490	\$16,694,490	100%	\$16,694,490	100%
Grid Modernization Chapter Total	\$11,662,000	\$3,170,278	\$44,373,811	\$116,110,920	\$96,733,803	120%	\$141,494,490	82%
Negative Emissions Technologies								
CarbonTech Development	\$1,608,494	-	\$1,857,917	\$5,000,000	\$4,481,988	112%	\$5,113,980	98%
Natural Carbon Solutions	\$1,725,000	\$310,097	\$10,690,944	\$11,316,577	\$6,012,660	188%	\$12,500,000	91%
Negative Emissions Technologies Total	\$3,333,494	\$310,097	\$12,548,861	\$16,316,577	\$10,494,648	155%	\$17,613,980	93%
Renewables Optimization								
Energy Storage Technology and Product Development	\$4,070,000	\$455,549	\$22,291,596	\$35,630,535	\$23,655,370	151%	\$39,500,000	90%
National Offshore Wind Research & Development Consortium	\$2,311,000	\$596,930	\$4,810,705	\$22,029,444	\$21,570,000	102%	\$22,500,000	98%
Renewables Optimization Total	\$6,381,000	\$1,052,480	\$27,102,301	\$57,659,979	\$45,225,370	127%	\$62,000,000	93%
Technology to Market								
CarbonTech Development	\$2,879,005	\$800,000	\$6,753,917	\$14,146,000	\$10,653,010	133%	\$14,362,020	98%
Catalytic Capital for ClimateTech	\$641,950	\$115,775	\$978,934	\$18,577,578	\$19,146,690	97%	\$19,360,229	96%
ClimateTech Commercialization Support	\$7,601,618	\$777,068	\$16,718,220	\$54,691,524	\$50,017,997	109%	\$54,927,913	100%
ClimateTech Expertise & Talent	\$521,000	\$1,350	\$4,593,750	\$11,904,249	\$9,452,523	126%	\$12,049,276	99%
Manufacturing Corps	\$500,000	\$10,000	\$3,555,996	\$16,822,069	\$14,810,139	114%	\$17,058,959	99%
Novel Business Models and Offerings	\$3,625,000	\$230,592	\$5,939,349	\$13,384,067	\$13,383,394	100%	\$13,383,394	100%
Technology to Market Total	\$15,768,573	\$1,934,785	\$38,540,166	\$129,525,487	\$117,463,754	110%	\$131,141,791	99%
NYS Cost Recovery Fee Innovation & Research	\$814,374	\$116,807	-	\$2,923,788	\$4,838,280	60%	\$6,710,939	44%
Total Innovation and Research	\$72,693,691	\$10,419,347	\$226,379,002	\$493,226,607	\$421,876,555	117%	\$596,861,852	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 2022, 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 continues through Q4 2023, as illustrated in the Quarterly Benefits Table.
- 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.
- On January 17, 2023, NYSERDA and DPS jointly filed the NY-Sun Program Mid-Point Review. This report provided a status update on NY-Sun Program Activity, and an overview of recent economic and policy changes to the distributed solar industry. NYSERDA and DPS also presented several recommendations to the Commission, including adjustments to the NY-Sun Prevailing Wage incentive adder, a recommendation for launching a floating solar incentive adder, and a proposal to require the Joint Utilities to implement multiple customer discount rates for net credited community distributed generation projects.
- The Commission issued an Order on June 23, 2023, adopting most of the recommendations from the Mid-Point Review. On July 31, 2023 NYSERDA published a revised NY-Sun Operating Plan and began implementing the adjustments approved in the Mid-Point Review Order.
- New York's national leadership in community solar continued during Q1 of 2024, with 124 MW completed during this time.

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

3.0 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	499.0	13.6	512.6	19.0	531.6	527.0	101%
	Upstate - Nonresidential	148.9	3.5	152.4	27.4	179.8	279.0	64%
	Upstate - Commercial/Industrial	2,236.6	117.8	2,354.4	3,212.0	5,566.4	6,213.0	90%
	Con Ed - Residential	341.6	15.5	357.1	22.2	379.3	441.0	86%
	Con Ed - Nonresidential	160.6	10.2	170.8	197.8	368.6	735.0	50%
	Capacity Total	3,504.4	160.5	3,664.9	3,478.3	7,143.2	8,312.6	86%
Distributed Solar Energy Production (MWh)	Commercial/Industrial (Competitive)	136,652	-	136,652	-	136,652	n/a	
	Upstate - Residential	516,501	13,203	529,704	18,539	548,243		
	Upstate - Nonresidential	167,644	3,826	171,470	30,591	202,062		
	Upstate - Commercial/Industrial	2,808,126	155,281	2,963,407	4,259,189	7,222,596		
	Con Ed - Residential	360,668	15,812	376,481	22,571	399,052		
	Con Ed - Nonresidential	186,924	13,892	200,816	237,946	438,762		
	Production Total	4,176,516	202,014	4,378,530	4,568,837	8,947,366		

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	6.4	0.4	6.9	0.7	7.6
	Upstate - Nonresidential	0.9	0.3	1.1	1.2	2.4
	Upstate - Commercial/Industrial	63.7	17.7	81.4	389.9	471.3
	Con Ed - Residential	4.1	1.1	5.2	1.2	6.4
	Con Ed - Nonresidential	19.6	2.6	22.2	16.5	38.7
	Capacity Total	94.7	22.1	116.8	409.6	526.3
Distributed Solar Energy Production (MWh)	Upstate - Residential	6,934	437	7,371	683	8,054
	Upstate - Nonresidential	883	270	1,153	1,240	2,393
	Upstate - Commercial/Industrial	125,338	22,334	147,672	540,048	687,720
	Con Ed - Residential	4,466	1,123	5,589	1,353	6,942
	Con Ed - Nonresidential	23,433	3,558	26,992	19,954	46,946
	Production Total	161,055	27,722	188,777	563,277	752,054

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. Since the two data sets can define project completion date differently, some overlap may exist between the two, however the totals presented here (MW, MWh) will never exceed the reported interconnected totals. As the pipeline of NYSERDA commitments are drawn down over time (projects are considered acquired in both data sources), this overlap is systematically eliminated.

Annual Benefits		Evaluated Totals (verified gross where evaluated; gross where not)				
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	610.1	7.4	617.5	40.9	658.4
	Non-NYSERDA Statewide Installations			1,293.7		1,293.7
	Capacity Total	610.1	7.4	1,911.3	40.9	1,952.2
Distributed Solar Energy Production (MWh)	NYSERDA (non-CEF) Installations	679,181	8,232	687,412	49,013	736,425
	Non-NYSERDA Statewide Installations			1,435,299		1,435,299
	Production Total	679,181	8,232	2,122,711	49,013	2,171,724

3.1 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)	\$48,616,265	\$0	\$48,616,265	\$299,343	\$48,915,609	n/a	
Upstate - Residential	\$225,312,656	\$2,723,407	\$228,036,063	\$4,138,346	\$232,174,409		
Upstate - Nonresidential	\$65,855,735	\$1,021,803	\$66,877,538	\$9,725,218	\$76,602,755		
Upstate - Commercial/Industrial	\$486,451,159	\$61,538,495	\$547,989,654	\$714,911,478	\$1,262,901,133		
Con Ed - Residential	\$104,795,724	\$2,815,717	\$107,611,441	\$4,310,513	\$111,921,954		
Con Ed - Nonresidential	\$90,147,892	\$8,076,587	\$98,224,479	\$127,258,085	\$225,482,564		
MW Block Subtotal	\$1,021,179,431	\$76,176,009	\$1,097,355,440	\$860,642,983	\$1,957,998,423	\$2,485,201,000	71%
Solar Energy Equity Framework (SEEF) Adder	\$18,825,654	\$3,400,268	\$22,225,922	\$72,687,787	\$94,913,709	\$399,764,000	24%
Funds to Assist Transition to Prevailing Wage	\$0	\$0	\$0	\$68,735,552	\$68,735,552	\$238,725,000	29%
Consumer Education	\$1,547,475	\$0	\$1,547,475	\$1,952,525	\$3,500,000	\$6,500,000	54%
Implementation and Quality Assurance	\$16,865,769	\$591,714	\$17,457,482	\$3,959,342	\$21,416,824	\$32,600,000	66%
Administration	\$24,587,896	\$1,063,714	\$25,651,610	-\$51,444	\$25,600,166	\$58,756,000	44%
Evaluation	\$1,390,534	\$80,583	\$1,471,117	\$551,354	\$2,022,472	\$3,500,000	58%
NYS Cost Recovery	\$10,062,389	\$709,225	\$10,771,614	\$0	\$10,771,614	\$41,800,000	26%
NY-Sun Total	\$1,094,459,147	\$82,021,513	\$1,176,480,660	\$1,008,478,100	\$2,184,958,760	\$3,266,846,000	67%

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

This table is a subset of budget and spending data reported in Table 10 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	\$2,565,202	\$2,421,265	\$389,088	\$156,720	\$2,954,290	\$2,577,985	\$5,532,275
Upstate - Nonresidential	\$424,843	\$436,063	\$785,599	\$354,591	\$1,210,441	\$790,654	\$2,001,095
Upstate - Commercial/Industrial	\$2,206,601	\$15,117,508	\$57,121,628	\$81,405,575	\$59,328,228	\$96,523,083	\$155,851,311
Con Ed - Residential	\$2,912,278	\$1,022,420	\$797,621	\$271,981	\$3,709,899	\$1,294,400	\$5,004,299
Con Ed - Nonresidential	\$9,224,149	\$10,712,662	\$11,203,729	\$10,167,923	\$20,427,877	\$20,880,585	\$41,308,462
Technical Assistance and Implementation	\$4,892,849	\$0	\$2,390,124	\$0	\$7,282,973	\$0	\$7,282,973
Total	\$22,225,922	\$29,709,918	\$72,687,787	\$92,356,788	\$94,913,709	\$122,066,706	\$216,980,416

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	\$679,934,094	\$6,802,366	\$686,736,460	\$62,600,093	\$749,336,553

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 Q1 2024 reporting period, two studies were finalized as presented in Table 13. 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 found on NYSERDA’s website.

Table 13. Evaluations Completed Q1 2024

Evaluated Program	Evaluation type	Evaluated program year(s)
Codes and Standards for Carbon Neutral Buildings	Market	2022-2023
P-12 Schools	Market	2019-2023

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.

4.0 Recommendation Tracking Updates

NYSERDA periodically reviews and tracks the status of recommendations that have been “pending” in quarterly CEF reports. As shown in Table 14, during Q1, the following NYSERDA responses to recommendations have been updated from “pending” since their presentation in these CEF quarterly reports, beginning with the 2021 Annual CEF Performance Report. For reference purposes, since early 2017, when NYSERDA began conducting CEF evaluations, 229 recommendations have been published. Of these, 180 have been implemented, 28 have been rejected and 21 are still pending.

From the 2021 Annual CEF Performance Report through the latest status review (Q1 2024), recommendation statuses from evaluation studies have been updated as follows:

- Thirteen recommendations are still pending.
- Seven recommendations have since been implemented, as detailed in Table 14.
- Three recommendations have since been rejected, as shown in Table 14.

Table 14. Summary of CEF Evaluation Study Recommendations through Q1 2024

Study Name	Published	Recommendation	New Status	Update
Clean Transportation Market and Impact Evaluation	9/2022	NYSERDA should study future program influence levels to monitor the program influence trend as well as to attempt to better identify reasons behind changes. There was a slight upward trend in vehicle miles traveled (VMT) for vehicles purchased from 2017 through 2019. Year 2020 ended that trend with a decrease that may not be entirely due to COVID-related changes, as participants from all program years responded to the survey at the same time. This may be an anomaly, or the start of a downturn in VMT for participating vehicles. Tracking VMT can help NYSERDA’s evaluators to better understand and quantify program influence.	Rejected	Given the granularity of data needed to undertake such an analysis, program and evaluation will not pursue the research objectives suggested by this recommendation in the near term.
Clean Transportation Market and Impact Evaluation	9/2022	NYSERDA should conduct a persistence study, designed to gauge whether the rebated vehicles are still in New York, can be used to determine what percent of vehicles continue to benefit the state and what percent may have moved out of the jurisdiction. Such a study could consist of a very short survey (do you still own this vehicle, is the vehicle still in the state, how many miles per year) or, if the Department of Motor Vehicles allows it,	Rejected	Given the granularity of data needed to undertake such an analysis, program and evaluation will not pursue the research objectives suggested by this

Study Name	Published	Recommendation	New Status	Update
		it may be possible to submit the list of VINs and have the DMV verify whether the vehicle is still active and domiciled in the state. EValuateNY provides counts of EVs by vehicle age and county or other information that can help the evaluation team assess how many vehicles are purchased outside of the program.		recommendation in the near term.
Workforce Development BOM Market Evaluation	9/2022	The electrification goal of increasing the number of workers trained may not be appropriate for BOM because the training is focused on the existing conditions of the buildings served by the staff. Re-assess the need for the electrification target.	Rejected	There is now a desire to keep the electrification targets as is for this initiative. NYSERDA did fund two electrification related training projects under the Building O&M Training Program in 2023.
Codes and Standards for Carbon Neutral Buildings Market Evaluation	12/2022	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.	Implemented	This recommendation was implemented and reported on in the 2023 (Year 4) Codes evaluation.
Energy Management Technology – Real Time Energy Management	6/2023	Collect detailed information on operational and behavioral changes from sites prior to using post-COVID-19 (2020 to present) data in billing analyses. This will allow for insight related to post-COVID operation and behavior effects as well as better differentiate use patterns and opportunities related to those employing Automated System Optimization.	Implemented	NYSERDA will collect this information for upcoming evaluations, where feasible.
Energy Management Technology – Real Time Energy Management	6/2023	Simplify the format of the measure-level savings information that is collected from the vendors. Outlining what measures were recommended, their installation status, the energy savings by fuel associated with them, and a brief description or narrative of how the measure contributes to energy savings will suffice. This will allow NYSERDA to understand participant actions better, provide supporting evidence for M&V activities, and minimize the level of	Implemented	This recommendation has been implemented.

Study Name	Published	Recommendation	New Status	Update
		effort required from the vendors. NYSERDA could consider offering an incentive that scales with the savings recommended.		
Energy Management Technology – Real Time Energy Management	6/2023	Similar to the electric measure and utility data recommendations above, collect natural gas billing data information as part of the program sign-on process as well. In addition, collect heating fuel measure information as part of the simplified measure collection process. This will provide greater visibility to NYSERDA on heating fuel measures and allow for improved evaluability in the future.	Implemented	Third party data collection/aggregator added to program implementation.
Energy Management Technology – Real Time Energy Management	6/2023	Obtain detailed information from the vendors to better categorize the systems being implemented at each host site. These data-points include: <ul style="list-style-type: none"> • Service offered: Software only/ Full Building Management System (BMS) service • System types being implemented: Automated System Optimization (ASO) / Fault Detection and Diagnostics (FDD)/ Combination • Systems that are being monitored and controls installed alongside/as a part of the RTEM system • Collect metrics on these equipment that would facilitate Technical Resource Manual (TRM)-level savings calculations (Size, efficiency, age, etc.) In the case of a full BMS service, specify what systems are connected to controls which are existing to the facility vs newly installed by vendor.	Implemented	NYSERDA is working to further characterize service offerings and system types across vendors.
Energy Management Technology – Real Time Energy Management	6/2023	The current evaluation found savings leveling off after two years and applies the two-year result to all sites. Supported by better information on drop out timing and reasons, future evaluations should consider whether different time frames of savings should be applied to different categories of sites based on their status with the program and possibly their reason for ending participation where applicable.	Implemented	This will be included in upcoming evaluations.
Agriculture Market Evaluation Update 1	10/2023	As part of the report, NYSERDA and EnSave should take advantage of the opportunity to communicate as much information as possible to participants. On the audit report cover, NYSERDA could display a webpage link that	Implemented	Implemented - under Agriculture Programs and Resources: https://www.nyserdera

Study Name	Published	Recommendation	New Status	Update
		<p>contains dynamic information that NYSERDA can update quickly as offerings change. This link should list program opportunities, details or links to the NYSERDA, federal, state, and utility websites that store information about financial incentives and program incentive offerings, links to become a GLASE member, industry newsletters and associated organizations, best practice guides, and information about the progress and learnings of NYSERDA demonstration sites and case studies. Dynamic links and additional information will assist NYSERDA and EnSave to work with auditors to strengthen the connection between audit, implementation, and savings. This could include promoting the use of a standard, publicly accessible tool such as those available through the Department of Energy and the National Renewable Energy Laboratory websites, to develop more accurate and standardized payback periods and/or financial impact awareness around recommendations.</p>		<p>.ny.gov/PutEnergyToWork/Industry-Energy-Solutions/Agriculture</p>

4.1 Codes and Standards for Carbon Neutral Buildings Market Evaluation (2022-2023)

Summary of Report Findings, Recommendations and NYSERDA Response to Recommendations

Key findings and associated recommendations from Codes and Standards for Carbon Neutral Buildings Initiative Year 4 Market Evaluation include:

The Market Evaluation of the Codes and Standards for Carbon Neutral Buildings initiative was designed to span five years in its initial evaluation round, with preliminary estimates of initiative savings presented yearly and final indirect market impacts determined in the final year of the evaluation (currently underway, with results anticipated Q1 2025). The table below shows the preliminary initiative savings totals as TBtu from 2015 through 2023 for the T&MD and CEF portfolios.

Table 1516. Preliminary Initiative Savings Totals Converted to TBtu

TBtu	2015	2016	2017	2018	2019	2020	2021	2022	2023	Cumul. 2015-2023
T&MD and CEF	.5342	.3757	.4050	.3874	.4044	.2595	.2986	.3601	.3601	3.385
T&MD Only	.5342	.3757	.4034	.2881	.1236	.0033	-	-	-	1.728
CEF Only	-	-	.0016	.0993	.2807	.2562	.2986	.3601	.3601	1.657

Finding: Estimated code compliance continues to increase overall across the state. According to 2023 survey findings and jurisdictional interviews, code compliance has been increasing. Seventy-two percent of training survey respondents thought code compliance was increasing and 60% said NYSERDA has played a role in this increase. Most of the expert longitudinal panel thought compliance has been increasing; however, there have been challenges. These respondents noted that additions and alterations are more challenging to bring up to code than are newly constructed buildings and that the community still has reservations about the requirements and impacts of the stronger energy code.

Recommendation: To provide more support with the challenge of bringing additions and alterations up to code, consider adjusting the NYSERDA-approved trainings to include more in-depth topics on retrofitting additions and alterations. Target improving builder understanding of additions and alterations energy code requirements.

NYSERDA response to recommendation: Pending. Future solicitations for energy code training development and delivery will emphasize the need for a focus on existing buildings.

Recommendation: To better understand how builders are impacted by the training, add questions to gather data on builder training needs and motivations, as well as a self-identifying section in the surveys for builders. Currently, the two main categories are code officials and building professionals. With further breakdown, NYSERDA can better understand builder attendance by region, builder perceptions, opportunities, and barriers, if any.

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

Finding: Many jurisdictions have unmet basic needs that stymie code compliance; early responses to NYSERDA's new pilots suggest addressing these needs is improving compliance. Alternate Code Compliance pilot participants and longitudinal jurisdictional panel respondents have shared that basic needs such as organizational capacity and funding are challenges to code compliance. Jurisdictions reported constraints such as insufficient resources for a dedicated inspector and reliance on a part-time code official shared between jurisdictions, and the lack of resources for trainings or technological advancements. Pilot participants are enthusiastic about the additional bandwidth and expertise on complex projects brought by the third-party support offered in the pilot, and they are successfully replacing antiquated software with technology that provides transparency to permit applicants around energy code requirements, increased efficiencies in compliance and enforcement activities, and better communication for all parties involved.

Recommendation: Expand the Alternate Code Compliance pilot to engage additional jurisdictions and bring these resources to more communities across the state.

NYSERDA response to recommendation: Pending. NYSERDA is working in partnership with the Department of State to expand online code compliance in Authorities that Have Jurisdiction (AHJs) across NYS with a focus on the needs of Disadvantaged Communities.

Finding: Jurisdictions face a number of challenges in accessing code compliance resources, even if those resources are confirmed internally to be needed and desirable. Interviews revealed a lack of bandwidth and access to information and resources in local governments responsible for compliance, which constrains or delays compliance activities. Even with the support of the Alternate Code Compliance pilot, some participant AHJs reported challenges in accessing the third-party support component due to questions around procurement, administration, and local access to knowledgeable third parties. Jurisdictional longitudinal interview respondents also expressed desire for more materials, such as a simple and direct manual to guide them through changes of the energy code. Even in cases in which materials are available, such as NYSERDA's List of Qualified Third-

Party Support Providers, many jurisdictional interviewees and survey respondents reported being unaware of them.

Recommendation: Continue to support Alternate Code Compliance pilot participants with the application process and development of materials and assess additional resources that would be beneficial to guide jurisdictions and energy professionals. Explore new marketing techniques to effectively share the materials. Consider using case studies to give examples of utilization of third-party support.

NYSERDA response to recommendation: Pending. As noted in response to the recommendation above, NYSERDA is working in partnership with the Department of State to expand online code compliance in Authorities that Have Jurisdiction (AHJs). Future additional resources and third-party support that can enable code compliance in AHJs is expected.

Finding: Training participants are attaining meaningful information from the trainings. In the 2022 evaluation, 44% of respondents suggested expanding the training topics. In 2023, training implementors responded by providing more trainings in the categories respondents suggested. When rating the trainings overall in 2023, respondents gave the highest mean score since the beginning of the Initiative (a score of 6.05 out of 7). When asked how the training has impacted their work, 68% of the respondents shared that they either strengthened their knowledge of the energy code or now better understand key compliance requirements. The training implementors listening to survey feedback, the respondents' high ratings of the trainings, and the majority of respondents saying that they have applied knowledge from the trainings into their jobs demonstrates that training participants are gaining meaningful information from the trainings.

Recommendation: Consider adjusting the trainings topics to include more of the training participants' interests and needs with compliance topics such as building decarbonization and new technologies. Continued response to respondent suggestions on topics will drive engagement and improve code compliance.

NYSERDA response to recommendation: Pending. Decarbonization mandates for new construction are expected to phase-in beginning 12/31/2025. Future energy code training will address this new paradigm.

Finding: Data limitations present some challenges in evaluating the Initiative's impact in disadvantaged communities (DACs) and alternate opportunities for evaluation of this impact should be explored. The market evaluation team's preliminary review of DAC data was not able to successfully isolate the indirect energy savings anticipated as occurring in DAC census tracts because geographic data lacked granularity (census tracts not necessarily aligning with city or county boundaries, lack of census tract-based new construction rates). The team found meaningful results from the interviews, but the savings analysis could not confidently draw conclusions about the savings.

Recommendation: Explore other options and data sources that could be used to isolate the impact on indirect savings estimates of DACs and non-DACs. Consider other ways that the impact on DACs can be assessed, such as tracking the responses and progress of jurisdictions that serve DACs under the Alternate Code Compliance pilots.

NYSERDA response to recommendation: Pending. NYSERDA is developing and will execute a methodology for evaluating program impacts on DACs.

4.2 P-12 Schools Market Baseline Evaluation (2019-2023)

Summary of Report Findings, Recommendations and NYSERDA Response to Recommendations

Key findings, conclusions, and associated recommendations from the P-12 Schools Market Evaluation are presented below.

Finding: The long capital funding process and limited non-capital funding opportunities make it difficult for schools to implement clean energy and efficiency projects. The evaluation team found that insufficient funding was the primary barrier for both participants and nonparticipants to implement clean energy and energy efficiency projects. In addition, while often the primary mechanism for schools to fund energy projects, the capital funding process is slow and hampers implementation.

Recommendation: New P12 Initiative programs should support schools to shorten the capital funding route and support schools through the capital funding process and incorporate additional project implementation support.

NYSERDA response to recommendation: Implemented. NYSERDA’s Clean Green Schools program supports schools through the capital funding process and offers implementation support.

Finding: Aligning the value proposition for clean energy and energy efficiency investments with the priorities of a given school community is key to engaging decision-makers, though this is a time-consuming process. School values are shaped by the communities they serve, and vary by social (e.g., economic stability), political (e.g., conservative, liberal), and geographic (e.g., rural, urban) dimensions. Decision makers respond to messaging that aligns with those values. In addition, school boards comprised of community members are often the key decisionmakers for large energy projects. Many interview and survey respondents representing both public and private schools emphasized the pivotal role that boards play in moving clean energy or energy efficiency efforts forward.

Finding: The P12 Schools Initiative engages school staff across many roles with varying decision-making authority. This results in an inconsistent outreach and engagement experience, which may create

challenges in driving progress. This makes program engagement difficult, since these distinct roles have varying responsibilities, decision-making power, and different levels of technical expertise. Interview respondents who worked at the district level noted that the variability in who the program engages makes progress difficult, since tactics need to be tailored based on the specific contact.

Recommendation: NYSERDA should investigate strategies to facilitate more streamlined and effective decision-maker (i.e., school board) engagement. Effective outreach is another key ingredient of stakeholder engagement. NYSERDA should customize outreach and engagement based on the role/job title.

NYSERDA response to recommendation: Implemented. NYSERDA coordinates targeted outreach to promote participation in the program to the P-12 decision makers (e.g. Superintendents, Business Officials, Facility Directors, School Boards, etc.) through webinars, in-person presentations, e-mail blasts, newsletters and more.

Recommendation: NYSERDA should highlight case studies from schools and districts. To the extent possible, they could reflect diversity in geography (e.g., region, rural/urban), type (e.g., public, charter, private), and basic characteristics (i.e., size, building age) in marketing materials.

NYSERDA response to recommendation: Implemented. NYSERDA's Clean Green Schools Initiative will develop case studies on the Track II projects (e.g. decarbonization construction projects). In addition, these projects (and project teams) are showcased at P-12 conferences.

Finding: Participants were satisfied with the P12 Schools Initiative but wanted more implementation support for recommended energy projects. Seventy-nine percent of respondents gave the P12 Schools Initiative a 4 or higher satisfaction rating (out of 5). However, some respondents wanted more implementation support (e.g., assistance identifying funding and finding contractors) from NYSERDA after participating in the Benchmarking Program.

Recommendation: NYSERDA should consider creating a cohort model for future programs participants. This could build community among peers and facilitate information-sharing—and implementation—on clean energy and energy efficiency in schools.

NYSERDA response to recommendation: Implemented. NYSERDA has built a community among peers and facilitates information sharing around clean energy and energy efficiency in schools. NYSERDA continuously includes program participants to present during webinars, so that their peers can learn from one another on the steps they can take to integrate clean energy into their school buildings.

Recommendation: As the program team begins to see trends in program participation, consider conducting a nonparticipant and/or non-respondent study for the Clean Green Schools Program, which targets DAC and high-need schools, to identify early trends around engagement.

NYSERDA response to recommendation: Pending. NYSERDA’s Clean Green Schools Initiative plans to conduct a non-participant survey for the Clean Green Schools Initiative in Q2 2024.

Finding: There are no indirect benefits for the P12 Schools Initiative due to high naturally occurring market adoption (NOMAD) and minimal influenced adoption from schools who implemented projects.

There are a few considerations that provide context for this finding, discussed in detail in Section 4 of the report.

Recommendation: Consider reworking the indirect benefits framework to be more flexible when evaluating initiatives that contain several unique, complex, and multi-faceted program designs. Consider refinements to the process for calculating UEBs to account for the variation in school size, district size, and building square footage as well as reworking influence constraints.

NYSERDA response to recommendation: Pending. This recommendation will be explored 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 <http://documents.dps.ny.gov/public/MatterManagement/CaseMaster.aspx?Mattercaseno=18-M-0084> [NYS Department of Public Service Commission Files]
- ⁴ 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}>
- ⁵ <https://greenbank.ny.gov/Resources/Public-Filings> [NY Green Bank Public Filings]
- ⁶ If solicitations with upcoming due dates were factored into the total NYSEERDA commitments in the Market Development Budgets and Spending table, an additional \$62,395,109 or 83% of the total approved budget to date, would be included with total NYSEERDA 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 NYSEERDA commitments in the Innovation and Research Budget and Spending table, an additional \$23,950,188 or 87% of the total approved budget to date, would be included with total NYSEERDA commitments. NYSEERDA anticipates attrition over time.
- 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.

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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