CEF Annual Performance Report

Final Report through December 31, 2023

Final Report | April 2024

NEW YORK STATE | 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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CEF Annual Performance Report Final Report through December 31,2023

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CEF Annual Performance Report

Final Report through December 31, 2023

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About This Report

The Clean Energy Fund (CEF) supports New York State's advancement of clean energy and climate goals along with a more affordable and resilient energy system. Energy efficiency is a cornerstone of the State's strategy to promote clean energy solutions for consumers while addressing climate change. The New Efficiency New York recommendations, as advanced in the white paper issued by the Department of Public Service (DPS) and New York State Energy Research and Development Authority (NYSERDA or the Authority) on April 26, 2018, and as adopted by the 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.[1] The Climate Leadership and Community Protection Act (Climate Act), signed July 2019 and effective January 1, 2020, adopted this energy efficiency target and puts the State on a path to complete carbon neutrality across all sectors of the economy, including power generation, transportation, buildings, industry, and agriculture. 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 2030[2,3]
- 6,000 MW of solar by 2025 and 10,000 MW of solar by 2030[4]
- 22 million tons of carbon reduction through energy efficiency and electrification
- Minimum 35% 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.

Progress and performance of the CEF is represented within this report for each of the four CEF portfolios: Market Development (MD), Innovation and Research (IR), NY-Sun, and NY Green Bank.

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Executive Summary

NYSERDA's Clean Energy Fund (CEF) was designed to support New York State's clean energy agenda by working with market participants to develop clean energy market opportunities at scale and advance progress toward the State's nation-leading clean energy goals. The CEF continues to evolve, serving as a major vehicle to achieve the State's clean energy goals outlined in the Climate Leadership and Community Protection Act (Climate Act).

The CEF is comprised of four portfolios: Market Development, Innovation & Research, NY Green Bank, and NY-Sun. These portfolios work collectively toward meeting New York State's ambitious energy, environmental, and economic goals and are expected to contribute significantly toward the broader New York State Energy Plan. The CEF delivers solutions that promote the following:

- Reduced barriers to the deployment and adoption of energy efficiency.
- Significantly reduced energy-related carbon emissions.
- Billions of dollars in customer bill savings achieved over the life of the CEF.
- Accelerated growth of the State's clean energy economy.
- Mobilized investment, leveraging billions of dollars over the life of the CEF.

Eight years into the CEF and based on the progress through the end of 2023 as well as the level of achievement anticipated to occur in future years, NYSERDA remains on pace to meet the minimum CEF ordered targets over the life of the fund. A closer analysis of progress and plans at this stage show that:

- The pace of acquiring direct benefits in the Market Development (MD) and Innovation & Research (IR) portfolios is well aligned with the pace of expended funding through the end of 2023, providing strong indication that NYSERDA is building a portfolio of investments delivering results.
- NYSERDA achieved 91% of total cumulative forecasted direct energy savings along with 88% of leveraged funds forecasted through the end of the year in the MD and IR portfolios.
- Early indirect benefits reporting from studies completed to date continue to show progress exceeding those forecasted plans, demonstrating strong market uptake beyond NYSERDA-funded projects.
- NYSERDA forecasts that the delivery of near-term energy savings will continue to be impacted by current challenges facing the clean energy market today, specifically challenges with supply chain, skilled labor availability, and rising construction costs, all of which are delaying or slowing projects and contributing to NYSERDA's lower outlook for the 2025 timeframe.
- NY-Sun's completed projects and pipeline (statewide) are approaching 9 gigawatt (GW) of capacity, positioning New York State to achieve the 10 GW installed target by 2030.
- NY Green Bank (NYGB) committed more than $230 million during the 2023 calendar year. During 2023, NYGB reached cumulative commitments of more than $2.0 billion. NYGB will continue recycling its capital into new investments during the year and propelling a multitude of projects forward with funding uniquely suited to catalyze clean energy projects.

- NYSERDA is making meaningful progress toward meeting the Commission's target in the September 2021 Order to deliver 40% of the benefits of CEF investments to disadvantaged communities, impacting disadvantaged communities in a wide variety of programmatic ways across the Market Development, Innovation & Research, NY-Sun, and NY Green Bank portfolios. For 2020-2023, more than 36% of the $2,318 million in CEF place-based investments were invested in DACs.

1 Progress Summary

1.1 Overall CEF Performance

Figures 1 and 2 present a comprehensive picture of progress against the CEF authorized budget and associated benefit targets reflecting all four CEF Portfolios (MD, IR, NY-Sun, and NY Green Bank). Progress shown against each key performance metric represents results through December 31, 2023 and nets out overlap across portfolios where it is known to occur. Initiatives not dedicated to energy efficiency have been excluded from reporting toward energy efficiency-related targets & progress.

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

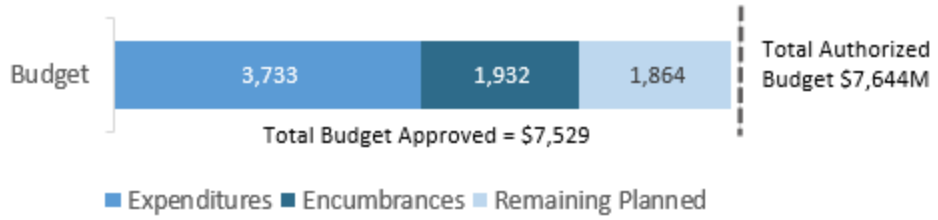


Figure 1 Supporting data		Total Authorized Budget	Budget Approved		Expended Funds		Encumbered Funds		Remaining Planned		Funding Not Yet Approved
			Current Total	% of Authorized	Current Total	% of Authorized	Current Total	% of Authorized	Total Balance	% of Authorized	
Market Development (MD)	Program Funds	$ 2,399.7 M	$ 2,332.2 M	98%	$ 1,190.2 M	50%	$ 634.5 M	26%	$ 507.4 M	22%	$ 39.8 M
	NYS Cost Recovery Fee		$ 27.7 M		$ 15.1 M		$ 0.0 M		$ 12.6 M		
Innovation & Research (IR)	Program Funds	$ 631.7 M	$ 570.2 M	91%	$ 253.6 M	41%	$ 236.3 M	37%	$ 80.2 M	13%	$ 55.0 M
	NYS Cost Recovery Fee		$ 6.5 M		$ 2.8 M		$ 0.0 M		$ 3.7 M		
MD and IR combined	Administration	$ 274.4 M	$ 265.2 M	97%	$ 190.1 M	69%	$ 0.0 M	0%	$ 75.1 M	27%	$ 9.2 M
	Evaluation	$ 124.2 M	$ 113.3 M	91%	$ 39.6 M	32%	$ 13.6 M	11%	$ 60.1 M	48%	$ 10.9 M
	MD and IR Total	**$ 3,430.0 M**	**$ 3,315.2 M**	**97%**	**$ 1,691.5 M**	**49%**	**$ 884.5 M**	**26%**	**$ 739.2 M**	**22%**	**$ 114.8 M**
NY-Sun	Program Funds	$ 3,162.8 M	$ 3,162.8 M	100%	$ 1,058.4 M	33%	$ 1,046.7 M	33%	$ 1,057.7 M	33%	$ 0.0 M
	NYS Cost Recovery Fee	$ 41.8 M	$ 41.8 M	100%	$ 10.1 M	24%	$ 0.0 M	0%	$ 31.7 M	76%	$ 0.0 M
	Administration	$ 58.8 M	$ 58.8 M	100%	$ 24.6 M	42%	$ 0.2 M	0%	$ 34.0 M	58%	$ 0.0 M
	Evaluation	$ 3.5 M	$ 3.5 M	100%	$ 1.4 M	40%	$ 0.6 M	18%	$ 1.5 M	42%	$ 0.0 M
	NY-Sun Total	**$ 3,266.8 M**	**$ 3,266.8 M**	100%	**$ 1,094.5 M**	**34%**	**$ 1,047.4 M**	**32%**	**$ 1,124.9 M**	**34%**	$ 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**	**$ 7,529.1 M**	**98%**	**$ 3,733.0 M**	**49%**	**$ 1,931.9 M**	**25%**	**$ 1,864.1 M**	**24%**	**$ 114.8 M**

a 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.

b NY-Sun totals shown here exclude $679 million in non-CEF NYSERDA-funded solar projects

The summary of benefit progress reflects evaluated totals, incorporating verified gross acquired savings where evaluations have been completed, and gross savings values elsewhere. Indirect benefits from market transformation are included in acquired totals where they have been quantified through evaluation. Indirect benefits are also included in the remaining plans, discounted by 50 percent, as is consistent with other plan filings to 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

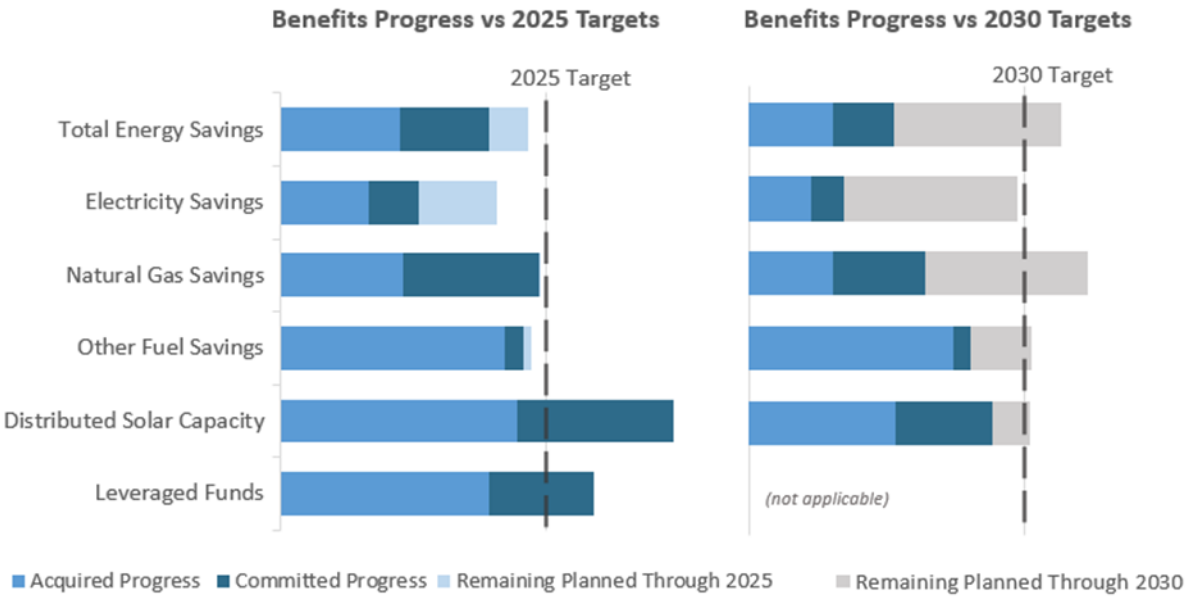


Figure 2 Supporting Data	Acquired Progress	Committed Progress	Remaining Planned Through 2025	Total Expected Through 2025	2025 Order Target	Remaining Planned Through 2030	Total Expected Through 2030	2030 Order Target
Total Energy Savings (MMBtu equivalent, millions)	23.9	17.5	8.0	49.4	53.0	48.1	89.5	79.0
Electricity Savings (MWh, millions)	2.2	1.2	2.0	5.5	6.7	6.3	9.7	10.0
Natural Gas Savings (MMBtu, millions)	11.6	12.6	0.2	24.5	25.0	22.5	46.8	38.0
Other Fuels Savings (MMBtu, millions)	12.6	1.1	0.4	14.1	15.0	3.7	17.4	17.0
Distributed Solar Capacity (Renewable MW)	5,346	3,503	-	8,848	6,000	1,350	10,198	10,000
Leveraged Funds ($ millions)	$15,720	$7,822	-	$23,542	$20,000	-	$23,542	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)	41.5	→	84%	78%		46%	52%
Electricity Savings (MWh, millions)	3.5		64%	52%		36%	35%
Natural Gas Savings (MMBtu, millions)	24.3		99%	97%		52%	64%
Other Fuels Savings (MMBtu, millions)	13.7		97%	91%		79%	81%
Distributed Solar Capacity (Renewable MW)	8,848		100%	147%		87%	88%
Leveraged Funds ($ millions)	$23,542		100%	118%		100%	n/a

a 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.

b 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. These

initiatives account for MMBtu-equivalents net savings of approximately 27,000 MMBtu-equivalents (Market Development) and -251,000 (New York Green Bank).

c Overlap where it is known or perceived to exist between portfolios has been removed from progress reported.

d Distributed Solar Capacity includes 1,231 MW of non-NYSERDA installations taken from the Statewide Solar Projects dashboard, which is populated with data from utility interconnection inventories. This data set includes all distributed solar interconnected in NYS, including hundreds of MWs which did not receive NYSERDA funding. Committed project data is maintained by NYSERDA independently of interconnection data. Since the two data sets define project completion date differently, some projects reported as committed may also be included as acquired under the "Non-NYSERDA Statewide Installations" (interconnection balance) figure. As the pipeline of NYSERDA commitments are drawn down over time (projects are considered acquired in both data sources), this overlap will be systematically eliminated.

e Leveraged Funds progress here includes non-CEF NYSERDA funded solar projects of $1,979 million acquired and $124 million committed, consistent with overall reporting toward CEF distributed solar targets which include all solar statewide.

f Leveraged Funds Total Expected benefit values do not currently include any anticipated indirect impacts.

g 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.

h Benefits metrics that have not been given 2030 Targets in the Order are shown as "not applicable."

As Figures 1 and 2 illustrate, NYSERDA 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:

- Now 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 2023, and this progress will only be bolstered as more evaluation studies enable reporting of indirect impacts from 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 NYSERDA maintains confidence in the ability of the CEF portfolio to deliver the overall impact outlined by CEF 2030 Targets, an expectation that extends to other key areas such as electricity savings.
- 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 acquired in the portfolio, is balancing the near-term 2025 view and boosting the overall potential for 2030 achievement.
- Indirect benefits from market transformation as quantified through evaluation studies have increased portfolio energy savings by 3.8 TBtu, considerably exceeding the planned impact for the initiatives and periods studied
- Renewable energy capacity MW remains dominated by NY-Sun contributions, which began in 2014 and is performing well against the 2025 target, 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.

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)	5.8	3.6	9.4	9.0	14.0
Participant Bill Savings ($ millions)	$1,109	$757	$1,865	n/a	n/a

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.

Serving Disadvantaged Communities

The September 2021 CEF Order set a target for NYSERDA to achieve 40 percent of the benefits of investment across the entire CEF portfolio in disadvantaged communities (DACs). With the signing of the 2019 Climate Act, NYSERDA began to adapt programs and increase focus on DAC investments across the CEF portfolio, investing in capacity building and engagement within frontline and underserved communities through initiatives such as the Regional Clean Energy Hubs (Hubs); prioritizing the funding of projects benefitting disadvantaged communities through initiatives such as NY-Sun and P-12 Schools; and increasing investment in affordable housing. Through continued engagement with residents of disadvantaged communities and market actors serving these communities, and with the addition of federal program funding, NYSERDA continues to evolve sector strategies to optimize resources and maximize benefits to disadvantaged communities. Three of the primary forums by which NYSERDA is currently engaging communities are as follows:

1. Regional Clean Energy Hubs – contracts have been awarded to 12 community-based organizations to connect New Yorkers to the clean energy economy and access clean energy services and opportunities.
2. The Disadvantaged Communities Stakeholders Services Pool – NYSERDA has pre-qualified community-based organizations (CBOs) to work with NYSERDA on a variety of initiatives including program co-design, policy, public engagement and capacity building, and compensate stakeholders for their time, feedback and expertise.
3. Energy Equity Collaborative – a partnership between on-the-ground, community-based organizations that serve and represent historically marginalized communities and disadvantaged communities to ensure the experiences and needs of these communities are front and center in decision-making and program planning.

Spotlight on Regional Clean Energy Hubs

NYSERDA's Regional Clean Energy Hubs play a vital role in connecting community members to clean energy opportunities and the Hubs achieved three key milestones in 2023, including:

1. Establishing the foundational components for programmatic success by executing their subcontractor agreements, hiring and training clean energy advisors, and developing Hubs operational processes
2. Conducting targeted outreach towards disadvantaged communities by hosting or participating in 1,308 community events (i.e. farmers markets, town halls, food pantries etc.) and developing targeted marketing materials relevant to served communities, expanding access to and awareness of both NYSERDA and non-NYSERDA program offerings.
3. Commence with direct assistance to customers seeking to navigate available energy efficiency opportunities.

Connecting customers to NYSERDA and non-NYSERDA programs is an integral part of the service provided by the Hubs. To successfully provide program referrals statewide, Hub leaders must build trust through understanding the unique needs of community members. Because each Hub is operated by people from the regions they serve, regional engagement flourished in 2023 as described in Table 2 below. One of the primary goals NYSERDA has with each Hub is to strengthen coordination and connectivity to utility clean energy program offerings, and some of that early effort is featured in Table 2 as well, with specific referral figures related to both the NYS Clean Heat Program and Utility Bill Assistance Program detailed by region.

Table 2:Regional Clean Energy Hub Activity by Region (Sept. 2022 Through Dec. 2023)

Region (REDC)	Total Program Referrals	Utility Program Connections	
		NYS Clean Heat	Bill Assistance
Southern Tier	630	22	3
Central New York	361	44	22
Mid-Hudson	334	55	-
North Country	274	24	-
Finger Lakes	260	6	-
Mohawk Valley	191	11	-
Capital Region	180	8	2
New York City	123	-	-
Western New York	106	-	-
Long Island	18	-	-
Total	**2,477**	**170**	**27**

NYSERDA Disadvantaged Community Investments

NYSERDA's CEF portfolio is also impacting disadvantaged communities in a wide variety of programmatic ways across the Market Development, Innovation & Research, NY-Sun, and NY Green Bank portfolios. A summary of accounting for NYSERDA's place-based disadvantaged community investments from 2020-2023 can be found in Table 3 below and reflects data contained in NYSERDA's March 29, 2024 filing with the Commission. This represents NYSERDA's current progress in the CEF toward meeting the 40% DAC target.

Table 3: NYSERDA CEF Disadvantaged Communities Investment (2020 – 2023)

Portfolio (Years 2020-2023)	DAC/Low Income Funding ($M)	Total Place-based Funding ($M)	DAC %
Total	$842.1	$2,317.8	36.3%

a NYSERDA's Innovation & Research portfolio currently contains limited place-based funding in the form of pilots and demos which have yet to be characterized in the assessment of these investments, however NYSERDA intends to complete this assessment and report findings in future reports.

b Community solar projects in NY-Sun are being reported as benefiting disadvantaged communities according to their proportion of DAC/low-income subscribers, rather than their project location. Project-specific subscriber data (both geospatial and income qualification data) is being used to calculate the proportion of DAC/low-income subscribers for each project that is part of the Inclusive Community Solar Adder (ICSA) Program. Expanded Solar for All (ESFA) projects are considered entirely benefiting disadvantaged communities since their subscribers are 100% low-income. For the remainder of community solar projects, NYSERDA is currently applying a 24% factor representing participation by disadvantaged communities based on a large sample analysis of community solar subscribers. The analysis was based on an upstate New York sample that does not include low-income subscribers residing outside of geographic disadvantaged communities. This factor may be updated in the future as NYSERDA refines the methodology to quantify these impacts over time.

c NYGB funding excludes Utility-scale investments, as well as a CDG Storage, pending DPS response to NYSERDA's Storage Roadmap.

And finally, NYSERDA continues to play a larger role in helping facilitate the first Statewide report on DAC investments. On January 3, 2024, NYSERDA, in conjunction with the Department of Environmental Conservation (DEC), released the Draft Disadvantaged Community Investments and Benefits Accounting Guidance. Once finalized, New York State agencies will use the guidance to account for clean energy and energy efficiency investments in DACs in compliance with the Climate Act requirement. NYSERDA will compile data provided by state entities to publish a dashboard of State clean energy investments in DACs later in 2024.

1.2 Market Development and Innovation and Research

Each Fall NYSERDA completes its annual update to forecasts for all CEF initiatives as required by DPS, bringing plans current with reported historical progress and revising forward looking plans to account for that history and any new knowledge gained from market engagements. The 2023 reforecast carried

special attention toward assessing program performance in true "test-measure-adjust" fashion given the time remaining for the CEF to invest funding to achieve the greatest ratepayer benefit and maximum impact on CEF Targets. In parallel, NYSERDA undertook the process to develop future work proposals in compliance with the *Order Directing Energy Efficiency and Building Electrification Proposals* issued July 20, 2023 where the Commission suggestedcore roles for NYSERDA to fill in the clean energy market in 2026 and beyond, working complementary to utilities Statewide. These two planning efforts necessarily overlapped with NYSERDA filing several programmatic changes totaling more than $65M across the Market Development portfolio on November 1, 2023, all designed to optimize the remaining CEF efforts and align them where possible with future directions.

NYSERDA surpassed $1.5B in Market Development and Innovation & Research programmatic expenditures in 2023, more than half the authorized funding for these two CEF sub-portfolios. Eight years into the ten-year CEF timeline, NYSERDA's cumulative progress remains strong with 77% of the total authorized funding now committed alongside 78% of the 2025 CEF total energy savings, when including both direct and measured indirect savings through 2023. The acquisition of benefits is accelerating and will continue to do so as early-CEF commitments transition to completed projects at a much more rapid pace and as evaluation studies conclude and report indirect impacts. NYSERDA has programmed initiatives anticipated to meet 93% of these 2025 ordered total energy targets and exceed them (113%) through what is expected to be acquired by 2030.

Appendix A of this report contains a comprehensive and detailed breakdown of progress for each Focus Area and initiative comprising NYSERDA's MD and IR portfolios. These summaries include performance metrics, milestone updates, output and outcome indicator updates, and concise narratives speaking to the status of the initiative. NYSERDA's is continually monitoring performance across all initiatives to optimize portfolio progress over the life of the CEF, accelerating progress on funding commitments and subsequent expenditures wherever possible.

1.3 NY-Sun

NY-Sun represents the most mature of the four CEF portfolios.

Approximately nine years into the initiative, the program is performing well, having surpassed the original 2023 goal for 3 GW of distributed solar in March 2021. Through year end 2023, NY Sun has nearly $2.1 billion in programmatic CEF funding committed with over 5.3 GW of capacity installed statewide, 4.1 GW of which received NY-Sun incentives. This past year marks New York State's most

active year yet for distributed solar deployment, with 885 MW installed statewide (748 MW with NYSERDA funding), representing a 4% growth over 2022 statewide completions. The program is well on track to achieve its goals of 6 GW installed by 2025 and 10 GW by 2030. Annual and cumulative completion data are available on NYSERDA's solar dashboard web pages.[5]

According to Wood Mackenzie's most recent US Solar Market Insights report, New York State ranked first in the country for community solar installed in the first three quarters of 2023, as well as first for all-time community solar installations. Furthermore, according to the latest Solar Jobs Census report, the State now ranks fourth in the country with a total of 14,300 full-time solar jobs.[6]

1.4 NY Green Bank

NY Green Bank (NYGB) began commercial operations in summer 2014. During the first two years of the CEF, NYGB achieved two key milestones. First, it generated positive annual net income a full year earlier than planned. Second, during the third calendar quarter of 2017, NYGB earned cumulative revenue on its investments greater than its cumulative expenses and losses. Since these milestones NYGB has continued to deploy capital into clean energy projects and sustainable infrastructure. As of December 31, 2023, NYGB had over $2.1 billion in new investment opportunities, with $2.4 billion in funding deployed and $1.7 billion of the deployed principal now repaid and made available for recycling into subsequent transactions over the horizon of the CEF.

NYGB's investments are anticipated to support the delivery of at least 2.2 million MMBtu-e (MMBtu equivalent) total annual energy efficiency savings and distributed solar capacity of at least 1,137 MW to New Yorkers. Through year-end 2023, NYGB's counterparties have completed systems that provide 108,464 MMBtu-e in annual energy savings and installed 847 MW of distributed solar capacity. These benefits will further increase as NYGB's counterparties continue to draw down on capital commitments to fund new project installations, and NYGB continues to close new transactions in 2024 and beyond.

2 Metrics Reporting

Cumulative progress and expected benefits from all four portfolios, alongside CEF Order Targets, are shown combined in Table 4. Order Targets for 2025 and 2030 timeframes are from the Order Approving Clean Energy Fund Modifications, issued and effective September 9, 2021. NYSERDA removes overlap among its CEF portfolios in this roll-up table while individual portfolio tables remain whole; therefore, the sum of individual portfolio tables presented later will not match the totals in Table 4. NYSERDA also removes initiatives not dedicated to energy efficiency from reporting against those energy-related targets. Subsequent Tables 5–9 provide a view of progress for each portfolio and their relevant metrics individually.

Table 4: CEF Combined Portfolios Year-End Progress and Projected Benefits

CEF (All Portfolios)	**Evaluated Totals (verified gross where evaluated; gross where not)**						
Annual Beneft Metrics ** Direct + Indirect Progress ** Overlap Accounted	**Cumulative Acquired Benefits Through 2023**	**Committed Benefits as of Q4 2023** (Committed but not acquired)	**Total Progress Thru 2023** (Total Acquired + Committed)	**Total Expected Benefits Through 2025**	**2025 Order Target**	**Total Expected Benefits Through 2030**	**2030 Order Target**
Total Energy Savings (MMBtu-e)	23,944,583	17,506,859	41,451,442	49,422,414	53,000,000	89,528,176	79,000,000
Electricity Savings (MWh)	2,225,620	1,247,633	3,473,253	5,452,245	6,700,000	9,737,838	10,000,000
Natural Gas Fuel Savings (MMBtu)	11,621,387	12,646,179	24,267,566	24,455,276	25,000,000	46,806,913	38,000,000
Other Fuel Savings (MMBtu)	12,618,648	1,093,320	13,711,968	14,104,684	15,000,000	17,438,477	17,000,000
Distributed Solar Capacity (MW)	5,346	3,503	8,848	-	6,000	-	10,000
Leveraged Funds ($ millions)	$15,720	$7,822	$23,542	$23,542	$20,000	$23,542	n/a

[a] Figures include both direct and indirect benefits; indirect progress is reported only for initiatives in which studies have concluded; indirect plans as represented in the "Total Expected" columns conservatively include only 50% of the estimated total indirect benefits from market transformation to avoid overlap in these values and to account for uncertainty associated with the forecasting and measurement of indirect benefits over time.

[b] 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.

[c] Verified savings as a percent of total reported direct savings varies by metric and includes electricity (74% verified), natural gas (70%), and other fuels (10%). 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, and at different times for different programs, which will cause the percent verified to fluctuate over time. 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. Indirect savings are not included in these percent figures.

[d] 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.

[e] 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. These initiatives account for MMBtu-equivalents net savings of approximately 27,000 MMBtu-equivalents (Market Development) and -251,000 (New York Green Bank).

[f] Distributed Solar Capacity includes 1,231 MW of non-NYSERDA solar capacity from statewide interconnection data.

[g] Leveraged funds expected benefits does not currently include anticipated indirect impacts.

[h] Benefits metrics that have not been given 2030 Targets in the Order are shown as "not applicable."

[i] Total Expected Benefits values do not include future expected impacts from NY-Sun and NY Green Bank portfolios.

[j] 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 5: Market Development Year-End Progress and Projected Direct Benefits

Market Development	**Evaluated Totals** (verified gross where evaluated; gross where not)					
Annual Benefits Metrics ** Direct Only **	**Cumulative Acquired Benefits Through 2023**	**Cumulative Planned Benefits Through 2023**	**Committed Benefits as of Q4 2023** (Committed but	**Total Progress Through 2023** (Total Acquired + Committed)	**Total Expected Benefits Through 2025**	**Total Expected Benefits Through 2030**
Total Energy Savings (MMBtu equivalent)	20,149,021	22,039,082	17,506,859	37,655,880	33,863,133	46,758,184
Electricity Savings (MWh)	1,795,879	1,997,777	1,247,633	3,043,512	3,268,122	3,979,815
Total Fuel Savings (MMBtu)	21,623,613	22,849,557	13,739,499	35,363,112	30,451,660	41,120,525
Natural Gas Fuel Savings (MMBtu)	9,813,985	11,308,403	12,646,179	22,460,164	17,806,073	27,268,154
Other Fuel Savings (MMBtu)	11,809,628	11,541,153	1,093,320	12,902,948	12,645,587	13,852,371
Distributed Solar Capacity (Renewable MW)	15	22	0	15	29	30
Total Leveraged Funds ($M)	$3,206	$3,563	$1,941	$5,147	$5,571	$6,863

[a] Progress reported here is a blend of verified gross and gross savings. Where studies have been completed and yield realization rates, verified gross acquired savings are reported. Where studies are not complete, those initiatives and/or time periods will continue reporting gross savings. Verified savings as a percent of total reported direct savings varies by metric and includes electricity (68% verified), natural gas (65%), and other fuels (4%).

[b] Market Development initiatives not dedicated to building energy efficiency have been excluded from progress toward energy saving targets above, including Electric Vehicles—Rebate, Combined Heat and Power, and Fuel Cells. These initiatives account for MMBtu-equivalents net savings of approximately 27,000 MMBtu-equivalents.

[c] 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.

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 evaluation studies which will occur gradually and grow over time, depending upon the period of each study, which varies from one initiative to another. Market evaluation studies continued to assess indirect impacts in 2023. Additional detail on those studies can be found in appendix C of this report.

Table 6: Market Development Year-End Progress and Projected Indirect Benefits

Market Development	**Evaluated Totals** (from completed studies)		
Annual Benefit Metrics **** Indirect Benefits Only ****	**Cumultive Acquired Benefits Reported Through 2023**	**Total Indirect Benefits Expected Through 2025**	**Total Indirect Benefits Expected Through 2030**
Total Energy Savings (MMBtu equivalent)	3,795,561	18,200,111	49,045,772
Electricity Savings (MWh)	429,741	2,184,122	5,758,022
Total Fuel Savings (MMBtu)	2,616,422	11,433,161	30,955,836
Natural Gas Fuel Savings (MMBtu)	1,807,402	6,649,203	19,538,759
Other Fuel Savings (MMBtu)	809,020	4,783,958	11,417,077
Renewable Energy Capacity (MW)	58	188	313

[a] Indirect benefits are reported for the initiatives and specific time periods where studies have concluded.

[b] Indirect impacts will be added over time as additional studies conclude, regularly growing these evaluated totals.

[c] Indirect plans as represented in the "Total Expected" columns conservatively include only 50% of the estimated total indirect benefits from market transformation to avoid overlap in these values and to account for uncertainty associated with the forecasting and measurement of indirect benefits over time.

[d] Indirect leveraged funding will be captured with future assessments.

[e] MD initiatives not dedicated to building energy efficiency have been excluded (as it pertains to indirect savings, Electric Vehicles—Rebate is excluded).

Table 7: Innovation and Research Year-end Progress and Projected Benefits

Innovation and Research	Gross Totals					
Annual Benefits Metrics	**Cumulative Acquired Benefits Through 2023**	**Cumulative Plan Through 2023**	**Committed Benefits as of Q4 2023** (Committed but	**Total Progress Through 2023** (Total Acquired + Committed)	**Total Expected Benefits Through 2025**	**Total Expected Benefits Through 2030**
Total Leveraged Funds ($M)	$3,538	$4,075	$1,812	$5,350	$4,769	$5,859

Progress of the NY-Sun portfolio is shown in Table 8. Cumulative progress represents benefits from all projects completed or in the pipeline. Unlike the other portfolios of the CEF, NY-Sun does not have a progressive build format; therefore, Total Expected Benefits as of December 31, 2023 equals Cumulative Progress through December 31, 2023.

Table 8: NY-Sun Year-End Benefits Progress

NY-Sun	**Evaluated Totals** (verified gross where evaluated)		
Annual Benefit Metrics	**Cumulative Acquired Benefits Thru 2023**	**Committed Benefits as of Q4 2023**	**Total Progress Thru 2023** (Acquired + Committed)
Total Distributed Solar Capacity (Renewable MW)	5,346	3,504	8,849
NYSERDA CEF Installations	3,504	3,459	6,963
NYSERDA (non-CEF) Installations	610	45	655
non-NYSERDA Statewide Installations	1,231	-	1,231
Total Leveraged Funds ($ million, CEF only)	5,391	272	5,663

[a] Distributed Solar Capacity MW reported as acquired are taken from the Statewide Solar Projects dashboard, which is populated with data from utility interconnection inventories. This dataset includes all distributed solar interconnected in NYS, including hundreds of MWs which did not receive NYSERDA funding. Committed project data is maintained by NYSERDA independently of interconnection data. Since the two datasets define project completion date differently, some projects reported as committed may also be included as acquired under the "Non-NYSERDA Statewide Installations" (interconnection balance) figure. As the pipeline of NYSERDA commitments are drawn down over time and these projects are considered acquired in both data sources, this overlap will be eliminated.

[b] Acquired benefits are installed projects while committed are considered pipeline (contracted but not yet completed as well as applications approved, but not yet contracted).

[c] Leveraged funds reflect the sum of all solar project costs reported to NYSERDA by participating contractors, minus the total NYSERDA incentives paid on these projects.

[d] 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.

Progress of the NY Green Bank portfolio is shown in Table 9. Cumulative progress through December 31, 2023 represents benefits from clean energy measures deployed in New York State.

Total expected benefits from executed transactions as of December 31, 2023 will be the result, no later than 2025, from full implementation of all NY Green Bank transactions executed by this date.[7]

Table 9: NY Green Bank Year-End Benefits Progress

NY Green Bank	**Evaluated Totals** (verified gross where evaluated)		
Annual Benefit Metrics	**Cumulative Acquired Benefits Thru 2023**	**Committed Benefits as of Q4 2023**	**Overall Investments Thru 2023** (Acquired + Committed)
Total Energy Savings (MMBtu equivalent)	108,464	2,045,003	2,153,467
Electricity Savings (MWh)	27,752	13,448	41,200
Total Fuel Savings (MMBtu)	13,773	2,415,746	2,429,519
Natural Gas Fuel Savings (MMBtu)	13,773	2,415,746	2,429,519
Other Fuel Savings (MMBtu)	-	-	-
Distributed Solar Capacity (Renewable MW)	847	290	1,137
Total Project Costs ($ million)	2,030	3,230	5,261

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

[b] Overall Investments as of December 31, 2023 represents the sum of the low end of the range for all First-Year estimated energy savings, energy generation, and GHG emissions reductions (as also reported in NYGB Quarterly Metrics Reports) to be achieved by the end of the availability period for each transaction, aggregated across all NYGB investments.

[c] 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. New York Green Bank projects not dedicated to building energy efficiency are excluded from these savings. This includes Fuel Cell projects which would account for approximately -251,000 MMBtu-equivalents of net savings.

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

[e] Through December 2023, 100% of the direct energy savings reported for NY Green Bank are Gross Savings

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

[g] 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.

3 Financial Reporting

Portfolio-level financial progress updates for each of the four CEF portfolios follows.

Table 10: Market Development, Innovation and Research Portfolio-Level Funding and Financial Metrics

Budget Progress ($M)	Total Authorized Budget	Total Approved As of Dec. 31 2023	Expended Funds	% of Approved Budget Expended	Committed Funds As of Dec. 31 2023	Total Progress (Expended + Committed)	% of Approved Budget Expended + Committed	Budget Approved Remaining Balance
Market Development (MD)	**$2,399.7**	**$2,359.9**	**$1,205.3**	**51%**	**$634.5**	**$1,839.8**	**78%**	**$520.1**
Program Funds	$2,399.7	$2,332.2	$1,190.2	51%	$634.5	$1,824.8	78%	$507.4
NYS Cost Recovery Fee		$27.7	$15.1	54%	n/a	$15.1	54%	$12.6
Innovation & Research (IR)	**$631.7**	**$576.7**	**$256.4**	**44%**	**$236.3**	**$492.8**	**85%**	**$83.9**
Program Funds	$631.7	$570.2	$253.6	44%	$236.3	$490.0	86%	$80.2
NYS Cost Recovery Fee		$6.5	$2.8	43%	n/a	$2.8	43%	$3.7
Administration	$274.4	$265.2	$190.1	72%	$0.0	$190.1	72%	$75.1
Evaluation	$124.2	$113.3	$39.6	35%	$13.6	$53.3	47%	$60.1
Total MD & IR	**$3,430.0**	**$3,315.2**	**$1,691.5**	**51%**	**$884.5**	**$2,576.0**	**78%**	**$739.2**

[a] The data contained in this table is inclusive of all initiatives approved under these two CEF portfolios, with plans representing the Compiled Investment Plans currently filed and approved as of December 31, 2023.

Table 11: NY-Sun Portfolio-Level Funding and Financial Metrics

Budget Progress ($M)	Total Authorized Budget	Expended Funds	% of Authorized Budget Expended	Committed Funds As of Dec. 31 2023	Total Progress (Expended + Committed)	% of Authorized Budget Expended + Committed	Budget Authorized Remaining Balance
NY-Sun	**$3,204.6**	**$1,068.5**	**33%**	**$1,046.7**	**$2,115.1**	**66%**	**$1,089.4**
Program Funds	$3,162.8	$1,058.4	33%	$1,046.7	$2,105.1	67%	$1,057.7
NYS Cost Recovery Fee	$41.8	$10.1	24%	n/a	$10.1	24%	$31.7
Administration	$58.8	$24.6	42%	$0.2	$24.7	42%	$34.0
Evaluation	$3.5	$1.4	40%	$0.6	$2.0	58%	$1.5
Total NY-Sun	**$3,266.8**	**$1,094.5**	**34%**	**$1,047.4**	**$2,141.9**	**66%**	**$1,124.9**

[a] Progress data contained in this table is limited to only NY-Sun contract commitments.

[b] NYSERDA supported solar installations not funded through the CEF total $679 million and are reported elsewhere.

Funding and financial status of NY Green Bank is provided in the collection of tables that follow. NY Green Bank is presented separately from the other CEF portfolios to accurately represent NY Green Bank's unique characteristics (e.g., funds invested by NY Green Bank are ultimately returned and recycled, and revenues are generated to continue to support self-sufficiency and reinvestment).

Table 12: NY Green Bank Portfolio-Level Funding and Financial Metrics (group)

Net Position vs Budgeted Funds

Program Costs & Revenue ($M)	Total Authorized Budget	Deployed Funds[a] (drawn)	Committed Funds (undrawn)	Current Portfolio Total[b]	Net Income Earned on Investments	2014 DOE Grant	Available Capital[c]	Net Position[d]
NY Green Bank	$947.1	$688.6	$238.3	$926.9	$140.2	$0.5	$140.7	$1,087.8

Cumulative Principal Deployed and Repaid

Cumulative Principal Deployed	Cumulative Principal Repaid
$2,410.8	$1,717.6

Investments to Date

CEF 10-Year Investment Goal	Overall Investments to Date	Remaining ($)	Remaining (%)
$1,900.0	$2,191.9	Achieved on Dec 19, 2022	

Administrative Costs

Administrative Costs	Budgeted Funds	Cumulative Expended	Remaining Balance[e]
Operating Expenses (Program Administration)[f]	$12.8	$12.8	$0.0
Program Evaluation	$4.0	$1.0	$3.0
New York State Cost Recovery Fee	$0.5	$0.5	$0.0
OTHER COSTS TOTAL	**$17.2**	**$14.2**	**$3.0**

[a] Deployed Funds include capitalized interest and fees; as such the value does not reflect the difference between Cumulative Principal Deployed and Cumulative Principal Repaid.

[b] Sum of Deployed Funds and Committed Capital.

[c] Available Capital reflects the amount of NYGB's initial $1.0 billion capitalization confirmed in the CEF Order that is not currently Deployed or Committed, less $52.9 million of reallocated RGGI funds. As NYGB investments mature and are redeployed into new projects, Available Capital gives a snapshot in time of the funds available for clean energy investment. NYGB's Overall Investments to Date against the target aggregate NYGB investment expected over the term of the CEF is shown in Table 3.

[c] Net Position is equal to the sum of Budgeted Funds, Net Income Earned on Investments and 2014 DOE Grant.

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

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

Appendix A. Performance and Milestone Summaries

The CEF Annual Report, and specifically the individual initiative performance summaries contained within this appendix, highlight the link between the performance of an initiative and the plan for continuation, modification, or termination of those initiatives. Following the Clean Energy Fund (CEF) principles of "test-measure-adjust," the performance of each Market Development (MD) and Innovation and Research (I&R) initiative is carefully assessed, along with other information, to adjust future plans, including future budget and benefit estimates defined in each CEF investment plan.

The progress and performance summaries that follow are organized into their respective Innovation & Research or Market Development portfolios, consistent with other plan filings and reporting. Resource Acquisition Transition initiatives were launched at the onset of the CEF in 2016 and do not contain milestones, outputs, & outcomes as subsequent CEF initiatives do. CEF initiatives that are part of the Statewide Joint LMI Implementation Plan co-administered with Utilities are reported in the Annual Joint Plan Report filed April 1 each year. Performance metrics of both groups are contained within this appendix for reference.

Performance to date represents a cumulative look back at the period from program launch through December 31, 2023. Therefore, all planned values represent those contained in NYSERDA's approved investment plans as of December 31, 2023. Where applicable updates are provided for milestones as well as output/outcome indicator metrics through 2023. For a complete version of all activity tables including the associated table notes, please visit www.nyserda.ny.gov and the Clean Energy Fund section, referencing the August 8, 2023 Compiled Investment Plan filing.

This appendix can be navigated quickly from the directory of initiatives that follows. The directory is organized by portfolio and provides clear link to the CEF Focus Areas that are served by each initiative. Use the links to jump to each relevant report section.

Market Development Initiatives

	Clean Heating & Cooling	Codes and Standards, & Other Multisector Initiatives	Commercial/ Industrial/ Agriculture	Communities	Low to Moderate Income	Multifamily Residential	New Construction	Renewables/ Distributed Energy Resources (DER)	Single Family Residential	Transportation	Workforce Development	Status
Advancing Agricultural Energy Technologies			X									Active
Building Operations and Maintenance Partnerships											X	Active
Clean Energy Communities				X								Active
Clean Energy Siting and Soft Cost Reduction								X				Active
Codes and Standards for Carbon Neutral Buildings		X										Active
Community Energy Engagement				X								Inactive
Consumer Awareness									X			Active
Electric Vehicles - Rebate										X		Inactive
Energy Management Practices			X									Active
Energy Management Technology			X			X						Active
EV Charging & Engagement										X		Active
Greenhouse Lighting and Systems Engineering			X									Active
Heat Pumps Phase 1 (2017)	X											Inactive
Heat Pumps Phase 2 (2020)	X				X				X			Active
Information Products and Brokering		X										Active
Market Challenges			X			X						Active
Multifamily Low-Carbon Pathways						X						Active
New Construction - Market Rate							X					Active
Offshore Wind Master Plan								X				Inactive
Offshore Wind Pre-Development Activities								X				Inactive
ORES Support								X				Active
P-12 Schools			X									Active
Pay for Performance			X						X			Inactive
Product and Appliance Standards		X										Active
Real Estate Tenant			X									Inactive
Reducing Barriers to Distributed Deployment								X				Active
Renewable Heat NY - Clean and Efficient Biomass Heating	X											Inactive
Residential									X			Active
REV Campus Challenge			X									Active
REV Connect		X										Active
Solar Plus Energy Storage								X				Inactive
Talent Pipeline											X	Active
Technical Services			X			X						Active

Market Development Initiatives

	Clean Heating & Cooling	Codes and Standards, & Other Multisector Initiatives	Commercial/ Industrial/ Agriculture	Communities	Low to Moderate Income	Multifamily Residential	New Construction	Renewables/ Distributed Energy Resources (DER)	Single Family Residential	Transportation	Workforce Development	**Status**
Low-to-Moderate Income Initiatives												
NYSERDA jointly files the *LMI Statewide Portfolio Annual Report* with the Utilities on April 1 of each year. This report contains detailed information on the progress of all LMI-related initiatives and can be found in the Department of Public Service's Document Matter Master (DMM) system under case 14-M-0094.												
Healthy Homes Feasibility Study					X							Inactive
LMI Multifamily					X							Active
LMI Outreach & Engagement					X							Active
LMI Pilots					X							Active
New Construction - LMI					X							Active
NYS Healthy Homes Value Based Payment Pilot					X							Active
Regional Clean Energy Hubs					X							Active
RetrofitNY - LMI					X							Active
REVitalize					X							Inactive
Single Family - Low Income					X							Active
Single Family - Moderate Income					X							Active
Solar for All					X							Inactive
Resource Acquisition Transition Initiatives (all Inactive)												
Agriculture Transition			X									Inactive
Anaerobic Digesters Transition								X				Inactive
Combined Heat & Power Transition								X				Inactive
Commercial New Construction Transition							X					Inactive
Commercial Transition			X									Inactive
Fuel Cells								X				Inactive
Industrial Transition			X									Inactive
Low Rise New Construction Transition - LMI					X							Inactive
Low Rise New Construction Transition - Market Rate							X					Inactive
Multifamily Market Rate Transition						X						Inactive
Multifamily New Construction Transition - LMI					X							Inactive
Multifamily New Construction Transition - Market Rate							X					Inactive
Single Family Market Rate Transition									X			Inactive
Small Wind Transition								X				Inactive
Solar Thermal Transition	X											Inactive

Innovation & Research Initiatives

	Buildings Innovation	Clean Transportation Innovation	Climate Resilience Innovation	Energy Focused Environmental Research	Gas Innovation	Grid Modernization	Negative Emissions Technologies	Renewables Optimization	Technology to Market	Status
CarbonTech Development							X		X	Active
Catalytic Capital for Climatetech									X	Active
Climatetech Commercialization Support	X								X	Active
Climatetech Expertise & Talent									X	Active
Electric Vehicle Innovation		X								Active
Energy Storage Technology and Product Development								X		Active
Energy-Related Environmental Research				X						Active
Future Grid Performance Challenges						X				Active
Grid ClimateTech Ready Capital						X				Active
High-Performing Electric Grid						X				Active
Hydrogen Innovation			X		X					Active
Long Duration Energy Storage					X					Active
Manufacturing Corps									X	Active
National Offshore Wind Research & Development Consortium								X		Active
Natural Carbon Solutions							X			Active
NextGen Buildings	X									Active
Novel Business Models and Offerings									X	Active
Power Electronics Manufacturing Consortium						X				Inactive
Public Transportation and Mobility		X								Active
Utility Thermal Network Technical Support					X					Active

Performance Summary

Expected Timeline Of Funding Deployment Committed (COM), Expended (EXP)

Type	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
COM							Start	End							
EXP							Start			End					

Cumulative Plan vs. Progress Thru 2023	Planned	Progress	% To Plan
Budget Expenditures ($)	2,333,333	1,180,000	51%
Total Energy Savings, Annual (MMBtu eq.)	-	-	-
Electricity Savings, Annual (MWh)	-	-	-
Natural Gas Savings, Annual (MMBtu)	-	-	-
Other Fuel Savings, Annual (MMBtu)	-	-	-
Renewable Energy Generation, Annual (MWh)	-	-	-
Renewable Energy Capacity (MW)	-	-	-
Leveraged Funds ($)	36,412,272	-	0%

Summary of Performance and Future Plans
In 2023 NYSERDA launched the $10M Empire Technology Prize, which is on track to deliver initial awards in July 2024. The program completed planned commitments in 2023, but expenditures and leverage is lagging due to the delay of program launch. Expenditures are expected to be back on track by Q4 2024 and leveraged funds will follow, by Q4 2025.

Activities Summary

Activity	Activity #
NYSERDA will work with third-party venture development organization to design and run the "Empire Technology Prize" focused on decarbonizing buildings in New York State.	1

Milestones Summary

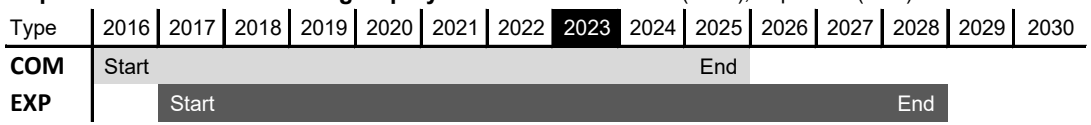
Milestone	Planned	Explanation of Progress	Status	Completed	Activity #
Issue award to an Empire Technology Prize program administrator.	2022	The program administrator for the Empire Technology Prize program was awarded on 3/15/2022.	Complete	2022	1

Outputs and Outcomes Summary

Indicators	2021 Target	2022 Target	Progress as of 12/31/2023	2023 Target	2024 Target	2025 Target	Activity #
Output: Corporate parties engaged through Corporate Challenges	-	20	24	-	-	-	1
Output: Number of teams engaged	-	10	0	-	-	-	1
Outcome: Corporate and strategic partnerships formed	-	10	579	-	-	-	1

Performance Summary

Expected Timeline Of Funding Deployment Committed (COM), Expended (EXP)



Cumulative Plan vs. Progress Thru 2023	Planned	Progress	% To Plan
Budget Expenditures ($)	18,263,193	13,452,335	74%
Total Energy Savings, Annual (MMBtu eq.)	-	-	-
Electricity Savings, Annual (MWh)	-	-	-
Natural Gas Savings, Annual (MMBtu)	-	-	-
Other Fuel Savings, Annual (MMBtu)	-	-	-
Renewable Energy Generation, Annual (MWh)	-	-	-
Renewable Energy Capacity (MW)	-	-	-
Leveraged Funds ($)	144,272,717	2,966,775	2%

Summary of Performance and Future Plans

In 2023 NYSERDA issued Round 7 of the NextGen Buildings Innovation Challenge. Issued challenges focused on building envelope improvements; cost compression of ground source heat pumps, enabling intelligent grid interactive buildings and the advancement and utilization of thermal storage. NYSERDA completed notifications to selected proposals in Q4 2023 and anticipates public announcement of new projects in Q2 2024.

Expenditures in 2023 are behind due to projects recovering slower than expected from COVID, supply chain disruptions and the rapid rate of inflation experienced in the last year. This is especially true for projects at the demonstration stage. The cost of demonstrations have increased from the time the award was made and with NYSERDA's contracts being fixed cost contracts, contractor's and building owners are needing to increase their cost share which is difficult in this current economic environment. The difference in expenditures is expected to be made up in the next 12 to 16 months. A complete review of all projects is underway in 2024 to identify projects that require intervention, modification, or other steps.

Leveraged funds are currently lagging and NYSERDA is working on a solution to address this lag and should be on track in Q4 2024.

Activities Summary

Activity	Activity #
• Determine Technology Performance and Cost Needs. NYSERDA will seek market intelligence on the specific performance and cost thresholds for various technologies that are likely to drive adoption. Once these targets are well understood, focused competitive "innovation challenges" solicitations will be released targeting these thresholds. The solicitations will look to support technology development, technology validation, and tech-to-market activities. • HVAC Technology Development. Solicitations will target the innovation community to develop solutions that will provide the desired performance. Multiple innovators may be sought to address a specific technology barrier, increasing the likelihood of a viable/investable solution. Where appropriate, utility involvement will be included. • Technology Validation Effort. Demonstration/validation efforts will be conducted to test the developed, and other available, innovations in the intended relevant operational environment. For this tactic, NYSERDA will directly engage large real estate management organizations and other key stakeholders to serve as test beds. • Tech-to-Market Support. Tech-to-market support will be provided to technology developers to help drive the commercialization of new innovations. This support will be tailored specifically to help early-stage companies navigate the typical channels to market for buildings technologies; for instance, introductions through planned and structured events with key decision makers (HVAC contractors, architecture and engineering firms, energy service companies, consultants, and building owners/operators). Outputs and outcomes include activities with international companies attracted to offered product and to doing business in NYS.	1
• Assessment of Envelope Retrofit and Thermal Storage Solutions. NYSERDA will perform an assessment of emerging and innovative envelope retrofit and thermal storage solutions for the common building types in NYS. Information from this assessment will be used to define the economic and technical potential for energy efficiency and GHG reductions, and to inform the innovation challenges to be issued. • Envelope Retrofit and Thermal Storage Technology Development. Innovation Challenges will target the innovation community to develop solutions that will provide the desired performance or targets. Multiple innovators may be sought to address a specific technology barrier, increasing the likelihood of a viable/investable solution. Where appropriate, utility involvement will be included. • Technology Validation Effort. Demonstration/validation efforts will be conducted to test the developed, and other available, innovations in the intended relevant operational environment. For this effort, NYSERDA will directly engage large real estate management organizations and other key stakeholders to serve as test beds. Priority will be given to demonstrations with applicability to disadvantaged communities. • Tech-to-Market Support. Tech-to-market support will be provided to technology developers to help drive the commercialization of new innovations. Outputs and outcomes include activities with international companies attracted to offered product and to doing business in NYS.	2
Activity: • Intelligent Building Technology Development and Demonstrations. Innovation Challenges will target the innovation community to develop solutions that will provide the desired performance or targets. Multiple innovators may be sought to address a specific technology barrier, increasing the likelihood of a viable/investable solution. Where appropriate, utility involvement will be included. • Technology Validation Effort. Demonstration/validation efforts will be conducted to test the developed, and other available, innovations in the intended relevant operational environment. For this effort, NYSERDA will directly engage large real estate management organizations and other key stakeholders to serve as test beds. Priority will be given to demonstrations with applicability to disadvantaged communities. • Tech-to-Market Support. Tech-to-market support will be provided to technology developers to help drive the commercialization of new innovations.	3

Milestones Summary

Milestone	Planned	Explanation of Progress	Status	Completed	Activity #
Issue annual awards from each round of Innovation Challenge - Round 6	2022	12 awards were issued in December 2022.	Complete	2022	1
Issue annual awards from each round of Innovation Challenge - Round 7,8	2023	Round 7 of the NextGen Building Innovation Challenge was announced in July 2023. Challenges issued focused on building envelope improvements, advancement in thermal storage, cost compression of ground source heat pump systems, and enabling intelligent grid interactive buildings. Awards were made in Nov 2023, to be contracted by Q2 2024. Issuance of Round 8 was deferred to 2024 to assess the project portfolio and to contract Round7 awards to determine the funding available for Round 8. Round 8 is scheduled to be released in April 2024 with the remaining balance of uncommitted funds.	Delayed	2024	1
Issue annual awards from each round of Innovation Challenge - Round 1	2022	Round 6 of the NextGen Buildings Innovation Challenge under NextGen HVAC & New York Clean Heat NYSERDA made 5 awards focused on cost compression of ground source heat pump systems.	Complete	2023	2
Issue annual awards from each round of Innovation Challenge - Round 2,3	2023	Round 7 of the NextGen Building Innovation Challenge was announced in July 2023. Challenges issued focused on building envelope improvements, advancement in thermal storage, cost compression of ground source heat pump systems, and enabling intelligent grid interactive buildings (this is the second round building envelope and thermal storage were included in Next Gen PON). Awards were made in Nov 2023, to be contracted by Q2 2024. Issuance of Round 8 was deferred to 2024 to assess the project portfolio and to contract Round7 awards to determine the funding available for Round 8. Round 8 is scheduled to be released in April 2024 with the remaining balance of uncommitted funds. Round 8 of the NextGen Buildings Innovation Challenge will be the third round for Buildings envelope & thermal storage.	Delayed	2024	2
Issue annual awards from each round of Innovation Challenge - Round 1,2	2023	Round 7 of the NextGen Building Innovation Challenge was announced in July 2023. Challenges issued focused on building envelope improvements, advancement in thermal storage, cost compression of ground source heat pump systems, and enabling intelligent grid interactive buildings (Round 7 is the first round Intelligent Buildings was included as a challenge area). Awards were made in Nov 2023, to be contracted by Q2 2024. Issuance of Round 8 was deferred to 2024 to assess the project portfolio and to contract Round7 awards to determine the funding available for Round 8. Round 8 is scheduled to be released in April 2024 with the remaining balance of uncommitted funds and will include the second round for Intelligent Buildings.	Delayed		3

Outputs and Outcomes Summary

Indicators	2021 Target	2022 Target	Progress as of 12/31/2023	2023 Target	2024 Target	2025 Target	Activity #
Output: number of companies supported or other partnership (baseline = 39).	53	59	62	65	69	-	1
Output: number of demonstration projects started (baseline = 22).	32	35	35	39	41	-	1
Output: number of product development projects started (baseline = 17).	21	24	34	26	28	-	1
Output: number of projects (product development and demonstration) completed (baseline = 5).	7	15	29	22	40	52	1
Outcome: number of products commercialized (baseline = 4).	5	7	8	9	12	15	1
Outcome: number of replications from demonstration projects (baseline = 147).	180	225	680	300	375	450	1
Outcome: revenue ($M) to companies commercializing products (baseline = $1.6M).	$2.5M	$7M	$17.3M	$22M	$67M	$202M	1
Output: Envelope Retrofit Technical and Economic Potential Assessment Study (value proposition, scalability, market size, energy benefits, GHG reduction) has been completed	-	1	0	-	-	-	2
Output: number of companies supported or other partnership (baseline = 0).	-	7	4	21	28	-	2
Output: number of demonstration projects contracted (baseline = 0).	-	3	0	9	12	-	2
Output: number of product development projects contracted (baseline = 0).	-	4	4	12	16	-	2
Output: number of projects (product development and demonstration) completed (baseline = 0).	-	-	0	2	7	16	2
Output: Thermal Storage Technical and Economic Potential Assessment Study (value proposition, scalability , market size, energy benefits, GHG reduction) has been completed	-	1	0	-	-	-	2
Outcome: number of products commercialized (baseline = 0).	-	-	0	2	4	8	2
Outcome: number of replications from demonstration projects (baseline = 0).	-	-	0	10	40	120	2
Outcome: revenue ($M) to companies commercializing products (baseline = $0M).	-	-	0	$10M	$40M	$120M	2
Output: Number of companies supported or other partnerships (baseline = 0).			0	10	18	19	3
Output: Number of demonstration projects contracted (baseline = 0).			0	4	8		3
Output: Number of product development projects contracted (baseline = 0).	-	1	0	5	7		3
Output: Number of projects (product development and demonstration) completed (baseline = 0).		-	0	-	3	8	3
Outcome: Number of products commercialized (baseline = 0).			0		1	2	3
Outcome: Number of replications from demonstration projects (baseline = 0).			N/A		1	6	3
Outcome: Revenue ($M) to companies commercializing products (baseline = $0M).			0		$1	$5	3

Performance Summary

Expected Timeline Of Funding Deployment Committed (COM), Expended (EXP)

Type	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
COM		Start					End								
EXP		Start								End					

Cumulative Plan vs. Progress Thru 2023	Planned	Progress	% To Plan
Budget Expenditures ($)	53,811,086	54,429,167	101%
Total Energy Savings, Annual (MMBtu eq.)	333,987	300,633	90%
Electricity Savings, Annual (MWh)	2,562	2,562	100%
Natural Gas Savings, Annual (MMBtu)	211,549	236,086	112%
Other Fuel Savings, Annual (MMBtu)	321,167	135,540	42%
Renewable Energy Generation, Annual (MWh)	-	-	-
Renewable Energy Capacity (MW)	-	-	-
Leveraged Funds ($)	158,916,583	161,922,083	102%

Summary of Performance and Future Plans

No new applications have been accepted into the Air Source Heat Pump (ASHP) and Ground Source Heat Pump (GSHP) Incentive Programs after they were formally transitioned to the Utilities in Q2 2020 under the NYS Clean Heat program. All remaining GSHP projects that remained with NYSERDA have either been canceled or had their final incentive payment made. The Geothermal Clean Energy Challenge program, a joint program with the New York Power Authority that focused on large campus GSHP screenings and installations, was closed. None of the prospective projects moved to installation and project funds have been disencumbered. Program insights were carried over to Phase 2 initiatives, such as the Community Heat Pump Systems solicitation. Clean Heating and Cooling Campaign contracts will ramp down between now and 2025 as campaign work evolves and transitions to the Clean Energy Hubs. The balance of Heat Pumps Phase 1 funds has been re-forecasted into more active initiatives within Heat Pumps Phase 2.

There are currently no milestones to report.

Outputs and Outcomes Summary

Indicators	2021 Target	2022 Target	Progress as of 12/31/2023	2023 Target	2024 Target	2025 Target	Activity #
Output: # of case studies demonstrating successful cost reduction strategies and/or customer value (baseline = 0).	-	20	9	-	-	-	N/A
Output: # of community campaign enrollees (baseline = 200).	-	2,900	10,075	-	-	-	N/A
Output: # of community campaigns (baseline = 1).	-	72	105	-	-	-	N/A
Output: # of completed projects through the GSHP incentive program (baseline = 0).	-	1,100	1,468	-	-	-	N/A
Output: # of installers and drillers qualified by community campaigns and GSHP incentive program (baseline = 0).	-	50	119	-	-	-	N/A
Output: # of large commercial/institutional facility and campus installations completed (baseline = 0).	-	36	0	-	-	-	N/A
Output: # of large commercial/institutional facility and campus schematic designs completed (baseline = 0).	-	72	4	-	-	-	N/A
Output: # of large commercial/institutional facility and campus screening studies completed (baseline = 0).	-	75	91	-	-	-	N/A
Output: # of program-qualified GSHP consultants and designers (baseline = 0).	-	15	84	-	-	-	N/A
Output: # of projects completed by community campaign participants (baseline = 90).	-	3,660	2,834	-	-	-	N/A
Outcome: # of communities continuing campaigns without NYSERDA direct financial support (baseline = 0).	-	8	N/A	-	-	-	N/A
Outcome: # of International Ground Source Heat Pump Association (IGSHP) - certified designers, installers and drillers active in NYS (baseline = 82).	-	110	107	-	-	-	N/A
Outcome: Cost ($ per ton) in installed systems in community campaigns and for college and university campuses is reduced (baseline = 0%).	-	20% decrease	N/A	-	-	-	N/A
Outcome: Increased awareness of RH&C technologies in communities with campaigns (baseline = 0%).	-	20%	N/A	-	-	-	N/A

Performance Summary

Expected Timeline Of Funding Deployment Committed (COM), Expended (EXP)

Type	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
COM					Start					End					
EXP					Start									End	

Cumulative Plan vs. Progress Thru 2023	Planned	Progress	% To Plan
Budget Expenditures ($)	31,874,857	29,449,154	92%
Total Energy Savings, Annual (MMBtu eq.)	-	-	-
Electricity Savings, Annual (MWh)	-	-	-
Natural Gas Savings, Annual (MMBtu)	-	-	-
Other Fuel Savings, Annual (MMBtu)	-	-	-
Renewable Energy Generation, Annual (MWh)	-	-	-
Renewable Energy Capacity (MW)	-	-	-
Leveraged Funds ($)	-	-	-

Summary of Performance and Future Plans

Heat Pump Phase 2 is one of several CEF initiatives supporting the NYS Clean Heat Market Development plan. Progress reported to date is driven by commitments for Marketing and Consumer Awareness activity.

- The NYS Clean Heat statewide marketing framework, which is a comprehensive consumer awareness campaign with the Joint Utilities and NYSERDA, was launched in Q2 2021. Clean Heating and Cooling campaigns will be delivered through the Clean Energy Hubs, with contracts signed in 2022.
- The first Community Heat Pump Systems solicitation (PON 4614) was released in 2021. Due to strong market interest, additional funds and solicitation rounds were offered through 2023. Additional funds included CEF and Regional Greenhouse Gas Initiative (RGGI), which allows for participation from customers that do not pay into the Systems Benefit Charge (SBC).

Activities Summary

Activity	Activity #
Build consumer demand and market confidence and reduce customer acquisition costs related to Heat Pumps. Provide consumer education, community engagement, and timely decision-quality information to the marketplace, to build market confidence resulting in consumer demand for heat pumps and related technologies. • NYSERDA and utility co-branded marketing, awareness and education campaigns will increase New Yorkers' awareness of heat pumps as an option for heating and cooling homes and businesses, improve consumer perceptions, and increase demand and reduce customer acquisition costs for heat pump installations and energy efficiency projects. • Contractor Cooperative (Co-op) Advertising offers clean heating and cooling industry partners (manufacturers and contractors) marketing funds and materials. Planned enhancements include templated ads, opt-in opportunities, and re-targeting. • Pursue Community HeatSmart Campaigns via Regional Clean Energy Hubs (Low-to-Moderate Income initiative) with the objective to provide support to communities and local groups to stimulate adoption of heat pump technologies along with building envelope solutions, while leveraging local labor and facilitating soft cost reduction; and increase participation of households within disadvantaged communities. • Develop user-friendly resources to aide in consumer decision-making and contractors in adopting good industry practices. • Support and publish technical studies and conduct market research and analysis to address critical market challenge. Assess potential impacts as markets shift and new challenges emerge, and support the evolution of the NYS Clean Heat framework	1
Drive performance improvements, reduce cost, and deliver new economic solutions through technology innovation and demonstrations. Investments will de-risk building electrification solutions that can deliver better performance, cost reduction, and new economic solutions for a wider range of building types. • The Community Heat Pump Systems initiative will test and demonstrate potentially scalable models for clean thermal district systems that leverage economy-of-scale at new and redevelopment sites (e.g., campuses, downtown corridors). The competitive program expresses a preference for projects serving DAC/LMI stakeholders. • Provide technical assistance funding for initial scoping, pre-development, and environmental impact studies. • Provide technical assistance to cost-share detailed design work that will develop cost estimates and a financial plan for the proposed system. • Provide installation incentives for construction of competitively selected clean thermal district demonstration projects • Use multibuilding aggregation to load smooth across different building demands to deliver a more cost-effective solution than a single building solution. • Support the development and demonstration of related business models that can drive performance improvements, reduce costs and deliver new economic solutions through technology innovation and demonstrations. • Conduct an annual statewide continuous tracking study for New Yorkers to measure trends in energy attitudes, familiarity and intent, and adoption of clean energy technologies and services. • Leverage various research techniques to hone investment opportunities for electrification, identifying and applying actionable insights to interventions to increase their likelihood of success in the market. In addition to collaborating with technology innovation efforts, develop a cost reduction strategy to address key drivers of cost compression including scale and supply chain innovation, heat pump system designer and contractor education, investigating regulatory roadblocks and perceived technology risks of electrification.	2
Develop a long-term building electrification roadmap to guide the transformation of how New Yorkers heat and cool their buildings. The roadmap provides a policy and program framework that can be advanced in New York State to enable energy efficient and cost-effective building electrification for consumers, consistent with the state's low-carbon future. The roadmap analysis will characterize both the current state and a 10-year vision for building electrification solutions across the small residential, multifamily, and commercial and institutional market segments. The roadmap will: • Advance the technical and business model solutions and the policy supports necessary to transform how New York consumers heat and cool buildings and guide policy and program interventions, including the refinement of NYS Clean Heat initiatives. • Support a comprehensive analysis of technology and market readiness for efficient electric heat pump solutions by building type and model scenarios for achievable market uptake, energy savings, and greenhouse gas emissions reductions. • Engage industry experts and stakeholders to ensure relevant, informed, and market- and customer-oriented work.	3

Milestones Summary

Milestone	Planned	Explanation of Progress	Status	Completed	Activity #
Development of revised QA/QC protocols to support the NYS Clean Heat Pump incentive program.	2021	The revised QA/QC contractor enrollment requirements will improve the quality of the ASHP installations. The protocols became a requirement in the New York State Clean Heart program in Jan 2022.	Complete	2021	1
Finalize and release the Heat Pump Pattern Book through a public web-based interface	2021	Phase 1 on the Heat Pump Pattern Book in the form of .pdf documents has been published on NYSERDA's and NYS Clean Heat's consumer facing websites. An interactive web-based interface is under development.	Complete	2021	1
Release new Phase 2 solicitation for future Community Campaigns.	2022	Funding for future Community Campaigns was included in the Clean Energy Hubs solicitation.	Complete	2022	1
Support 18,900 installations of energy-efficient electrified space and water heating technologies through NYS Clean Heat.	2022	There have been 40,900 installations through year end 2022	Complete	2022	1
Award contracts to experts to support scoping, design and construction of district systems.	2021	A solicitation (PON 4614) was issued on February 4, 2021, with multiple due dates (rounds). Three rounds of awardees were selected in 2021, with 35 awardees receiving nearly $5.7 million of funding.	Complete	2021	2
Develop action plan for the next phase of cost reduction work, following the publication of the Building Electrification Roadmap in 2023.	2023		Cancelled		2
Publish the Building Electrification Roadmap	2023	Analysis conducted in support of a Building Electrification Roadmap was incorporated into the New York State Climate Action Council deliberations, the economy-wide Integration Analysis, and New York's Scoping Plan (December 2022). In light of the publication of the Scoping Plan and New York's Carbon Neutral Buildings Roadmap, as well as ongoing collaboration among NYS agencies, utilities, other states, and stakeholders to develop priority actions to support building electrification, NYSERDA deprioritized release of this specific Roadmap.	Delayed		3

Outputs and Outcomes Summary

Indicators	2021 Target	2022 Target	Progress as of 12/31/2023	2023 Target	2024 Target	2025 Target	Activity #
Output: Coop advertising campaign costs offset, in dollars (baseline = 0).	$3,150,000	$5,850,000	$12,928,561	$8,250,000	$9,500,000	-	1
Output: Customer acquisition costs offset, in dollars (baseline = 0).	$600,000	$1,000,000	$7,802,902	$1,600,000	$2,250,000	$3,000,000	1
Output: Number of energy-efficient electrified space and water heating technologies installed through NYS Clean Heat (baseline = 0).	18,200	32,500	58,937	55,900	88,400	130,000	1
Output: Number of leads generated for contractors (baseline = 1).	140,000	250,000	547,755	430,000	680,000	1,000,000	1
Outcome: Increase in awareness of CH&C technologies (baseline = TBD).	-	15%	N/A	-	-	50%	1
Output: Number of Thermal Energy Network construction projects supported by NYSERDA (baseline = 0).	-	-	2	2	4	-	2
Output: Number of Thermal Energy Network design projects supported by NYSERDA (baseline = 0).	-	-	N/A	5	10	15	2
Outcome: Replication of Clean Thermal District System projects beyond NYSERDA supported projects (baseline = 0).	-	-	N/A	-	1	2	2

Renewable Heat NY - Clean and Efficient Biomass Heating [Inactive]

Clean Heating & Cooling Focus Area

Performance Summary

Expected Timeline Of Funding Deployment Committed (COM), Expended (EXP)

Type	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
COM		Start					End								
EXP		Start						End							

Cumulative Plan vs. Progress Thru 2023	Planned	Progress	% To Plan
Budget Expenditures ($)	13,410,575	13,123,744	98%
Total Energy Savings, Annual (MMBtu eq.)	70,402	68,927	98%
Electricity Savings, Annual (MWh)	-	-	-
Natural Gas Savings, Annual (MMBtu)	-	-	-
Other Fuel Savings, Annual (MMBtu)	70,402	68,927	98%
Renewable Energy Generation, Annual (MWh)	-	-	-
Renewable Energy Capacity (MW)	-	-	-
Leveraged Funds ($)	13,978,665	13,866,810	99%

Summary of Performance and Future Plans

The RHNY program stopped accepting new applications on 8/20/2021 after funds were fully allocated and all residential pellet stove and wood boiler projects are complete. The majority of Renewable Heat New York (RHNY) applications received were for wood pellet stove incentives, 40% of which served residential low-to-moderate (LMI) customers. The level of uptake enabled the program to exceed all three air quality outcomes (PM2.5, CO, SO2) ahead of schedule. Pellet stoves were added as an eligible measure to the Empower+ program to continue offering incentives for low-to-moderate income (LMI) customers. There were 3 commercial projects supported that completed installation in 2023. NYSERDA released the Interim Report on the Integrated-Duty Cycle (IDC) test method for woodstoves, and the Environmental Protection Agency (EPA) has accepted the method as a broadly applicable alternative test method. EPA announced that they intend to adopt the IDC test protocols, which will elevate technologies to higher efficiencies and lower emissions nationally. NYSERDA is conducting paired appliance testing of wood heating technology as part of the acceptance testing needed for EPA to adopt the Integrated-Duty Cycle test methods and is engaged with National Residential Wood Heat Task Force for technology transfer of lessons learned.

Solar Thermal Transition [Inactive]

Clean Heating & Cooling Focus Area

Cumulative Plan vs. Progress Thru 2023	Planned	Progress	% To Plan
Budget Expenditures ($)	287,513	287,513	100%
Total Energy Savings, Annual (MMBtu eq.)	-	-	-
Electricity Savings, Annual (MWh)	-	-	-
Natural Gas Savings, Annual (MMBtu)	-	-	-
Other Fuel Savings, Annual (MMBtu)	-	-	-
Renewable Energy Generation, Annual (MWh)	123	123	100%
Renewable Energy Capacity (MW)	-	-	-
Leveraged Funds ($)	82,288	82,288	100%

Performance Summary

Expected Timeline Of Funding Deployment Committed (COM), Expended (EXP)

Type	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
COM		Start								End					
EXP		Start												End	

Cumulative Plan vs. Progress Thru 2023	Planned	Progress	% To Plan
Budget Expenditures ($)	10,940,029	8,688,140	79%
Total Energy Savings, Annual (MMBtu eq.)	-	-	-
Electricity Savings, Annual (MWh)	-	-	-
Natural Gas Savings, Annual (MMBtu)	-	-	-
Other Fuel Savings, Annual (MMBtu)	-	-	-
Renewable Energy Generation, Annual (MWh)	-	-	-
Renewable Energy Capacity (MW)	-	-	-
Leveraged Funds ($)	18,712,555	4,732,326	25%

Summary of Performance and Future Plans

Previously funded research and development (R&D) projects continued to make progress in 2023. Primary new activities in 2023 included funding school bus fleet electrification planning studies and policy studies and releasing a R&D solicitation focused on vehicle-grid interaction and medium- and heavy-duty vehicles. Awards for the R&D solicitation will be made in 2024. Expenditures will accelerate in 2024 as fleet electrification plans are completed and R&D projects get underway.

Activities Summary

Activity	Activity #
Solicit and Support New Technology and Business Model Demonstration Projects: • Fund one project selected through the Electric Truck and Bus Challenge, which targets projects that will address the operational barriers to medium- and heavy-duty EV deployment, especially regarding the costs associated with charging. • Fund demonstrations of emerging medium- and heavy-duty EV technologies in new market segments, including for non-road vehicles (such as trailer refrigeration units and construction equipment) and FCEVs. Demonstrations will focus on both the vehicle and charging technologies and innovative approaches to charging (such as managed charging and vehicle-to-grid charging). • Rigorously collect data from demonstrations and use it to help design future programs and facilitate replication of successful demonstrations. Participants engaged include auto manufacturers, charging station manufacturers, fleet operators, technology developers, academic researchers, utilities, disadvantaged communities and their representatives, and the financial sector.	1
Educate and Support Fleet Operators' Transportation Electrification Efforts: • Gather information from industry on innovative business models for charging, purchasing, and financing medium- and heavy-duty EVs. Work with experts to evaluate responses. • Based on information gathered from industry and data collected through demonstration projects, develop best practice guides, case studies, and "how to" materials for fleet operators that introduce the options and offer guidance on how to start electrifying fleets. • Offer technical assistance to medium- and heavy-duty fleets based on the findings described in the best practice guides, with a focus on school bus operators. Participants include auto manufacturers, charging station manufacturers, operators, and installers, financial institutions, fleet operators, consultants, and other state agencies	2
Support State and Local EV Policy Development and Implementation: • Develop an EV market development plan for New York State that describes EV policies and programs needed to meet the State's aggressive EV adoption goals. • Develop a plan for school bus electrification that identifies how to remove barriers to school bus electrification • Collaborate with DPS and utilities to design and demonstrate technologies and policies that encourage off-peak charging and/or managed charging. • Collaborate with DPS to identify and implement options for rate design and programs that address business model challenges associated with EV charging, specifically related to demand charges for higher speed charging and the integration of EVs and DERs. • Work with utilities and DPS to quantify the benefits utilities and ratepayers may derive from medium- and heavy-duty EV adoption. • Work with municipalities and other stakeholders to encourage the adoption of EV-friendly permitting, zoning, and building codes. Participants include utilities, other State and federal agencies and other states, municipalities, consultants, and NGOs and advocates.	3

Milestones Summary

Milestone	Planned	Explanation of Progress	Status	Completed	Activity #
Issue award for Electric Truck and Bus Challenge.	2022	Awards for the Electric Truck and Bus Challenge were announced in November 2022.	Complete	2022	1
Publish best practice guides for fleet operators	2023	NYSERDA published its Electric School Bus Guidebook in September 2023.	Complete	2023	2
Complete school bus electrification roadmap	2022	NYSERDA published its Electric School Bus Roadmap in September 2023	Complete	2023	3
Complete EV market development plan	2023	NYSERDA is finalizing the Zero Emission Vehicle market development plan, which will be published in 2024.	Delayed		3

Outputs and Outcomes Summary

Indicators	2021 Target	2022 Target	Progress as of 12/31/2023	2023 Target	2024 Target	2025 Target	Activity #
Output: Product development and demonstration companies supported (baseline = 0).	20	23	26	26	-	-	1
Output: Product development and demonstration projects initiated (baseline = 0).	25	30	27	35	-	-	1
Outcome: Replications from demonstration projects (baseline = 0).	2	6	N/A	6	8	15	1
Outcome: Case studies and guides published (baseline = 0).	0	1	2	4	6	8	2
Outcome: NYS school bus operators purchasing electric buses (baseline = 5).	5	15	45	50	150	300	2
Output: Policy studies completed (baseline = 0).	5	8	14	11	-	-	3

Performance Summary

Expected Timeline Of Funding Deployment Committed (COM), Expended (EXP)

Type	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
COM	Start									End					
EXP			Start										End		

Cumulative Plan vs. Progress Thru 2023	Planned	Progress	% To Plan
Budget Expenditures ($)	6,918,472	7,446,068	108%
Total Energy Savings, Annual (MMBtu eq.)	-	-	-
Electricity Savings, Annual (MWh)	-	-	-
Natural Gas Savings, Annual (MMBtu)	-	-	-
Other Fuel Savings, Annual (MMBtu)	-	-	-
Renewable Energy Generation, Annual (MWh)	-	-	-
Renewable Energy Capacity (MW)	-	-	-
Leveraged Funds ($)	108,441,351	104,037,465	96%

Summary of Performance and Future Plans

Previously funded transit R&D projects continue to perform well. Changes to the program were approved in 2023, and in 2024 NYSERDA will launch the Clean Mobility Program, an initiative to support demonstration projects to expand transit and clean mobility options at the community level, led by the target communities.

Activities Summary

Activity	Activity #
Support Needs Assessments by Communities and Transit Operators: • Fund planning work by transit operators and communities (including community-based organizations (CBOs), municipalities, employers, and planning organizations) to identify community-driven priority transportation needs, such as making mobility options faster and more equitable, accessible, and sustainable. • Support communities in identifying private sector partners that can provide the identified services through information-sharing and facilitated relationship-building. • Provide informational resources (e.g., best practice documents, checklists, contacts) to communities undertaking planning projects Participants engaged with this activity include municipalities, community groups, NYS public transit agencies, MPOs, and employers.	1
Solicit and Support New Clean Mobility Demonstration Opportunities: • Fund demonstration projects of collaborative community-based mobility solutions that expand clean transportation opportunities through multi-stakeholder partnerships and increase access to jobs, education, and important services. Projects should be based on community engagement and collaborative planning. These demonstration projects will test new and underutilized technologies and strategies that help NYS transit operators, local governments, employers and community members implement clean mobility options. Examples include new demonstration-ready electrified first and last-mile services across various modes including bike, scooter, micro-transit, and other shared mobility options that are technologically mature and impactful. • Support business model planning aimed at improving the sustainability and self-sufficiency of the above-described demonstration projects. • Develop case studies and best practice materials to facilitate replication of successful demonstrations, including how to leverage existing clean transportation strategic plans, other funding sources, and data-sharing practices. • Fund additional research and policy work to identify solutions to barriers identified in the needs assessments and demonstrations to facilitate the adoption of promising solutions. Participants engaged with this activity include municipalities, NYS public transit operators, employers, community-based organizations, mobility product vendors, third-party solution providers, transportation and urban planners and researchers, federal, State, local, and regional transportation agencies, and utilities.	2

Milestones Summary

Milestone	Planned	Explanation of Progress	Status	Completed	Activity #
Issue awards from solicitation.	2022	NYSERDA issued awards from PON 5109 in Q4 2022.	Complete	2022	1
Complete advisory project with transit operator.	2022	NYSERDA completed advisory projects with Metropolitan Transit Authority and five other transit operators on topics related to bus electrification in 2022.	Complete	2022	2

Outputs and Outcomes Summary

Indicators	2021 Target	2022 Target	Progress as of 12/31/2023	2023 Target	2024 Target	2025 Target	Activity #
Output: Needs assessment projects completed (baseline = 0).			0	-	10	20	1
Outcome: Demonstration proposals following successful completion of a needs assessment (baseline = 0).		-	0	-	8	16	1
Output: Number of companies supported (baseline = 0).			0	-	2	4	2
Output: Number of demonstration projects completed (baseline = 0).			0	-	-	-	2
Output: Number of projects initiated (baseline = 0).			0	-	5	8	2

Performance Summary

Expected Timeline Of Funding Deployment Committed (COM), Expended (EXP)

Type	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
COM		Start								End					
EXP		Start												End	

TOP 15 Energy Impact Initiative

Cumulative Plan vs. Progress Thru 2023	Planned	Progress	% To Plan
Budget Expenditures ($)	15,652,900	16,155,163	103%
Total Energy Savings, Annual (MMBtu eq.)	-	-	-
Electricity Savings, Annual (MWh)	-	-	-
Natural Gas Savings, Annual (MMBtu)	-	-	-
Other Fuel Savings, Annual (MMBtu)	-	-	-
Renewable Energy Generation, Annual (MWh)	-	-	-
Renewable Energy Capacity (MW)	-	-	-
Leveraged Funds ($)	-	-	-

Summary of Performance and Future Plans

Core work for code advancement and training continues to move forward. Proposals for the next State code update are complete and have been transmitted. Rulemaking for energy code cost effectiveness is also underway and completion is planned for this year to support the code update. Pilot work to support code compliance has shown initial success. Initiative plan and progress to date consists of indirect benefits only, and through the initial study completed, indirect benefits measured exceeded plan for the period evaluated. This study shows that NYSERDA's long-standing engagement in this space is responsible for more than 3.38 TBtu of total energy savings, of which approximately 1.66 TBtu's is attributed to CEF-specific efforts.

Activities Summary

Activity	Activity #
Develop, deploy, and support training, tools and resources to increase code and policy compliance and support authorities having jurisdiction with their enforcement duties.	1
Develop stretch energy codes and uniform codes revisions to promote efficiency, flexibility and decarbonization. Develop and advance other policies and regulations to promote similar outcomes.	2
Use pilots to test, refine, and scale new approaches to code and policy development, advancement, enactment, compliance and enforcement.	3
Support the adoption and enactment of State and local policies to promote efficiency, flexibility and decarbonization in buildings.	4

Performance Summary

Expected Timeline Of Funding Deployment Committed (COM), Expended (EXP)

Type	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
COM			Start							End					
EXP			Start										End		

Cumulative Plan vs. Progress Thru 2023	Planned	Progress	% To Plan
Budget Expenditures ($)	490,000	161,838	33%
Total Energy Savings, Annual (MMBtu eq.)	-	-	-
Electricity Savings, Annual (MWh)	-	-	-
Natural Gas Savings, Annual (MMBtu)	-	-	-
Other Fuel Savings, Annual (MMBtu)	-	-	-
Renewable Energy Generation, Annual (MWh)	-	-	-
Renewable Energy Capacity (MW)	-	-	-
Leveraged Funds ($)	390,000	-	0%

Summary of Performance and Future Plans
Following the approval of Clean Energy Fund resources in Q4 2022, NYSERDA launched two new program opportunity notices in 2023. In May PON 5322 "Clean Hydrogen Innovation Co-Funding for Federal Funding Opportunities" announced up to $10 million in clean hydrogen co-funding available for New York-based clean hydrogen research, development, and demonstration (RD&D) projects for which federal funding is also being sought and actively applied for. In August PON 5500 "Clean Hydrogen Innovation Funding for Research, Development, and Demonstration" announced up to $13.8 million to advance clean hydrogen research, development, and demonstration (RD&D) projects that address the challenge of replacing fossil fuel usage in hard-to-electrify sectors. Proposals were notified in Q4 2023 and are anticipated to be announced following a completion of the contracting process in Q2 2024. Once projects are under contract, NYSERDA anticipates expenditures and leveraged funds will reach forecasted levels, though delayed from original plan.

Activities Summary

Activity	Activity #
Issue competitive solicitation for R&D projects using hydrogen technologies to provide resilience solutions for grid stability and emergency responses, including but not limited to: • Hydrogen storage technology such as salt caverns, underwater, limited footprint at urban locations. • Demonstrations of hydrogen-based systems to provide black start provision, electricity and heat supply to microgrids and grid firming.	1

Milestones Summary

Milestone	Planned	Explanation of Progress	Status	Completed	Activity #
Issue awards from hydrogen solicitation for R and D projects on hydrogen resiliency solutions	2023	PON5322 was issued in 2023 but no awards were made in the Climate Resilience focus area. NYSERDA plans to issue 2 additional PON's in 2024.	Delayed	2024	1

Outputs and Outcomes Summary

Indicators	2022 Target	Progress as of 12/31/2023	2023 Target	2024 Target	2025 Target	2026 Target	Activity #
Output: Counts of all resiliency related projects funded (baseline = 0).		N/A		3			1
Output: Counts of resiliency related demonstration projects initiated and completed (baseline = 0).		N/A					1
Output: Number of companies supported (baseline = 0).		N/A		2	3		1
Outcome: Increase in # of replication of resiliency related demonstrations (baseline = 0).		N/A				1	1
Outcome: Increase in # of resiliency related patents filed (baseline = 0).		N/A				1	1

Milestones Summary

Milestone	Planned	Explanation of Progress	Status	Completed	Activity #
Issue awards for training solicitations.	2021	Two rounds of training have been contracted since the new code was launched in 2020.	Complete	2021	1
Submit updated or advanced provisions to the regulatory process.	2023	Proposals for Energy Code and Uniform Code were updated and shared with the Department of State for the code rulemaking, but the rulemaking will not commence until 2024.	Complete	2023	2
Issue awards for pilots.	2022	16 communities were awarded contracts to participate in pilots.	Complete	2022	3
Issue awards for pilots.	2023	11 unique communities were issued awards across two pilots. There are 20 total pilots underway.	Complete	2023	3
Policies or codes adopted at the state or local level with support from NYSERDA.	2021	The Codes & Standards Act of 2022 was passed and signed into law in July 2022. In addition, 43 communities have adopted NYStretch 202 as their base energy code.	Complete	2022	4
Policies or codes adopted at the state or local level with support from NYSERDA.	2022	The Codes & Standards Act of 2022 was passed and signed into law in July 2022. In addition, 43 communities have adopted NYStretch 202 as their base energy code.	Complete	2022	4
Policies or codes adopted at the state or local level with support from NYSERDA.	2023	NYS adopted the All-Electric Buildings Act in 2023.	Complete	2023	4

Outputs and Outcomes Summary

Indicators	2021 Target	2022 Target	Progress as of 12/31/2023	2023 Target	2024 Target	2025 Target	Activity #
Output: Training attendance, number of seats filled (baseline = 2,041).	4,000	8,000	77,012 (seats filled)	12,000	16,000	20,000	1
Outcome: Increased percentage of buildings in compliance in areas of trainings/resource deployment compared to Business as Usual under current code (baseline = 0).	5%	5%	8%–16% increase depending on sector and construction activity since 2015	5%	5%	5%	1
Output: Number of regulations or policies developed or updated to promote efficiency, flexibility, and decarbonization (baseline = 0).	-	2	3	2	2	4	2
Output: Number of communities adopting pilot approaches (baseline = TBD).	-	5	11 communities in "Advancing Code Compliance" pilots, 9 of these 11 are also piloting "Third Party Enforcement Support." 20 total pilots underway.	15	25	35	3
Output: Number of policies or codes adopted at the state or local level (baseline = 0).	20	25	42	26	27	28	4
Outcome: Codes and policies are adopted and enacted faster than they would without NYSERDA's intervention, as reported by industry experts (baseline = qualitative).	Yes	Yes	Yes	Yes	Yes	Yes	4

Performance Summary

Expected Timeline Of Funding Deployment Committed (COM), Expended (EXP)

Type	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
COM				Start						End					
EXP				Start								End			

Summary of Performance and Future Plans
The pace of budget commitments and expenditures is trending favorable to plan. Activities are focused on tools and resources that support customer-specific value propositions for building decarbonization.

Cumulative Plan vs. Progress Thru 2023	Planned	Progress	% To Plan
Budget Expenditures ($)	2,205,370	2,433,162	110%
Total Energy Savings, Annual (MMBtu eq.)	-	-	-
Electricity Savings, Annual (MWh)	-	-	-
Natural Gas Savings, Annual (MMBtu)	-	-	-
Other Fuel Savings, Annual (MMBtu)	-	-	-
Renewable Energy Generation, Annual (MWh)	-	-	-
Renewable Energy Capacity (MW)	-	-	-
Leveraged Funds ($)	-	-	-

Activities Summary

Activity	Activity #
• Develop and deploy web-based, data-driven tools to deliver increased value for building decarbonization solutions. • Develop and deploy customer targeting tools for use by vendors to strengthen their ability to identify, cultivate, and acquire new customers. • Develop and deploy value proposition calculators that support both customers and vendors in their efforts to articulate the value of building decarbonization investments. • Support pilots for asset data matching and DER data platform feasibility. • Co-host hackathons that bring together web-based tool development firms and data analytics providers to develop web-based tools that address barriers to customer adoption of building decarbonization. • Develop data platforms and data assets that support customer adoption of building decarbonization solutions.	1

Milestones Summary

Milestone	Planned	Explanation of Progress	Status	Completed	Activity #
Host data hackathon that leverages building asset data to identify decarbonization strategies for a variety of building and customer types.	2021	NYSERDA supported a data hackathon in 2021 focused on tenant energy consumption data, in partnership with real estate orgs and BEex.	Complete	2021	1
Host data hackathon that leverages building asset data to identify decarbonization strategies for a variety of building and customer types.	2022	NYSERDA supported two data hackathons in 2022; one focused on building decarbonization solutions and the other focused on leveraging RTEM data to identify energy management opportunities.	Complete	2022	1

Outputs and Outcomes Summary

Indicators	2021 Target	2022 Target	Progress as of 12/31/2023	2023 Target	2024 Target	2025 Target	Activity #
Output: number of awards issued from hackathons (baseline = 0).	6	9	24	-	-	-	1
Output: number of customer targeting tools developed for vendors (baseline = 0).	2	-	2	-	-	-	1
Output: number of participants in data hackathons (baseline = 0).	175	300	430	-	-	-	1
Output: number of value proposition calculators developed for customers and vendors (baseline = 0).	-	-	2	1	-	-	1
Outcome: web-based tool and platform developers and solution providers serving NY energy markets without support from NYSERDA (baseline = 0).	-	-	N/A	12	20	-	1

Performance Summary

Expected Timeline Of Funding Deployment Committed (COM), Expended (EXP)

Type	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
COM		Start								End					
EXP				Start										End	

TOP 15 Energy Impact Initiative

Cumulative Plan vs. Progress Thru 2023	Planned	Progress	% To Plan
Budget Expenditures ($)	6,927,986	4,040,333	58%
Total Energy Savings, Annual (MMBtu eq.)	-	-	-
Electricity Savings, Annual (MWh)	-	-	-
Natural Gas Savings, Annual (MMBtu)	-	-	-
Other Fuel Savings, Annual (MMBtu)	-	-	-
Renewable Energy Generation, Annual (MWh)	-	-	-
Renewable Energy Capacity (MW)	-	-	-
Leveraged Funds ($)	-	-	-

Summary of Performance and Future Plans

NYSERDA successfully implemented 21 appliance standards for New York State in June 2023. Education, awareness, and compliance activities were stood up this year, and the market has been responsive to the new rules. Given timing conflicts early in 2023, NYSERDA expenditures for 2023 did not reach the original plan. This initiative plan consists of only indirect benefits, which will be reported in the future as measured by evaluation studies.

Activities Summary

Activity	Activity #
• Provide technical, market, and stakeholder analysis and support for potential State and federal appliance and product standards, voluntary product standards, and international standards. • Work closely with other regulatory authorities and stakeholders at the state, national, and international levels to share findings, collaborate on strategies, and ensure compliance. • Develop and validate technical requirements and testing protocols for proposed standards. • Partner with market actors, trade associations, stakeholders, testing bodies, technical experts and other regulatory authorities to determine the feasibility of standards. • Leverage and build on research and actions from other states and stakeholders to inform these standards.	1
Regulatory and Compliance. Use the regulatory process to advance and promulgate standards. Develop and drive education and engagement to increase compliance. Deploy tools to increase and validate compliance. Support enforcement authorities to improve compliance.	2
Market Readiness. Work with market actors to prepare the market for future codes and standards. Collect information on technology advancement, market availability, and product stocking to support standards. Provide financial support to increase the stocking and sales of key items. Partner nationally and internationally to advance underutilized products and prepare them for the market.	3

Milestones Summary

Milestone	Planned	Explanation of Progress	Status	Completed	Activity #
Once legislation is in effect, propose state-level appliance standards.	2022	NYSERDA proposed 21 state level appliance standards and promulgated regulations for them before the end of 2022. Those appliance standards go into effect in June 2023.	Complete	2022	1
Once legislation is in effect, propose state-level appliance standards.	2023	Legislation has been passed and 21 standards were adopted in late 2022 and went into effect on June 26, 2023	Complete	2023	1
Issue solicitation to support compliance with product standards.	2022	Issued solicitation and contracted for appliance standards compliance.	Complete	2022	2
Launch market readiness offering in conjunction with other states/entities.	2023	NYSERDA launched the ENERGY STAR Retail Products Platform (ESRPP) w/ 3 retailers, joining with several other states and utilities.	Complete	2023	3

Outputs and Outcomes Summary

Indicators	2022 Target	Progress as of 12/31/2023	2023 Target	2024 Target	2025 Target	2026 Target	Activity #
Output: Number of standards in effect in NYS (baseline = 0).	-	21	21	20	20	20	1
Outcome: Increased sales and stocking of covered products (baseline = TBD).	-	N/A	TBD	TBD	TBD		1
Output: Number of products covered by compliance regime (baseline = 0).	21	21	21	20	20	20	2
Outcome: Increased compliance rate (baseline = TBD).	-	N/A	TBD	TBD	TBD		2
Output: Sales of covered products in retail partners (baseline = TBD).	-	N/A	TBD	TBD	TBD		3

Performance Summary

Expected Timeline Of Funding Deployment Committed (COM), Expended (EXP)

Type	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
COM	Start								End						
EXP	Start									End					

Cumulative Plan vs. Progress Thru 2023	Planned	Progress	% To Plan
Budget Expenditures ($)	5,846,421	5,785,006	99%
Total Energy Savings, Annual (MMBtu eq.)	-	-	-
Electricity Savings, Annual (MWh)	-	-	-
Natural Gas Savings, Annual (MMBtu)	-	-	-
Other Fuel Savings, Annual (MMBtu)	-	-	-
Renewable Energy Generation, Annual (MWh)	-	-	-
Renewable Energy Capacity (MW)	-	-	-
Leveraged Funds ($)	19,483,203	9,771,221	50%

Summary of Performance and Future Plans

In 2023 the effort was refocused and rebranded from REV Conenct to become NYGridConnect. NY Grid CONNECT is advancing innovation across the State and globally to build a low-carbon, reliable, and resilient grid. The collaborative platform unites a diverse group of stakeholders to define challenges and develop comprehensive solutions targeted to meet the State's electric grid priorities emerging from the Climate Act Scoping Plan. NY Grid CONNECT will focus innovation around five priorities: stability, resilence, flexibility, storage as a grid asset, and grid enhancing technologies.

Activities Summary

Activity	Activity #
Advance innovation at New York State utilities by engaging utility company contacts and industry experts in strategic planning workshops/sessions, working with utility company contacts to identify areas of need or interest, publicizing these need statements to market partners to obtain proposed solutions, and facilitating ongoing engagement between utilities and promising solution providers up to and including launching new pilots.	1
Provide funding to support market tests that require additional testing before moving into the market or into utility partnership, subsequent to proposal deemed as successful via broader NYSERDA-issued solicitation.	2

Milestones Summary

Milestone	Planned	Explanation of Progress	Status	Completed	Activity #
Host innovation sprints to publicize utility needs and identify market partners in areas of interest to the state and to utilities.	2021	Hosted Grid Edge Flexibility sprint in Feb 2021 and received record number of submissions.	Complete	2021	1
Host workshops with utility company contacts and industry experts on interest areas to inform a possible future sprint.	2021	Workshops were hosted on Accelerating the Gas Transition in Sept 2021 that included utility contacts and industry experts to identify areas where a future sprint could address the "future of gas."	Complete	2021	1
Develop innovation plan for activity beyond 2022	2022	A plan was developed for a centralized framework approach for a future evolution for REV Connect.	Complete	2022	1
Initial in-field market tests enter the market.	2021	The first tests entered the market in April 2021.	Complete	2021	2
Remainder of in-field market tests enter the market.	2022	Final market tests were delayed during 2023 and no new ones entered the market this year, but all remaining are expected to be in market by Q1 2024.	Delayed		2

Outputs and Outcomes Summary

Indicators	2021 Target	2022 Target	Progress as of 12/31/2023	2023 Target	2024 Target	2025 Target	Activity #
Output: Number of market solution provider submissions to utility identified areas of interest (baseline = 122).	-	-	540	-	600	-	1
Output: Number of market solution providers participating in webinars (baseline = 241).	-	-	1343	-	1,200	-	1
Output: Number of utility/solution provider workshops/sprints (baseline = 2).	-	-	20	-	22	-	1
Outcome: Number of innovative, value-producing utility partnerships or demonstration projects in place (baseline = 8).	-	-	14	-	10	-	1
Outcome: Number of new grid modernization technologies and business models (baseline = 0).	-	-	2	-	3	-	1
Output: Number of market solution providers applying to NYSERDA market test funding opportunities (baseline = 0).	57	60	171	-	-	-	2
Outcome: Number of NYSERDA-supported market tests (baseline = 0).	2	2	6	4	-	-	2

Performance Summary

Expected Timeline Of Funding Deployment Committed (COM), Expended (EXP)

Type	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
COM			Start					End							
EXP			Start							End					

Cumulative Plan vs. Progress Thru 2023	Planned	Progress	% To Plan
Budget Expenditures ($)	656,049	806,688	123%
Total Energy Savings, Annual (MMBtu eq.)	1,125	1,125	100%
Electricity Savings, Annual (MWh)	162	162	100%
Natural Gas Savings, Annual (MMBtu)	-	-	-
Other Fuel Savings, Annual (MMBtu)	572	572	100%
Renewable Energy Generation, Annual (MWh)	-	-	-
Renewable Energy Capacity (MW)	-	-	-
Leveraged Funds ($)	52,076	52,076	100%

Summary of Performance and Future Plans
There are two remaining demonstration projects progressing ahead. One project is scheduled to complete measurement and verification by end of 2024.

Activities Summary

Activity	Activity #
Collect, analyze, and verify demonstration site data to support the business case for the technologies and share the information with the market. Perform targeted outreach of successful business case scenarios to farms suitable for implementing the demonstrated technology.	1

There are currently no milestones to report.

Outputs and Outcomes Summary

Indicators	2021 Target	2022 Target	Progress as of 12/31/2023	2023 Target	2024 Target	2025 Target	Activity #
Output: Number of case studies developed and disseminated (baseline = 0).	2	3	2	-	-	-	1
Output: Number of farm sites hosting demonstration projects (baseline = 2).	2	3	3	-	-	-	1
Output: Number of open houses hosted (baseline = 0).	4	6	5	-	-	-	1
Outcome: Number of farms knowledgeable of energy efficiency opportunities provided by underused or emerging technologies (baseline = 82).	87	100	82	-	-	-	1

Agriculture Transition [Inactive]

Commercial/Industrial/Agriculture Focus Area

Cumulative Plan vs. Progress Thru 2023	Planned	Progress	% To Plan
Budget Expenditures ($)	3,598,821	3,598,821	100%
Total Energy Savings, Annual (MMBtu eq.)	79,635	79,637	100%
Electricity Savings, Annual (MWh)	14,407	14,407	100%
Natural Gas Savings, Annual (MMBtu)	18,503	18,503	100%
Other Fuel Savings, Annual (MMBtu)	15,655	15,654	100%
Renewable Energy Generation, Annual (MWh)	1,137	1,137	100%
Renewable Energy Capacity (MW)	-	-	-
Leveraged Funds ($)	15,390,233	15,390,233	100%

Commercial Transition [Inactive]

Commercial/Industrial/Agriculture Focus Area

Cumulative Plan vs. Progress Thru 2023	Planned	Progress	% To Plan
Budget Expenditures ($)	11,472,799	11,836,764	103%
Total Energy Savings, Annual (MMBtu eq.)	647,934	856,704	132%
Electricity Savings, Annual (MWh)	84,969	114,657	135%
Natural Gas Savings, Annual (MMBtu)	163,492	217,699	133%
Other Fuel Savings, Annual (MMBtu)	194,527	247,796	127%
Renewable Energy Generation, Annual (MWh)	-	-	-
Renewable Energy Capacity (MW)	-	-	-
Leveraged Funds ($)	34,811,181	43,667,820	125%

Performance Summary

Expected Timeline Of Funding Deployment Committed (COM), Expended (EXP)

Type	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
COM		Start								End					
EXP		Start												End	

TOP 15 Energy Impact Initiative

Cumulative Plan vs. Progress Thru 2023	Planned	Progress	% To Plan
Budget Expenditures ($)	16,187,301	16,068,849	99%
Total Energy Savings, Annual (MMBtu eq.)	2,226,406	1,521,376	68%
Electricity Savings, Annual (MWh)	176,759	127,872	72%
Natural Gas Savings, Annual (MMBtu)	1,362,471	942,961	69%
Other Fuel Savings, Annual (MMBtu)	260,835	142,115	54%
Renewable Energy Generation, Annual (MWh)	-	-	-
Renewable Energy Capacity (MW)	-	-	-
Leveraged Funds ($)	97,593,939	28,268,169	29%

Summary of Performance and Future Plans

Strategic Energy Management market response continues to trend in the positive direction with sustained program interest and participation. The methodology behind savings assumptions for projects in this program was updated in 2023 following evaluation study analysis, requiring a reduction to the reported amount and resulting in the current lag to plan. With slow participation of On Site Energy Manager continuing, NYSERDA made a modification to the program in Q4 2023 and will carefully assess the results over the first two quarters of 2024. An evaluation study for Energy Management Practices will be complete in Q1 2024. Funding for this program was reduced in the November 2023 filing as part of a broader optimization strategy, shifted to maximize CEF impact.

Activities Summary

Activity	Activity #
Conduct outreach to educate industrial companies on the value of On-site Energy Manager and promote program participation.	1
• Lead facilities through Strategic Energy Management training and implementation of Strategic Energy Management activities • Develop and disseminate templates and resources for Strategic Energy Management.	2

There are currently no milestones to report.

Outputs and Outcomes Summary

Indicators	2021 Target	2022 Target	Progress as of 12/31/2023	2023 Target	2024 Target	2025 Target	Activity #
Output: Number of case studies, testimonials developed, webinars or knowledge transfer sessions conducted (baseline = 0).	15	23	23	27	35	37	1
Output: Number of energy efficiency projects identified and completed during program engagement (baseline = 0).	210	215	430	220	225	230	1
Output: Number of energy management plans with energy reduction target developed (baseline = 0).	18	32	29	36	40	44	1
Outcome: Number of energy managers hired/retained within program facilities (baseline = 0).	5	7	3	11	15	20	1
Outcome: Number of industrial plants (beyond program participants) adopting on-site Energy Manager role (baseline = 110 or 15% of addressable market).	218	230	184	240	250	260	1
Outcome: Number of projects implemented involving more complex CapEx and process improvements as a result of this strategy (baseline = 0).	44	49	44	54	58	60	1
Output: Number of commercial participants (baseline = 0 participants).	-	10	23	20	30	40	2
Output: Number of industrial participants (baseline = 0 participants).	66	100	97	135	170	205	2
Outcome: Number of facilities that have adopted a system for monitoring, tracking, and making decisions based on their energy use to assist with their SEM activities as a result of this strategy (baseline = 1,886 participants).	-	-	1,097	-	-	1,996	2
Outcome: Number of industrial facilities (beyond program participants) that have adopted SEM (baseline = 0 participants).	-	-	1	-	-	30	2

Performance Summary

Expected Timeline Of Funding Deployment Committed (COM), Expended (EXP)

Type	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
COM	Start									End					
EXP	Start														End

TOP 15 Energy Impact Initiative

Cumulative Plan vs. Progress Thru 2023	Planned	Progress	% To Plan
Budget Expenditures ($)	50,070,566	55,790,792	111%
Total Energy Savings, Annual (MMBtu eq.)	1,893,874	594,037	31%
Electricity Savings, Annual (MWh)	403,550	151,844	38%
Natural Gas Savings, Annual (MMBtu)	460,898	75,520	16%
Other Fuel Savings, Annual (MMBtu)	56,062	425	1%
Renewable Energy Generation, Annual (MWh)	-	-	-
Renewable Energy Capacity (MW)	-	-	-
Leveraged Funds ($)	491,610,114	365,017,752	74%

Summary of Performance and Future Plans

The Commercial sector strategy for Real Time Energy Management (RTEM) is on track with expenditures and progress of output/outcome metrics against expected targets is mostly positive and promising. Most of the initiative's funding has been committed to projects and data collection efforts are ongoing for all projects. A verified gross savings analysis 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. Additional evaluation will begin soon to verify direct savings over a longer time period and to quantify indirect savings. These evaluation efforts will better and more completely inform whether the strategy is meeting energy savings expectations.

Activities Summary

Activity	Activity #
Apply the knowledge and experience gained from initial installations to replicate success and build market confidence in EM investment. • Publish case studies, technical guidance and datasets that demonstrate effectiveness of EM systems and services. • Provide open enrollment incentives to support EM systems and services for small to medium businesses. • Incentive pilots and demonstration projects that provide greater insight into EM, leveraging these projects to publish case studies • Establish data warehousing to collect project and system level EM performance metrics. Analyze trends in identified energy efficiency opportunities, persistence, and common practices to share with the marketplace to spur replication.	1
Stimulate the market to invest in EM for tenant spaces and enhance the success rate of these installations: • Create qualified vendor list for vendors that have capabilities to integrate multiple building systems and support tenant energy management. • Provide open enrollment incentives for EM systems and services for qualified vendors that serve commercial building owners and tenants. • Provide independent expert EM advisory services and training to building owners, management firms, operators and tenants.	2
Stimulate the market to invest in high efficiency Energy Recovery Ventilators (ERV) for commercial building retrofits and build customer awareness of and confidence in enhanced ventilation • Create qualified vendor list of manufacturers that meet standards of high efficiency energy recovery ventilation systems • Provide open enrollment funding to reduce the upfront design and engineering costs for ERV retrofits in commercial buildings • Produce design templates and provide independent expert advisory services and training to design engineers, building owners, management firms, and operators	3

Milestones Summary

Milestone	Planned	Explanation of Progress	Status	Completed	Activity #
Create open enrollment incentives for EM systems and services that support RTEM projects in small to medium businesses.	2021	NYSERDA launched the "RTEM for Small Business" spinoff program in January 2021, providing distinct cost-share structures and project scope requirements aimed at supporting small to medium business sites receive more effective EM services.	Complete	2021	1
Make publicly available anonymized RTEM project data to support market confidence in performance of EM systems and services.	2022	NYSERDA sponsored the "RTEM Data Hackathon" on July 2022, a public competition with over 400 participants from 27 countries, which gave $55,000 in awards for the development and demonstration of novel & unique EM strategies using real-time data.	Complete	2022	1
Create a qualified vendor list for vendors that have capabilities to integrate building systems and meet advanced EM system and service capability and performance standards.	2021	NYSERDA released the RTEM+Tenants Qualified Vendor List in March 2021, which provides the market a clear list of vendors capable of delivering advanced EM systems and service capabilities to both building owners & commercial tenants.	Complete	2021	2
Create open enrollment incentives for EM systems and services that extend into tenant spaces.	2021	NYSERDA launched the RTEM+Tenants program in April 2021, which provides cost-share incentives for holistic building system integration, and engages tenants in EM strategies and outcomes.	Complete	2021	2
Create a qualified vendor list for ERV manufacturers that meet high efficiency standards and will invest in business development in NYS	2023	In Summer 2023, NYSERDA launched the Heat Recovery Solutions vendor qualification program under RFQL 5217, to identify manufacturers of technologies that are critical to building decarbonization in New York State.	Complete	2023	3
Create open enrollment incentives for design work on ERV retrofits	2023	In Fall 2023, NYSERDA launched the Heat Recovery Program under PON 5547, which provides cost-sharing support for project assessment and design development to integrate heat recovery energy conservation measures within existing building retrofits.	Complete	2023	3

Outputs and Outcomes Summary

Indicators	2021 Target	2022 Target	Progress as of 12/31/2023	2023 Target	2024 Target	2025 Target	Activity #
Output: Number of comprehensive building specific data sets submitted to NYSERDA (baseline = 0).	200	400	650	-	-	-	1
Output: number of pilots complete (baseline = 0).	-	10	12	-	-	-	1
Output: number of qualified providers on NYSERDA list (baseline = 0).	90	100	180	120	-	-	1
Output: number of small to medium business RTEM projects supported by NYSERDA (baseline = 0).	-	10	60	80	200	-	1
Outcome: Awareness of EM among building owners/managers (baseline = 0).	-	40%	40%	-	-	-	1
Outcome: Percent of EM projects that institute an energy efficiency goal (baseline = 0).	-	65%	65%	-	-	-	1
Outcome: Persistence of EM service contracts (i.e., how many customers extend their subscription with an RTEM provider beyond 5 years) (baseline = 0).	-	60%	65%	-	-	-	1
Outcome: Size of market as indicated by vendor sales (baseline = $10M).	-	$40M	N/A	-	-	-	1
Output: # of qualified vendors with capabilities of providing EM services for tenant spaces (baseline = 0).	5	10	19	15	25	-	2
Output: number of commercial real estate portfolio owners deploying RTEM + Tenants projects within their buildings (baseline = 0).	1	3	4	7	15	-	2
Output: total square feet (millions) of RTEM + Tenants project supported by NYSERDA (baseline = 0).	1	5	14	15	30	-	2
Outcome: % of commercial portfolio owners who invest in EM systems and services for Local Law compliance (baseline = 0).	-	-	TBD	5%	15%	25%	2
Outcome: % of RTEM + Tenants projects that monitor at least 75% of a building's tenant energy consumption (baseline = 0).	-	-	100%	10%	15%	25%	2
Output: # of qualified vendors active in NYS selling high efficiency ERV solutions (baseline = 0).			6	5	10	12	3
Output: Number of commercial buildings participating in ERV initiative (baseline = 0).			1	10	30	50	3
Outcome: % of commercial building square feet that can replicate successful ERV retrofit approaches by utilizing design templates and related program resources (baseline = 0%).			N/A				3
Outcome: Market share of high efficiency ERV systems in NYS (baseline = TBD).			N/A				3

Performance Summary

Expected Timeline Of Funding Deployment Committed (COM), Expended (EXP)

Type	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
COM															
EXP		Start													End

Cumulative Plan vs. Progress Thru 2023	Planned	Progress	% To Plan
Budget Expenditures ($)	3,415,984	3,981,698	117%
Total Energy Savings, Annual (MMBtu eq.)	2,730	-	0%
Electricity Savings, Annual (MWh)	800	-	0%
Natural Gas Savings, Annual (MMBtu)	-	-	-
Other Fuel Savings, Annual (MMBtu)	-	-	-
Renewable Energy Generation, Annual (MWh)	-	-	-
Renewable Energy Capacity (MW)	-	-	-
Leveraged Funds ($)	500,000	-	0%

Summary of Performance and Future Plans

The GLASE Consortium updated its membership levels, ending 2023 with 16 corporate members that participate on the GLASE Industrial Advisory Board and 61 individual members. The GLASE Short Course is a well-attended virtual educational opportunity that continues to attract hundreds of participants. Greenhouse education and research on improving efficiency remains a focus of the Consortium.

Activities Summary

Activity	Activity #
Form and grow the GLASE Consortium by assisting with and monitoring its organizational structure, business model, member recruitment, partner support, Scientific Advisory Panel creation, and financial self-sustainability achievement.	1
Monitor the Consortium as it develops new lighting products as well as new control strategies and services for light, CO2 and humidity to increase yield or the production of chemical compounds that increase crop value. New products that benefit greenhouse growers will be tested in small and large pilot settings, and provisional patents will be filed.	2
Assist the Consortium with the continual education and outreach to help Consortium members and others better understand best practices and the economics of improved control systems, through use of outreach materials, networking at trade association meetings/conferences, trainings, and coordinating with Cornell Cooperative Extension and other existing NYSERDA agriculture targeted programs.	3

Milestones Summary

Milestone	Planned	Explanation of Progress	Status	Completed	Activity #
Contract with core Consortium members.	2021	Contracts have been fully executed.	Complete	2018	1
Review and approve Consortium business plan to attain financial self-sustainability by 2023.	2021	The Executive Director of GLASE submitted the initial business plan Q2 2018. It is anticipated that the business plan will be updated on an annual basis.	Complete	2019	1
Review and approve Scientific Advisory Panel structure.	2021	Selection of members is completed. Contractual arrangements are also completed between members and universities regarding how they be reimbursed for participation.	Complete	2018	1
Formal training offered to service providers.	2022	A plant lighting short course was offered to greenhouse service providers and growers. 220 people attended the virtual short course.	Complete	2021	3

Outputs and Outcomes Summary

Indicators	2021 Target	2022 Target	Progress as of 12/31/2023	2023 Target	2024 Target	2025 Target	Activity #
Output: Number of paid Consortium memberships (baseline = 0).	25	-	16	-	-	30	1
Outcome: Consortium remains viable after NYSERDA milestones are completed	-	-	N/A	-	-	Assess	1
Output: Greenhouse area used for pilot testing (sq ft) (baseline = 0).	-	26,000	34,600	-	-	-	2
Output: Number of product variations tested in pilot systems (baseline = 0).	-	8	5	-	-	-	2
Output: Number of services developed (baseline = 0).	-	3	7	-	-	-	2
Outcome: Number of intellectual properties or technology disclosures filed (baseline = 0).	-	8	6	-	-	-	2
Output: Number of case studies developed (baseline = 0).	-	4	1	-	-	-	3
Outcome: Average market penetration of improved technologies in New York State greenhouse acreage in the lettuce and tomato sectors (baseline = 0).	-	-	N/A	-	25%	-	3
Outcome: Number of acres of greenhouses in New York State (beyond pilot participants) adopting the improved technologies (baseline = 0).	-	-	N/A	-	23	-	3
Outcome: Reduced electricity usage per participating greenhouse in NYS (depending on NYS climate zone)	-	-	N/A	-	70%	-	3

TOP 15 Energy Impact Initiative

Cumulative Plan vs. Progress Thru 2023	Planned	Progress	% To Plan
Budget Expenditures ($)	46,054,125	44,773,452	97%
Total Energy Savings, Annual (MMBtu eq.)	4,679,333	4,657,539	100%
Electricity Savings, Annual (MWh)	305,939	310,705	102%
Natural Gas Savings, Annual (MMBtu)	1,799,480	1,739,692	97%
Other Fuel Savings, Annual (MMBtu)	9,009,721	9,028,350	100%
Renewable Energy Generation, Annual (MWh)	-	-	-
Renewable Energy Capacity (MW)	-	-	-
Leveraged Funds ($)	516,204,052	506,063,137	98%

Performance Summary

Expected Timeline Of Funding Deployment Committed (COM), Expended (EXP)

Type	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
COM			Start							End					
EXP			Start											End	

TOP 15 Energy Impact Initiative

Cumulative Plan vs. Progress Thru 2023	Planned	Progress	% To Plan
Budget Expenditures ($)	21,949,479	20,388,080	93%
Total Energy Savings, Annual (MMBtu eq.)	1,138,818	965,663	85%
Electricity Savings, Annual (MWh)	20,451	7,421	36%
Natural Gas Savings, Annual (MMBtu)	1,009,378	949,398	94%
Other Fuel Savings, Annual (MMBtu)	69,962	-	0%
Renewable Energy Generation, Annual (MWh)	-	-	-
Renewable Energy Capacity (MW)	-	-	-
Leveraged Funds ($)	24,111,100	14,793,100	61%

Summary of Performance and Future Plans

The Market Challenges - Commercial sector initiatives are achieving target milestones, outputs and outcomes. Progress of expenditures fared well against the 2023 plan. The first Demonstration projects for Empire Building Challenge are in the construction phases, and benefits are expected to be acquired starting in 2024.

Commercial and Industrial Carbon Challenge and the Commercial and Industrial Accelerated Efficiency programs, a new one-time initiative, both launched in 2023 received a strong market response for competitive funding and awarded over $37 million for eleven new decarbonization projects in Q4 2023. The funding for this program was increased in the November filing as part of NYSERDA's optimization strategy.

Activities Summary

Activity	Activity #
• Conduct a global scan to identify and catalog low carbon technologies that can support low carbon retrofits for big, tall buildings. • Convene real estate portfolio owners to develop a shared definition of "carbon neutral" for big, tall buildings. • Compile and publish market data that provides OEMs, energy-focused firms, and engineering companies better visibility on the needs and market potential for low-carbon solutions for big, tall buildings. • Develop a pool of real estate portfolio owners partnering with NYSERDA toward the goal of achieving carbon neutral buildings. • Fund demonstration projects of low-carbon retrofits in tall buildings through a competitive solicitation and leverage projects to share learnings with stakeholders.	1
Fund carbon reduction project portfolios for large industrial, commercial, and/or multifamily ratepayers through a competitive solicitation and leverage projects to share learnings on low-carbon energy and manufacturing strategies.	2

Milestones Summary

Milestone	Planned	Explanation of Progress	Status	Completed	Activity #
Announce the participating real estate owners and their public commitments from solicitations (commercial).	2021	The solicitation to select the first cohort of real estate partners was launched in Q3 2020 and a public announcement of the first cohort of real estate partners was made in Q1 2021.	Complete	2021	1
Announce the participating real estate owners and their public commitments from solicitations (commercial).	2022	All real estate partners have been publicly recognized for being selected as Empire Building Challenge (EBC) Partners. This includes a public announcement on each partner's commitment to carbon neutrality, at their participating building(s).	Complete	2022	1
Announce awards following the release of competitive solicitation (commercial).	2022	The second funding round for Empire Building Challenge was held in Q3-Q4 2022 and project awards were announced in September 2023.	Complete	2023	1
Announce awards following the release of competitive solicitation (commercial).	2023	The announcement for the winners of the third round of EBC is planned to occur in Q2 2024.	Delayed		1
Issue awards following release of competitive solicitation (commercial).	2021	The solicitation for the first round of retrofit project funding was issued Q4 2021. As a results of the solicitation, 4 low carbon retrofit projects have been funded.	Complete	2021	2
Issue awards following release of competitive solicitation (industrial).	2021	The solicitation was executed in the Consolidated Funding Application (CFA), in Q2 2021 and awards issued in Q4 2021.	Complete	2021	2
Issue awards following release of competitive solicitation (commercial).	2022	The 2022 Commercial and Industrial carbon challenge awards were announced in Q4 2022.	Complete	2022	2
Issue awards following release of competitive solicitation (industrial).	2022	Awards for the 2022 round of the C&I Carbon Challenge were announced in December 2022.	Complete	2022	2
Issue awards following release of competitive solicitation (commercial).	2023	Commercial and Industrial Carbon Challenge 2023 round awards were announced in Q4 2023.	Complete	2023	2
Issue awards following release of competitive solicitation (industrial).	2023	Commercial and Industrial Carbon Challenge 2023 round awards were announced in Q4 2023.	Complete	2023	2

Outputs and Outcomes Summary

Indicators	2021 Target	2022 Target	Progress as of 12/31/2023	2023 Target	2024 Target	2025 Target	Activity #
Output: Increase in number of portfolio owners in commercial sector with a public commitment to achieving carbon neutral buildings by 2035 (baseline = 0 companies).	6	6	10	10	12	-	1
Outcome: Commercial replication projects within portfolios as measured by total square footage (baseline = 0).	-	-	N/A	0.5M	1.5M	2.5M	1
Output: Number of sites participating (baseline = 0).	32	50	63	62	-	-	2
Outcome: Awarded participants employ advanced decarbonization solutions in their project portfolios	8	14	N/A	16	17	-	2

Performance Summary

Expected Timeline Of Funding Deployment Committed (COM), Expended (EXP)

Type	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
COM			Start							End					
EXP			Start											End	

TOP 15 Energy Impact Initiative

Cumulative Plan vs. Progress Thru 2023	Planned	Progress	% To Plan
Budget Expenditures ($)	8,567,874	9,579,066	112%
Total Energy Savings, Annual (MMBtu eq.)	164,403	140,198	85%
Electricity Savings, Annual (MWh)	17,576	16,871	96%
Natural Gas Savings, Annual (MMBtu)	91,928	78,265	85%
Other Fuel Savings, Annual (MMBtu)	18,302	10,116	55%
Renewable Energy Generation, Annual (MWh)	4,558	5,840	128%
Renewable Energy Capacity (MW)	-	6	-
Leveraged Funds ($)	13,937,687	20,778,296	149%

Summary of Performance and Future Plans

Progress on both expenditures, energy savings and leveraged funds finished the year in good standing compared to plan. In addition, 50% of the P-12 Schools outputs/outcomes are exceeding the targets for 2023. Some of the outputs/outcomes assessed in the 2023 P-12 Schools Market Evaluation did not meet their targets. However, it is important to note that factors, including the uncertainty of target values set early in the design phase of the P-12 initiative; effects of the COVID pandemic on initiative participation rates; and research limitations that reduced the population sizes of the participant and non-participant groups all contributed to the deficit of these target values.

The Clean Green Schools Initiative is still an active P-12 Schools program which focuses on improving the environmental sustainability of under-resourced public schools by reducing school energy loads, decarbonizing their building portfolio, improving indoor air quality (IAQ), and providing clean energy educational opportunities. The program has had very strong uptake in Track I (e.g. technical assistance) due to the continuous marketing efforts of the P-12 Schools program. In addition, two of the three Track II (e.g. implementation) projects were contracted in 2023. Lastly, a large focus of the P-12 Schools team was focused on modifying the Clean Green Schools Initiative (PON 4924), which was successfully re-launched into the market in January 2024.

Activities Summary

Activity	Activity #
Provide funding to school districts to collect data on energy consumption and costs. Use initial benchmarking as a stepping off point to engage the schools in the use of this resource and to lead to greater understanding of their energy use, patterns, and opportunities for improvement.	1
Provide cost-sharing to schools, focused on under-resourced schools, for professional services related to clean energy and indoor air quality analysis as well as limited funding for installations and demonstrations.	2
Develop and disseminate a centralized website of state-supported strategies and funding programs, recognition programs and events, to encourage schools to participate in and leverage existing market resources.	3
Publish and promote guidance documents and project results along with case studies and green design documents.	4

There are currently no milestones to report.

Outputs and Outcomes Summary

Indicators	2021 Target	2022 Target	Progress as of 12/31/2023	2023 Target	2024 Target	2025 Target	Activity #
Output: Number of schools engaging with NYSERDA to conduct clean energy benchmarking (baseline = 0).	310	500	596	525	550	600	1
Outcome: Number of schools utilizing benchmarking data and energy master plans to make informed decisions toward future clean energy projects (baseline = 0).	75	75	20	75	80	100	1
Output: Number of projects implemented because of P12 initiative funding (baseline = 0).	4	4	16	4	15	30	2
Output: Number of schools that receive NYSERDA funding (baseline = 0).	45	100	842	100	350	500	2
Output: Number of schools utilizing NYSERDA funding for student and faculty engagement (i.e. workforce development efforts) (baseline = 0).	-	25	44	50	75	100	2
Output: Number of information downloads from the website (baseline = 0).	1,000	1,100	8,661	1,150	1,200	1,350	3
Outcome: Number of schools receiving recognition (baseline = 0).	3	3	5	3	4	6	3
Outcome: Number of schools reporting a greater understanding of benefits of clean energy at their school (baseline = 0).	800	800	20	800	900	1,000	3
Output: Number of case studies developed and disseminated (baseline = 0).	20	20	10	22	25	30	4
Outcome: Number of schools utilizing clean energy case studies to make informed decisions towards future clean energy projects (baseline = 0).	150	150	0	150	175	200	4

Performance Summary

Expected Timeline Of Funding Deployment Committed (COM), Expended (EXP)

Type	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
COM			Start					End							
EXP			Start					End							

Cumulative Plan vs. Progress Thru 2023	Planned	Progress	% To Plan
Budget Expenditures ($)	1,902,532	1,694,505	89%
Total Energy Savings, Annual (MMBtu eq.)	-	-	-
Electricity Savings, Annual (MWh)	-	-	-
Natural Gas Savings, Annual (MMBtu)	-	-	-
Other Fuel Savings, Annual (MMBtu)	-	-	-
Renewable Energy Generation, Annual (MWh)	-	-	-
Renewable Energy Capacity (MW)	-	-	-
Leveraged Funds ($)	-	-	-

Summary of Performance and Future Plans
The Pay for Performance initiatives developed the necessary collaboration framework and platform to support initial pilots, including engaging aggregators and launching into both residential and commercial markets. Market developments and challenges in rolling out these pilots, however, led NYSERDA and its partners to conclude that the program should not be continued. The program was closed in early 2023 and unspent funds were redirected.

Activities Summary

Activity	Activity #
Continue working with utilities to pilot the procurement model approach to P4P, whereby a competitive selection process identifies specific portfolio managers/aggregators to secure customers and deliver savings for a set implementation period and be paid over a longer performance period.	1
Scope and launch an open-market P4P approach, whereby a qualified vendor list determines potential aggregators that may be available to multiple sectors and could include program features such as promoting electrification.	2

Milestones Summary

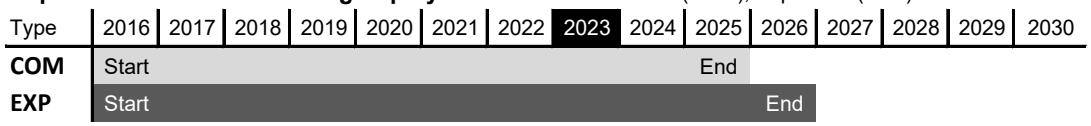
Milestone	Planned	Explanation of Progress	Status	Completed	Activity #
Continue Business Energy Pro pilot with Con Edison.	2021	Business Energy Pro pilot continued operation in 2021 but one of the two portfolio managers ended their participation in Q3 2021, and program team anticipated pilot would come to close in 2022.	Complete	2021	1
Continue Business Energy Pro pilot with Con Edison.	2022	NYSERDA concluded that the program should not be continued after no projects were obtained by portfolio managers in contracted time.	Cancelled		1
Gather lessons learned from procurement model approach to inform new pilot design parameters.	2021	NYSERDA concluded that the program should not be continued after assessing results from the pilots.	Cancelled		2
Obtain stakeholder feedback to complete open-market program design.	2021	NYSERDA concluded that the program should not be continued after assessing results from the pilots.	Cancelled		2
Gather lessons learned from procurement model approach to inform new pilot design parameters.	2022	NYSERDA concluded that the program should not be continued after assessing results from the pilots.	Cancelled		2
Obtain stakeholder feedback to complete open-market program design.	2022	NYSERDA concluded that the program should not be continued after assessing results from the pilots.	Cancelled		2

Outputs and Outcomes Summary

Indicators	2021 Target	2022 Target	Progress as of 12/31/2023	2023 Target	2024 Target	2025 Target	Activity #
Output: Number of datasets published on OpenNY (baseline = 0).	-	1	0	-	-	-	1
Output: Number of participating aggregators (baseline = 0).	1	2	2	-	-	-	1
Output: Total number of projects implemented in commercial sector (baseline = 0).	3	-	0	75	-	-	1
Outcome: Number of additional market actors involved in P4P pilot (non-aggregator involvement such as financial institutions, subcontractors, etc) (baseline = 0).	2	4	Removed	-	-	-	1
Outcome: Number of utilities committed to offering P4P programs post pilot (baseline = 0).	-	1	0	-	-	-	1
Output: Increase in Number of business types serving as aggregators (baseline = number of business types in procurement model …).	-	-	0%	200%	-	-	2
Output: Increased participation by aggregators in open-market approach versus procurement approach (baseline = number in procurement model).	-	-	0%	100%	-	-	2
Outcome: Percentage of aggregators participating in utility energy efficiency programs in New York State for the first time (baseline = number of first-time aggregators in procurement model).	-	-	0	25%	-	-	2
Outcome: Reduction in time to market for first project (from pilot launch) using open-market approach versus procurement approach (baseline = 11 months cycle time for procurement approach).	-	-	0	50%	-	-	2

Performance Summary

Expected Timeline Of Funding Deployment Committed (COM), Expended (EXP)



Cumulative Plan vs. Progress Thru 2023	Planned	Progress	% To Plan
Budget Expenditures ($)	13,871,500	14,008,899	101%
Total Energy Savings, Annual (MMBtu eq.)	57,968	452,510	781%
Electricity Savings, Annual (MWh)	14,796	69,043	467%
Natural Gas Savings, Annual (MMBtu)	7,485	108,708	1452%
Other Fuel Savings, Annual (MMBtu)	-	165,091	-
Renewable Energy Generation, Annual (MWh)	-	-	-
Renewable Energy Capacity (MW)	-	-	-
Leveraged Funds ($)	1,910,265	59,509,392	3115%

Summary of Performance and Future Plans

The Real Estate Tenant initiative closed in 2021 and all projects have since been completed. In 2023, the program updated its acquired savings reporting methodology to reflect a Measures Adoption Rate (MAR) approach, enabling results to be reported for all completed projects. The forecast for initiative impacts was updated accordingly in the November 2023 forecast filing. This initiative will continue to report acquired savings through 2025, according to the MAR schedule.

There are currently no milestones to report.

Outputs and Outcomes Summary

Indicators	2021 Target	2022 Target	Progress as of 12/31/2023	2023 Target	2024 Target	2025 Target	Activity #
Output: Number of buildings participating in the program (baseline = 0).	-	400	621	-	-	-	N/A
Output: Number of case studies developed (baseline = 0).	-	30	7	-	-	-	N/A
Output: Number of tenant spaces participating in the program (baseline = 0).	-	1,200	1132	-	-	-	N/A
Output: Partner engagement: number of brokers and A&E firms that include in depth energy models and package development in their standard practice (baseline = 0).	-	40	TBD	-	-	-	N/A
Output: Partner engagement: number of brokers and A&E firms trained (baseline = 0).	-	100	50	-	-	-	N/A
Output: Partner engagement: Number of CRE building owners and managers that offer building specific packages (baseline = 0).	-	40	69	-	-	-	N/A
Output: Square footage of participating tenant spaces in the program (baseline = 0).	-	65,000,000	65,990,376	-	-	-	N/A
Outcome: Market Engagement: Number of Brokers and A&E firms that include in depth energy models and package development in their standard practice (baseline = 6).	-	40	N/A	-	-	-	N/A
Outcome: Package Development costs of building specific package per square foot (baseline = $0.13/SF).	-	$0.05/SF	N/A	-	-	-	N/A
Outcome: Percent of the total addressable square footage in NYS that is covered by a building specific package (baseline = 0).	-	10%	N/A	-	-	-	N/A
Outcome: Percentage of Architecture and Engineering firms trained to better incorporate energy efficiency options into tenant space designs and providing packages as standard practice (baseline = 0).	-	60%	N/A	-	-	-	N/A
Outcome: Percentage of Real Estate Broker firms trained on energy efficient space design and including energy in the leasing dialogues with tenant (baseline = <5%).	-	5%	N/A	-	-	-	N/A
Outcome: Tenant Spaces completed by the market without NYSERDA funding (baseline = 141).	-	400	N/A	-	-	-	N/A

Performance Summary

Expected Timeline Of Funding Deployment Committed (COM), Expended (EXP)

Type	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
COM	Start									End					
EXP		Start												End	

TOP 15 Energy Impact Initiative

Cumulative Plan vs. Progress Thru 2023	Planned	Progress	% To Plan
Budget Expenditures ($)	13,069,448	13,990,875	107%
Total Energy Savings, Annual (MMBtu eq.)	1,830,301	1,824,011	100%
Electricity Savings, Annual (MWh)	186,160	174,348	94%
Natural Gas Savings, Annual (MMBtu)	1,164,757	1,173,000	101%
Other Fuel Savings, Annual (MMBtu)	32,301	58,219	180%
Renewable Energy Generation, Annual (MWh)	736	7,254	986%
Renewable Energy Capacity (MW)	-	6	-
Leveraged Funds ($)	46,897,683	42,211,398	90%

Summary of Performance and Future Plans

Progress of expenditures and energy savings finished the year in good standing compared to plan. Given prior strong evaluation results, future savings projections continue to be adjusted accordingly through NYSERDA's annual reforecasting effort. This initiative has met its 2025 member goal, committed nearly all funds and reached its original CEF energy benefits goal from 2019.

Activities Summary

Activity	Activity #
Provide targeted outreach and communication to drive REV Campus Challenge membership and ascertain needs including webinars, website updates, event invites, and one-on-one outreach.	1

There are currently no milestones to report.

Outputs and Outcomes Summary

Indicators	2021 Target	2022 Target	Progress as of 12/31/2023	2023 Target	2024 Target	2025 Target	Activity #
Output: Number of REV Campus Challenge members (baseline = 0).	130	135	153	140	145	150	1
Output: Number of REV Campus Challenge Members reporting new clean energy curricula or curriculum integration (as reported through the annual survey) (baseline = 0).	49	50	66	51	52	53	1
Output: Number of REV Campus Challenge Members reporting new clean energy projects on campus (as reported through the annual survey) (baseline = 0).	83	85	111	90	93	95	1
Outcome: Number of REV Campus Challenge Members reporting a greater understanding of clean energy opportunities on their campus (as reported through the annual survey) (baseline = 0).	71	75	60	80	85	90	1
Outcome: Number of REV Campus Challenge Members reporting greater buy-in and support from management for clean energy projects and initiatives (as reported through the annual survey) (baseline = 0).	52	55	46	58	60	65	1
Outcome: Number of REV Campus Challenge Members reporting improved community relations as a result of clean energy strategies (as reported through the annual survey) (baseline = 0).	46	48	43	50	52	55	1
Outcome: Number of REV Campus Challenge Members with new or updated climate action plans, energy master plans, or GHG inventories (baseline = 0).	73	75	85	77	80	85	1
Outcome: Number of REV Campus Challenge Members with staff assigned to manage clean energy/sustainability goals (as reported through the annual survey) (baseline = 82%; 18/22).	91	91	98	93	95	95	1

Performance Summary

Expected Timeline Of Funding Deployment Committed (COM), Expended (EXP)

Type	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
COM		Start								End					
EXP		Start												End	

TOP 15 Energy Impact Initiative

Cumulative Plan vs. Progress Thru 2023	Planned	Progress	% To Plan
Budget Expenditures ($)	30,522,253	36,236,176	119%
Total Energy Savings, Annual (MMBtu eq.)	2,032,011	2,906,444	143%
Electricity Savings, Annual (MWh)	222,087	313,071	141%
Natural Gas Savings, Annual (MMBtu)	777,182	850,704	109%
Other Fuel Savings, Annual (MMBtu)	500,537	996,121	199%
Renewable Energy Generation, Annual (MWh)	7,354	21,614	294%
Renewable Energy Capacity (MW)	1	5	500%
Leveraged Funds ($)	68,270,874	142,380,277	209%

Summary of Performance and Future Plans

This initiative finished in 2023 in good standing with respect to both budget and energy benefits.

Commercial: NYSERDA continues to see strong participation from the commercial market. Initiative evaluation will be commencing soon. Future reports will detail results from these studies.

Industrial: NYSERDA continues to see strong participation from the industrial market. Initiative evaluation will be commencing soon. Future reports will detail results from these studies.

Agriculture: Funding for this program was increased in early 2023 to ensure adequate market support. Evaluation studies scheduled to be completed in early 2024 and future reports will detail results from these studies.

Activities Summary

Activity	Activity #
• Continue the Agriculture Energy Audit component of the FlexTech Program to provide site-specific clean energy recommendations directly to farms to improve site operations, align future investment opportunities, and prioritize those investments as well as provide greenhouse benchmarking. • Engage in the development of information, tools, and resources to demonstrate the benefits of clean energy investments and energy management for the agriculture sector. A third-party technical resource will be utilized to develop, market, maintain and update an energy-related, farm management best practice guide and disseminate best practice materials across multiple platforms, including direct delivery to farms, the NYSERDA website, partner organizations, and through trade allies such as sector-based organizations and consortiums, and other entities with similar market participants	1
Continue providing building and portfolio-level assessments of low-carbon solutions to drive clean energy adoption through the successful FlexTech Program.	2
Continue providing site-specific industrial technical engineering support of low-carbon solutions to drive clean energy adoption through the FlexTech Program.	3

There are currently no milestones to report.

Outputs and Outcomes Summary

Indicators	2021 Target	2022 Target	Progress as of 12/31/2023	2023 Target	2024 Target	2025 Target	Activity #
Output: Number of best practice guides delivered (baseline = 0).	0	500	N/A	2,033	-	-	1
Outcome: Percentage rate in which clean energy technologies are adopted by participants receiving best practice guides (baseline = 0).	-	-	N/A	20%	20%	20%	1
Output: Number of case studies developed (baseline = 0).	2	2	24	40	40	50	2
Output: Number of qualified energy-focused firms (baseline = 39).	49	49	110	82	82	85	2
Output: Number of studies assessing electrification options completed (baseline = 0).	6	26	120	50	80	100	2
Outcome: Increase in the number of beneficial electrification installations (baseline = 0).	0	TBD	N/A	-	-	-	2
Outcome: Increase the rate at which clean energy technologies are adopted by non-participants through sharing of best practices and case studies (baseline = 25%).	30%	30%	N/A	30%	30%	30%	2
Outcome: maintain or (best case) increase the rate at which clean energy technologies are adopted by participants (baseline = 65%).	65%	65%	65%	65%	65%	65%	2
Outcome: Increase the rate at which clean energy technologies are adopted by non-participants through sharing of best practices and case studies (baseline = 25%).	30%	30%	N/A	30%	30%	30%	3
Outcome: Maintain or (best case) increase the rate at which clean energy technologies are adopted by participants (baseline = 65%).	65%	65%	65%	65%	65%	65%	3

Performance Summary

Expected Timeline Of Funding Deployment Committed (COM), Expended (EXP)

Type	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
COM	Start									End					
EXP	Start													End	

TOP 15 Energy Impact Initiative

Cumulative Plan vs. Progress Thru 2023	Planned	Progress	% To Plan
Budget Expenditures ($)	32,255,739	30,705,742	95%
Total Energy Savings, Annual (MMBtu eq.)	1,171,038	1,167,548	100%
Electricity Savings, Annual (MWh)	207,617	206,268	99%
Natural Gas Savings, Annual (MMBtu)	325,542	316,537	97%
Other Fuel Savings, Annual (MMBtu)	144,580	154,032	107%
Renewable Energy Generation, Annual (MWh)	296,116	227,986	77%
Renewable Energy Capacity (MW)	614	410	67%
Leveraged Funds ($)	127,020,693	143,630,889	113%

Summary of Performance and Future Plans

Progress of budget expenditures and energy benefits continues to trend favorably in 2023 with more than half of the municipalities in the state participating in the program. Communities remain engaged in the program and continue to work toward grant thresholds. With the shift of program impacts from direct to indirect approved in the November Compiled Investment Plan filing, NYSERDA will undertake an evaluation assessment to confirm the shift from direct to indirect and to quantify indirect. Funding for this program was reduced in the November filing and shifted to support workforce development initiatives. A program update was launched on December 14, 2023. Stakeholder engagement is underway that will inform a new pilot action that addresses capacity constraints in local governments.

Activities Summary

Activity	Activity #
• Refine and update the Clean Energy Communities program and related technical assistance, tools, and resources. • Increase access to aggregated community-level energy use data (via Utility Energy Registry) needed for clean energy planning and tracking. • Develop a statewide building energy benchmarking platform to support a benchmarking mandate. • Target outreach and engagement efforts to influence electrification and other clean heating and cooling activities. • Provide focused program efforts that target disadvantaged communities. • Develop and launch new pilot to support communities' pursuit of advanced clean energy actions.	1

Milestones Summary

Milestone	Planned	Explanation of Progress	Status	Completed	Activity #
Launch Clean Energy Communities Leadership Round.	2021	Leadership round launched January 26, 2021	Complete	2021	1
Develop and launch new pilot that supports advanced clean energy actions	2023	The new pilot was delayed to seek additional stakeholder engagement to identify local capacity needs and is expected to launch in Q3 2024.	Delayed		1
Launch Clean Energy Communities program update.	2023	The Clean Energy Communities program update was launch on December 13, 2023.	Complete	2023	1

Outputs and Outcomes Summary

Indicators	2021 Target	2022 Target	Progress as of 12/31/2023	2023 Target	2024 Target	2025 Target	Activity #
Output: Number of certified Climate Smart Communities (baseline = 45).	73	85	131	100	110	115	1
Output: Number of communities that have completed one or more high impact action (baseline = 592).	690	778	1,570 (898 direct)	790	795	800	1
Output: Number of completed Community Campaigns (baseline = 80).	150	150	296	170	190	200	1
Output: Number of completed high impact actions (baseline = 1,785).	2,400	3,149	3,894	3,400	3,700	4,000	1
Output: Number of designation communities (baseline = 315).	375	400	475	440	470	500	1
Outcome: Number of communities implementing CCA (baseline = 24).	45	55	83	65	75	85	1
Outcome: Number of communities implementing NYStretch (baseline = 0).	20	30	40	-	-	-	1

Performance Summary

Expected Timeline Of Funding Deployment Committed (COM), Expended (EXP)

Type	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
COM		Start						End							
EXP		Start						End							

Cumulative Plan vs. Progress Thru 2023	Planned	Progress	% To Plan
Budget Expenditures ($)	4,407,818	4,388,546	100%
Total Energy Savings, Annual (MMBtu eq.)	-	-	-
Electricity Savings, Annual (MWh)	-	-	-
Natural Gas Savings, Annual (MMBtu)	-	-	-
Other Fuel Savings, Annual (MMBtu)	-	-	-
Renewable Energy Generation, Annual (MWh)	-	-	-
Renewable Energy Capacity (MW)	-	-	-
Leveraged Funds ($)	994,123	994,123	100%

Summary of Performance and Future Plans

CEF funding for this initiative has been fully committed and expenditures were paid out in first half of 2022. A new program, Regional Clean Energy Hubs, has been implemented to provide further community-based outreach and engagement within the low-to-moderate Focus Area.

Performance Summary

Expected Timeline Of Funding Deployment Committed (COM), Expended (EXP)

Type	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
COM		Start								End					
EXP		Start												End	

Cumulative Plan vs. Progress Thru 2023	Planned	Progress	% To Plan
Budget Expenditures ($)	29,455,269	29,825,399	101%
Total Energy Savings, Annual (MMBtu eq.)	-	-	-
Electricity Savings, Annual (MWh)	-	-	-
Natural Gas Savings, Annual (MMBtu)	-	-	-
Other Fuel Savings, Annual (MMBtu)	-	-	-
Renewable Energy Generation, Annual (MWh)	-	-	-
Renewable Energy Capacity (MW)	-	-	-
Leveraged Funds ($)	-	-	-

Summary of Performance and Future Plans

The program has achieved significant milestones in 2023, including the release of the forward-looking climate change projections from the New York State Climate Impacts Assessment. These projections were provided to DPS and major electric utilities for incorporation into their Utility Climate Vulnerability studies pursuant to Case 22-E-0222. NYSERDA successfully conducted methane emissions field data collection using innovative monitoring technologies and protocols at several energy-related facilities in 2023 and will continue to verify those results while simultaneously engaging State and Federal agency staff to inform greenhouse gas emissions inventories. The significant preliminary findings from the portfolio of methane emissions projects prompted a refinement to research agendas; NYSERDA now anticipates releasing a competitive solicitation in 2024 for projects that can better characterize energy-related emissions and inform emissions mitigation efforts. The portfolio of collaborative research projects on dual-use opportunities in the solar-agriculture and offshore wind-commercial fishing space continued successfully in 2023 and several studies are on track for completion and publication-submittal in 2024. Future research will continue to complete the work identified in the Investment Plan, with emphasis on where that plan can inform and support State efforts to meet Climate Act obligations in a responsible and cost-effective manner.

Activities Summary

Activity	Activity #
Air Quality and Health, Ecosystem Response and Climate Adaptation, and Resilience Research. • These topical areas primarily support original scientific research and monitoring and publish largely in peer-reviewed journals, but in some cases in reports or guidance documents. Outputs from these activities are channeled to policy makers, regulators, and other scientists via briefings, workshops, conferences, project advisory committees and the published literature. Alternative/Renewable Energy Development. • These topical areas support the responsible and cost-effective development of offshore wind energy and terrestrial renewables through research, analysis, and stakeholder engagement designed to empower and inform decision makers with timely and impartial information. Outputs from these activities are channeled to State and federal policy makers and regulators, regional states, local governments, renewable energy developers, and related stakeholders in the form of procurement requirements/scoring criteria, reports, guidelines, tools, briefings, and presentations.	1

Milestones Summary

Milestone	Planned	Explanation of Progress	Status	Completed	Activity #
Publish quarterly progress updates on NYSERDA's website.	2021	Quarterly research updates for the Environmental Research program can be viewed here: https://www.nyserda.ny.gov/All-Programs/Environmental-Research/Research-Updates	Complete	2021	1
Publish quarterly progress updates on NYSERDA's website.	2022	Quarterly research updates for the Environmental Research program can be viewed here: https://www.nyserda.ny.gov/All-Programs/Environmental-Research/Research-Updates	Complete	2023	1
Publish quarterly progress updates on NYSERDA's website.	2023	Quarterly progress newsletters are published on NYSERDA's website: https://www.nyserda.ny.gov/All-Programs/Environmental-Research/Research-Updates	Complete	2023	1

Outputs and Outcomes Summary

Indicators	2021 Target	2022 Target	Progress as of 12/31/2023	2023 Target	2024 Target	2025 Target	Activity #
Output: Number of publications/products	30	60	245	90	120	150	1
Output: Number of sponsored workshops, conferences, seminars or facilitated meetings to inform decision making	25	50	249	75	100	125	1

Performance Summary

Expected Timeline Of Funding Deployment Committed (COM), Expended (EXP)

Type	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
COM							Start			End					
EXP								Start					End		

Cumulative Plan vs. Progress Thru 2023	Planned	Progress	% To Plan
Budget Expenditures ($)	1,800,000	646,678	36%
Total Energy Savings, Annual (MMBtu eq.)	-	-	-
Electricity Savings, Annual (MWh)	-	-	-
Natural Gas Savings, Annual (MMBtu)	-	-	-
Other Fuel Savings, Annual (MMBtu)	-	-	-
Renewable Energy Generation, Annual (MWh)	-	-	-
Renewable Energy Capacity (MW)	-	-	-
Leveraged Funds ($)	850,000	-	0%

Summary of Performance and Future Plans

In Q3 2023 NYSERDA announced nearly $15 million awarded to four demonstration projects to advance Long Energy Duration Energy Storage Technology Solution. These projects include a breadth of solutions and build on a strong foundation for the Long Duration Energy Storage portfolio expected to yield learning and products that will be critical to meeting New York's Climate Act objectives.

Expenditures and leveraged funds are currently lagging due to a delay in contracting a large $12M project. NYSERDA expects to be back on track by the end of 2024.

Activities Summary

Activity	Activity #
Long Duration Energy Storage Solicitation targeting LDES developers, OEMs, suppliers, technology innovators, and product developers to invest in the best product development, pilot, and demonstration projects for LDES solutions of 10 to 100+ hours.	1

Milestones Summary

Milestone	Planned	Explanation of Progress	Status	Completed	Activity #
Issue awards from LDES Solicitation	2023	Four projects awarded in late 2022 were fully contracted in the first half of 2023 totaling $14.8M in project funding. Each has begun execution to plan. All remaining projects and funding ($1.6M) will be awarded in Q42024 from the 4th LDES PON expected to be released in Q2 2024.	Delayed	2024	1

Outputs and Outcomes Summary

Indicators	2022 Target	Progress as of 12/31/2023	2023 Target	2024 Target	2025 Target	2026 Target	Activity #
Output: Number of companies supported (baseline = 0).	1	4	2	-	-		1
Output: Number of studies, demonstrations, and product development projects completed (baseline = 0).	-	0	-	-	2		1
Output: Number of studies, demonstrations, and product development projects initiated (baseline = 0).	1	4	2	-	-		1
Outcome: Number of products commercialized (baseline = 0).	-	0	-	-	1		1
Outcome: Number of replications from demonstration projects (baseline = 0).	-	N/A	-	-	2	3	1
Outcome: Number of test sites for new technologies (baseline = 0).	-	4	-	3	-		1
Outcome: Revenue ($M) to companies commercializing products (baseline = 0).	-	N/A	-	-	$15M		1

Performance Summary

Expected Timeline Of Funding Deployment Committed (COM), Expended (EXP)

Type	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
COM								Start		End					
EXP								Start		End					

Cumulative Plan vs. Progress Thru 2023	Planned	Progress	% To Plan
Budget Expenditures ($)	500,000	48,757	10%
Total Energy Savings, Annual (MMBtu eq.)	-	-	-
Electricity Savings, Annual (MWh)	-	-	-
Natural Gas Savings, Annual (MMBtu)	-	-	-
Other Fuel Savings, Annual (MMBtu)	-	-	-
Renewable Energy Generation, Annual (MWh)	-	-	-
Renewable Energy Capacity (MW)	-	-	-
Leveraged Funds ($)	-	-	-

Summary of Performance and Future Plans

NYSERDA contracted with a qualified consultant in 2023. This support contract provides the Department of Public Service (DPS) consultant support and technical assistance to review the 13 Utility Thermal Energy Network Pilot Project Proposals filed during 2023. Support includes assisting DPS review pilot project filings, meeting with DPS Staff & Utilities, supporting technical conferences, reviewing public comments, and making recommendations to DPS Staff on implementation of the pilot projects.

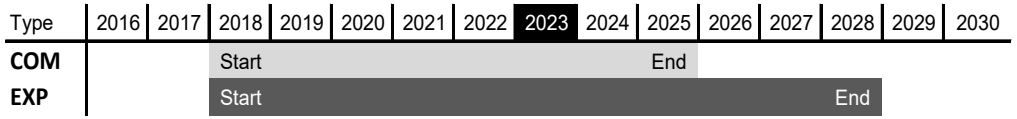
These technical support services will help DPS Staff to carry out the provisions of the Utility Thermal Energy Network Job Act (UTENJA) (S.9422 / A.10493). The UTENJA directs the Public Service Commission (PSC) to develop a regulatory structure for utility thermal energy networks that scales affordable and accessible building electrification, protects customers, and balances the role of incumbent monopoly utilities with other market and public actors. The UTENJA also directed each of the seven largest utilities to propose 1 to 5 pilot projects to the PSC for approval.

Activities Summary

Activity	Activity #
Procure the services of one or more consulting firms to support the Utility Thermal Network Act, including, but not limited to: •Review and analysis of Utility Thermal Network Pilot Projects; •Provide expertise and input on related to the implementation of the Act, including participation in any relevant working groups, as necessary	1

Performance Summary

Expected Timeline Of Funding Deployment Committed (COM), Expended (EXP)



Cumulative Plan vs. Progress Thru 2023	Planned	Progress	% To Plan
Budget Expenditures ($)	1,646,000	496,022	30%
Total Energy Savings, Annual (MMBtu eq.)	-	-	-
Electricity Savings, Annual (MWh)	-	-	-
Natural Gas Savings, Annual (MMBtu)	-	-	-
Other Fuel Savings, Annual (MMBtu)	-	-	-
Renewable Energy Generation, Annual (MWh)	-	-	-
Renewable Energy Capacity (MW)	-	-	-
Leveraged Funds ($)	1,140,000	-	0%

Summary of Performance and Future Plans

Following the approval of Clean Energy Fund resources in Q4 2022, NYSERDA launched two new program opportunity notices in 2023. In May PON 5322 "Clean Hydrogen Innovation Co-Funding for Federal Funding Opportunities" announced up to $10 million in clean hydrogen co-funding available for New York-based clean hydrogen research, development, and demonstration (RD&D) projects for which federal funding is also being sought and actively applied for. In August PON 5500 "Clean Hydrogen Innovation Funding for Research, Development, and Demonstration" announced up to $13.8 million to advance clean hydrogen research, development, and demonstration (RD&D) projects that address the challenge of replacing fossil fuel usage in hard-to-electrify sectors. Proposals were notified in Q4 2023 and are anticipated to be announced following a completion of the contracting process in Q2 2024. Once projects are under contract, NYSERDA anticipates expenditures and leveraged funds will reach forecasted levels, though delayed from original plan.

Activities Summary

Activity	Activity #
Issue competitive solicitation for research, development and demonstration projects enabling initial clean hydrogen production and solutions for hard to electrify and natural gas replacement solutions, including but not limited to: •Research, development and demonstration enabling hydrogen application for high-temperature industrial manufacturing process •Clean hydrogen production and integration with renewable energy (such as solar and offshore wind) •Technologies related control, test or monitor of co pollutant, such as nitrogen oxide (NOx).	1

Milestones Summary

Milestone	Planned	Explanation of Progress	Status	Completed	Activity #
Issue awards from hydrogen solicitation	2023	PON5322 and PON5500 round 1 were issued in 2023. 5 projects were selected from PON5322 to provide cost share for the Department of Energy solicitations. 3 of them have been awarded and will move forward with contract negotiation. 9 projects were selected from PON5500 under the Gas Innovation focus area.	Complete	2023	1

Outputs and Outcomes Summary

Indicators	2022 Target	Progress as of 12/31/2023	2023 Target	2024 Target	2025 Target	2026 Target	Activity #
Output: Counts of demonstration projects initiated and completed (baseline = 0).		0					1
Output: Counts of projects funded (projects funded by DOE with NYSERDA cost share in parenthesis) (baseline = 0).		9(4)	4 (1)	8 (2)			1
Output: Number of companies supported (baseline = 0).		10	4	8			1
Outcome: Clean hydrogen cost reduction (%) associated with demonstration and replication projects (baseline = 0).		N/A			2%		1
Outcome: Increase in # of patents filed (counts of patents from projects funded by DOE with NYSERDA cost share) (baseline = 0).		N/A	N/A	1	3 (1)	5 (2)	1
Outcome: Increase in # of replication of demonstrations (baseline = 0).		N/A			1	2	1
Outcome: Increase in federal funds leveraged (baseline = 0).		$6.7M	$3M	$6M			1

Milestones Summary

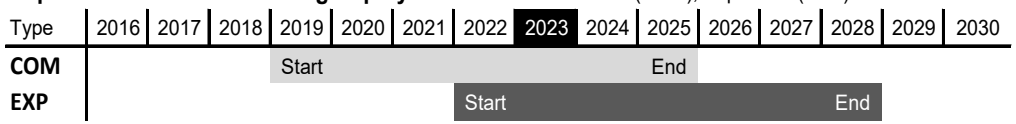
Milestone	Planned	Explanation of Progress	Status	Completed	Activity #
Execute contract(s) with consulting firms.	2022	NYSERDA contracted with a qualified consultant in Feb 2023. This support contract provides DPS consultant support and technical assistance to review the Utility Thermal Energy Network Pilot Project Proposals originally filed on 1/9/23.	Complete	2023	1
Provide expertise and input on any Working Groups associated with the Utility Thermal Networks Pilot Projects initiated	2022	Support consultant contracted in Feb 2023 will provide DPS support reviewing pilot project filings, meeting with DPS Staff & Utilities, reviewing public comments, and making recommendations to DPS Staff to support the implementation of the pilot projects.	Complete	2023	1
Provide expertise and input on any Working Groups associated with the Utility Thermal Networks Pilot Projects initiated	2023	Consultant is participating in all working groups associated with Utility pilots.	Complete	2023	1
Support technical review of Utility Thermal Network Pilot Projects and identify any areas of concerns or further development needed	2023	NYSERDA contracted with a qualified consultant in Feb 2023. This support contract provides DPS consultant support and technical assistance to review the Utility Thermal Energy Network Pilot Project Proposals originally filed on 1/9/23.	Complete	2023	1

Outputs and Outcomes Summary

Indicators	2021 Target	2022 Target	Progress as of 12/31/2023	2023 Target	2024 Target	2025 Target	Activity #
Output: Utility-Scale Thermal Network Pilots commenced in New York. (baseline = 0).	-	7-14	13	-	-	-	1

Performance Summary

Expected Timeline Of Funding Deployment Committed (COM), Expended (EXP)



Cumulative Plan vs. Progress Thru 2023	Planned	Progress	% To Plan
Budget Expenditures ($)	6,750,000	9,663,635	143%
Total Energy Savings, Annual (MMBtu eq.)	-	-	-
Electricity Savings, Annual (MWh)	-	-	-
Natural Gas Savings, Annual (MMBtu)	-	-	-
Other Fuel Savings, Annual (MMBtu)	-	-	-
Renewable Energy Generation, Annual (MWh)	-	-	-
Renewable Energy Capacity (MW)	-	-	-
Leveraged Funds ($)	18,296,215	2,411,424	13%

Summary of Performance and Future Plans

NYSERDA announced awards to 11 new projects totaling $5M in the third round of the Electric Power Transmission PON, Q3 2023. Progress achieved in 2023 builds on NYSERDA's successful Grid Modernization programming, which has set aside $133M through 2026 to further research, develop, and fund the launch of innovative solutions that support the advancement of a smart, modernized electric grid. Overall, expenditures for existing Future Grid projects were ahead of schedule in 2023. The initiative is seeing strong progress from utilities in terms of embracing these new technologies and collaboration with industry wide solution providers and continues to coordinate closely with the Advanced Technologies Working Group and Joint Utilities to focus on technologies that will provide input into the coordinated grid planning process.

NYSERDA has additional leveraged funding to report as acquired but is working through a method to properly attribute impacts to specific initiatives. Progress will be updated broadly in Q2 2024.

Activities Summary

Activity	Activity #
Launch program solicitations targeting solution providers, in partnership with NYS utilities, to deliver key gap-bridging technologies. Program solicitations will be targeted to: • Identify performance gaps and barriers between the present state of the electric power grid and that which is required to support New York State's climate goals. • Develop Performance Challenge solicitations that specifically target identified performance gaps. • Competitively select product development, pilot, and demonstration projects that validate innovative technologies to bridge performance gaps. • Coordinate with New York State utilities, NYISO, the Department of Public Service and other key stakeholders to standardize technology solutions for widespread application in the State	1

Milestones Summary

Milestone	Planned	Explanation of Progress	Status	Completed	Activity #
Complete initial Performance Gap identification studies.	2021	Initial performance gap identification studies were completed in November 2022.	Complete	2022	1
Issue targeted Performance Gap solicitation.	2022	The targeted performance gap solicitation was issued in Q4 2022.	Complete	2022	1
Issue targeted Performance Gap solicitation.	2023	Awarded 11 projects from the 4th round of the Future Grid PON in 2023.	Complete	2023	1

Outputs and Outcomes Summary

Indicators	2021 Target	2022 Target	Progress as of 12/31/2023	2023 Target	2024 Target	2025 Target	Activity #
Output: Critical and actionable performance gaps identified (baseline = 0).	2	8	9	12	-	-	1
Output: Participants engaged including companies supported and partnerships with utilities, manufacturers, and grid-technology companies (baseline = 0).	2	16	38	34	52	77	1
Outcome: Pilots and demonstrations of technology solutions to bridge performance gaps for the future electric grid (baseline = 0).	-	2	12	4	6	8	1

Performance Summary

Expected Timeline Of Funding Deployment Committed (COM), Expended (EXP)

Type	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
COM								Start		End					
EXP								Start						End	

Cumulative Plan vs. Progress Thru 2023	Planned	Progress	% To Plan
Budget Expenditures ($)	730,000	115,920	16%
Total Energy Savings, Annual (MMBtu eq.)	-	-	-
Electricity Savings, Annual (MWh)	-	-	-
Natural Gas Savings, Annual (MMBtu)	-	-	-
Other Fuel Savings, Annual (MMBtu)	-	-	-
Renewable Energy Generation, Annual (MWh)	-	-	-
Renewable Energy Capacity (MW)	-	-	-
Leveraged Funds ($)	900,000	-	0%

Summary of Performance and Future Plans

In 2023 the first round of the Vehicle Grid Integration Program (PON 5354) was launched. NYSERDA's Grid Modernization and Clean Transportation teams collaborated with multiple stakeholders to help develop the solicitation which provide funding to demonstrate solutions that address technical, economic, and other barriers to increasing electric vehicle adoption, grid flexibility and EV integration with the electric grid. NYSERDA received over 100 concept papers and proposals. The competitive selection process completed in Q1 2024 and awards are anticipated to be announced once contracting is completed in Q3 2024.

Expenditures and leveraged funds are lagging due to projects that were selected in late 2023 still pending final contracting and are anticipated to return to the forecasted schedule in 2024.

Activities Summary

Activity	Activity #
Launch program solicitation targeting solution providers, such as grid-technology companies, start-ups, and universities in partnership with utilities and demonstration host sites.	1

Milestones Summary

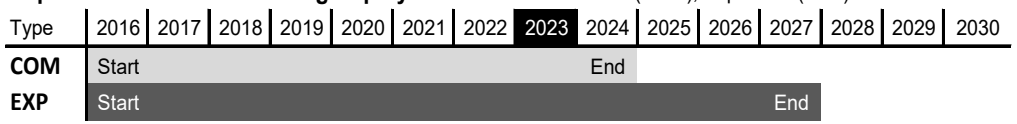
Milestone	Planned	Explanation of Progress	Status	Completed	Activity #
Launch competitive solicitation	2022	Round 1 of PON 5354 was released in Q3 2023. Awards will be made in Q1 2024 and Round 2 is planned to be released in Q2 2024.	Delayed		1

Outputs and Outcomes Summary

Indicators	2021 Target	2022 Target	Progress as of 12/31/2023	2023 Target	2024 Target	2025 Target	Activity #
Output: Companies supported (baseline = 0).	-	-	2	4	4	-	1
Outcome: Pilots and demonstrations of power grid infrastructure technology in progress (baseline = 0).	-	-	0	-	2	4	1

Performance Summary

Expected Timeline Of Funding Deployment Committed (COM), Expended (EXP)



Cumulative Plan vs. Progress Thru 2023	Planned	Progress	% To Plan
Budget Expenditures ($)	42,601,111	42,092,785	99%
Total Energy Savings, Annual (MMBtu eq.)	-	-	-
Electricity Savings, Annual (MWh)	-	-	-
Natural Gas Savings, Annual (MMBtu)	-	-	-
Other Fuel Savings, Annual (MMBtu)	-	-	-
Renewable Energy Generation, Annual (MWh)	-	-	-
Renewable Energy Capacity (MW)	-	-	-
Leveraged Funds ($)	53,453,970	24,564,883	46%

Summary of Performance and Future Plans

High Performing Grid has deployed nearly all of its funding. In 2022 and 2023, the increased activities in Future Grid Performance Challenge and Grid ClimateTech Ready Capital as separate demonstration-focused initiatives has ensured that 2023 activities in High Performing Electric Grid are focused on identifying and defining specific grid-related performance gaps that may impact progress toward the goals of the Climate Act. Anticipated activities in 2024 will focus on expending funds on work related to grid modelling and analysis. Leveraged funds are currently lagging and NYSERDA is working on a solution to address this lag and should be on track in Q4 2024.

Activities Summary

Activity	Activity #
Launch program solicitations targeting technology solution providers to support product development and demonstration of technologies that accelerate realization of an advanced, digitally enhanced, and dynamically managed “high-performing” electric grid. Program solicitations will be targeted to: • Invest across the full continuum of the innovation chain including research, proof of concept, product engineering, prototyping, modeling/simulation, and field testing. • Develop tools that can be used by multiple market participants to accelerate the build out of a modern and dynamically operated electric grid. • Leverage expertise residing across all innovation programs and apply rigor to all decisions on project funding at all stages in the continuum emphasizing acceleration of technological readiness and commercialization. • Involve stakeholders to the fullest extent practical in the planning and execution of the investment plan. This includes executing efficient mechanisms to sharing learnings with utilities and other critical stakeholders for the purpose of driving adoption. • Coordinate with Department of Public Service to prioritize grid needs and support research & development and initial deployments of new grid technologies, business models, and functionalities	1

Milestones Summary

Milestone	Planned	Explanation of Progress	Status	Completed	Activity #
Issue awards following release of broad competitive solicitation.	2021	Awards were made in Q1 2021.	Complete	2021	1

Outputs and Outcomes Summary

Indicators	2021 Target	2022 Target	Progress as of 12/31/2023	2023 Target	2024 Target	2025 Target	Activity #
Output: Number of companies supported, utility touchpoints/partnerships, other partnerships with established manufacturers or grid technology companies (baseline = 0).	51	64	77	76	92	99	1
Output: Number of studies, demonstrations, and product development projects completed (baseline = 0).	48	67	70	69	73	77	1
Output: Number of studies, demonstrations, and product development projects initiated (baseline = 0).	100	109	112	114	119	-	1
Outcome: Advanced control/integration of DER in electric grid (ability to monitor and control DER in system, ability to take action on DER resources in system) (baseline = 0).	1	-	2	2	-	-	1
Outcome: Application of advanced grid-management tools to predict failures, prevent disruptions, and support self-healing (baseline = 0).	1	2	2	8	16	27	1
Outcome: Application of power flow optimization systems (combination of computer systems and hardware to dynamically manage power flow) (baseline = 0).	1	-	1	2	3	-	1
Outcome: Tests and pilots of technologies/systems that enable system condition prediction and restoration (baseline = 0).	1	2	3	3	4	5	1

Power Electronics Manufacturing Consortium [Inactive]

Grid Modernization Focus Area

Cumulative Plan vs. Progress Thru 2023	Planned	Progress	% To Plan
Budget Expenditures ($)	16,694,490	16,694,490	100%
Total Energy Savings, Annual (MMBtu eq.)	-	-	-
Electricity Savings, Annual (MWh)	-	-	-
Natural Gas Savings, Annual (MMBtu)	-	-	-
Other Fuel Savings, Annual (MMBtu)	-	-	-
Renewable Energy Generation, Annual (MWh)	-	-	-
Renewable Energy Capacity (MW)	-	-	-
Leveraged Funds ($)	1,200,000,000	1,200,000,000	100%

Healthy Homes Feasibility Study [Inactive]

LMI Focus Area

Cumulative Plan vs. Progress Thru 2023	Planned	Progress	% To Plan
Budget Expenditures ($)	212,147	179,282	85%
Total Energy Savings, Annual (MMBtu eq.)	-	-	-
Electricity Savings, Annual (MWh)	-	-	-
Natural Gas Savings, Annual (MMBtu)	-	-	-
Other Fuel Savings, Annual (MMBtu)	-	-	-
Renewable Energy Generation, Annual (MWh)	-	-	-
Renewable Energy Capacity (MW)	-	-	-
Leveraged Funds ($)	-	-	-

Heat Pumps Phase 2 (2020) [Active]

LMI Focus Area

Cumulative Plan vs. Progress Thru 2023	Planned	Progress	% To Plan
Budget Expenditures ($)	10,717,625	7,866,062	73%
Total Energy Savings, Annual (MMBtu eq.)	-	-	-
Electricity Savings, Annual (MWh)	-	-	-
Natural Gas Savings, Annual (MMBtu)	-	-	-
Other Fuel Savings, Annual (MMBtu)	-	-	-
Renewable Energy Generation, Annual (MWh)	-	-	-
Renewable Energy Capacity (MW)	-	-	-
Leveraged Funds ($)	-	-	-

LMI Multifamily [Active]

LMI Focus Area

TOP 15 Energy Impact Initiative

Cumulative Plan vs. Progress Thru 2023	Planned	Progress	% To Plan
Budget Expenditures ($)	38,705,073	41,568,421	107%
Total Energy Savings, Annual (MMBtu eq.)	657,873	805,098	122%
Electricity Savings, Annual (MWh)	29,715	48,599	164%
Natural Gas Savings, Annual (MMBtu)	470,330	653,092	139%
Other Fuel Savings, Annual (MMBtu)	104,738	82,371	79%
Renewable Energy Generation, Annual (MWh)	-	1,079	-
Renewable Energy Capacity (MW)	-	1	-
Leveraged Funds ($)	305,945,632	147,574,291	48%

LMI Outreach & Engagement [Active]

LMI Focus Area

Cumulative Plan vs. Progress Thru 2023	Planned	Progress	% To Plan
Budget Expenditures ($)	4,282,289	2,856,517	67%
Total Energy Savings, Annual (MMBtu eq.)	-	-	-
Electricity Savings, Annual (MWh)	-	-	-
Natural Gas Savings, Annual (MMBtu)	-	-	-
Other Fuel Savings, Annual (MMBtu)	-	-	-
Renewable Energy Generation, Annual (MWh)	-	-	-
Renewable Energy Capacity (MW)	-	-	-
Leveraged Funds ($)	-	-	-

LMI Pilots [Active]

LMI Focus Area

Cumulative Plan vs. Progress Thru 2023	Planned	Progress	% To Plan
Budget Expenditures ($)	852,665	746,082	88%
Total Energy Savings, Annual (MMBtu eq.)	-	-	-
Electricity Savings, Annual (MWh)	-	-	-
Natural Gas Savings, Annual (MMBtu)	-	-	-
Other Fuel Savings, Annual (MMBtu)	-	-	-
Renewable Energy Generation, Annual (MWh)	-	-	-
Renewable Energy Capacity (MW)	-	-	-
Leveraged Funds ($)	-	-	-

Low Rise New Construction Transition - LMI [Inactive]

LMI Focus Area

Cumulative Plan vs. Progress Thru 2023	Planned	Progress	% To Plan
Budget Expenditures ($)	7,473,609	7,371,972	99%
Total Energy Savings, Annual (MMBtu eq.)	122,574	127,949	104%
Electricity Savings, Annual (MWh)	7,476	7,738	104%
Natural Gas Savings, Annual (MMBtu)	95,851	99,805	104%
Other Fuel Savings, Annual (MMBtu)	1,215	1,740	143%
Renewable Energy Generation, Annual (MWh)	-	-	-
Renewable Energy Capacity (MW)	-	-	-
Leveraged Funds ($)	19,761,555	19,993,352	101%

Multifamily New Construction Transition - LMI [Inactive]

LMI Focus Area

Cumulative Plan vs. Progress Thru 2023	Planned	Progress	% To Plan
Budget Expenditures ($)	5,463,493	6,512,864	119%
Total Energy Savings, Annual (MMBtu eq.)	49,904	86,648	174%
Electricity Savings, Annual (MWh)	3,714	7,324	197%
Natural Gas Savings, Annual (MMBtu)	37,231	61,657	166%
Other Fuel Savings, Annual (MMBtu)	-	-	-
Renewable Energy Generation, Annual (MWh)	-	-	-
Renewable Energy Capacity (MW)	-	-	-
Leveraged Funds ($)	14,780,999	26,158,759	177%

New Construction - LMI [Active]

LMI Focus Area

Cumulative Plan vs. Progress Thru 2023	Planned	Progress	% To Plan
Budget Expenditures ($)	22,381,624	40,206,918	180%
Total Energy Savings, Annual (MMBtu eq.)	56,134	110,215	196%
Electricity Savings, Annual (MWh)	4,272	7,365	172%
Natural Gas Savings, Annual (MMBtu)	39,924	83,453	209%
Other Fuel Savings, Annual (MMBtu)	1,633	1,633	100%
Renewable Energy Generation, Annual (MWh)	-	-	-
Renewable Energy Capacity (MW)	-	-	-
Leveraged Funds ($)	12,647,050	20,438,034	162%

NYS Healthy Homes Value Based Payment Pilot [Active]

LMI Focus Area

Cumulative Plan vs. Progress Thru 2023	Planned	Progress	% To Plan
Budget Expenditures ($)	5,609,697	2,368,609	42%
Total Energy Savings, Annual (MMBtu eq.)	6,064	70	1%
Electricity Savings, Annual (MWh)	165	8	5%
Natural Gas Savings, Annual (MMBtu)	4,500	3	0%
Other Fuel Savings, Annual (MMBtu)	1,000	38	4%
Renewable Energy Generation, Annual (MWh)	-	-	-
Renewable Energy Capacity (MW)	-	-	-
Leveraged Funds ($)	-	-	-

Regional Clean Energy Hubs [Active]

LMI Focus Area

Cumulative Plan vs. Progress Thru 2023	Planned	Progress	% To Plan
Budget Expenditures ($)	14,153,178	5,576,722	39%
Total Energy Savings, Annual (MMBtu eq.)	-	-	-
Electricity Savings, Annual (MWh)	-	-	-
Natural Gas Savings, Annual (MMBtu)	-	-	-
Other Fuel Savings, Annual (MMBtu)	-	-	-
Renewable Energy Generation, Annual (MWh)	-	-	-
Renewable Energy Capacity (MW)	-	-	-
Leveraged Funds ($)	-	-	-

RetrofitNY - LMI [Active]

LMI Focus Area

TOP 15 Energy Impact Initiative

Cumulative Plan vs. Progress Thru 2023	Planned	Progress	% To Plan
Budget Expenditures ($)	10,670,872	4,757,999	45%
Total Energy Savings, Annual (MMBtu eq.)	3,227	2,907	90%
Electricity Savings, Annual (MWh)	93	-	0%
Natural Gas Savings, Annual (MMBtu)	2,328	2,910	125%
Other Fuel Savings, Annual (MMBtu)	582	-	0%
Renewable Energy Generation, Annual (MWh)	-	-	-
Renewable Energy Capacity (MW)	-	-	-
Leveraged Funds ($)	4,232,000	13,177,324	311%

REVitalize [Inactive]

LMI Focus Area

Cumulative Plan vs. Progress Thru 2023	Planned	Progress	% To Plan
Budget Expenditures ($)	291,424	291,424	100%
Total Energy Savings, Annual (MMBtu eq.)	9,000	9,000	100%
Electricity Savings, Annual (MWh)	-	-	-
Natural Gas Savings, Annual (MMBtu)	9,000	9,000	100%
Other Fuel Savings, Annual (MMBtu)	-	-	-
Renewable Energy Generation, Annual (MWh)	-	-	-
Renewable Energy Capacity (MW)	-	-	-
Leveraged Funds ($)	4,629,714	4,629,714	100%

Single Family - Low Income [Active]

LMI Focus Area

Cumulative Plan vs. Progress Thru 2023	Planned	Progress	% To Plan
Budget Expenditures ($)	249,028,568	247,610,681	99%
Total Energy Savings, Annual (MMBtu eq.)	861,132	903,418	105%
Electricity Savings, Annual (MWh)	20,732	20,901	101%
Natural Gas Savings, Annual (MMBtu)	568,771	585,109	103%
Other Fuel Savings, Annual (MMBtu)	229,251	256,322	112%
Renewable Energy Generation, Annual (MWh)	-	-	-
Renewable Energy Capacity (MW)	-	-	-
Leveraged Funds ($)	-	-	-

Single Family - Moderate Income [Active]

LMI Focus Area

Cumulative Plan vs. Progress Thru 2023	Planned	Progress	% To Plan
Budget Expenditures ($)	99,806,543	96,128,446	96%
Total Energy Savings, Annual (MMBtu eq.)	334,227	321,735	96%
Electricity Savings, Annual (MWh)	4,870	4,748	97%
Natural Gas Savings, Annual (MMBtu)	233,760	233,187	100%
Other Fuel Savings, Annual (MMBtu)	170,163	159,117	94%
Renewable Energy Generation, Annual (MWh)	-	-	-
Renewable Energy Capacity (MW)	-	-	-
Leveraged Funds ($)	92,180,865	94,643,239	103%

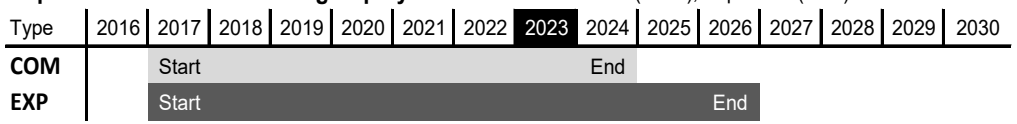
Solar for All [Inactive]

LMI Focus Area

Cumulative Plan vs. Progress Thru 2023	Planned	Progress	% To Plan
Budget Expenditures ($)	6,075,889	5,541,071	91%
Total Energy Savings, Annual (MMBtu eq.)	-	-	-
Electricity Savings, Annual (MWh)	-	-	-
Natural Gas Savings, Annual (MMBtu)	-	-	-
Other Fuel Savings, Annual (MMBtu)	-	-	-
Renewable Energy Generation, Annual (MWh)	-	-	-
Renewable Energy Capacity (MW)	-	-	-
Leveraged Funds ($)	-	-	-

Performance Summary

Expected Timeline Of Funding Deployment Committed (COM), Expended (EXP)



TOP 15 Energy Impact Initiative

Cumulative Plan vs. Progress Thru 2023	Planned	Progress	% To Plan
Budget Expenditures ($)	8,527,106	6,715,535	79%
Total Energy Savings, Annual (MMBtu eq.)	372,992	179,690	48%
Electricity Savings, Annual (MWh)	47,875	24,259	51%
Natural Gas Savings, Annual (MMBtu)	163,298	80,857	50%
Other Fuel Savings, Annual (MMBtu)	46,346	16,062	35%
Renewable Energy Generation, Annual (MWh)	-	-	-
Renewable Energy Capacity (MW)	-	-	-
Leveraged Funds ($)	60,032,115	54,866,867	91%

Summary of Performance and Future Plans

The Multifamily sector component of the broader Real Time Energy Management (RTEM) scope was closed to new project applications in 2022. The focus of the initiative is presently on managing the pipeline of projects to successful completion. A verified gross savings analysis 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. Additional evaluation will begin soon to verify direct savings over a longer time period and to quantify indirect savings. These evaluation efforts will better and more completely inform whether the strategy is meeting energy savings expectations.

Activities Summary

Activity	Activity #
Collect, analyze, and verify demonstration site data to support the business case for the technologies and share the information with the market. Perform targeted outreach of successful business case scenarios to farms suitable for implementing the demonstrated technology.	1
Apply the knowledge and experience gained from initial installations to replicate success and build market confidence in EM investment for all participants. • Publish case studies, technical guidance and datasets that demonstrate effectiveness of EM systems and services • Incentivize pilot and demonstration projects that provide greater insight into EM, leveraging these projects to publish case studies • Establish data warehousing to collect project and system level EM performance metrics. • Analyze trends in identified energy efficiency opportunities, persistence, and common practices to share with the marketplace to spur replication.	2

Milestones Summary

Milestone	Planned	Explanation of Progress	Status	Completed	Activity #
Issue revised open enrollment incentives for EM systems and services that support Multifamily market.	2021	NYSERDA issued revised incentive structures for Multifamily buildings in January 2021, and after committing all funding, recently closed the sector to new applications in June 2022.	Complete	2021	1
NYSERDA makes publicly available anonymized RTEM project data to support market confidence in performance of RTEM systems and services.	2022	NYSERDA sponsored the "RTEM Data Hackathon" on July 2022, a public competition with over 400 participants from 27 countries, which gave $55,000 in awards for the development and demonstration of novel & unique EM strategies using real-time data.	Complete	2022	2

Outputs and Outcomes Summary

Indicators	2021 Target	2022 Target	Progress as of 12/31/2023	2023 Target	2024 Target	2025 Target	Activity #
Output: Number of multifamily buildings participating in incentive program (baseline = 0).	300	400	367	500	-	-	1
Output: Number of qualified providers on NYSERDA list serving Multifamily sector (baseline = 0).	20	30	30	-	-	-	1
Outcome: large multifamily portfolio owners deploy RTEM across four or more of their buildings (baseline = 1 owner).	-	-	5	3	5	10	1
Output: Number of comprehensive building specific data sets submitted to NYSERDA (baseline = 0).	-	50	650	100	-	-	2
Output: Number of pilots complete (baseline = 0).	-	-	12	5	-	-	2
Outcome: Awareness of EM among building owners/managers (baseline = TBD).	-	-	N/A	40%	50%	-	2
Outcome: Persistence of EM service contracts (i.e., how many customers extend their subscription with an RTEM provider beyond 5 years)	-	-	65%	-	40%	60%	2
Outcome: Size of market as indicated by vendor sales (baseline = $10M).	-	$40M	N/A	-	-	-	2

Performance Summary

Expected Timeline Of Funding Deployment Committed (COM), Expended (EXP)

Type	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
COM					Start				End						
EXP						Start					End				

TOP 15 Energy Impact Initiative

Cumulative Plan vs. Progress Thru 2023	Planned	Progress	% To Plan
Budget Expenditures ($)	3,045,942	2,834,033	93%
Total Energy Savings, Annual (MMBtu eq.)	-	-	-
Electricity Savings, Annual (MWh)	-	-	-
Natural Gas Savings, Annual (MMBtu)	-	-	-
Other Fuel Savings, Annual (MMBtu)	-	-	-
Renewable Energy Generation, Annual (MWh)	-	-	-
Renewable Energy Capacity (MW)	-	-	-
Leveraged Funds ($)	-	-	-

Summary of Performance and Future Plans
The Market Challenges - Multifamily sector initiatives are achieving target milestones, outputs and outcomes. Progress of expenditures fared well against the 2023 plan. The first Demonstration projects for Empire Building Challenge are in the construction phases, and benefits are expected to be acquired starting in 2024.

Activities Summary

Activity	Activity #
• Conduct global scans to identify and catalog low carbon technologies that can support low carbon retrofits for big, tall buildings • Convene real estate portfolio owners to develop a shared definition of “carbon neutral” for big, tall buildings. • Compile and publish market data that provides OEMs, energy-focused firms, and engineering companies better visibility on the needs and market potential for low carbon solutions for big, tall buildings. • Develop a pool of real estate portfolio owners partnering with NYSERDA towards the goal of achieving carbon neutral buildings. • Fund demonstration projects of low carbon retrofits in tall buildings through a competitive solicitation and leverage projects to share learnings with stakeholders.	1

Milestones Summary

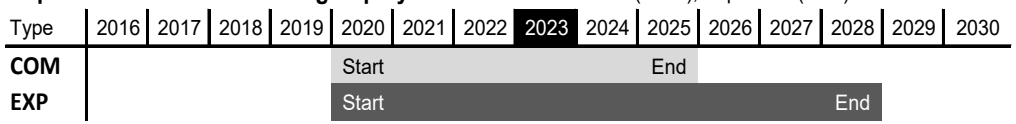
Milestone	Planned	Explanation of Progress	Status	Completed	Activity #
Announce the participating real estate owners and their public commitments from round 1 of solicitation.	2021	The solicitation to select the first cohort of real estate partners was launched in Q3 2020 and a public announcement of the first cohort of real estate partners was made in Q1 2021.	Complete	2021	1
Announce awards following the release of competitive solicitation.	2022	The second funding round for Empire Building Challenge was held in Q3-Q4 2022 and project awards were announced in September 2023.	Complete	2023	1
Announce the partnering of real estate owners and their public commitments from round 2 of solicitation.	2022	All real estate partners have been publicly recognized for being selected as Empire Building Challenge (EBC) Partners. This includes a public announcement on each partner's commitment to carbon neutrality, at their participating building(s).	Complete	2022	1

Outputs and Outcomes Summary

Indicators	2021 Target	2022 Target	Progress as of 12/31/2023	2023 Target	2024 Target	2025 Target	Activity #
Output: Increase in number of portfolio owners in multifamily sector with a public commitment to achieving carbon neutral buildings by 2035 (baseline = 0 companies).	4	4	17	10	-	-	1
Outcome: Multifamily replication projects within portfolios as measured by total household units served (baseline = 0).	-	-	N/A	500	1,500	2,500	1

Performance Summary

Expected Timeline Of Funding Deployment Committed (COM), Expended (EXP)



Cumulative Plan vs. Progress Thru 2023	Planned	Progress	% To Plan
Budget Expenditures ($)	5,783,738	1,500,329	26%
Total Energy Savings, Annual (MMBtu eq.)	6,479	-	0%
Electricity Savings, Annual (MWh)	-	-	-
Natural Gas Savings, Annual (MMBtu)	6,740	-	0%
Other Fuel Savings, Annual (MMBtu)	749	-	0%
Renewable Energy Generation, Annual (MWh)	-	-	-
Renewable Energy Capacity (MW)	-	-	-
Leveraged Funds ($)	9,835,794	993,294	10%

Summary of Performance and Future Plans

The program has made strong progress toward the commitment of funding as well as outputs and outcomes. Expenditures and associated benefits are lagging plan due to delays in construction on the first cohort of projects, as noted on milestone updates.

Of the 26 approved projects, serving a total of 2,562 dwelling units, 17 projects are pursuing Heating and Cooling electrification; 13 projects are pursuing envelope improvements and 13 projects are pursuing domestic hot water electrification.

Activities Summary

Activity	Activity #
• Develop technical and financial playbooks with multifamily building owners to provide implementation pathways for prevalent multifamily building typologies to achieve low carbon performance over time and that leverage common capital planning milestones. Participants engaged include large portfolio owners and property management firms, A&E firms, and energy service providers.	1
• Fund demonstrations of high-performance and low carbon solutions (e.g., electrification of heating or hot water, advanced envelope solutions, integrated HVAC solutions, etc.) to develop early proof points to demonstrate the feasibility of implementing these solutions in prevalent multifamily building typologies. • Gather data and insights from projects to help build the business case for replicating these solutions within and across building portfolios. Participants engaged include large portfolio owners and property management firms, A&E firms, energy service providers, and utilities	2
Implement a pilot program related to non-energy benefits (NEBs) that have potential to increase adoption of energy efficiency, electrification and other low carbon solutions. Pilot projects will help building decision-makers more confidently consider benefits beyond utility bill and operational savings. • Initially conduct research to review existing literature studying NEBs and engage with multifamily stakeholders (e.g., owners, managers, building operations, service providers, brokers) to determine whether and which NEBs have the ability to impact capital improvement decision-making to support the adoption of carbon-reducing technologies • Validate the results from market research with experts and market participants to assess the impacts of NEBs and determine if there is a viable path to monetization. If this assessment is positive, evaluate NEBs as part of case studies for low carbon demonstrations. Participants engaged include large portfolio owners and property management firms, A&E firms and energy service providers.	3

Milestones Summary

Milestone	Planned	Explanation of Progress	Status	Completed	Activity #
Identify market need for and create technical assistance tools and resources (e.g., comprehensive cost-benefit analysis frameworks, sample bid documents, 'starter' energy models, standard specifications).	2022	Construction delays in the first cohort of projects have delayed the assessment of tool and resource needs. Most of these projects will complete construction in 2024 and determine the updates and next steps for this milestone.	Delayed		1
Update playbooks based on market feedback on additional topics needed, such as hybrid approaches to electrification and resilience considerations.	2023	Construction delays in the first cohort of projects have delayed updates to the playbooks. Most of these projects will complete construction in 2024 and determine the updates and next steps for this milestone.	Delayed		1
Publish case studies with owners for first cohort of low carbon demonstration projects.	2022	A case study for the International Tailoring Company Building was completed in 2023, including a written and video component. Development of further case studies will be determined as construction is completed for future projects.	Complete		2
Develop preliminary method of collecting information from multifamily stakeholders on the value of non-energy benefits and their connection with low carbon retrofits.	2021	Finished implementing a resident survey that is being utilized to collect information from multifamily stakeholders on the value of non-energy benefits and their connection with low carbon retrofits.	Complete	2022	3
Collect and review data from preliminary market stakeholder assessments to determine need and design considerations for a non-energy benefits pilot.	2022	The first Pre-Construction Resident Experience Surveys on Non-Energy Benefits (NEBs) were completed in 2023, but delays in the first cohort of projects have delayed the post-construction survey deployment needed to initially assess NEBs. The first post-construction surveys are expected to go out in Q3/Q4 of 2024 and will direct NEB pilot development.	Delayed		3
Develop preliminary method of collecting information from multifamily stakeholders on the value of non-energy benefits and their connection with low carbon retrofits.	2022	Finished implementing a resident survey that is being utilized to collect information from multifamily stakeholders on the value of non-energy benefits and their connection with low carbon retrofits.	Complete	2022	3
Collect and review data from preliminary market stakeholder assessments to determine need and design considerations for a non-energy benefits pilot.	2023	The first Pre-Construction Resident Experience Surveys on Non-Energy Benefits (NEBs) were completed in 2023, but delays in the first cohort of projects have delayed the post-construction survey deployment needed to initially assess NEBs. The first Post-Construction surveys are expected to go out in Q3/Q4 of 2024 and will direct NEB pilot development.	Delayed		3

Outputs and Outcomes Summary

Indicators	2021 Target	2022 Target	Progress as of 12/31/2023	2023 Target	2024 Target	2025 Target	Activity #
Output: Publish low carbon playbooks for a total of five prevalent multifamily building typologies	5	-	5	-	-	-	1
Output: Number of low carbon technology demonstrations in units (baseline = 0 units).	96	1,141	3,773	3,314	6,696	11,274	2
Outcome: Number of multifamily buildings adopting high-performance retrofits s (baseline = 0).	-	-	2,562 dwelling units	-	-	3,040 (This target number is subject to change with more accurate population data.)	2
Outcome: Number of multifamily buildings with awareness of low carbon implementation pathways and non-energy benefits of high-performance technologies (baseline = 0).	-	-	N/A	-	-	19,002 (This target number is subject to change with more accurate population data.)	2
Output: Number of non-energy benefit pilot projects (baseline = 0).	-	TBD	0	TBD	TBD	TBD	3

Cumulative Plan vs. Progress Thru 2023	Planned	Progress	% To Plan
Budget Expenditures ($)	156,214	156,214	100%
Total Energy Savings, Annual (MMBtu eq.)	829	829	100%
Electricity Savings, Annual (MWh)	-	-	-
Natural Gas Savings, Annual (MMBtu)	829	829	100%
Other Fuel Savings, Annual (MMBtu)	-	-	-
Renewable Energy Generation, Annual (MWh)	-	-	-
Renewable Energy Capacity (MW)	-	-	-
Leveraged Funds ($)	70,547	70,547	100%

Performance Summary

Expected Timeline Of Funding Deployment Committed (COM), Expended (EXP)

Type	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
COM					Start					End					
EXP					Start									End	

TOP 15 Energy Impact Initiative

Cumulative Plan vs. Progress Thru 2023	Planned	Progress	% To Plan
Budget Expenditures ($)	8,547,129	8,536,549	100%
Total Energy Savings, Annual (MMBtu eq.)	326,566	418,529	128%
Electricity Savings, Annual (MWh)	6,961	16,058	231%
Natural Gas Savings, Annual (MMBtu)	233,465	319,969	137%
Other Fuel Savings, Annual (MMBtu)	70,672	97,382	138%
Renewable Energy Generation, Annual (MWh)	-	4,699	-
Renewable Energy Capacity (MW)	-	5	-
Leveraged Funds ($)	3,644,554	18,340,203	503%

Summary of Performance and Future Plans

This initiative finished 2023 in good standing with respect to both budget and energy benefits. NYSERDA continues to see strong participation from the multifamily market. Initiative evaluation will be commencing soon. Future reports will detail results from these studies.

Activities Summary

Activity	Activity #
Continue providing building and portfolio-level assessments of low-carbon solutions to drive clean energy adoption through its successful FlexTech Program. Participants engaged include multifamily building owners and property management firms, A&E firms and energy service providers.	1

There are currently no milestones to report.

Outputs and Outcomes Summary

Indicators	2021 Target	2022 Target	Progress as of 12/31/2023	2023 Target	2024 Target	2025 Target	Activity #
Outcome: maintain or (best case) increase the rate at which clean energy technologies are adopted by non-participants (baseline = 25%).	-	30%	N/A	30%	30%	30%	1
Outcome: maintain or (best case) increase the rate at which clean energy technologies are adopted by participants (baseline = 65%).	-	65%	N/A	65%	65%	65%	1

Performance Summary

Expected Timeline Of Funding Deployment Committed (COM), Expended (EXP)

Type	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
COM						Start			End						
EXP						Start							End		

Cumulative Plan vs. Progress Thru 2023	Planned	Progress	% To Plan
Budget Expenditures ($)	3,361,991	3,142,084	93%
Total Energy Savings, Annual (MMBtu eq.)	-	-	-
Electricity Savings, Annual (MWh)	-	-	-
Natural Gas Savings, Annual (MMBtu)	-	-	-
Other Fuel Savings, Annual (MMBtu)	-	-	-
Renewable Energy Generation, Annual (MWh)	-	-	-
Renewable Energy Capacity (MW)	-	-	-
Leveraged Funds ($)	5,537,700	-	0%

Summary of Performance and Future Plans
Program expenditures are trending favorably through Q4 of 2023. This past year the program executed 12 contracts from Round #1 and selected awards for Round #2 projects with contract execution expected in Q2 2024. Round #3 will be released in Q3 2024.

Activities Summary

Activity	Activity #
NYSERDA will launch a grant funding and ecosystem building program focused on carbontech and negative emission technology. These activities will serve researchers and early-stage companies.	1

Milestones Summary

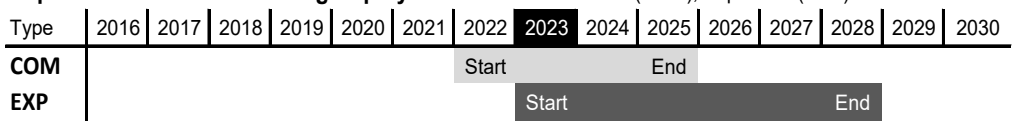
Milestone	Planned	Explanation of Progress	Status	Completed	Activity #
At least $2.5M in cost share due from the program administrator.	2021	The program administrator was selected in 2021 and collected in excess of $2,500,000 during 2021.	Complete	2021	1
Issue awards from competitive solicitation for program administrator.	2021	The competitive solicitation for Program Administrator launched on April 7, 2021 and awards were made in 2021.	Complete	2021	1
At least $2.2M in external funding opportunities awarded by the program administrator.	2022	The Carbontech Development Initiative announced the opening of its inaugural solicitation round on 11.22.22 with applications due on 1.13.23 - awards of $2.75M were made to the cohort.	Complete	2023	1
At least 10 corporate partners secured as partners of the Carbontech Development initiative.	2022	The Carbontech Development Initiative announced the opening of its inaugural solicitation round on 11.22.22 with applications due on 1.13.23 - awards of $2.75M were made to the cohort. Partners including Steering Committee, Summit and other activities exceed 10.	Complete	2023	1
At least $5.5M in cumulative cost share due from program administrator.	2023	Due to delays issuing the round 1 solicitation, this milestone is expected to be completed in 2025.	Delayed		1

Outputs and Outcomes Summary

Indicators	2021 Target	2022 Target	Progress as of 12/31/2023	2023 Target	2024 Target	2025 Target	Activity #
Output: New awards issued	-	2	12	4	6	8	1
Output: New products created	-	-	0	1	2	3	1

Performance Summary

Expected Timeline Of Funding Deployment Committed (COM), Expended (EXP)



Cumulative Plan vs. Progress Thru 2023	Planned	Progress	% To Plan
Budget Expenditures ($)	562,500	315,536	56%
Total Energy Savings, Annual (MMBtu eq.)	-	-	-
Electricity Savings, Annual (MWh)	-	-	-
Natural Gas Savings, Annual (MMBtu)	-	-	-
Other Fuel Savings, Annual (MMBtu)	-	-	-
Renewable Energy Generation, Annual (MWh)	-	-	-
Renewable Energy Capacity (MW)	-	-	-
Leveraged Funds ($)	6,500,000	-	0%

Summary of Performance and Future Plans
Contracts from the Round 1 solicitation of PON 5180 are being negotiated and are expected to be executed by mid-2024. NYSERDA filed a recent investment plan modification in February 2024 (pending approval) for an additional $8M in CEF funds to support additional rounds of PON 5180. Expenditures and leveraged funds are currently lagging due to a delay in contract negotiations; with swift resolution these projects are anticipated to be back on track in the next 6-9 months.

Activities Summary

Activity	Activity #
NYSERDA will release a rolling solicitation to provide smaller and shorter-term seed level funding to enable NY based teams and demonstrations to pursue federal or venture funds, which can include support for cost-share requirements and planning. This funding is tailored for high-risk and high-reward pursuits in State.	1
NYSERDA will release a multi-round solicitation for an Innovation Challenge targeting demonstrations of technologies and business models that have compelling evidence for impact in New York State, with substantial follow-on investment potential, but have not yet been sufficiently demonstrated. Round 2 may be used to support scale up of existing projects or find and evaluate new projects.	2

Milestones Summary

Milestone	Planned	Explanation of Progress	Status	Completed	Activity #
NYSERDA completes initial stakeholder engagement process to finalize scope of solicitations	2022	NYSERDA received responses to RFI in August of 2022, and the solicitation was issued on NYSERDA's website in Q4 of 2022.	Complete	2022	1
NYSERDA releases evergreen solicitation ($1.65M).	2022	In 2022, Natural Carbon Solutions released Round 1 of PON 5180, committing all available CEF funds ($12.5M) across 8 projects. Approval for Round 2 of funding is expected to be approved by April 1, 2024, with the PON released in Q2 2024. Because the amount of funding for projects deemed fundable far exceeded the funding allocation and would accomplish identical goals for the portfolio, NYSERDA decided to award up to the limit and therefore cancelled the rolling solicitation.	Cancelled		1
NYSERDA completes initial stakeholder engagement process to finalize scope of solicitations.	2022	NYSERDA received responses to RFI in August of 2022, and the solicitation was issued on NYSERDA's website in Q4 of 2022.	Complete	2022	2
NYSERDA Round 1 Innovation challenge awards ($4.5M).	2022	Eight CEF and two RGGI awards were made in December 2022. A total of $11.15M CEF funds and $1.7M RGGI funds were awarded.	Complete	2022	2
NYSERDA completes midpoint stakeholder engagement process reviewing project portfolio, integrating input for project down-selection and next round of funding.	2023	In 2022, Natural Carbon Solutions released Round 1 of PON 5180, committing all available CEF funds ($12.5M) across 8 projects. Contracted projects are in the process of evaluation for continuation of funding. Lessons learned have been applied to plans for Round 2 of the PON, anticipating approval by April 1, 2024, with the PON released in Q2 2024.	Complete		2

Outputs and Outcomes Summary

Indicators	2021 Target	2022 Target	Progress as of 12/31/2023	2023 Target	2024 Target	2025 Target	Activity #
Output: Number of new projects supported (baseline = 0).	-	5	0	7	10	15	1
Output: Number of stakeholders engaged (baseline = 0).	-	50	500	75	100	200	1
Outcome: Number of projects receiving follow-on funding with at least 5x leverage ratio of NYSERDA funding (baseline = 0).	-	-	N/A	2	4	8	1
Output: Number of new projects supported (baseline = 0).	-	15	4	15	20	-	2
Output: Number of stakeholders engaged (baseline = 0).	-	50	500	75	100	200	2
Outcome: Number of new industrial partners, or co-investors contributing leverage funds to scale up in NYS (baseline = 0).	-	2	4	5	10	20	2
Outcome: Number of new technologies or businesses/business models entering the NYS market (baseline = 0).	-	-	N/A	1	2	5	2
Outcome: Number of project replications (baseline = 0).	-	-	N/A	-	5	10	2

Commercial New Construction Transition [Inactive]

New Construction Focus Area

Cumulative Plan vs. Progress Thru 2023	Planned	Progress	% To Plan
Budget Expenditures ($)	9,284,186	9,634,283	104%
Total Energy Savings, Annual (MMBtu eq.)	106,332	131,007	123%
Electricity Savings, Annual (MWh)	18,348	24,495	134%
Natural Gas Savings, Annual (MMBtu)	62,290	68,225	110%
Other Fuel Savings, Annual (MMBtu)	-	197	-
Renewable Energy Generation, Annual (MWh)	-	-	-
Renewable Energy Capacity (MW)	-	-	-
Leveraged Funds ($)	12,134,433	13,074,517	108%

Low Rise New Construction Transition - Market Rate [Inactive]

New Construction Focus Area

Cumulative Plan vs. Progress Thru 2023	Planned	Progress	% To Plan
Budget Expenditures ($)	4,169,939	4,107,245	98%
Total Energy Savings, Annual (MMBtu eq.)	134,197	157,998	118%
Electricity Savings, Annual (MWh)	5,327	6,562	123%
Natural Gas Savings, Annual (MMBtu)	113,871	133,456	117%
Other Fuel Savings, Annual (MMBtu)	2,151	2,151	100%
Renewable Energy Generation, Annual (MWh)	-	-	-
Renewable Energy Capacity (MW)	-	-	-
Leveraged Funds ($)	12,586,359	12,248,264	97%

Cumulative Plan vs. Progress Thru 2023	Planned	Progress	% To Plan
Budget Expenditures ($)	1,485,442	1,420,702	96%
Total Energy Savings, Annual (MMBtu eq.)	13,671	13,889	102%
Electricity Savings, Annual (MWh)	1,076	1,078	100%
Natural Gas Savings, Annual (MMBtu)	10,000	10,210	102%
Other Fuel Savings, Annual (MMBtu)	-	-	-
Renewable Energy Generation, Annual (MWh)	-	-	-
Renewable Energy Capacity (MW)	-	-	-
Leveraged Funds ($)	2,412,761	2,455,394	102%

Performance Summary

Expected Timeline Of Funding Deployment Committed (COM), Expended (EXP)

Type	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
COM		Start								End					
EXP		Start													End

TOP 15 Energy Impact Initiative

Cumulative Plan vs. Progress Thru 2023	Planned	Progress	% To Plan
Budget Expenditures ($)	18,475,493	22,224,545	120%
Total Energy Savings, Annual (MMBtu eq.)	72,831	88,789	122%
Electricity Savings, Annual (MWh)	4,990	6,321	127%
Natural Gas Savings, Annual (MMBtu)	55,472	66,954	121%
Other Fuel Savings, Annual (MMBtu)	340	290	85%
Renewable Energy Generation, Annual (MWh)	3,020	2,820	93%
Renewable Energy Capacity (MW)	-	-	-
Leveraged Funds ($)	10,729,336	14,162,069	132%

Summary of Performance and Future Plans

The initiative exceeded projections for new commitments, expenditures, and energy savings for open programs and competitions. New competition rounds for both Carbon Neutral Community for Economic Development and Buildings of Excellence launched and were awarded, and funding was committed, in 2023. The commercial open enrollment program closed to new applications in Q1 2023 and a robust pipeline of applications that exceeded available funding continues to be reviewed and accepted as funding from closed/cancelled projects becomes available. While new construction market activity increased this year compared to recent years, some supply chain challenges linger, particularly around key materials such as switch gear for new buildings and mineral wool insulation for high-performing envelopes. Higher interest rates continue to pose financing challenges for some projects, creating some uncertainty for future pipelines for both competitions. New zero emissions building legislation enacted in May 2023 delayed plans to launch a new phase of the single family new construction offering focused on neighborhoods; a launch of a modified program focused primarily on builder training and capacity building is expected in Q2 2024. An evaluation of Single-Family New Construction was completed in Q2 2023 and demonstrated strong realization rates and sizeable indirect impacts. A study focusing on multifamily and commercial projects has since launched and results are anticipated in Q3 2024.

Activities Summary

Activity	Activity #
Provide technical assistance and financial incentives to overcome initial design challenges, costs and risk barriers related to building and renovating carbon neutral commercial and industrial buildings.	1
Provide incentives and technical support to building owners on a competitive basis, leveraging economic development opportunities, to spur carbon neutral projects that are aligned with Regional Economic Development Councils' Strategic Plan and State Priorities.	2
• Build market capability and capacity for new construction and adaptive reuse of multifamily and single-family homes to achieve carbon neutral performance. • Offer project-specific targeted support for integrated and advanced design, innovative or smart technologies, as well as mentoring support.	3
• Host competition to promote and demonstrate carbon neutral buildings that are highly replicable, resilient, achieve superior performance, are cost-effective, and create great places to live or work. • Conduct performance analyses to assess actual building and equipment performance to create a data library on measure performance. • Develop case studies on successful projects to provide building performance validation and increase market demand for advanced clean energy buildings.	4
• Target single family homes and neighborhood developments through a competition to advance the adoption of carbon neutral homes and highlight the health benefits that are inherent in all-electric homes. • Support the market for carbon neutral single-family homes through activities that generate awareness of the benefits of these homes. This includes a media campaign, support for builder and developer self-marketing, showcasing carbon neutral homes for potential home buyers to experience, and continuing to support the design development and advancement of construction practices through training and resource development. • Conduct performance analyses and develop case studies on successful projects to provide building performance validation and increase market demand for carbon neutral homes.	5
• Support the writing, research and analysis for the Carbon Neutral Buildings Roadmap and other activities as determined by the Climate Action Council. • Support future roadmap activities and updates.	6

Milestones Summary

Milestone	Planned	Explanation of Progress	Status	Completed	Activity #
Issue Awards for the Carbon Neutral Community Economic Development program.	2021	In December 2021, NYSERDA announced the award of 19 projects for $21 million through the Carbon Neutral Community Economic Development program.	Complete	2021	2
Issue Awards for the Carbon Neutral Community Economic Development program.	2022	In December 2022, NYSERDA announced the award of 10 projects for $12 million through the Carbon Neutral Community Economic Development program.	Complete	2022	2
Issue Awards for the Carbon Neutral Community Economic Development program.	2023	In November 2023, NYSERDA announced the award of 10 projects for $12.4 million through the Carbon Neutral Community Economic Development program.	Complete	2023	2
Issue Awards for the Buildings of Excellence Competition	2022	The awards ceremony for the Buildings of Excellence Competition was held in Q1 2023.	Complete	2023	4
Issue Awards for the Buildings of Excellence Competition	2023	The awards ceremony for the Buildings of Excellence Competition will be held in Q2 2024.	Delayed		4
Issue Builder/Developer Network Solicitation	2021	In December 2021, NYSERDA launched the Building Better Homes Partner solicitation to develop a Builder or Developer's capacity to deliver carbon neutral single family homes.	Complete	2021	5
Issue Awards for each round of the Carbon Neutral Single Family Neighborhoods Competition	2022	Launch of the Carbon Neutral Single Family Neighborhood competition was delayed due to market conditions and is being revised due to the Zero Emissions law. It is expected to launch in 2024.	Delayed		5
Issue Awards for each round of the Carbon Neutral Single Family Neighborhoods Competition	2023	Launch of the Carbon Neutral Single Family Neighborhood competition was delayed due to market conditions and is being revised due to the Zero Emissions law. It is expected to launch in 2024.	Delayed		5
Carbon Neutral Buildings Roadmap is published.	2021	The Carbon Neutral Buildings Roadmap was published in December 2022.	Complete	2022	6
Provide input and support to State and local governments to advance adoption of requirements for carbon neutral buildings in state/local laws and programs.	2021	In 2021, the New Construction team worked with the NYS Department of State to advance decarbonization through the Downtown Revitalization Initiative Round 5 program offering.	Complete	2021	6
Provide input and support to State and local governments to advance adoption of requirements for carbon neutral buildings in state/local laws and programs.	2022	In 2022, NYSERDA worked with the NYS Department of State to advance decarbonization through the Downtown Revitalization Initiative Round 6 program offering, and offered technical support to projects seeking DRI incentives.	Complete	2022	6
Provide input and support to State and local governments to advance adoption of requirements for carbon neutral buildings in state/local laws and programs.	2023	In 2023, NYSERDA worked with the NYS Department of State to advance decarbonization through the Downtown Revitalization Initiative Round 6 program offering, and offered technical support to projects seeking Downtown Revitalization initiative incentives.	Complete	2023	6

Outputs and Outcomes Summary

Indicators	2021 Target	2022 Target	Progress as of 12/31/2023	2023 Target	2024 Target	2025 Target	Activity #
Output: Carbon Neutral Commercial Square Feet Completed (baseline = 0).	0.04M	0.08M	2.24M	0.25M	0.55M	1.0M	1
Output: Number of Carbon Neutral Commercial Buildings Completed (baseline = 0).	11	20	31	40	60	100	1
Output: Number of Market Participants that attend Conferences and Events (baseline = 4,979).	5,000	9,000	8,464	13,000	17,000	21,000	1
Output: Number of Market Participants that attend Trainings and Workshops (baseline = 2,372).	4,400	6,400	10,882	-	-	-	1
Output: Number of projects that completed performance analysis (baseline = 0).	5	12	75	20	30	45	1
Output: Published Case Studies (baseline = 0).	0	5	117	-	-	-	1
Output: Published Model Measure Packages (baseline = 0).	-	-	N/A	5	10	15	1
Outcome: Incremental Cost of Building a highly energy efficient all-electric (Carbon Neutral) project on total construction cost (baseline = 10%-20%).	10-20%	10-20%	N/A	8-15%	8-15%	5-10%	1
Outcome: Percent market penetration of commercial projects >20,000 square feet, utilizing integrated design and construction practices (baseline = TBD).	3%	3%	N/A	6%	8%	10%	1
Output: Number of Carbon Neutral Community Economic Development Campus/ Community projects awarded (baseline = 3).	5	7	5	-	-	-	2
Output: Number of Carbon Neutral Community Economic Development facility projects awarded (baseline = 17).	27	37	55	42	-	-	2
Output: Carbon Neutral Market Rate Multifamily Square Footage Completed (baseline = 0).	0.10M	0.25M	0.44M	0.45M	0.90M	2.0M	3
Output: Carbon Neutral Market Rate Single Family Square Footage Completed (baseline = 0).	0.25M	0.38M	0.05M	0.63M	1.0M	2.5M	3
Output: Number of Carbon Neutral Market Rate Multifamily Units Completed (baseline = 0).	100	250	713	450	900	2,000	3
Output: Number of Carbon Neutral Market Rate Single Family Homes Completed (baseline = 0).	100	150	148	250	400	1,000	3
Output: Number of Market Participants that attend Conferences and Events (baseline = 4,979).	11,000	16,000	12,951	-	-	-	3
Output: Number of Market Participants that attend Trainings and Workshops (baseline = 2372).	4,400	6,400	13,523	8,400	10,400	12,400	3
Output: Number of Market Participants that receive mentoring Support (baseline = 16).	30	45	71	60	75	90	3

Outputs and Outcomes Summary (continued)

Indicators	2021 Target	2022 Target	Progress as of 12/31/2023	2023 Target	2024 Target	2025 Target	Activity #
Output: Number of Projects that completed performance analysis (baseline = 0).	15	30	36	45	60	75	3
Output: Published Case Studies (baseline = 0).	65	75	97	-	-	-	3
Output: Published Model Measure Packages (baseline = 0).	-	-	N/A	5	10	15	3
Outcome: Incremental Cost of Building a highly energy efficient all-electric (Carbon Neutral) project on total construction cost (baseline = 10%-20%).	5-12%	5-12%	N/A	4-10%	3-8%	2-5%	3
Outcome: Percent market penetration of multifamily projects >20,000 square feet, utilizing integrated design and construction practices (baseline = TBD).	3%	3%	N/A	6%	8%	10%	3
Output: Number of Buildings of Excellence projects awarded (baseline = 42 (both LMI and Market Rate)).	42	47	56	51	62	-	4
Output: Number of Builders and Developers in the Carbon Neutral Network (baseline = 0).	10	30	10	50	65	75	5
Output: Number of Carbon Neutral Neighborhoods Awarded (baseline = 0).	-	3	0	8	13	21	5

Cumulative Plan vs. Progress Thru 2023	Planned	Progress	% To Plan
Budget Expenditures ($)	9,146,255	6,277,983	69%
Total Energy Savings, Annual (MMBtu eq.)	-	-	-
Electricity Savings, Annual (MWh)	-	-	-
Natural Gas Savings, Annual (MMBtu)	-	-	-
Other Fuel Savings, Annual (MMBtu)	-	-	-
Renewable Energy Generation, Annual (MWh)	39,646	-	0%
Renewable Energy Capacity (MW)	-	-	-
Leveraged Funds ($)	7,107,000	-	0%

Performance Summary

Expected Timeline Of Funding Deployment Committed (COM), Expended (EXP)

Type	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
COM			Start							End					
EXP			Start									End			

Cumulative Plan vs. Progress Thru 2023	Planned	Progress	% To Plan
Budget Expenditures ($)	2,956,728	2,774,118	94%
Total Energy Savings, Annual (MMBtu eq.)	-	-	-
Electricity Savings, Annual (MWh)	-	-	-
Natural Gas Savings, Annual (MMBtu)	-	-	-
Other Fuel Savings, Annual (MMBtu)	-	-	-
Renewable Energy Generation, Annual (MWh)	-	-	-
Renewable Energy Capacity (MW)	-	-	-
Leveraged Funds ($)	-	-	-

Summary of Performance and Future Plans

This initiative is performing well compared to plans and measure targets through 2023, meeting or exceeding all but one target. The one target not yet met, "Number of communities engaged in completing steps to reduce soft costs," is measured by assessing the level of flexibility in local zoning laws throughout the state. In 2023, due to competing priorities, the team was unable to complete a comprehensive assessment, keeping the numbers low, but will do so in 2024. The program has also been ramping up both in staff capacity and contracted technical support services to better serve local governments across the state. The number of communities receiving direct, one-on-one technical assistance continues to remain on track, while exceeding the 2023 goal of providing training workshops to 150 communities. At least 223 unique communities participated in one or more of Clean Energy Siting team training opportunities. This successful joint initiative with the Clean Energy Communities program is providing many more communities with assistance preparing for solar and energy storage, and incorporating clean energy into their comprehensive plans. In addition, in 2023, surpassing the 2024 target of 200. NYSERDA is also poised to release new resources and initiatives aimed at breaking down barriers to municipal ownership of solar and energy storage by creating an IRA guidance document and associated training. NYSERDA also plans to publish an updated and expanded property tax guidance chapter of the Solar Guidebook for Local Governments.

Activities Summary

Activity	Activity #
Support local governments and other stakeholders in their efforts to prepare for clean energy development. • Create and update guidebooks, factsheets, technical reports, and other resources that provide information on best practices to overcome soft cost barriers. • Leverage the reach of NYSERDA Clean Energy Communities program to continue implementation of outreach and education campaigns for AHJ officials using online resources, webinars, workshops, and events to disseminate soft cost solutions and products. assistance to local governments and other stakeholders on clean energy development issues. Technical assistance offerings will include remote and in-person consultations. • Coordinate with the Clean Energy Communities (CEC) program and other initiatives to recognize communities that actively reduce clean energy soft costs, including adopting and implementing local laws to responsibly regulate solar and energy storage, and to reward those communities with funding to implement related clean energy projects. • Support other funding and technical support opportunities for communities and stakeholders to reduce soft costs and accelerate project deployment timelines.	1

Milestones Summary

Milestone	Planned	Explanation of Progress	Status	Completed	Activity #
Release solicitation for consultant support.	2021	The solicitation for consultant support was officially launched in early 2023.	Complete	2023	1
Launch updated educational campaign through CEC program.	2022	The County-Hosted Trainings High Impact Action was released through the Clean Energy Communities program in 2022. 70 trainings were delivered in 2022, with an additional 10 trainings scheduled in Q1 2023.	Complete	2022	1
Launch new grant opportunity for soft cost reduction.	2023	In late 2023, NYSERDA launched and completed a Request for Information to inform development of a grant opportunity for agrivoltaics demonstration projects. The resulting solicitation is expected in late 2024.	Delayed		1

Outputs and Outcomes Summary

Indicators	2021 Target	2022 Target	Progress as of 12/31/2023	2023 Target	2024 Target	2025 Target	Activity #
Output: Number of AHJs receiving direct technical assistance (baseline = 355).	376	391	421	406	421	436	1
Output: Number of communities engaged in completing steps to reduce soft costs (baseline = 0).	-	25	72	100	175	200	1
Output: Number of communities that attended workshops (baseline = 0).	-	100	223	150	200	250	1
Output: Soft cost solutions created or updated (baseline = 10).	11	12	13	13	14	15	1
Outcome: Cycle Time (in months) of projects from customer proposal to commissioning (baseline = BTM: 18; FTM: 23).	22	-	28	-	-	-	1
Outcome: Soft costs $ per KWh of battery storage based on CEF strategies (baseline = BTM: Avg=$89/kWh; FTM: Avg=$92/kWh).	109	-	$31/kWh (Residential); $19/kWh-$35/kWh (Non-Residential)	-	-	-	1

Combined Heat & Power Transition [Inactive]

Renewables/ Distributed Energy Resources (DER) Focus Area

Cumulative Plan vs. Progress Thru 2023	Planned	Progress	% To Plan
Budget Expenditures ($)	47,482,251	39,313,253	83%
Total Energy Savings, Annual (MMBtu eq.)	(540,631)	(254,235)	47%
Electricity Savings, Annual (MWh)	204,508	96,172	47%
Natural Gas Savings, Annual (MMBtu)	-	-	-
Other Fuel Savings, Annual (MMBtu)	-	-	-
Renewable Energy Generation, Annual (MWh)	-	-	-
Renewable Energy Capacity (MW)	-	-	-
Leveraged Funds ($)	205,679,966	147,690,023	72%

Fuel Cells [Inactive]

Renewables/ Distributed Energy Resources (DER) Focus Area

Cumulative Plan vs. Progress Thru 2023	Planned	Progress	% To Plan
Budget Expenditures ($)	5,442,888	4,286,644	79%
Total Energy Savings, Annual (MMBtu eq.)	(554,747)	(611,631)	110%
Electricity Savings, Annual (MWh)	162,393	139,706	86%
Natural Gas Savings, Annual (MMBtu)	-	-	-
Other Fuel Savings, Annual (MMBtu)	-	-	-
Renewable Energy Generation, Annual (MWh)	-	-	-
Renewable Energy Capacity (MW)	-	-	-
Leveraged Funds ($)	91,230,680	80,737,189	88%

Offshore Wind Master Plan [Inactive]

Renewables/ Distributed Energy Resources (DER) Focus Area

Cumulative Plan vs. Progress Thru 2023	Planned	Progress	% To Plan
Budget Expenditures ($)	4,965,882	4,965,882	100%
Total Energy Savings, Annual (MMBtu eq.)	-	-	-
Electricity Savings, Annual (MWh)	-	-	-
Natural Gas Savings, Annual (MMBtu)	-	-	-
Other Fuel Savings, Annual (MMBtu)	-	-	-
Renewable Energy Generation, Annual (MWh)	-	-	-
Renewable Energy Capacity (MW)	-	-	-
Leveraged Funds ($)	-	-	-

Offshore Wind Pre-Development Activities [Inactive]

Renewables/ Distributed Energy Resources (DER) Focus Area

Cumulative Plan vs. Progress Thru 2023	Planned	Progress	% To Plan
Budget Expenditures ($)	9,789,462	9,534,101	97%
Total Energy Savings, Annual (MMBtu eq.)	-	-	-
Electricity Savings, Annual (MWh)	-	-	-
Natural Gas Savings, Annual (MMBtu)	-	-	-
Other Fuel Savings, Annual (MMBtu)	-	-	-
Renewable Energy Generation, Annual (MWh)	-	-	-
Renewable Energy Capacity (MW)	-	-	-
Leveraged Funds ($)	-	-	-

Performance Summary

Expected Timeline Of Funding Deployment Committed (COM), Expended (EXP)

Type	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
COM					Start				End						
EXP					Start							End			

Cumulative Plan vs. Progress Thru 2023	Planned	Progress	% To Plan
Budget Expenditures ($)	4,647,053	2,650,146	57%
Total Energy Savings, Annual (MMBtu eq.)	-	-	-
Electricity Savings, Annual (MWh)	-	-	-
Natural Gas Savings, Annual (MMBtu)	-	-	-
Other Fuel Savings, Annual (MMBtu)	-	-	-
Renewable Energy Generation, Annual (MWh)	-	-	-
Renewable Energy Capacity (MW)	-	-	-
Leveraged Funds ($)	-	-	-

Summary of Performance and Future Plans
Activities are generally consistent with plan. ORES expects to see a significant number of full siting permit applications as the pipeline of projects matures into full applications in the coming months. To date, the Office has issued fifteen (15) final siting permits, totaling approximately 2.3 GW of renewable energy capacity, while ensuring the protection of the environment and consideration of all pertinent social, economic, and environmental factors and with input from local governments and host communities. The Office's decisions follow a detailed review and robust public participation process to ensure that these facilities meet or exceed the requirements of section 94-c of the Executive Law and its implementing regulations. At present, there are over 70 additional major renewable energy projects in various stages of review before ORES and the office expects to receive over thirty-eight (38) new permit applications in 2024.

Activities Summary

Activity	Activity #
Procure consultant support through one or more competitive solicitations to assist ORES staff with carrying out the functions necessary to issue permits for major renewable energy facilities.	1

Milestones Summary

Milestone	Planned	Explanation of Progress	Status	Completed	Activity #
Finalize regulations and uniform standards and conditions (complete)	2021	Draft regulations and uniform standards and conditions were issued by ORES for public comment on September 16, 2020, with final versions adopted and effective as of March 3, 2021.	Complete	2021	1
Implement permitting process. - 10%	2021	Within one year of the Office's creation, as required by statute, the Office promulgated a comprehensive regulatory framework for the siting of major renewable energy facilities.	Complete	2021	1
Implement permitting process. - 60%	2022	As Executive Law § 94-c moves beyond the initial stage of implementation, the progress indicates that the Office's new siting process is meaningfully advancing the State toward its nation-leading CLCPA goals in a timely and cost-effective manner.	Complete	2022	1
Implement permitting process. - 90%	2023	As Executive Law § 94-c continues to site major renewable energy facilities at the most rapid pace in the State's history, the progress and the growing pipeline of applications indicates that the Office's new siting process is meaningfully advancing the State toward its nation-leading CLCPA goals in a timely and cost-effective manner.	Complete	2023	1

There are currently no outputs or outcomes to report.

Performance Summary

Expected Timeline Of Funding Deployment Committed (COM), Expended (EXP)

Type	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
COM	Start									End					
EXP		Start												End	

Cumulative Plan vs. Progress Thru 2023	Planned	Progress	% To Plan
Budget Expenditures ($)	10,680,879	9,573,669	90%
Total Energy Savings, Annual (MMBtu eq.)	-	-	-
Electricity Savings, Annual (MWh)	-	-	-
Natural Gas Savings, Annual (MMBtu)	-	-	-
Other Fuel Savings, Annual (MMBtu)	-	-	-
Renewable Energy Generation, Annual (MWh)	-	-	-
Renewable Energy Capacity (MW)	-	-	-
Leveraged Funds ($)	3,822,680	-	0%

Summary of Performance and Future Plans

In 2023, NYSERDA funded consultants that assisted with the formation and operations of the newly formed Inter-Agency Fire Safety Working Group (FSWG) that was created at the direction of Gov Hochul following multiple fire incidents related to battery storage systems across the state. The FSWG has issued reports so far detailing environmental impacts of the fires and recommendations for changes to fire/building codes and best-practices relating to stationary battery storage stemming from its analysis. Additionally, NYSERDA continued to fund consultants that assisted with processing storage applications at the DOB Office of Technical Certification and Research (OTCR).

Activities Summary

Activity	Activity #
Provide cost-share support to building owners and operators for both behind-the-meter and front-of-the-meter feasibility studies with scopes of work tailored to investigate the customer's needs. Such items may include economic viability, resiliency (long duration), carbon reduction commitments, and challenges associated with aggregating generation technologies.	1
Provide support to teams and consultants engaging with and augmenting staff at NYC government and FDNY in the development of the permitting processes for energy storage, particularly indoor applications.	2

Milestones Summary

Milestone	Planned	Explanation of Progress	Status	Completed	Activity #
Complete permitting process for indoor storage systems.	2023	Permitting energy storage for indoor use continues to be a hurdle for industry. Incremental successes from permitted/operational outdoor projects and recommendations from working groups are considered precursors to the indoor permitting process.	Delayed		2

Outputs and Outcomes Summary

Indicators	2021 Target	2022 Target	Progress as of 12/31/2023	2023 Target	2024 Target	2025 Target	Activity #
Output: Number of cost-share studies supported (baseline = 0).	12	14	14	18	22	25	1
Outcome: Number of projects deployed following studies (baseline = 0).	1	1	0	2	2	3	1
Outcome: Permitted indoor storage systems in NYC (baseline = 0).	-	-	0; no permitted projects in NYC	5	10	20	2

Cumulative Plan vs. Progress Thru 2023	Planned	Progress	% To Plan
Budget Expenditures ($)	3,557,768	3,323,673	93%
Total Energy Savings, Annual (MMBtu eq.)	-	-	-
Electricity Savings, Annual (MWh)	-	-	-
Natural Gas Savings, Annual (MMBtu)	-	-	-
Other Fuel Savings, Annual (MMBtu)	-	-	-
Renewable Energy Generation, Annual (MWh)	2,254	2,758	122%
Renewable Energy Capacity (MW)	2	2	100%
Leveraged Funds ($)	4,043,802	4,248,402	105%

Performance Summary

Expected Timeline Of Funding Deployment Committed (COM), Expended (EXP)

Type	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
COM				Start		End									
EXP						Start		End							

Summary of Performance and Future Plans
Through 2023, 14 projects (39.2 MW) were funded, with 11 operational and the remaining 3 at varying stages of development. NYSERDA anticipates that these remaining 3 projects would be completed by Q2 2024 as most major equipment resides on-site. Several factors have combined to slow or stall progress. Slower-than-expected interconnection/permitting/construction, coupled with financing and equipment supply chain delays that emerged during COVID and dragged on, as well as some administrative challenges all impacted these remaining programs.

Cumulative Plan vs. Progress Thru 2023	Planned	Progress	% To Plan
Budget Expenditures ($)	36,820,772	29,896,271	81%
Total Energy Savings, Annual (MMBtu eq.)	-	-	-
Electricity Savings, Annual (MWh)	-	-	-
Natural Gas Savings, Annual (MMBtu)	-	-	-
Other Fuel Savings, Annual (MMBtu)	-	-	-
Renewable Energy Generation, Annual (MWh)	-	-	-
Renewable Energy Capacity (MW)	-	-	-
Leveraged Funds ($)	18,795,509	16,045,008	85%

Outputs and Outcomes Summary

Indicators	2021 Target	2022 Target	Progress as of 12/31/2023	2023 Target	2024 Target	2025 Target	Activity #
Output: MW of storage capacity awarded for support (baseline = 0).	-	-	33.3	-	-	40	N/A
Output: MWh of storage awarded support (baseline = 0).	-	-	108.8	-	-	130	N/A
Output: Number of NY-Sun projects awarded support for storage (baseline = 0).	-	-	14	-	-	16	N/A

Performance Summary

Expected Timeline Of Funding Deployment Committed (COM), Expended (EXP)

Type	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
COM	Start									End					
EXP		Start												End	

Cumulative Plan vs. Progress Thru 2023	Planned	Progress	% To Plan
Budget Expenditures ($)	17,049,342	12,883,390	76%
Total Energy Savings, Annual (MMBtu eq.)	-	-	-
Electricity Savings, Annual (MWh)	-	-	-
Natural Gas Savings, Annual (MMBtu)	-	-	-
Other Fuel Savings, Annual (MMBtu)	-	-	-
Renewable Energy Generation, Annual (MWh)	-	-	-
Renewable Energy Capacity (MW)	-	-	-
Leveraged Funds ($)	18,582,568	12,216,888	66%

Summary of Performance and Future Plans

An additional round of PON 5472 launched in 2023 with just over $8M available for technologies that advance, develop or field-test a variety of energy storage technologies. The solicitation once again surpassed expectations with greater than 20 proposals requesting over $50M received. Projects selected for award are completing their contracting process with NYSERDA and will be announced in Q3 2024. These projects include a breadth of solutions and build on a strong foundation for the Long Duration Energy Storage portfolio expected to yield learning and products that will be critical to meeting New York's Climate Act objectives.

Expenditures for the existing projects lagged in 2023 due, primarily, to one of the largest projects in the portfolio delaying to engage in discussions related to hydrogen produced with nuclear power. NYSERDA has additional leveraged funding to report as acquired, but is working through a method to properly attribute impacts to specific initiatives. Progress will be updated broadly in Q2 2024.

Activities Summary

Activity	Activity #
Long Duration Energy Storage Solicitation targeting LDES developers, OEMs, suppliers, technology innovators, and product developers to invest in the best technology and product development, pilot, and demonstration projects.	1

Milestones Summary

Milestone	Planned	Explanation of Progress	Status	Completed	Activity #
Make awards from LDES Solicitation	2021	Awarded 5 Projects totaling $16.4M with $39M in Cost Share.	Complete	2021	1
Make awards from LDES Solicitation	2022	Awarded 4 Projects totaling 14.6M with over $25M in cost share.	Complete	2022	1

Outputs and Outcomes Summary

Indicators	2021 Target	2022 Target	Progress as of 12/31/2023	2023 Target	2024 Target	2025 Target	Activity #
Output: Number of companies supported (baseline = 50).	53	55	75	-	-	-	1
Output: Number of studies, demonstrations, and product development projects completed (baseline = 0).	-	-	33	1	2	5	1
Output: Number of studies, demonstrations, and product development projects initiated (baseline = 32).	42	50	63	52	53	-	1
Outcome: Number of products commercialized (baseline = 0).	-	-	4	-	-	2	1
Outcome: Number of replications from demonstration projects (baseline = 0).	-	-	0	-	-	2	1
Outcome: Number of test sites for new technologies (baseline = 3).	-	4	10	5	-	-	1
Outcome: Percent reduction in hardware balance-of-system cost including power electronics for energy storage systems and installation cost (baseline = Lead acid system: $1000/kWh for 4 hr. duration; Lithium-ion system: $667-$670/kW).	-	>20%	>10% cost reduction	-	-	-	1
Outcome: Percent reduction in hardware cost for energy storage devices (baseline = Lead acid system: $600-$650/kWh for 4 hr. duration; Lithium-ion system hardware (excluding battery): $369-$380/kW, battery only: $350-$500/kWh).	-	>20%	>10% cost reduction	-	-	-	1
Outcome: Revenue ($M) to companies commercializing products (baseline = 0).	-	-	$0.554M	-	-	$10M	1

Performance Summary

Expected Timeline Of Funding Deployment Committed (COM), Expended (EXP)

Type	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
COM			Start							End					
EXP			Start							End					

Cumulative Plan vs. Progress Thru 2023	Planned	Progress	% To Plan
Budget Expenditures ($)	15,745,351	16,621,809	106%
Total Energy Savings, Annual (MMBtu eq.)	-	-	-
Electricity Savings, Annual (MWh)	-	-	-
Natural Gas Savings, Annual (MMBtu)	-	-	-
Other Fuel Savings, Annual (MMBtu)	-	-	-
Renewable Energy Generation, Annual (MWh)	-	-	-
Renewable Energy Capacity (MW)	-	-	-
Leveraged Funds ($)	17,886,718	16,286,380	91%

Summary of Performance and Future Plans

With 57 projects in execution or completed (20) in the National Offshore Wind R&D Consortium by the end of 2023, expenditures continued to ramp quickly and are on track as expected. Projects remain on schedule and expenditures exceeded the forecasted plan.

The collaborative consortium is recognized by the industry, the U.S. Department of Energy and the Consortium's board of directors and has resulted in development of multiple private and public partnerships (other states, developer members, and other federal) providing follow-on funding for future projects and sustainability of the consortium's efforts.

Activities Summary

Activity	Activity #
2021 Consortium Offshore Wind R&D Solicitation targeting OSW developers, OEMs, suppliers, technology innovators, National Labs, universities, and product developers to invest in the best technology and product development, pilot, and demonstration projects aligned with current prioritized challenges.	1

Milestones Summary

Milestone	Planned	Explanation of Progress	Status	Completed	Activity #
Make Awards from third Consortium Solicitation	2022	Consortium third solicitation Rounds 1 and 2 awarded 11 projects for $7.2M in 2022.	Complete	2022	1

Outputs and Outcomes Summary

Indicators	2021 Target	2022 Target	Progress as of 12/31/2023	2023 Target	2024 Target	2025 Target	Activity #
Output: Number of companies/entities supported (baseline = 18).	20	22	56	-	-	-	1
Output: Number of pilots, demonstrations, and product development projects initiated (baseline = 22).	42	45	54	46	-	-	1
Output: Number of studies, demonstrations, and product development projects completed (baseline = 0).	-	3	20	6	9	31	1
Outcome: Number of products commercialized (baseline = 0).	-	-	3	-	-	3	1
Outcome: Number of replications from demonstration projects (baseline = 0).	-	-	0	-	-	4	1
Outcome: Revenue ($M) to companies commercializing products (baseline = 0).	-	-	$0M	-	-	$10M	1

Performance Summary

Expected Timeline Of Funding Deployment Committed (COM), Expended (EXP)

Type	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
COM				Start				End							
EXP				Start				End							

Cumulative Plan vs. Progress Thru 2023	Planned	Progress	% To Plan
Budget Expenditures ($)	2,251,671	2,251,671	100%
Total Energy Savings, Annual (MMBtu eq.)	-	-	-
Electricity Savings, Annual (MWh)	-	-	-
Natural Gas Savings, Annual (MMBtu)	-	-	-
Other Fuel Savings, Annual (MMBtu)	-	-	-
Renewable Energy Generation, Annual (MWh)	-	-	-
Renewable Energy Capacity (MW)	-	-	-
Leveraged Funds ($)	-	-	-

Summary of Performance and Future Plans
The Consumer Awareness and Education marketing campaign was deliberately concluded, ahead of schedule, in May of 2022. At that time, Con Edison had exhausted all available NYS Clean Heat incentive funds and requested NYSERDA halt all related marketing efforts. Aligning with Con Edison's oversubscription, the marketing campaign had achieved extremely high levels of education and awareness among Westchester homeowners. At the time the campaign concluded, heat pump awareness was at 80%, and familiarity of their benefits at 44.6%. Energy efficiency familiarity was also extremely high, at 60%. The remaining marketing funds for this specific effort have been reallocated to the statewide NYS Clean Heat awareness and education marketing campaign already underway. Con Edison and NYSERDA are working in coordination on the appropriate time to restart the NYS Clean Heat consumer awareness and education marketing in Westchester County, taking market stability and available incentive levels into account.

Activities Summary

Activity	Activity #
• Conduct a co-branded (Con Edison and NYSERDA) consumer awareness campaign in Westchester County to increase consumer awareness, interest, and familiarity with energy efficiency and clean heating and cooling technologies that can be adopted in partnership with utilities. • Proactively engage existing heating and cooling and energy efficiency contractors and suppliers so they are informed of energy efficiency and clean heating and cooling technology options and are committed to meet consumer demand. • Maintain and expand a web-based landing environment providing a single point of entry for consumers to access and learn about the opportunities available for their home or business	1

There are currently no milestones to report.

Outputs and Outcomes Summary

Indicators	2021 Target	2022 Target	Progress as of 12/31/2023	2023 Target	2024 Target	2025 Target	Activity #
Output: Increase consumer familiarity of clean heating and cooling technology (baseline = extremely/very 22.3% not very/not at all 36.3%).	-	44.6% / 20%	44.6% / 20.0%	-	-	-	1
Output: Increase consumer familiarity of energy efficiency (baseline = extremely/very 36.6% not very/not at all 37.6%).	-	60% / 20%	43.5% / 29.5%	-	-	-	1
Output: Increase in consumer awareness of clean heating and cooling technology (baseline = aware of either 49%).	-	80%	82%	-	-	-	1
Output: Increase interest in adopting clean heating and cooling technology (baseline = extremely/very 20%).	-	40%	50%	-	-	-	1
Output: Likelihood to make homes energy efficient in next 0-18 months (baseline = extremely/very 5.5% not at all/slightly 78.5%).	-	10% / 60%	5.0% / 86%	-	-	-	1
Outcome: Increase in number of Westchester County service providers offering air source heat pump technology (baseline = 29).	-	38	227	-	-	-	1
Outcome: Increase in number of Westchester County service providers offering ground source heat pump technology (baseline = 45).	-	59	44	-	-	-	1
Outcome: Influence the installation of heat pump units (baseline = 224 units).	-	2,000	2,000	-	-	-	1
Outcome: Maintain energy efficiency service provider base in Westchester County (baseline = 25).	-	25	43	-	-	-	1

Performance Summary

Expected Timeline Of Funding Deployment Committed (COM), Expended (EXP)

Type	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
COM					Start					End					
EXP					Start						End				

Cumulative Plan vs. Progress Thru 2023	Planned	Progress	% To Plan
Budget Expenditures ($)	2,999,989	3,171,690	106%
Total Energy Savings, Annual (MMBtu eq.)	-	-	-
Electricity Savings, Annual (MWh)	-	-	-
Natural Gas Savings, Annual (MMBtu)	-	-	-
Other Fuel Savings, Annual (MMBtu)	-	-	-
Renewable Energy Generation, Annual (MWh)	-	-	-
Renewable Energy Capacity (MW)	-	-	-
Leveraged Funds ($)	-	-	-

Summary of Performance and Future Plans

NYSERDA is managing its Clean Heat Connect network, which now has 22 participating companies, more than doubling its goal of 10 through 2023. Participants cover a majority of the New York State market, promoting adoption of educational and technical tools and resources through their contractor networks. At least 800 businesses have been provided with tools, technical support, business development assistance, which has begun to shift attitudes toward the importance of quality heat pump installations.

NYSERDA's Experience Clean Heat initiative has an initial 13 consumer-focused sites live, promoting heat pumps to customers in public places. Initial planning has begun to increase the number of consumer sites and begin with contractor-focused sites in 2024.

Activities Summary

Activity	Activity #
Draw a larger pool of companies across the supply chain into business activities that make clean heating products and solutions available when and where consumers need them, and support and accelerate heat pump adoption to enable wide-scale deployment. • Conduct regional roundtables with distributors, vendors, and OEMs to define and describe the value proposition to the market through “value maps” and “market maps.” o Supply Chain Value Map to provide a foundational understanding of the drivers, challenges, and interdependencies for all actors within the NY HVAC supply chain and identify specific areas of NYSERDA support to accelerate adoption of heat pumps o Market Actor Roundtables with Manufacturers, Distributors, Contractors, Drillers, and others in the NY Supply Chain to assess needs and areas of business model expansion and support a robust Clean Heat industry • Build and support the activities of a network of trade allies to support the technical transfer and dissemination of training, tools, and resources to a wide range of contractor markets. • Provide business development support and technical resources to help companies transition to building electrification solutions, focusing first on larger HVAC companies (25+ employees). • Deploy a campaign to build awareness and confidence in heat pump technology by creating opportunities for HVAC technicians and the public at large to experience heat pumps firsthand and share their experiences virally. • Support improvements to stocking practices and explore midstream interventions in coordination with utilities. NYSERDA will gather best practices from the utilities, such as Con Edison, that are currently offering midstream incentives and have established relationships with distributors.	1

Milestones Summary

Milestone	Planned	Explanation of Progress	Status	Completed	Activity #
Conduct market insight research including supply chain actor roundtables and develop a market map identifying key intervention points.	2021	HVAC supply chain market map completed in early 2022 based on roundtable efforts in 2021. Additional supply chain roundtables will occur in relation to geothermal contractors and the building envelope market.	Complete	2022	1
Establish a network of trade allies.	2021	A framework for the Upstream Partners network has been created and outreach has begun. Recruitment and on-boarding started in Q3 2021. Actual launch of network occurred in Q1 2022.	Complete	2022	1
Launch Business Support tools and tactics to the marketplace to provide business development support and technical resources.	2021	Clean Heat Connect launched in January 2022 and has developed and launched 15 market intervention tools and resources, including over 30 individual contractor support pieces.	Complete	2022	1
Develop and deploy strategic intervention workplan, informed by market map and insights research.	2022	Based on market insights work, the Clean Heat Connect and Experience Clean Heat interventions were developed and underway in 2022. Experience Clean Heat will launch in the market in early 2023.	Complete	2022	1

Outputs and Outcomes Summary

Indicators	2021 Target	2022 Target	Progress as of 12/31/2023	2023 Target	2024 Target	2025 Target	Activity #
Output: Businesses provided with tools, technical support, and business development assistance (baseline = 0).	50	75	800	125	150	200	1
Output: Count of demonstration sites in the Experience Clean Heat initiative (baseline = 0).	0	0	13	30	65	115	1
Output: Count of partners signed on to participate in the Clean Heat Connect program (baseline = 0).	10	10	22	10	15	20	1
Output: Increase in consumer confidence that heat pumps deliver benefits (baseline = TBD).	63	63	31	65	68	70	1
Outcome: Increase penetration of high-performance cold climate heat pumps as a percent of all heat pumps shipped for space conditioning in New York (baseline = 61%).	61%	70%	N/A	75%	85%	90%	1
Outcome: Increase stocking of heat pumps above HARDI 2019 shipments (baseline = 0).	0%	20%	37%	30%	40%	50%	1

Performance Summary

Expected Timeline Of Funding Deployment Committed (COM), Expended (EXP)

Type	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
COM			Start					End							
EXP			Start					End							

Cumulative Plan vs. Progress Thru 2023	Planned	Progress	% To Plan
Budget Expenditures ($)	890,553	885,489	99%
Total Energy Savings, Annual (MMBtu eq.)	-	-	-
Electricity Savings, Annual (MWh)	-	-	-
Natural Gas Savings, Annual (MMBtu)	-	-	-
Other Fuel Savings, Annual (MMBtu)	-	-	-
Renewable Energy Generation, Annual (MWh)	-	-	-
Renewable Energy Capacity (MW)	-	-	-
Leveraged Funds ($)	-	-	-

Summary of Performance and Future Plans
The Pay for Performance initiatives developed the necessary collaboration framework and platform to support initial pilots, including engaging aggregators and launching into both residential and commercial markets. Market developments and challenges in rolling out these pilots, however, led NYSERDA and its partners to conclude that the program should not be continued. The program was closed in early 2023 and unspent funds were redirected.

Activities Summary

Activity	Activity #
Continue working with utilities to pilot the procurement model approach to P4P, whereby a competitive selection process identifies specific portfolio managers/aggregators to secure customers and deliver savings for a set implementation period and be paid over a longer performance period.	1

Milestones Summary

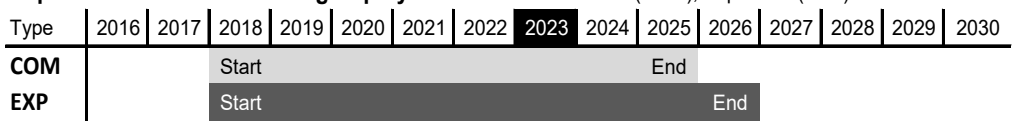
Milestone	Planned	Explanation of Progress	Status	Completed	Activity #
Provide technical and platform support for PSEG LI to launch their P4P pilot.	2021	PSEGLI did not receive any proposals through their P4P RFP and decided not to continue pursuing a P4P pilot.	Cancelled		1
Support PSEG LI in release of their procurement effort for portfolio manager(s) for P4P pilot.	2021	With support from NYSERDA, PSEG LI issued an RFP for portfolio managers for a Long Island-based P4P pilot in Feb 2022.	Complete	2022	1
Launch residential sector pilot with National Grid.	2022	The residential sector pilot was launched to the public in April 2022.	Complete	2022	1

Outputs and Outcomes Summary

Indicators	2021 Target	2022 Target	Progress as of 12/31/2023	2023 Target	2024 Target	2025 Target	Activity #
Output: Number of datasets published in OpenNY (baseline = 0).	-	-	0	1	-	-	1
Output: Number of participating aggregators (baseline = 0).	-	1	1	-	-	-	1
Output: Total number of projects implemented in residential sector (baseline = 0).	-	50	0	300	600	1,000	1
Outcome: Number of additional market actors involved in P4P pilot (non-aggregator involvement such as financial institutions, subcontractors, etc) (baseline = 0).	0	4	0	10	-	-	1
Outcome: Number of utilities committed to offering P4P programs post pilot (baseline = 0).	-	-	0	-	1	-	1

Performance Summary

Expected Timeline Of Funding Deployment Committed (COM), Expended (EXP)



Cumulative Plan vs. Progress Thru 2023	Planned	Progress	% To Plan
Budget Expenditures ($)	26,448,497	23,056,152	87%
Total Energy Savings, Annual (MMBtu eq.)	373,292	210,563	56%
Electricity Savings, Annual (MWh)	14,080	5,758	41%
Natural Gas Savings, Annual (MMBtu)	238,974	156,310	65%
Other Fuel Savings, Annual (MMBtu)	115,533	40,743	35%
Renewable Energy Generation, Annual (MWh)	-	142	-
Renewable Energy Capacity (MW)	-	-	-
Leveraged Funds ($)	53,111,570	35,969,734	68%

Summary of Performance and Future Plans

The pace of budget commitments and associated impact metrics continued to grow in 2023. Budget commitments are on track.

The Comfort Home Pilot program grew by 73% over 2022. The Residential Energy Assessment Program engaged in 5 pilots to test remote/virtual energy assessments. NYSERDA continues to invest in strategies to allow for electrification-focused home assessments. Findings from these pilots will inform larger consumer engagement activities in 2024. In addition, NYSERDA continues to work in broad support of the market. Current evaluation shows that nearly 40% of electrification and electrification ready measures are adopted after an energy audit is completed.

Through 2023, more than 300,000 unique users interacted with the residential campaign's website.

Activities Summary

Activity	Activity #
Consumer Awareness & Education • Spur participation in Comfort Home and other single-family residential programs by maintaining and updating campaign landing pages driving target segments to program-specific content. • Funnel targeted customers via Life Moments campaign to campaign landing pages and relevant content on the NYSERDA website that compels them to take on-site actions to either find a participating contractor or educate them on actions they can take to make their homes more energy efficient. • Explore driving customers in Comfort Home markets to campaign landing pages via contractor support materials, track materials with unique URLs to test, measure and adjust strategy • Educate consumers on energy efficiency measures they can take regardless of fuel type to reduce energy consumption. • Test different means of providing consumers with clear, relevant, actionable information about the energy performance of their homes. • Develop complementary strategies with consumer awareness and community-based campaigns to drive participation in energy audits and standard packages of envelope improvements via the Comfort Home “heat pump ready” pilot.	1
Energy Assessments • Support updated home energy audit practices through Green Jobs - Green New York audits, including field testing of remote and virtual audit strategies and deployment of electrification-focused audit procedures. • Coordinate with utilities to align audit approaches with utility operated online customer engagement tools and enable sharing of leads to access all incentive and financing offers.	2
Market Support Tools & Activities • Support and facilitate stakeholder engagement forums including continued support for the Residential Market Advisory Group and relevant trade organizations.	3
Market Support Tools & Activities • Support and facilitate stakeholder engagement forums including continued support for the Residential Market Advisory Group and relevant trade organizations.	4

Milestones Summary

Milestone	Planned	Explanation of Progress	Status	Completed	Activity #
Measure/Analyze assets, adjust to optimize campaign performance.	2021	NYSERDA's marketing firm completed detailed analysis of campaign performance which was used to develop the tactical strategy for the 2022 campaign. Areas for optimization were identified and deloyed.	Complete	2022	1
Deploy targeted consumer awareness digital outreach to drive participation in energy audits and Comfort Home pilot.	2022	Digitial outreach in the form of paid search, social media Reels and advertisements were deployed. Comfort Home participants were the leading target market, with other customers directed to the audit program.	Complete	2022	1
Relaunch Life Moments marketing campaign based on learning and findings of the 2021 campaign	2022	A new Life Moments campaign, focused on promoting participation within the Comfort Home Program's "seal and insulate" packages was launch in October 2022 and will be in market through March 31, 2023.	Complete	2022	1
Close out ratings pilot and develop and distribute resources supporting home energy ratings as part of home sales.	2022	The pilot is closed and evaluation efforts on participants that will be used to develop a final report is being finalized. The report is expected to be published in early 2024.	Delayed		2
Implement a remote energy audit available to all consumers.	2023	There are 5 remote audits in market currently; NYSERDA is working to determine the best remote audit paths to roll out Statewide, which is expected to occur in 2025.	Delayed		2
Reach agreement with utilities on delivery of statewide energy audit offer.	2023	In 2023, NYSERDA implemented changes to its energy audits for consistency across residential programs, introduced electrification audit protocols, and piloted 5 remote audit strategies. Several of these pilots included utility participation. In 2024, NYSERDA will plan for a customer engagement platform to offer energy audits in a consistent way statewide that could be leveraged by utilities and/or other parties.	Delayed		2

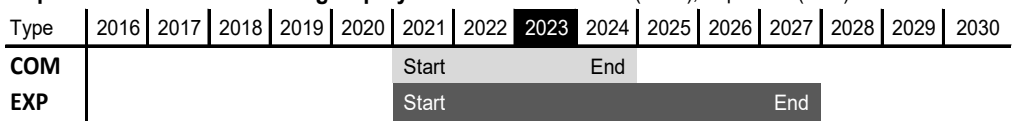
Outputs and Outcomes Summary

Indicators	2021 Target	2022 Target	Progress as of 12/31/2023	2023 Target	2024 Target	2025 Target	Activity #
Output: Count of unique users who interact with NYSERDA's campaign websites each year (baseline = 0).	177,211	191,452	301,170	200,000	TBD	TBD	1
Output: Increase prospective air sealing and insulation package customers through Comfort Home (baseline = 2,051).	2,051	3,000	6,511	6,000	8,000	-	1
Outcome: Increase in percentage of consumers who favor heat pumps (baseline = 59%).	70%	70%	54%	70%	75%	80%	1
Output: Count of participant companies providing assessments/audits (baseline = 0).	85	100	150	120	140	160	2
Output: Count of remote and onsite assessments/audits (baseline = 0).	3,208	7,700	8,226	18,700	38,700	61,200	2
Outcome: Increase in electrification and electrification-ready measure adoption rate for assessments and audits (baseline = TBD).	NA	TBD	39.6%	TBD	TBD	TBD	2
Outcome: Increase in private investment in electrification-ready measures for audit projects (baseline = TBD).	NA	TBD	N/A	TBD	TBD	TBD	2
Output: Count of companies engaging with the Single Family Residential initiatives in voluntary efforts such as stakeholder meetings and work groups (baseline = 0).	-	200	226	220	265	320	3
Output: Count of users who have engaged with resources whose development has been supported by NYSERDA (baseline = 0).	-	25	2,272	50	125	200	3
Outcome: Increase in contractor confidence that heat pumps and/or building electrification/decarbonization efforts deliver benefits (baseline = TBD).	-	TBD	N/A	TBD	TBD	TBD	3
Output: Count of Comfort home projects completed (baseline = 0).	630	2,130	3,700	5,130	7,815	-	4
Outcome: Increase in utilities and other organizations that adopt tools and models introduced by NYSERDA for market targeting and sales of measure packages (baseline = 0).	1	3	1	5	6	6	4

Cumulative Plan vs. Progress Thru 2023	Planned	Progress	% To Plan
Budget Expenditures ($)	23,530,396	23,528,344	100%
Total Energy Savings, Annual (MMBtu eq.)	158,943	158,943	100%
Electricity Savings, Annual (MWh)	4,064	4,064	100%
Natural Gas Savings, Annual (MMBtu)	93,263	93,263	100%
Other Fuel Savings, Annual (MMBtu)	102,158	102,157	100%
Renewable Energy Generation, Annual (MWh)	-	-	-
Renewable Energy Capacity (MW)	-	-	-
Leveraged Funds ($)	87,348,846	87,348,846	100%

Performance Summary

Expected Timeline Of Funding Deployment Committed (COM), Expended (EXP)



Cumulative Plan vs. Progress Thru 2023	Planned	Progress	% To Plan
Budget Expenditures ($)	6,913,010	6,592,084	95%
Total Energy Savings, Annual (MMBtu eq.)	-	-	-
Electricity Savings, Annual (MWh)	-	-	-
Natural Gas Savings, Annual (MMBtu)	-	-	-
Other Fuel Savings, Annual (MMBtu)	-	-	-
Renewable Energy Generation, Annual (MWh)	-	-	-
Renewable Energy Capacity (MW)	-	-	-
Leveraged Funds ($)	16,613,100	-	0%

Summary of Performance and Future Plans

In 2023 NYSERDA's Carbontech Development Initiative launched its first cohort, awarding over $2.75M to fourteen teams working to research, develop and commercialize negative emissions technologies. The program completed planned commitments in 2023, and expenditures are on track to plan. Reported leveraged funds are currently lagging expenditures. NYSERDA is working on a solution to address this lag and should be on track in Q4 2024. NYSERDA has additional leveraged funding to report as acquired but is working through a method to properly attribute impacts to specific initiatives. Progress will be updated broadly in Q2 2024.

Activities Summary

Activity	Activity #
NYSERDA will launch a grant funding and carbontech ecosystem building program as well as an entrepreneurial fellowship program within this program. These activities will serve researchers, scientists, and early-stage companies.	1

Milestones Summary

Milestone	Planned	Explanation of Progress	Status	Completed	Activity #
At least $2.5M in cost share due from the program administrator.	2021	The program administrator was selected in 2021 and collected in excess of $2,500,000 during 2021.	Complete	2021	1
Issue awards from competitive solicitation for program administrator	2021	The competitive solicitation for Program Administrator launched on April 7, 2021 and awards were made in 2021.	Complete	2021	1
At least $2.2M in external funding opportunities awarded by the program administrator.	2022	The Carbontech Development Initiative announced the opening of its inaugural solicitation round on 11.22.22 with applications due on 1.13.23 - awards of $2.75M were made to the cohort.	Complete	2023	1
At least 10 corporate partners secured as partners of the Carbontech Development Initiative.	2022	The Carbontech Development Initiative announced the opening of its inaugural solicitation round on 11.22.22 with applications due on 1.13.23 - awards of $2.75M were made to the cohort.	Complete	2023	1
Issue awards from Fellowship partner solicitation that is released in 2021.	2022	The Carbontech Development Initiative announced the opening of its inaugural solicitation round on 11.22.22 with applications due on 1.13.23 - awards of $2.75M were made to the cohort.	Complete	2023	1
At least $5.5M in cumulative cost share due from program administrator.	2023	Due to delays in issuing the Round #1 solicitation and learning from the results of that solicitation, NYSERDA adjusted timelines for the program. This milestone is expected to be completed in 2025.	Delayed		1

Outputs and Outcomes Summary

Indicators	2021 Target	2022 Target	Progress as of 12/31/2023	2023 Target	2024 Target	2025 Target	Activity #
Output: New Awards Issued	-	9	25	18	27	36	1
Output: New Products Created	-	3	6	7	11	15	1

Performance Summary

Expected Timeline Of Funding Deployment Committed (COM), Expended (EXP)

Type	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
COM			Start							End					
EXP			Start							End					

Summary of Performance and Future Plans
The program has completed planned commitments and in 2023 nearly all planned expenditures. NYSERDA will commit all remaining funds to new projects in 2024 and complete this successful program. NYSERDA has additional leveraged funding to report as acquired but is working through a method to properly attribute impacts to specific initiatives. Progress will be updated broadly in Q2 2024.

Cumulative Plan vs. Progress Thru 2023	Planned	Progress	% To Plan
Budget Expenditures ($)	17,967,935	17,482,869	97%
Total Energy Savings, Annual (MMBtu eq.)	-	-	-
Electricity Savings, Annual (MWh)	-	-	-
Natural Gas Savings, Annual (MMBtu)	-	-	-
Other Fuel Savings, Annual (MMBtu)	-	-	-
Renewable Energy Generation, Annual (MWh)	-	-	-
Renewable Energy Capacity (MW)	-	-	-
Leveraged Funds ($)	21,921,892	1,534,881	7%

Activities Summary

Activity	Activity #
• Ignition: NYSERDA will run a competitive selection process to award growth-stage climatetech companies up to $500,000 in convertible note agreements. • ICC Engage: NYSERDA's Co-Invest program directly supports growth stage ventures to raise money alongside private investors on their path to complete subsequent commercial milestones.	1

Milestones Summary

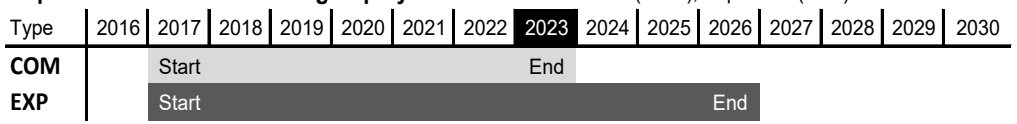
Milestone	Planned	Explanation of Progress	Status	Completed	Activity #
Issue awards from Ignition solicitation	2021	Awards were made durning 2021.	Complete	2021	1

Outputs and Outcomes Summary

Indicators	2021 Target	2022 Target	Progress as of 12/31/2023	2023 Target	2024 Target	2025 Target	Activity #
Output: Companies engaged	141	508	400	-	-	-	1
Outcome: Customer Agreements Executed	-	-	5,304	36	40	44	1
Outcome: Investor Agreements Executed	-	6	95	8	22	24	1

Performance Summary

Expected Timeline Of Funding Deployment Committed (COM), Expended (EXP)



Cumulative Plan vs. Progress Thru 2023	Planned	Progress	% To Plan
Budget Expenditures ($)	34,890,453	37,196,236	107%
Total Energy Savings, Annual (MMBtu eq.)	-	-	-
Electricity Savings, Annual (MWh)	-	-	-
Natural Gas Savings, Annual (MMBtu)	-	-	-
Other Fuel Savings, Annual (MMBtu)	-	-	-
Renewable Energy Generation, Annual (MWh)	-	-	-
Renewable Energy Capacity (MW)	-	-	-
Leveraged Funds ($)	1,927,117,671	1,688,262,105	88%

Summary of Performance and Future Plans

The program completed planned commitments in 2023 and is spending to plan. Several projects in the Cleantech Incubator and Cleantech Geo Coverage sub-initiatives were sucessfully completed. In 2023 NYSERDA launched the Climate Tech Growth Platform, a statewide program providing resources to companies and entrepreneurs scaling building, transportation, electric grid and industrial products and services. Outcomes for the initiative exceeded goals for demonstrations and corporate challenge participation due to a strong focus on connecting innovators with potential customers in real-world product applications. NYSERDA has additional leveraged funding to report as acquired but is working through a method to properly attribute impacts to specific initiatives. Progress will be updated broadly in Q2 2024.

Activities Summary

Activity	Activity #
• 76 West: NYSERDA will solicit for a third-party contractor to run a climatetech competition for early and growth stage climatetech ventures focused on driving climate impact and economic growth in the Southern Tier. • Geographic Coverage: NYSERDA manages a variety of early-stage startup support programs run by for-profit and non-profit organizations in the Southern Tier, both incubation and acceleration programs. • Incubators: NYSERDA will fund specific incubator organization(s) to deliver support to growth- stage companies capable of reaching near-term in-market events in New York. • Corporate Challenges: NYSERDA will work with third party venture development organizations to run corporate challenges and accelerator programs that can support early and growth-stage climatetech companies within specific sectors	1

Milestones Summary

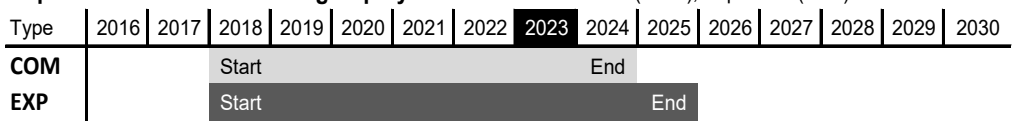
Milestone	Planned	Explanation of Progress	Status	Completed	Activity #
Extend existing Incubator contracts through 2022	2021	Contracts were successfully extended.	Complete	2021	1
Startups accepted into the first Corporate Challenge cohort	2021	Both active corporate challenges accepted their respective 1st cohorts.	Complete	2021	1

Outputs and Outcomes Summary

Indicators	2021 Target	2022 Target	Progress as of 12/31/2023	2023 Target	2024 Target	2025 Target	Activity #
Output: Businesses formed as result of Corporate Challenges	10	40	23	-	-	-	1
Output: Companies engaged	143	175	332	225	260	285	1
Output: Companies graduated from Incubators	12	23	55	28	33	38	1
Output: Corporate parties engaged through Corporate Challenges	-	5	127	5	15	20	1
Output: Teams engaged through Corporate Challenges	2	57	90	82	92	122	1
Outcome: Corporate and Strategic Partnerships Formed	10	20	579	42	65	69	1
Outcome: Customer Agreements Executed	5	30	5,304	51	77	103	1
Outcome: Demonstration Projects Completed	4	15	87	24	38	50	1
Outcome: Investor Agreements Executed	20	67	95	100	132	160	1
Outcome: Products Commercialized	25	50	180	75	105	135	1

Performance Summary

Expected Timeline Of Funding Deployment Committed (COM), Expended (EXP)



Cumulative Plan vs. Progress Thru 2023	Planned	Progress	% To Plan
Budget Expenditures ($)	8,818,695	7,309,149	83%
Total Energy Savings, Annual (MMBtu eq.)	-	-	-
Electricity Savings, Annual (MWh)	-	-	-
Natural Gas Savings, Annual (MMBtu)	-	-	-
Other Fuel Savings, Annual (MMBtu)	-	-	-
Renewable Energy Generation, Annual (MWh)	-	-	-
Renewable Energy Capacity (MW)	-	-	-
Leveraged Funds ($)	50,397,925	1,425	0%

Summary of Performance and Future Plans

In 2023 NYSERDA completed the Entrepreneurs in Residence (EIR) program, far exceeding targets for companies engaged and demonstration projects completed. The program completed planned commitments in 2023 by awarding a new contract to administer the Climatetech Expertise Network, a successor program to EIR. However, delays in launching this new program caused a minor lag to planned expenditures. NYSERDA expects to catch up to planned expenditures with launch of the new program in early 2024. NYSERDA has additional leveraged funding to report as acquired but is working through a method to properly attribute impacts to specific initiatives. Progress will be updated broadly in Q2 2024.

Activities Summary

Activity	Activity #
• EIR: NYSERDA will pay a third-party to match experts with early and growth-stage climatetech ventures on select projects, connect companies and experts to discuss how they can attract the right talent and resources to their companies, offer targeted trainings, and directly connect companies with the talent they need to make an impact. • Innovation Advisors: NYSERDA will hire innovation experts to serve as internal consultants for NYSERDA team members.	1

Milestones Summary

Milestone	Planned	Explanation of Progress	Status	Completed	Activity #
Issue Awards for Innovation Advisors	2021	Solicitation launched and applications received. Three awards were made in Q1 2021.	Complete	2021	1
Issue Awards for Innovation Advisors	2022	This program has exhausted funding and no longer anticipates any new awards.	Cancelled		1

Outputs and Outcomes Summary

Indicators	2021 Target	2022 Target	Progress as of 12/31/2023	2023 Target	2024 Target	2025 Target	Activity #
Output: Companies engaged	52	130	526	150	175	225	1
Output: Innovation Advisors deployed (baseline = 3).	7	19	13	-	-	-	1
Outcome: Corporate and Strategic Partnerships Formed	5	10	579	15	20	25	1
Outcome: Customer Agreements Executed	10	20	5,304	30	40	50	1
Outcome: Demonstration Projects Completed	5	10	152	15	20	25	1
Outcome: Investor Agreements Executed	10	20	95	30	40	50	1
Outcome: Products Commercialized	2	4	180	6	8	10	1

Performance Summary

Expected Timeline Of Funding Deployment Committed (COM), Expended (EXP)

Type	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
COM		Start								End					
EXP		Start								End					

Summary of Performance and Future Plans
The "M-Corp" program is trending favorably to plan for both expenditures and benefits in 2023 with the successful launch of the Scale for Climate Tech program following an initial pilot. Through December 2023, funding for the program was nearly fully committed (98%) and participating companies reported 268 total manufacturing agreements signed for climatetech products, over four times the program goal. As a result, reported leveraged funds exceeded plan through 2023 considerably.

Cumulative Plan vs. Progress Thru 2023	Planned	Progress	% To Plan
Budget Expenditures ($)	12,746,019	13,256,073	104%
Total Energy Savings, Annual (MMBtu eq.)	-	-	-
Electricity Savings, Annual (MWh)	-	-	-
Natural Gas Savings, Annual (MMBtu)	-	-	-
Other Fuel Savings, Annual (MMBtu)	-	-	-
Renewable Energy Generation, Annual (MWh)	-	-	-
Renewable Energy Capacity (MW)	-	-	-
Leveraged Funds ($)	323,178,546	474,608,146	147%

Activities Summary

Activity	Activity #
NYSERDA will fund a manufacturing training and support program that will support growth stage ventures through manufacturing training, access to experts, and grants as they advance their manufacturing readiness and commercialize their products.	1

Milestones Summary

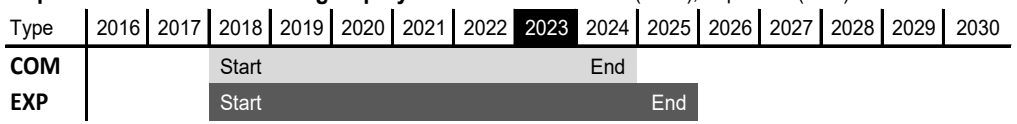
Milestone	Planned	Explanation of Progress	Status	Completed	Activity #
NYSERDA determines level of continued investment based on pilot program performance.	2023	Based on successful pilot program performance, NYSERDA invested $3.75M over three years in a new M-Corps program to help startup hardware climatetech companies achieve key manufacturing milestones and accelerate their time from prototype to commercial product.	Complete	2023	1

Outputs and Outcomes Summary

Indicators	2021 Target	2022 Target	Progress as of 12/31/2023	2023 Target	2024 Target	2025 Target	Activity #
Output: Manufacturing agreements signed between startups and manufacturers	24	24	268	66	75	80	1
Output: Manufacturing strategies developed for cleantech products	24	24	69	66	-	-	1
Outcome: Agreements to invest in climatetech startup companies signed (baseline = 70).	-	-	5	14	20	25	1
Outcome: Climatetech products manufactured total (baseline = 221).	24	24	41	66	68	70	1

Performance Summary

Expected Timeline Of Funding Deployment Committed (COM), Expended (EXP)



Cumulative Plan vs. Progress Thru 2023	Planned	Progress	% To Plan
Budget Expenditures ($)	6,398,850	7,214,126	113%
Total Energy Savings, Annual (MMBtu eq.)	-	-	-
Electricity Savings, Annual (MWh)	-	-	-
Natural Gas Savings, Annual (MMBtu)	-	-	-
Other Fuel Savings, Annual (MMBtu)	-	-	-
Renewable Energy Generation, Annual (MWh)	-	-	-
Renewable Energy Capacity (MW)	-	-	-
Leveraged Funds ($)	104,295,349	6,073,703	6%

Summary of Performance and Future Plans

This initiative was fully committed in 2023 and has been highly successful in leveraging private capital for companies participating in the Novel Business Models solicitation. Following the initial solicitation, NYSERDA is focusing this initiative on an Insurance Accelerator program which launched in 2023. Outcomes from this program will be realized in 2025 and beyond. NYSERDA has additional leveraged funding to report as acquired but is working through a method to properly attribute impacts to specific initiatives. Progress will be updated broadly in Q2 2024.

Activities Summary

Activity	Activity #
NYSERDA will support early- and growth-stage climatetech ventures, insurance companies, MGAs, MGUs, and other stakeholders in the finance ecosystem. NYSERDA will issue a competitive solicitation to award funding to scale and validate novel business models and offerings. The level of funding provided will differ for companies with a well-defined and validated business model, and for companies with a well-articulated business model that is plausible but has not yet been tested against the needs of market participants and real-world costs and barriers. • NYSERDA will solicit proposals from companies with novel business models (NBM) and offerings. These will be evaluated competitively with multiple opportunities per year. • Following awards, NYSERDA will employ project management practices to further limit the risks of market acceptance and mitigate execution risk as much as possible. Companies that cannot demonstrate transactions will not be eligible for the highest funding level, and NYSERDA will use Innovation Advisors, experienced entrepreneurs, and investors under contract to NYSERDA, in support of project selection and management. Progress will be monitored with a focus on ensuring achievement of well-defined and commercialization-critical milestones. • NYSERDA will coordinate with utilities in cases where the company's business model intersects with evolving utility business models to ensure there is no duplication and to share lessons learned.	1

Milestones Summary

Milestone	Planned	Explanation of Progress	Status	Completed	Activity #
Issue second solicitation under this intiative	2021	The second solicitation under Novel Business Models and Offerings, Insurance Innovation for Climate Technology Solutions (PON 5163) was issued 9/1/2022.	Complete	2022	1

Outputs and Outcomes Summary

Indicators	2021 Target	2022 Target	Progress as of 12/31/2023	2023 Target	2024 Target	2025 Target	Activity #
Output: Number of companies supported (baseline = 0).	16	33	14	35	-	-	1
Output: Number of validation and scaling projects completed (baseline = 0).	14	46	8	49	-	-	1
Output: Number of validation and scaling projects initiated	-	46	105	-	-	-	1
Outcome: Number of new business models successfully scaled by supported companies (baseline = 0).	4	8	5	11	-	-	1
Outcome: Number of new business relationships formed with utilities by supported companies (baseline = 0).	2	6	1	-	-	-	1
Outcome: Number of supported companies raising additional capital (baseline = 0).	-	11	8	14	-	-	1

Performance Summary

Expected Timeline Of Funding Deployment Committed (COM), Expended (EXP)

Type	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
COM		Start				End									
EXP		Start								End					

TOP 15 Energy Impact Initiative

Cumulative Plan vs. Progress Thru 2023	Planned	Progress	% To Plan
Budget Expenditures ($)	39,500,000	39,389,440	100%
Total Energy Savings, Annual (MMBtu eq.)	893,415	893,449	100%
Electricity Savings, Annual (MWh)	-	-	-
Natural Gas Savings, Annual (MMBtu)	-	-	-
Other Fuel Savings, Annual (MMBtu)	1,099,937	1,099,973	100%
Renewable Energy Generation, Annual (MWh)	-	-	-
Renewable Energy Capacity (MW)	-	-	-
Leveraged Funds ($)	859,110,000	859,110,000	100%

Summary of Performance and Future Plans

CEF funding for this initiative has been fully committed and all rebates have been paid out as of Q1 2021. A verified gross savings analysis reduced energy performance from the gross values reported. This reduction is attributed to lower vehicle miles traveled as compared to the program assumptions. An initial assessment of indirect benefits was completed on EV-Rebates. However, given the ongoing presence of rebates through RGGI funding, no indirect savings were estimated as part of this study. Evaluation studies will continue to assess indirect impacts going forward.

There are currently no milestones to report.

Outputs and Outcomes Summary

Indicators	2021 Target	2022 Target	Progress as of 12/31/2023	2023 Target	2024 Target	2025 Target	Activity #
Output: % of rebate recipients completing follow-up surveys (baseline = N/A).	-	25%	22%	-	-	-	N/A
Output: Number of rebates issued (baseline = N/A).	-	46,000	122,800	-	-	-	N/A
Outcome: EV market share (EV sales as a percentage of total car sales in NYS (baseline = 0.60%).	-	5%	9%	-	-	-	N/A
Outcome: Number of EVs registered in NYS (baseline = 16,131).	-	150,000	197,358	-	-	-	N/A

Table Notes

• Targets and Progress for "Number of rebates issued" includes non-CEF funding.

Performance Summary

Expected Timeline Of Funding Deployment Committed (COM), Expended (EXP)

Type	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
COM								Start	End						
EXP								Start							End

Cumulative Plan vs. Progress Thru 2023	Planned	Progress	% To Plan
Budget Expenditures ($)	1,250,000	-	0%
Total Energy Savings, Annual (MMBtu eq.)	-	-	-
Electricity Savings, Annual (MWh)	-	-	-
Natural Gas Savings, Annual (MMBtu)	-	-	-
Other Fuel Savings, Annual (MMBtu)	-	-	-
Renewable Energy Generation, Annual (MWh)	-	-	-
Renewable Energy Capacity (MW)	-	-	-
Leveraged Funds ($)	4,750,000	-	0%

Summary of Performance and Future Plans
Charge Ready NY 2.0 was launched in July 2023, later than expected. Project applications have been slower than anticipated, but steady. The first projects were completed late in 2023 and expenditures are expected to begin in early 2024. Many more project applications and projects reaching completion are expected in 2024.

Activities Summary

Activity	Activity #
Provide incentives for Level 2 EVSE paired with bonuses for supporting EV engagement of prospective EVSE owners, EVSE manufacturers and installers, car dealers, and utilities. • Initiate Level 2 EVSE rebate program targeting workplace, MUD, and public DAC charging stations • Create accompanying incentive system for rebate recipients that take additional steps to promote EVs among their employees and tenants • Onboard and manage contractors that can support program participants' engagement activities by developing outreach templates, facilitating relationships with car dealers, EVSE installers, EVSE vendors, municipalities, and utilities, and coordinating EV outreach events	1

Milestones Summary

Milestone	Planned	Explanation of Progress	Status	Completed	Activity #
Launch EV charging and engagement incentive program.	2022	Charge Ready NY 2.0 was launched in July 2023.	Complete	2023	1

Outputs and Outcomes Summary

Indicators	2021 Target	2022 Target	Progress as of 12/31/2023	2023 Target	2024 Target	2025 Target	Activity #
Output: Number of employers and MUDs completing EV outreach actions (baseline = 0).	-	-	0	20	60	100	1
Output: Number of Level 2 charging stations installed through program (baseline = 0).	-	-	155	600	1,500	3,000	1
Outcome: Charging stations installed in NYS (baseline = 9,300 (2022)).	-	-	14,288	12,500	-	25,000	1
Outcome: Verified new EVs purchased by employees and tenants of participating entities (baseline = 0).	-	-	0	400	2,000	5,000	1

Performance Summary

Expected Timeline Of Funding Deployment Committed (COM), Expended (EXP)

Type	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
COM	Start									End					
EXP		Start												End	

TOP 15 Energy Impact Initiative

Cumulative Plan vs. Progress Thru 2023	Planned	Progress	% To Plan
Budget Expenditures ($)	13,179,975	14,172,898	108%
Total Energy Savings, Annual (MMBtu eq.)	2,042,851	1,376,510	67%
Electricity Savings, Annual (MWh)	166,181	125,212	75%
Natural Gas Savings, Annual (MMBtu)	1,475,840	885,209	60%
Other Fuel Savings, Annual (MMBtu)	-	64,078	-
Renewable Energy Generation, Annual (MWh)	-	-	-
Renewable Energy Capacity (MW)	-	-	-
Leveraged Funds ($)	7,763,051	9,279,445	120%

Summary of Performance and Future Plans

Commitments and expenditures are on track with plan. In 2023, the program funded more new projects (19) than in any prior years of the program, including the first two projects related to building electrification O&M training. NYSERDA updated the solicitation mid-2023 to a rolling, application-based format to expedite contracting and the launch of new projects. Several projects originally scheduled to conclude in 2023 were extended in order to complete their training scopes of work, resulting in delays to reported acquired energy savings. Certificates given to trainees through 2023 total 532, however the percentage of trainees obtaining certifications thus far is low and reflective of the program's deliberate emphasis on custom training rather than training already available in the market. The number of workers trained is tracking behind target, impacted by the number of operators at participating buildings who can benefit from the training being lower per building than originally anticipated.

Activities Summary

Activity	Activity #
Work with training providers, building owners, and property management companies, to identify and fund training initiatives that will serve the needs of building operations and maintenance staff across building portfolios. • Solicit proposals 3-4 times annually through a competitive solicitation. The program will remain open through 2025 or until all funds are exhausted. • Invest in curriculum development where gaps are identified and assess the need for new industry standards to address technological changes. • Develop case studies to identify best practices and illustrate career pathways in energy efficient building operations and maintenance, and to identify interventions and combinations of interventions that can serve as a roadmap to advance skills and provide easy paths to entry-level jobs. • Implement an outreach and marketing/education strategy to disseminate building operations and maintenance training project results and case studies and to cultivate new partnerships. Activities will be tailored to the various sectors that can benefit from the results and lessons learned.	1

Milestones Summary

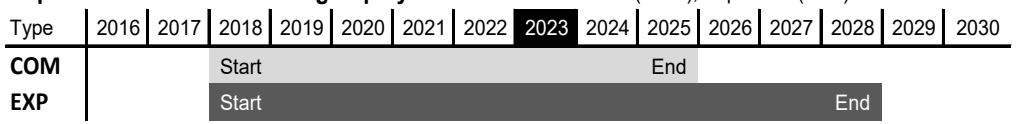
Milestone	Planned	Explanation of Progress	Status	Completed	Activity #
Continue to promote and offer competitive solicitations annually.	2021	There were four due dates for PON 3715 in 2021 (2/25/21, 5/20/21, 8/19/21, 11/18/21)	Complete	2021	1
Develop and distribute 4-5 case studies annually.	2021	NYSERDA published and distributed four case studies of Building O&M Training Projects in 2021.	Complete	2021	1
Continue to promote and offer competitive solicitations annually.	2022	There were 4 Due Dates for PON 3715 in 20212 (5/19/22, 8/18/22, 9/22/22, 11/16/22)	Complete	2022	1
Develop and distribute 4-5 case studies annually.	2022	NYSERDA published five updated sector-specific Fact Sheets for the Building O&M Training Program in 2022 that included condensed sector-specific case studies.	Complete	2022	1
Execute a contract to develop and implement an outreach and education strategy that will be implemented over 24-30 months.	2022	NYSERDA engaged two consultants focusing on outreach and education related to building O&M training opportunities, the value proposition to property owners and managers, etc.	Complete	2022	1
Continue to promote and offer competitive solicitations annually.	2023	There were two proposal due dates under PON 3715 in 2023 (February and May). Then the program transitioned to an open enrollment solicitation (PON 5357), accepting applications on a rolling basis starting in September 2023.	Complete	2023	1
Develop and distribute 4-5 case studies annually.	2023	One article / case study was published in 2023 covering 2 Building O&M training projects. Three additional case studies were started in 2023 and are expected to be completed in the first half of 2024.	Delayed	2023	1

Outputs and Outcomes Summary

Indicators	2021 Target	2022 Target	Progress as of 12/31/2023	2023 Target	2024 Target	2025 Target	Activity #
Output: Increase in % of trainees obtaining certifications (baseline = 15%).	20%	22%	10%	25%	28%	30%	1
Output: Increase in number of workers trained (electrification target in parenthesis) (baseline = 20).	3,000 (0)	5,000 (100)	5,073 (0)	6,500 (250)	7,500 (400)	9,600 (1,000)	1
Outcome: Improve performance and efficiency of building systems (baseline = 0).	5%	5%	2.9%	5%	7%	-	1
Outcome: Increase number of organizations developing new curricula (baseline = 370 organizations).	380	392	833	408	426	446	1
Outcome: Increase number of staff qualified to train others (baseline = 4,322).	4,382	4,482	4,322	4,622	4,792	4,992	1
Outcome: Square footage of buildings whose owners invest in training infrastructure without NYSERDA funding (baseline = 0 SF).	-	-	6M	-	-	125M	1

Performance Summary

Expected Timeline Of Funding Deployment Committed (COM), Expended (EXP)



Cumulative Plan vs. Progress Thru 2023	Planned	Progress	% To Plan
Budget Expenditures ($)	32,807,703	32,995,262	101%
Total Energy Savings, Annual (MMBtu eq.)	-	-	-
Electricity Savings, Annual (MWh)	-	-	-
Natural Gas Savings, Annual (MMBtu)	-	-	-
Other Fuel Savings, Annual (MMBtu)	-	-	-
Renewable Energy Generation, Annual (MWh)	-	-	-
Renewable Energy Capacity (MW)	-	-	-
Leveraged Funds ($)	23,052,976	29,678,054	129%

Summary of Performance and Future Plans

Expenditures and funding commitments are trending favorably for the initiative through December 2023. NYSERDA's Energy Efficiency and Clean Technology Training PON (PON 3981) and the Offshore Wind Training Program continued accepting concept papers and proposals, contracting nine new projects and two new projects in 2023 respectively. NYSERDA's open enrollment hiring support programs remain open and active, including On-the-Job Training (OJT), Clean Energy Internship, and Climate Justice Fellowship Programs. Hiring support progress is on track to plan, led by OJT. NYSERDA released its "Roadtrip Nation" documentary on NYS Clean Energy Careers and completed statewide promotion of videos and resources. In addition to 8 live events, there were 2.8M social media views of the campaign videos, and the related YouTube videos were viewed over 800,000 times. NYSERDA launched PON 5437, a solicitation focused on union apprenticeship and pre-apprenticeship training. Overall outcomes and outputs for this initiative were well aligned with 2023 targets, noting slight lags in new worker trainees were balanced out by higher-than-expected existing worker training numbers.

Activities Summary

Activity	Activity #
Continue to administer and market the On-the-Job Training Program on an open enrollment basis.	1
Continue to implement and market the open enrollment Internship Program. Implement and market the Fellowship program which will be offered in 2021-2023 to support 3 cohorts or a total of 150 fellows.	2
Continue to offer solicitations to support technical training for existing workers. Address technical training gaps such as timing, geographical needs, and lack of consistent market demand, through training providers. High-priority areas include building electrification, energy efficiency, OSW, and training for transitioning fossil fuel workers to support clean energy transition goals.	3
Continue to offer solicitations and other program support to fund pathway training for new workers, including career awareness and education initiatives that start in K-12 schools. High priority areas include building electrification, energy efficiency and large-scale renewables.	4

Milestones Summary

Milestone	Planned	Explanation of Progress	Status	Completed	Activity #
Promote and offer the open enrollment program annually through 2025.	2021	Clean Energy Internship and On-the-Job Training solicitations were promoted and offered throughout 2021.	Complete	2021	1
Promote and offer the open enrollment program annually through 2025.	2022	Clean Energy Internship and On-the-Job Training solicitations were promoted and offered throughout 2022.	Complete	2022	1
Promote and offer the open enrollment program annually through 2025.	2023	Clean Energy Internship and On-the-Job Training solicitations were promoted and offered throughout 2023.	Complete	2023	1
Release due date solicitations and associated awards for the Fellowship Program.	2021	The 1st due date for the Climate Justice Fellowship Program was 10/28/21, and four awarded projects were contracted in 2021.	Complete	2021	2
Release due date solicitations and associated awards for the Fellowship Program.	2022	The 2nd due date for the Climate Justice Fellowship Program was 1/31/22, and 12 awarded projects were contracted in 2022.	Complete	2022	2
Release due date solicitations and associated awards for the Fellowship Program.	2023	In January 2023, the Fellowship Program solicitation was changed from a due date solicitation to an open enrollment solicitation, accepting applications on a rolling basis.	Complete	2023	2
Release competitive solicitations and award contracts to train existing workers and address training gaps in the market.	2021	Solicitation Due Dates for training of existing workers in 2021 included: PON 3981 (01/14/2021, 05/03/2021, 10/13/2021) and PON 4595 (03/16/2021). Total projects contracted in 2021 = 17 (projects train new workers, existing workers, or both).	Complete	2021	3
Release competitive solicitations and award contracts to train existing workers and address training gaps in the market.	2022	Solicitation Due Dates for training of existing workers in 2022 included: PON 3981 (03/10/2022, 07/26/2022, 10/27/2022). Total projects contracted in 2022 = 10 (training new or existing workers, or both).	Complete	2022	3
Release competitive solicitations and award contracts to train existing workers and address training gaps in the market.	2023	There were 6 proposal due dates in 2023 for training of existing workers through PON 3981. There were 9 projects contracted in 2023 (training new or existing workers, or both). PON 5437 (Labor union focused solicitation) was released in 2023.	Complete	2023	3
Release competitive solicitations & award contracts to train new workers	2021	Due Dates for training of new workers in 2021 included: PON 3981 (01/14/2021, 05/03/2021, 10/13/2021); PON 4463 (05/25/2021, 10/06/2021), and PON 4595 (03/16/2021). Total projects contracted in 2021 = 17 (training new or existing workers, or both).	Complete	2021	4

Outputs and Outcomes Summary

Indicators	2021 Target	2022 Target	Progress as of 12/31/2023	2023 Target	2024 Target	2025 Target	Activity #
Output: Number of New Hires (electrification target in parentheses) (baseline = 0).	650 (170)	900 (250)	1,216 (577)	1,100 (350)	1,400 (450)	1,700 (600)	1
Outcome: Percent reduced cost to recruit and hire new workers (baseline = 0%).	30%	30%	0%	30%	30%	30%	1
Outcome: Percent reduced time for workers to reach full productivity (baseline = 19%).	20%	20%	19%	20%	20%	20%	1
Output: Number of Interns and Fellows (electrification target in parenthesis) (baseline = 0).	1,050 (18)	1,200 (100)	1,244 (107)	1,350 (200)	1,600 (350)	2,000 (500)	2
Output: Number of existing workers upskilled (electrification target in parenthesis) (baseline = 0).	3,440 (1,200)	7,000 (2,200)	17,626 (6,115)	10,000 (3,500)	13,000 (6,000)	16,000 (8,000)	3
Output: Number of new curriculum developed, or curriculum modified	55	60	93	70	75	-	3
Output: Number of trainers trained	83	90	299	100	110	120	3
Outcome: Number of new business and training provider partnerships created (baseline = 60).	50	65	60	75	85	90	3
Output: number of individuals trained for new job placements (electrification target in parenthesis) (baseline = 0).	925 (120)	2,200 (600)	3,559 (1,397)	4,000 (1,200)	6,000 (2,000)	9,000 (3,000)	4
Output: Number of new curriculum developed, or curriculum modified	55	60	103	70	75	-	4
Output: Number of students placed in internships by training providers (baseline = 0).	128 (0)	300 (75)	393 (61)	400 (150)	500 (225)	600 (300)	4
Outcome: Number of new business and training provider partnerships created (baseline = 60).	50	65	60	75	85	90	4

Appendix B. Service Territory Report

The Annual Service Territory Report, a new requirement for NYSERDA beginning with the 2021 Annual Report, utilizes data on location-specific projects reported to date to estimate NYSERDA's program impact by Utility service territory. The tables that follow provide estimated impacts with respect to the unique electric and gas service territory combinations found across NYSERDA projects. Investments considered statewide in nature (not specific to any utility territory) are reported as such. Additional analysis of NY Green Bank data is required before NYSERDA can draw conclusions on service territory impacts, therefore it is not included in this report.

Table 1. Market Development and Innovation & Research Portfolio Distribution

Table notes that provide additional information about the contents of this report can be found on the next page.

Electric Utility Service Territory	Gas Utility Service Territory	Expenditures		Electricity Savings Annual MWh		Electricity Usage Annual MWh		Natural Gas Savings Annual MMBtu		Natural Gas Usage Annual MMBtu		Other Fuel Savings Annual MMBtu		Other Fuel Usage Annual MMBtu	
		Incremental 2023	Cumulative Thru 2023	Incremental 2023	Cumulative Thru 2023	Incremental 2023	Cumulative Thru 2023	Incremental 2023	Cumulative Thru 2023	Incremental 2023	Cumulative Thru 2023	Incremental 2023	Cumulative Thru 2023	Incremental 2023	Cumulative Thru 2023
Market Development Program Expenditures & Direct Benefits															
Central Hudson	Central Hudson	$ 2.68	$ 29.21	19,460	52,380	(137)	(4,247)	110,488	218,879	(487)	(13,313)	5,546	115,638	(5)	(293)
	National Grid	$ -	$ 0.08	-	23	-	(15)	-	277	-	(189)	-	548	-	-
	NYSEG	$ -	$ 0.08	-	21	-	(25)	-	-	-	-	-	1,068	-	-
	Other/None	$ 1.46	$ 13.99	175	4,831	(6)	(1,270)	578	36,315	-	(3,343)	2,487	43,299	0	(647)
	Sub-totals	$ 4.14	$ 43.37	19,635	57,255	(143)	(5,557)	111,066	255,471	(487)	(16,846)	8,033	160,553	(5)	(940)
Con Edison	Con Edison	$ 38.75	$ 190.61	135,707	751,618	(9,642)	(46,807)	549,073	2,112,277	(64,033)	(736,679)	409,552	1,838,634	186	(17,004)
	National Grid - NYC	$ 7.02	$ 71.43	5,015	88,876	(33)	(7,242)	32,162	269,358	(419)	(23,442)	4,777	151,304	1	(153)
	Other/None	$ 8.92	$ 49.76	81,895	245,046	(1,049)	(3,297)	84,128	233,856	(589,622)	(1,046,599)	12,956	73,047	7	(688)
	Sub-totals	$ 54.68	$ 311.80	222,617	1,085,540	(10,724)	(57,346)	665,363	2,615,490	(654,073)	(1,806,721)	427,285	2,062,985	194	(17,845)
National Grid	National Grid	$ 78.11	$ 228.31	30,583	277,623	(318)	(10,755)	157,392	1,445,182	(4,797)	(88,174)	18,485	405,585	10	(6,993)
	NFG	$ 5.33	$ 59.30	8,346	110,028	(339)	(4,663)	51,589	379,184	(2,548)	(14,145)	2,423	252,184	-	(645)
	NYSEG	$ 0.32	$ 9.34	2,376	19,627	(68)	(782)	7,914	85,700	(72)	(6,171)	1,149	21,047	-	(1,602)
	RG&E	$ 0.64	$ 8.83	144	5,637	(0)	(455)	2,448	34,505	(19)	(2,116)	1,682	20,289	-	(1,476)
	Central Hudson	$ -	$ 0.10	-	-	-	(21)	-	-	-	-	-	487	-	-
	Other/None	$ 6.89	$ 69.52	1,284	35,158	(25)	(2,592)	5,380	202,933	(28)	(5,784)	17,989	266,443	0	(14,260)
	Sub-totals	$ 91.29	$ 375.40	42,733	448,074	(751)	(19,269)	224,723	2,147,504	(7,464)	(116,391)	41,727	966,036	10	(24,975)
NYSEG	NYSEG	$ 19.63	$ 87.28	8,356	99,406	(492)	(6,600)	45,498	638,836	(1,281)	(69,233)	9,059	183,657	1	(4,634)
	Central Hudson	$ 0.13	$ 0.90	219	1,213	(2)	(227)	689	2,686	-	-	80	8,814	-	(12)
	Con Edison	$ 0.24	$ 1.67	295	2,202	(3)	(560)	830	4,722	-	(4,123)	19	17,947	-	(5)
	National Grid	$ 0.15	$ 1.65	44	1,472	-	(256)	810	6,414	-	(90)	672	9,642	-	(38)
	NFG	$ 1.46	$ 12.97	4,187	17,666	(3)	(1,132)	6,766	97,693	(91)	(1,718)	1,420	38,594	-	(362)
	RG&E	$ 0.21	$ 1.39	62	783	-	(49)	577	3,987	-	(449)	263	4,398	-	(90)
	Other/None	$ 6.82	$ 64.68	6,656	67,195	(758)	(7,502)	5,168	1,084,360	(64)	(2,836)	31,276	260,876	4	(6,082)
	Sub-totals	$ 28.64	$ 170.54	19,820	189,936	(1,259)	(16,326)	60,338	1,838,697	(1,435)	(78,448)	42,789	523,928	5	(11,223)
O&R	O&R	$ 2.68	$ 38.68	1,054	25,163	(35)	(2,105)	3,849	63,105	27	(3,714)	435	55,216	-	(90)
	NYSEG	$ 0.03	$ 0.91	(13)	1,857	-	(111)	20	2,699	-	(7,163)	237	2,957	-	(57)
	Central Hudson	$ 0.02	$ 0.44	1,085	1,806	-	(622)	701	4,223	-	(1)	(38)	9,951	-	-
	Other/None	$ 0.20	$ 10.30	10	586	(4)	(125)	68	1,952	-	(98)	461	8,682	-	(13)
	Sub-totals	$ 2.92	$ 50.33	2,136	29,413	(40)	(2,964)	4,637	71,980	27	(10,975)	1,095	76,805	-	(161)
RG&E	RG&E	$ 21.42	$ 143.60	16,826	203,038	(1,639)	(19,490)	1,021,581	2,837,199	(3,391)	(6,971,281)	5,126	9,079,501	1	(2,174)
	NYSEG	$ 0.37	$ 4.85	475	12,860	-	(172)	490	17,952	(3)	(506)	463	6,943	-	(572)
	NFG	$ 0.31	$ 1.56	732	2,673	(0)	(147)	324	26,440	(28)	(1,354)	-	4,772	-	(369)
	Other/None	$ 0.47	$ 7.43	14	2,969	(11)	(217)	53	3,251	-	(2,455)	1,249	28,078	-	(1,582)
	Sub-totals	$ 22.57	$ 157.44	18,046	221,539	(1,650)	(20,026)	1,022,448	2,884,842	(3,422)	(6,975,595)	6,838	9,119,294	1	(4,697)
	Utility Totals	$ 204.25	$ 1,108.88	324,988	2,031,756	(14,566)	(121,488)	2,088,575	9,813,985	(666,854)	(9,004,977)	527,767	12,909,601	205	(59,841)
Market Development Statewide Program Expenditures1		$ -	$ 81.36	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Innovation and Research Statewide Program Expenditures2		$ 53.32	$ 253.62	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Admin, Evaluation and Cost Recovery Fee		$ 39.39	$ 247.62	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Grand Totals		**$ 296.96**	**$ 1,691.48**	**324,988**	**2,031,756**	**(14,566)**	**(121,488)**	**2,088,575**	**9,813,985**	**(666,854)**	**(9,004,977)**	**527,767**	**12,909,601**	**205**	**(59,841)**

Table 1 Notes

a. The data presented in this table reflects reported expenditures and acquired *direct* energy impacts through the end of the reporting period, December 31, 2023.
b. NYSERDA reports acquired benefits in Market Development and can directly attribute a significant portion of these reported benefits to specific locations. Benefits that cannot be pinpointed are reported consistent with the distribution of projects that can be. Similarly, not all program costs are project-specific, however all funding is distributed consistent with the project-specific spend.
c. Progress reported here is a blend of verified gross and gross savings. Where studies have been completed and yield realization rates, verified gross acquired savings are reported. Where studies are not complete, those initiatives and/or time periods will continue reporting gross savings.
d. Verified gross savings included in this report have been based on the program-level realization rates, and not derived from realization rates specific to utility territories. Evaluation of verified gross savings, and therefore any associated sampling, is generally done at the statewide program level. The resultant realization rate is meant to be applied and is assessed for its statistical confidence/precision at the program level. For the purposes of this territory report, realization rates are applied to each territory equally.
e. Statewide expenditures in Market Development reflect initiatives that are statewide in nature and have no direct energy savings, including: Clean Energy Siting and Soft Cost Reduction, Code to Zero, Information Products and Brokering, Market Characterization, Offshore Wind Master Plan, Offshore Wind Pre-development Activities, ORES Support, Product Standards, and REV Connect.
f. All Innovation & Research investments are characterized as "statewide" for the purposes of this report considering the vast majority of investments cannot easily be pinpointed to a particular territory, rather they are intended to drive advancement of technologies and business models that can have broad, statewide impacts as they flourish.

Table 2. NY-Sun Portfolio Distribution

Electric Utility Service Territory	Expenditures		Installed Capacity MW	
	Incremental 2023	Cumulative Thru 2023	Incremental 2023	Cumulative Thru 2023
Central Hudson	$ 19.9	$ 118.5	60.0	388.7
Con Edison	$ 37.2	$ 209.4	97.0	686.8
National Grid	$ 110.1	$ 399.2	379.0	1,309.4
NYSEG	$ 22.8	$ 212.3	102.0	696.5
O&R	$ 8.9	$ 71.1	29.0	233.2
RG&E	$ 12.0	$ 57.9	60.0	189.9
Administration, Evaluation & Cost Recovery Fee	$ 4.3	$ 26.0	n/a	n/a
NY-Sun Totals	$ 215.2	$ 1,094.5	727.0	3,504.4

Table 2 Notes

a. This table includes only investments and installed capacity resulting from CEF NY-Sun investments.

Appendix C. Evaluation, Measurement and Verification

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

Evaluation, Measurement and Verification Summary

During 2023, 10 studies were finalized and summarized in CEF quarterly reports as listed in Table by quarter. These study summaries are reproduced in the sections below. In addition, in the Q1 2023 and Q3 2023 CEF reports, NYSERDA undertook an update to report recommendations deemed "pending". A summary of recommendation updates from the Q1 2023 and Q3 2023 reviews follows the quarterly report summaries.

Table 1. Evaluations Completed by Quarter 2023

Quarter	Evaluated Program	Evaluation Type	Evaluated Program Year(s)
Q1 2023	*No studies completed*		
Q2 2023	Energy Management Technology/ Real Time Energy Management	Impact	2017-2021
	Energy-Related Environmental Research	Market	1998-2022
	New Construction	Impact & Market	2016-2022
	University of Buffalo Case Study	Market	N/A
Q3 2023	Clean Heating and Cooling	Market	2020-2023
	Agriculture (Agricultural Energy Audit, GLASE Consortium)	Market	2022-2023
	Buildings of Excellence Case Study	Market	N/A
Q4 2023	Clean Green Campus	Market	2021-2022
	NY Green Bank	Market	2019-2022
	Shared Mobility Network Case Study	Market	N/A

For more information on the schedule of studies as they pertain to NYSERDA's Market Development and Innovation & Research initiatives, please reference the Compiled Investment Plan or view reporting for historical periods to see past summaries both on NYSERDA's website.

The latest Compiled Investment Plans:

https://www.nyserda.ny.gov/About/Funding/Clean-Energy-Fund/

Clean Energy Fund Reports:

https://www.nyserda.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.

Q2 2023

Energy Management Technology – Real Time Energy Management (2017-2021)

Since Real Time Energy Management (RTEM) is no longer offered as a standalone program, the following findings and recommendations are provided to document lessons learned and best practices that should be taken into consideration to improve the design, performance and evaluability of programs of similar nature in the future. This study is the second formal evaluation conducted on RTEM encompassing the period 2017-2021. This study focused specifically on verifying direct impacts and a follow up study is in scoping now to verify additional impacts that have accrued since 2021. In addition, a separate study is also in scoping now to assess market transformation effects emanating from this initiative.

Summary of Report Findings, Recommendations and NYSERDA Response to Recommendations

Key findings and associated recommendations from the RTEM Impact Evaluation include: [8]

Finding 1. Program-based measurement and verification (M&V) is conducted and captures program savings. Baseline utility data has been collected for every site enrolled in the program since Q4 2020, but is only collecting post-installation data for a sample of those sites.

Recommendation: Acquire permission and account numbers from the customer and collect two years of pre-participation utility billing data as well as key operational data, such as occupancy and operating hours at the time of enrollment where this is feasible. Ideally billing data is collected directly from the utility through electronic data interchange (EDI[9]) or similar approaches. Direct from utility billing data should retain meta data important for modelling savings such as read dates and whether the data for a time period is an actual or estimated read. Requesting data through EDI must be done promptly upon program enrollment, as the data will not be easily accessible later. This would also benefit future evaluations, removing the barrier of requesting permission to access utility data and securing the pre- period data from the source. Having two years of pre- and post- utility billing data allows for more accurate results during evaluation (e.g., using pooled regression analysis, the difference-in-differences method) and reduces uncertainty arising from a large percentage of estimated reads.

NYSERDA Response to Recommendation: Implemented**.** NYSERDA continues to take steps to calculate energy savings with reasonable and appropriate methods. NYSERDA is collecting baseline energy use for all new participants and has worked to continuously improve its savings methodologies.

Recommendation: Any analyses of energy savings by program or future evaluations should stratify by two dimensions to weight the sampled sites in order to better capture any cross-correlation of effects related to important site features. For this evaluation, the first dimension is facility type, and the second is facility size. This approach will allow for more accurate representation of the population along these dimensions. Below are the recommended stratification segments, based on the population of 528 sites that were evaluated to date. Each evaluation should assess the current population for the best stratification dimensions and segments within each dimension. Additionally, once the program increases its available data, sample and extrapolate savings within the expected fuel use type.

Facility Type:

- **Commercial Office:** These account for 95 out of 528 sites, and 73% of the total population energy use
- **Multifamily**: These account for 141 out of 528 sites, and 7% of the total population energy use.
- **Other:** These account for 292 out of 528 sites, and 21% of the total population energy use

Facility Size:

- Sites greater than 1,000,000 sq ft
- Sites between 100,000 sq ft and 1,000,000 sq ft
- Sites less than 100,000 sq ft

NYSERDA Response to Recommendation: Implemented. NYSERDA program implementers and evaluators will adopt this recommendation where sample size allows.

Recommendation: 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.

NYSERDA Response to Recommendation: Pending. NYSERDA will collect this information where relevant for future evaluations.

Finding 2. In reviewing the service reports provided by the vendors, inconsistent and missing measure-level information was identified. In total, less than 50% of the sites in the population have detailed information in their reports. The evaluation found that reports are primarily generated for NYSERDA's program requirements and are often not developed with the customer in mind. In addition, NYSERDA does not currently impose any penalties on reports that show no savings or no recommendations. As a result, some vendors

generate reports with the minimum accepted content to satisfy NYSERDA's requirements only. The current structure may not allow the program to get a full picture of the activities happening at sites due to the RTEM system, but the extent of this limitation is unknown. This finding is consistent with NYSERDA findings as well.

Recommendation: 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 effort required from the vendors. NYSERDA could consider offering an incentive that scales with the savings recommended.

NYSERDA Response to Recommendation: Pending. Implementation is underway to improve customer and vendor data collection.

Finding 3. Heating fuel information is less reliable than electric information in both the service reports and billing data. Heating fuel billing data was not available for all sites with electric data. In addition, there was no indicator as to what heating fuel(s) each facility uses. For example, if natural gas data is provided for a particular site, it is not clear whether oil or steam service is also applicable to that facility. As a result, conducting a heating fuel billing analysis would have provided an incomplete picture.

The evaluation found that the program claimed oil and natural gas savings when the service reports predominantly reported natural gas savings and, in some instances, steam.

Recommendation: 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.

NYSERDA Response to Recommendation: Pending. NYSERDA is piloting use of utility data aggregators for collection of electric data directly from end customers and/or vendors. If the pilot is successful, NYSERDA will consider this for other fuels.

Finding 4. NYSERDA incentives and information continue to be transmitted through the vendor; this may perpetuate challenges obtaining energy data and associated information directly from sites especially as the program evolves to encompass RTEM and Commercial Real Estate (CRE)-Tenant.

Recommendation: Consider evaluability and evaluation approach(s) in the integration of the RTEM and CRE-Tenant programs. Obliging vendors to more thoroughly document facility utility meter(s) and corresponding RTEM monitored equipment up-front will be important for any billing analysis-based approaches. Documenting tenant space meters and linking measures in tenant spaces to RTEM affected meters will also be important, as some tenant measures may have measurable interactive effects on the whole building meter in some cases.

NYSERDA Response to Recommendation: Implemented.

Recommendation: Obtain detailed information from the vendors to better categorize the systems being implemented at each host site. These data-points include:

- 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.

NYSERDA Response to Recommendation: Pending. NYSERDA is working to further characterize service offerings and system types across vendors.

Recommendation: Implement a system with the vendors to easily identify the most knowledgeable individual at the customer facility and collect their contact information. Having access to the appropriate contact facilitates outreach efforts that can supplement future evaluation work. The current customer relationship management (CRM) does include contact information but does not consistently include their roles within the organization. Being unable to identify the appropriate contact is generally a barrier during outreach efforts and can lead to outreach exhaustion, low response rates and incomplete information.

NYSERDA Response to Recommendation: Implemented.

Finding 5. When examining how long vendors tend to be engaged with a specific site, the trend overall showed that sites are dropping out of the program after two years. Conversations with NYSERDA identified two main reasons for this:

1. Vendor-customer relationship ends for various reasons. This event limits long-term savings potential and reduces the persistence of operational changes made.
2. Vendor-NYSERDA relationship ends. The customer presumably continues to receive service, but NYSERDA no longer has visibility to facility improvements and therefore to the savings from measures installed in the future.

Recommendation: Where possible, document the service contract length upon entry to the program, any extensions to the contract and the reason a site stops reporting information to the program, particularly if the information exchange stops before the end of the initial three-year period. Understanding these reasons can help in assessing the long-term impacts of the RTEM system. For example, if most stop reporting, but continue the vendor-customer relationship, persistence and long-term savings may be higher as compared to the early ending of the contract between vendors and end-users.

NYSERDA Response to Recommendation: Implemented.

Recommendation: 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.

NYSERDA Response to Recommendation: Pending. NYSERDA will consider this for future evaluations that include these market actors and site types.

Finding 6. The evaluation calculated VGS RRs for RTEM as presented in Table 2 below. The VGS RR for electric has more than doubled since the 2021 study with electric representing a majority of program savings. The VGS RR for natural gas has remained fairly constant in the context of known data challenges. For reference, in the 2021 study, the electric VGS RR was calculated to be 20% and natural gas 42%.

Tabel 2. VGS RRs for RTEM

Time Period	Realization Rate	
	MWh	MMBtu
Q1 2017 – Q4 2020	32%	33%
Q1 2021 – present	61%	34%

Energy-Related Environmental Research Citation Analysis (1998-2022)

Summary of Report Findings, Recommendations and NYSERDA Response to Recommendations

Key findings and associated recommendations from the Energy Focused Environmental Research Citation analysis include: [10]

Finding 1. ERER funding supports research that is being widely disseminated in academic literature and beyond. This analysis captures only part of the academic reach of ERER, and these results indicate that the research is being utilized by academics at a greater rate than other literature in the field. The trend over time shows that the intellectual reach continues to expand, reaching more journals and scientists than ever before, and that an increasing number of ERER articles are being cited more often.

Conducting a similar citation analysis with another vendor such as Scopus would provide additional insights into the intellectual reach of the ERER-funded papers. It is possible that other platforms, like the Elsevier abstract and citation database (used by Scopus), Google Scholar or PubMed, might include ERER work published in journals not included in the database used in this study, Clarivate's Web of Science, and therefore might capture additional reach of the ERER research.

Recommendation: Consider the inclusion of an analysis of other publication databases to ensure that the full reach of NYSERDA-funded research is being captured by the citation analysis. While the Web of Science database contains data from peer-reviewed journals, conferences and some books it does not include sources like website publications (i.e., on NYSERDA or United States Geologic Survey websites) or non-published technical papers. Additionally, the databases that offer access to the widest range of publications may change over time.

NYSERDA Response to Recommendation: Pending. Several other database options, including Scopus, Google Scholar and PubMed could help more fully capture the reach of the ERER publications, either in place of or in addition to Clarivate's Web of Science database. This can be decided when scoping for future citation analyses.

New Construction Market and Impact Study (2016-2022)

Summary of Report Findings, Recommendations and NYSERDA Response to Recommendations

This study encompassed a market assessment of all three building sectors (single-family, multifamily, and commercial buildings) which included in-depth interviews with program partner organizations and a survey of participant and non-participant property owners and building professionals. The study also included an impact analysis of funded projects in the single-family sector. Key findings and associated recommendations from each component are detailed below.[11]

New Construction Program Market Assessment

Key findings and associated recommendations from the Clean Energy Fund New Construction Program (NCP) Market Assessment include:

Finding 1. Program participant properties showed an increased penetration of the highest efficiency tier buildings compared to the non-participant population (15% of the participants compared to 4% of non-participants). This includes those buildings with qualitatively better building components (including highest-efficiency envelope and highest efficiency mechanical systems, such as geothermal) and renewables. The higher percentage of participant buildings achieving this performance tier aligns with the program shift towards promoting carbon neutral and low carbon designs. Even those New Construction participants that did not achieve the highest efficiency tier performed better than the non-participant market in general. For example, the average single-family home participating in the New Construction Program performed 14% and 35% better than code for modeled electric and gas use, respectively.

Finding 2. Financial barriers are reported as key obstacles to building substantially above code. The top three reported barriers to building substantially above code were: 1) the up-front cost of clean energy feature(s), 2) lack of available financing, and 3) lifetime savings that impact the financial value proposition. These top three barriers were shared by both participants and non-participants.

Participants also reported low satisfaction with the NCP incentives, suggesting those could be larger. While this is a common response during program evaluations, it may suggest the need to increase awareness of different incentive levels for targeted projects that meet higher criteria; one respondent noted that they would have been interested in pursuing even greater levels of efficiency for their projects if there had been higher incentives available. Non-participants also suggested the program should offer more incentives, specifically identifying "tax credits" or "lower property taxes" as possible incentive options. While NYSERDA cannot offer tax credits

or lower property taxes, the program could reach out to economic development entities that could offer a tax incentive.

Recommendation: Consider a more active partnership with state or regional economic development organizations and even NCP partners to educate owners and developers and design professionals of not only the NCP incentives but also other available incentives.

NYSERDA Response to Recommendation: Implemented. NYSERDA already markets its programs to Industrial Development Agencies (IDAs) through support of the New York State Economic Development Council events, meetings and IDA Trainings, as well as through other State Agencies advancing economic development including Empire State Development and Department of State. However, there are over 100 individual IDAs across the State, and they can only support commercial projects (i.e., not single family or multifamily projects). The NYSERDA New Construction Team also has established a significant network of channel partners throughout the State that actively promote programs and projects across all New Construction supported sectors.

Finding 3. The program appears to be helping decision-makers minimize incremental cost of efficient shell and HVAC systems. The participant property decision-makers claimed significantly lower incremental cost for the efficient shell and efficient HVAC system than non-participating property decision-makers. The reported incremental cost of these two efficiency solutions was generally 10%-12% for participant and 18%-23% for non-participant properties that incorporated these solutions.

Recommendation: Explore how the participant properties incorporated the efficient shell and highly efficient HVAC systems without paying more than 10-12% premium for those solutions and share insights to the wider market.

NYSERDA Response to Recommendation: Implemented. NYSERDA has published successful case studies and solution sets, as well as cost and performance data in multiple venues. This includes promoting case studies on the Program and Initiative case studies section of the NYSERDA website as well as the Buildings of Excellence website, which publishes and updates case studies, webinars and cost and performance data. The New Construction Team also has established a significant network of channel partners where carbon neutral and net zero energy projects are highlighted. NYSERDA also participates in webinars, conferences and industry events throughout the year.

Finding 4: Only 38% of non-participant design professionals reported being aware of integrated design, and among those that were aware, about one-third reported receiving training on integrated design. This

means that less than one-tenth (7%) of surveyed design professionals who worked on non-participant properties received training on integrated design.

The higher use of integrated design in best-in-class buildings implies that integrated design is useful when building NZE/NZE-capable buildings. However, these properties were found to be a small subset of the above-code new construction market. Between 2016 and mid-2021, about 4% to 8% of the market were NZE/NZE-capable buildings that leveraged integrated design.

Recommendation: In addition to encouraging an integrated design model, NYSERDA should investigate adding intervention strategies that could work for those that leverage non-integrated design contracting (such as design-bid-build) arrangements to encourage carbon neutral and net zero energy construction.

NYSERDA Response to Recommendation: Implemented. Good design practices can occur prior to bidding, and integrated project delivery can still occur in these contracting arrangements. The NYSERDA New Construction Team will continue to work with the market to explore design and construction practices that help reduce incremental costs, reduce construction time, and improve building operational performance related to health, comfort, resiliency, and productivity.

Finding 5. Overall, the evaluation found significant indirect savings associated with New Construction Program activities. The total indirect savings for all program activity from 2016 through September 2021 are shown below in Table 3. . In terms of total energy, indirect savings are approximately 2.5 TBtu equivalent.

Table 3. Indirect Savings for New Construction through September 2021

	Savings	Unit
Electric Savings	209,689	MWh
Natural Gas/Propane Savings	1,790,850	MMBtu

Key findings from the Single-Family Impact Evaluation include:

Finding 1. The verified gross electric savings is 4,629 MWh and the verified gross natural gas/propane savings estimate is 125,121 MMBTU with initial verified gross realization rates of 76.5% and 84.9%. Alternative perspective realization rates (APRRs) of 104.5% and 112.8% were also calculated for electric and natural gas/propane respectively. However, as APRRs cannot exceed 100% per DPS VGS Guidance, an APRR of 100% will be applied. Precisions around the results are lower than anticipated due primarily to the baseline issue (incorrectly using a previous version of the building code as a baseline when evaluating building energy savings) driving a wider variation of gross savings than anticipated. See **Error! Reference source not found.** below showing these findings.

Recommendation: Apply VGS RR of 76.5% for electricity and 84.9% for natural gas for Q3 2016 through Q2 2021. For the period Q3 2021 through Q4 2022, apply APRR of 100% for both electricity and natural gas.

NYSERDA Response to Recommendation: Implemented. NYSERDA will apply these RRs per these timeframes.

Finding 2. As indicated by the RRs, savings are slightly overstated due to the extraction process that pulls Ekotrope or REM/Rate modeled savings through Salesforce into the NYSERDA reporting Scorecard. The current system of moving single-family project savings from Salesforce to the reporting system is automated to pull actual modeled savings that are input from REM/Rate and Ekotrope models. However, if no actual modeled savings are present in Salesforce or if it has a zero (0) listed as the savings, the program will extract and credit non-evaluated estimated savings into the Scorecard.

Recommendation: Revisit the extraction process to ensure that when actual savings equal zero, that the zero savings is pulled from Salesforce as opposed to reverting to the estimated savings.

NYSERDA Recommendation Response: Implemented. This data extraction process has been revised.

Finding 3. Many single-family REM/Rate models from a single vendor incorrectly used 2010 code as the baseline for impacts reported in the Scorecard, which had a substantial effect on the realization rate. Use of REM/Rate as a modeling software requires the selection of a User Defined Reference Home (UDR) that reflects code at the time of permitting to produce program impacts. NYSERDA terminated this vendor from the program due to performance issues prior to the evaluation work occurring and the issue was not noted in any other vendor models during this Phase 1 evaluation.

Recommendation: Regularly create and gather baseline or reference homes that can be used for modeling and monitoring the correct application of code, given its importance to accurate savings claims. This will make savings more auditable for NYSERDA and evaluators for estimating future program realization rates. This issue was observed with the use of REM/Rate where savings are dependent on the individual rater selecting the correct UDR to produce savings.

NYSERDA Response to Recommendation: Implemented/In Progress. This model selection issue was limited to a single vendor who was terminated from the program due to an inability to meet program quality requirements. The issue specifically arose after the new code went into effect, so it impacted a sub-set of their work. Since this is a market transformation program that in part works with the market to continually help improve the market's performance, there will always be a similar risk at each code change. NYSERDA will continue to work with all vendors and builders to continue to improve market capacity and improve modeled

and predicted results, as well as verified and M&V results. NYSERDA will also work to ensure that current-code reference homes are used to estimate savings for single family homes going forward.

Finding 4. Based on the savings from the sample of single-family models reviewed with appropriate baselines, appliances and lighting are driving much of the electric savings (74%). Appliances and lighting tend to be short-lived measures that are transient in nature.

Recommendation: Work with program vendors to review the end uses producing electric savings among recent single-family participants to see if electric savings continue to be driven by appliances and lighting. To the extent the NCP is intended to achieve long-term electric savings, pursuing more diverse savings that are directly integrated into the home will be more productive in achieving that goal.

NYSERDA Recommendation Response: Implemented. Since 2021, New Construction programs began to require significant envelope performance improvements beyond code, and are fossil fuel free buildings. Therefore, significant electric savings are generated from space heating and cooling equipment, as well as domestic hot water equipment.

Finding 5. The current single-family program tracking system collects program savings, but not consumption of the treated homes.

Recommendation: As NYSERDA moves to an increased focus on NZE homes and greenhouse gas metrics, it might consider tracking the modeled base usage of homes in addition to savings. This would allow administrators to track program performance in terms of savings as a percent of consumption for each fuel. This can be a valuable metric for single-family projects within the NCP and programs of a similar nature.

NYSERDA Response to Recommendation: Pending. There are significant requirements already in place for participant compliance with program rules. Program participants routinely indicate that additional requirements would present undue burden and would likely impact their decision to participate in the programs. Program team will evaluate if there is a no-effort way to collect additional baseline information in future modeling efforts, as appropriate.

Finding 6. DNV analyzed an additional 2022 sample of single-family homes to estimate an updated Verified Gross Savings Realization Rate (VGSRR) in early 2023, as the APRR estimated in the original Phase 1 study was only able to be applied for a period of 18 months. This analysis resulted in updated VGSRR of 86.1% and 104.4% for electric and natural gas respectively. Although DNV found a high rate of baseline misapplication in the sample reviewed, the difference in energy consumption between the 2016 baseline (based on IECC 2015) and the 2020 baseline (based on IESS 2018) represents a comparably small

difference in energy savings (2%) compared to the difference in energy consumption between the 2016 baseline and the 2010 baseline. This results in an overall adjustment due to baseline misapplication that is smaller than that observed in the initial VGS analysis performed on the single-family sector of the New Construction Program. This results in higher VGS RRs than observed in the first study. See **Error! Reference source not found.** below showing these findings.

Recommendation: Apply VGS RR of 86.1% for electricity and 104.4% for natural gas for program savings claims beginning Q1 2023.

NYSERDA Response to Recommendation: Implemented. NYSERDA will apply these updated realization rates, starting in Q1 2023.

Finding 7. This review of 2022 single family sites found that 12 out of 44 sites examined were using a per unit value for electric and gas savings for participating homes which are likely overestimating impacts. If NYSERDA continues to regularly use these values, it is likely to produce a lower realization rate when actual savings are reviewed against estimated savings.

Recommendation: It is recommended that NYSERDA develop a 2020 baseline home to base savings on for both Ekotrope and REM/Rate models. This will help facilitate the use of appropriate baselines and improved realization rates in future evaluations.

NYSERDA Response to Recommendation: Pending. NYSERDA is reviewing the methodology used for estimating and verifying savings, and what tools would be most useful for future analyses.

Table 4. Single Family New Construction Realization Rates

Period of Application		Electric		Natural Gas/Propane	
		Realization Rate	Precision (90% c.i.)	Realization Rate	Precision (90% c.i.)
Original VGSRR	Q3 2016 – Q2 2021	76.5%	±26.5%	84.9%	±26.6%
APRR	Q3 2021 – Q4 2022	100%* (104.5%)	±5.9%	100%* (112.8%)	±10.7%
Desk Review Updated VGSRR	Q1 2023 - Current	86.1%	±11.9	104.4%	±11.6

* DPS VGS guidance does not allow APRRs to be greater than 100%. For reporting purposes, NYSERDA uses 100% during the APRR application period.

University of Buffalo Case Study

The State University of New York at Buffalo (University of Buffalo; UB) was the focus of a recently completed case study. As detailed below, UB has had long-standing engagement with and investment

by NYSERDA that has served to significantly support the university's strong commitment to sustainability, clean energy and decarbonization. Further, with NYSERDA's assistance, UB's work in advancing these goals in the context of higher education has demonstrated the path to carbon neutrality for other higher educational institutions and provided unique opportunities for experiential learning for students and the public at large.

Summary of Case Study Findings

Key findings from the University of Buffalo Case Study include:[12]

For close to three decades, NYSERDA has supported UB's commitment to sustainability by providing approximately $2 million dollars in funding across 100 projects, with approximately 30 projects being funded in the last five years. These projects have included direct investments in building and infrastructure improvements, funding for feasibility and other technical studies, process evaluations, tech to market studies, and technology-focused research projects. NYSERDA's largest single investment to date was a $1 million grant awarded in 2017 through the Energy to Lead (ETL) program, which allowed UB to pursue an ambitious effort to develop opportunities for new solar projects both onsite at UB and with other local public entities in the greater Buffalo region (hereafter referred to as "the solar project"). At UB, the solar project ultimately generated 12 MWh of new solar energy on UB's campus. In addition to creating renewable energy jobs, the solar project will help advance UB's climate neutrality efforts, including reaching net neutrality by 2030.

In 2020, with NYSERDA's "catalyzing" assistance, UB updated its Climate Action Plan (CAP) with the goal to achieve net-zero emissions by 2030 and developed its "10 in 10" roadmap which includes actionable steps to meet these longer-term goals. The development and implementation of the current CAP involved a number of NYSERDA-assisted projects that have helped UB to lower its energy use and carbon footprint, and will provide additional energy benefits into the future. The projects include:

- Three large, ground-mounted solar arrays [Millersport (often referred to as the Solar Stroll), Creekside, and Bizer Creek];
- Four rooftop solar projects;
- An electrification study, that is expected to increase efficiency and lead to a large-scale effort to transition the heating to clean and renewable sources of all 46 buildings and 2.8 million square feet of space on UB's South campus; and;
- The Garden, Relax or Work (GRoW) Clean Energy Center, a net energy-positive, 1,100 square foot demonstration home that serves as a clean energy center for the UB campus, has provided experiential learning opportunities for hundreds of students and the public. The GRoW Clean Energy Center was designed by UB students and faculty and entered in the U.S. Department of Energy's 2015 Solar Decathlon competition where it came in second overall (and relocated to the UB campus in 2021 with assistance from NYSERDA).
- NYSERDA ETL and NYSERDA's Clean Green Campuses programs (formerly REV Campus Challenge) directly assisted UB with all of its new ground-mounted arrays and rooftop solar projects. Combined, these NYSERDA-assisted projects account for 10.1 MW of capacity and

are expected to generate over 12.7 million kWh/year, giving UB the largest solar capacity of any institution within the SUNY system at the time of this writing. Altogether, UB's solar projects have the capability to generate roughly 18 million kWh/yr and represents approximately 10% of UB's electrical demand.

- In addition, these projects will avoid emitting roughly 6,000 tons of CO_2 , 7,000 pounds of NOx, 1,500 pounds of PM2.5, and 1,600 pounds of SO_2 annually, resulting in health and environmental benefits across the State and region

In addition to the quantifiable environmental and energy benefits of reducing fossil fuel usage, the NYSERDA-assisted three ground-mounted solar projects (Solar Stroll, Creekside and Bizer Creek) resulted in economic benefits to UB and generated regional economic benefits during construction and over the lifetime of the projects, with total estimated value-added benefits of $13,224,000. Adding the four rooftop solar projects resulted in an additional $1,895,000 in regional economic and lifetime benefits.

Other notable findings from the case study include:

- UB has been recognized by multiple publications as a leader for its commitment to sustainability, mainly through its Climate Action Plan (CAP) which targets net-zero emissions by 2030. In 2021 the Times Higher Education Impact Rankings rated UB No. 1 in the world in addressing the United Nations Sustainable Development Goal pertaining to climate action, which instructs organizations to "take urgent action to combat climate change and its impacts."
- In total, UB solar projects have resulted in roughly $15.1 million in regional economic impacts and created 125 jobs during construction. UB's solar projects will generate $215,000 in regional economic impacts annually, and create nearly three full-time equivalent (FTE) positions for the duration of these projects.

Q3 2023

Heat Pumps Phase 2 Indirect Impact Analysis (2020-2030)

Summary of Report Findings, Recommendations and NYSERDA Response to Recommendations

In 2023, NYSERDA undertook an internal analysis of heat pump indirect impacts for the Heat Pumps Phase 2 initiative of the Clean Heating and Cooling focus area. This analysis quantified acquired indirect energy savings for the period 2020-2022 and updated the forecast of expected indirect energy savings for the time period of 2023-2030. The analysis relied upon Heating Air Conditioning and Refrigeration Distributors International (HARDI) shipment data as well as data on heat pump installations from NYSERDA and utilities. NYSERDA engaged with an independent evaluator, Cadmus Group, to review and verify the analytic approach and findings.

Key findings from the Heat Pumps Phase 2 Indirect Impacts Analysis include:[13]

- Acquired indirect energy savings of nearly 1.0 TBTU for the time period 2020-2022. This significantly exceeds the originally forecasted indirect energy savings of 0.2 TBTU for the same time period.
- Forecasted future indirect energy savings of 1.2 TBTU for the period 2023-2025, rising to 4.0 TBTU for the period 2023-2030.

The independent evaluator also identified some high-level recommendations to bolster future iterations of the analysis. These recommendations included the following, which NYSERDA is working to address.

- Consider a more robust study to shore up analytical assumptions about the amount of naturally-occurring market adoption (NOMAD) that is occurring; and
- continue efforts to gain access to HARDI data.

In addition, NYSERDA will also pursue the "additionality" analyses, as outlined in the July 2023 PSC Order and NYSERDA's November 1, 2023 CEF 2.0 proposal, to better understand the impact of NYSERDA's heat pump market support on heat pump uptake and indirect savings.

Agriculture Market Study (2022-2023)

Summary of Report Findings, Recommendations and NYSERDA Response to Recommendations

This study encompassed a market assessment of two Agricultural initiatives: Agriculture Energy Audit and GLASE Consortium. Key findings and associated recommendations from each initiative are detailed below.[14]

Agriculture Energy Audit

In addition to the below findings, the evaluation also inquired about measure adoption rate and found survey respondents installed 36% of measures recommended in audits. Of the installed measures, most (21%) were installed within one year after the audit. The remaining measures were installed between one and two years (8%) and more than two years after the audit (7%). A more in-depth analysis of measure adoption rate is being

undertaken through a separate impact evaluation study and future reports will detail results particularly as they relate to energy savings for installed measures.

Finding 1: There was a reported high level of satisfaction with the auditor's performance (80% of 297 respondents); however, 15 verbatim responses reported that the audits do not provide information that farmers do not know already, and that farmers expect custom solutions to properly encapsulate the complexity of farms but receive prescriptive solutions and do not experience savings. Some respondents reported the size of a farming operation can impact the helpfulness of an audit such that large farms may find value, via savings and cost compared to benefits, where small farms cannot (10% out of 31 respondents).

Recommendation 1: NYSERDA and EnSave should work to identify more auditors that have agriculture sector expertise and use those auditors for farms such as small-scale farms or farms that indicate a need for agriculture expertise. For farms that note facilities resembling commercial/industrial facilities, an auditor without agriculture expertise may suffice.

NYSERDA Response to Recommendation: Implemented. The Agricultural Energy Audit program already selects auditor contractors to audit agricultural sites dependent on their expertise in agricultural sites in particular, to the extent possible while ensuring auditors are based in close proximity to the audit site.

Finding 2: Some respondents reported that the audit report took too long to receive (9%).

Recommendation 2: The NYSERDA Agriculture team should follow up with EnSave to understand and troubleshoot why some audit reports were delayed in getting to the recipient. From this information, NYSERDA should establish and reinforce expectations and timelines from application to audit to report to follow-up (e.g., internal flow diagram) among NYSERDA staff, EnSave staff, auditors, and participants to facilitate the delivery of audit report results quickly so that farmers can benefit as much as possible. During the site visit, auditors should clearly communicate when the participant will receive the audit report.

NYSERDA Response to Recommendation: Implemented. Currently, NYSERDA has ongoing conversations with EnSave and the FlexTech Consultants regarding our expectations, including expectations for timing of review and distribution of audit reports.

Finding 3: When asked about why respondents had reported dissatisfaction with the program, 47 substantive responses were given, including that the audit did not suggest grants or financial resources to pay for recommendations (11%), and unrealistic recommendations and/or payback periods (9%). Eleven verbatim responses reported that the program provided little guidance and connection between the audit and how measure implementation will save money.

Recommendation 3: 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 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.[15,16]

NYSERDA Response to Recommendation: Pending. NYSERDA is in the process of creating a list of incentive programs and grants to assist farms. This will be posted on NYSERDA's website and will remain a dynamic document to allow for updates as new programs become available to the market.

GLASE Consortium

Finding 4: Growers reported discounts on vendor-member services as an addition to the consortium's design that would address the high ratio of non-growers to growers. Non-growers reported intentional networking, reducing membership cost, and increasing member diversity as additions to the consortium's design that would address the high ratio of non-growers to growers. Members who were interviewed noted the need for growers to be more aware of the GLASE Consortium and reported trade shows, publications, newsletters (including publications like HortiDaily.com and Vertical Farm Daily), conferences, and LinkedIn as information sources.

Recommendation 4: NYSERDA should consider marketing the GLASE Consortium more aggressively, especially at trade shows and conferences, on LinkedIn, and in periodicals, newsletters, and technical publications such as HortiDaily.com and Vertical Farm Daily.[17] NYSERDA should consider opportunities to cross-promote the Consortium, such as through the Agricultural Energy Audit reports. More aggressive marketing should also include reducing grower membership cost and promoting free audits and greenhouse benchmarking reports offered through the Audit Program.

NYSERDA Response to Recommendation: Implemented. GLASE continues to search for ways to do more outreach. Currently, GLASE is in the process of finding a new Executive Director and this has slowed down some of the marketing in the last six months. Auditors in the Agricultural Energy Audit program already notify greenhouses at the conclusion of their audit of the opportunity to participate in GLASE. GLASE's Board has full autonomy to structure membership fees to encourage participation.

GLASE Consortium - Indirect Impacts

Indirect impacts findings from the GLASE member interviews were qualitative in nature, intending to increase understanding around the indirect benefits of Consortium membership, and were aggregated and summarized. Qualitative responses were not converted into savings values (e.g., MWh, MMBtu). Growers and non-growers indicated their organizations have observed the following positive impacts as a result of their GLASE memberships:

- the development of relationships with other growers, research facilities, and manufacturers;
- networking, research, and gaining industry insight;
- obtaining distributers, suppliers, and customers through GLASE resources; and
- influencing other growers in New York by raising the bar for energy efficiency.

Buildings of Excellence Case Study

Buildings of Excellence (BOE) is NYSERDA's $58M design competition that recognizes and rewards the design, construction, and operation of clean, resilient, and carbon neutral-ready multifamily buildings that are healthier and more comfortable than conventional construction.[18] The competition funds projects that reduce their energy consumption and per capita carbon emissions while improving occupant safety, health, and comfort.

This initiative was the focus of a recently completed case study. This case study, featuring four BOE projects, documents the range of benefits of carbon-neutral construction and demonstrates that incremental costs of these designs can be realized at less than a five percent cost premium as compared to conventional construction, while supporting attractive building design. The expected long-term energy and non-energy performance benefits of integrated design, carbon-neutral building practices, and advanced technologies are also documented.

Ongoing evaluation of the New Construction initiative will leverage the findings outlined in this case study to further assess and verify impacts from these and other BOE projects.

Table 5. Buildings of Excellence Featured Awardees

Project Name	Project Theme	Construction Start	Construction End	# Units	# Stories
West Side Homes/Sustainable Workforce Training Center	Workforce Development/LMI Housing/DAC	Spring 2022	April 2023	15	3
Solara Phase II + III	Return on Investment and Business Case	2018	II: March 2021 III: November 2022	248	3
Colonial II Apartments Revitalization	Adaptive Reuse	June 2022	November 2023	74	7
Engine 16	Adaptive Reuse	January 2021	July 2022	4	5

Summary of Report Findings

Key findings from the Buildings of Excellence Case Study include:[19]

Avoided Energy Use. The featured awardee designs have an average of 62% reduction in gross site Energy Use Intensity (EUI) against their baselines.[20]

Greenhouse Gas Emissions Avoided. The featured awardee designs have 94% fewer greenhouse gas emissions compared to their baseline designs on average, with decreasing emissions expected as the electric grid gets cleaner.

Criteria Emissions Avoided. The featured awardee designs reduce annual Nitrogen Oxides (NOx) emissions by 100% and Sulfur Dioxide (SO2) by 94% compared to their baseline designs.

Reduced Embodied Carbon. One featured awardee that made quantifiable efforts to reduce embodied carbon (Solara) was able to lower building envelope embodied carbon by 65% compared to a previous project phase using lessons learned through the multiphase project.[21]

Improved Thermal Comfort and Indoor Air Quality (IAQ). Designed using Passive House principles with high-performance envelopes and passive solar features, the featured awardees have enhanced thermal comfort throughout the year compared to a code-compliant building. The lack of natural gas use and presence of efficient ventilation systems will create healthier IAQ for the occupants.

Minimizing First Costs and Increasing Return on Investment. The average incremental cost for the featured awardees is $22/ft2 without incentives and $3/ft2 with incentives, which represent an 11% and 2% cost premium, respectively. With incentives, the average payback period for the featured awardees is 5.5 years, although the range is wide, and some paybacks are instantaneous.

Utility Cost Savings. The featured awardee designs result in average annual energy cost savings of $848 per tenant compared to their baseline designs.

Resiliency. The Passive House designs and general focus on resiliency will increase all the buildings' ability to maintain critical infrastructure and interior livability during extreme events, as well as enhanced everyday performance in a changing climate.

Replicability. Replicability is addressed in various ways, such as using common building materials and construction techniques, incorporating prefabricated materials, using standard unit designs, and limiting the variation of project exteriors.

Q4 2023

Clean Green Campus Market Evaluation (2021-2022 School Year)

Summary of Report Findings, Recommendations and NYSERDA Response to Recommendations

Key findings, conclusions, and associated recommendations from the Clean Green Campuses, 2021-2022 School Year Market Evaluation are presented by research category below.[22]

Awareness and Value of Clean Energy

Finding 1. It is generally common for campuses to collect some level of energy data, although the extent of data collection tends to correlate with a campus's demonstrated commitment to clean energy and sustainability.

Recommendation: Identify member (and nonmember, when appropriate) campuses with low awareness of clean energy opportunities to provide a roadmap for identifying clean energy opportunities on campus with steps they can take to plan new projects.

NYSERDA Response to Recommendation: Implemented. NYSERDA has shared information with member campuses about NYSERDA programs that assist with identifying clean energy opportunities and is working on a Higher Education Decarbonization Playbook.

Recommendation: Encourage member campuses to engage with organizations such as the Association for the Advancement of Sustainability in Higher Education (AASHE) or Second Nature, emphasizing the benefits such as knowledge sharing, recognition of sustainability achievements, and connection with other participating campuses.

NYSERDA Response to Recommendation: Implemented. NYSERDA has shared AASHE and Second Nature resources with member campuses and encouraged them to participate.

Recommendation: Work with campuses that do not have a good understanding of clean energy opportunities on their campus (typically Participant-level members) to identify the specific barriers to longer-term planning, project completion, and tracking of energy data and how they could be addressed.

NYSERDA Response to Recommendation: Implemented. To enhance the ability of a campus to implement clean energy projects, NYSERDA continues to engage with campuses to identify barriers and actions that can be taken to overcome them.

Clean Energy Initiatives and Influence

Finding 2. Campuses across New York State, especially Clean Green Campus members, reported Clean Green Campuses influenced clean energy-related activity across several areas. Overall, 75% of members reported at least one of several clean energy accomplishments during the 2021-2022 school year.

Recommendation: Work with members to understand their administration's priorities and how clean energy projects can fit within the campus's plans.

NYSERDA Response to Recommendation: Implemented. NYSERDA engages with a variety of campus members across levels, school types (i.e., public, private) to understand the challenges campuses face when planning for clean energy and general capital expenditure projects.

Student and Community Engagement

Finding 3. Responses collected through the student survey indicated widespread familiarity with clean energy and sustainability initiatives, with more than 60% of surveyed students reporting being familiar.

Recommendation: Engage with member campuses to understand the benefits they have recognized and apply the messaging when communicating clean energy initiatives to the broader campus community.

NYSERDA Response to Recommendation: Implemented. In its regular communications and outreach, NYSERDA encourages cross collaboration with different campuses and has shared resources to support campuses with promoting their clean energy initiatives. NYSERDA will consider highlighting case studies, templates, and best practices from member campuses.

Recommendation: Develop marketing and outreach materials for use by campuses to recruit students that focus on student's overall satisfaction, including clean energy and sustainability.

NYSERDA Response to Recommendation: Implemented. NYSERDA has shared and campuses have utilized, resources to support campuses with promoting their clean energy initiatives. NYSERDA will consider working with campuses to develop messaging related to clean energy and sustainability for use by campuses when recruiting students.

Recommendation: Consider the pursuit of local/regional collaboration among member (and ideally, also nonmember) campuses with the surrounding communities to increase knowledge sharing with respect to sustainability goals, strategies, and best practices for pursuing clean energy and sustainability initiatives.

NYSERDA Response to Recommendation: Implemented. In its regular communications and outreach, NYSERDA encourages cross collaboration with different campuses and participation in higher education peer groups like NYCSHE (NY Coalition for Sustainability in Higher Education). NYSERDA will consider highlighting case studies, templates, and best practices from member campuses.

Knowledge Sharing, Leadership Support and Recognition

Finding 4. Clean Green Campuses members are actively engaged in sharing knowledge on clean energy opportunities and finding support within their organization's management. The level of sharing was highest among Leaders (43%) and equal among Achievers and Participants (25%).

Recommendation: Consider conducting targeted outreach to campuses that have not utilized available funding to identify ways that these campuses can further their goals and receive financial support from leadership.

NYSERDA Response to Recommendation: Implemented. NYSERDA has conducted targeted outreach to member campuses that have not utilized NYSERDA funding to understand campus priorities and goals and encourage them to participate in programs that align with their institutional needs.

NY Green Bank Market Evaluation (2019-2022)

Summary of Report Findings, Recommendations and NYSERDA Response to Recommendations

Key findings and associated recommendations from NY Green Bank Financial Market Transformation Evaluation include:[23]

Finding 1: NY Green Bank's targeted investments show compelling evidence that it is playing a meaningful role in transforming a few key markets. Early community solar projects made use of the Value Stack compensation mechanism, which presented substantial uncertainty and perceived risk to private sector financiers. NY Green Bank played an early mover role in this market, helping establish a strong track record of investing in community solar PV projects that has allowed this market to grow rapidly over recent years. NY Green Bank helped lower perceived risks on transactions for commercial developers where they were party to through a variety of strategies.

Recommendation: Develop new financial instruments and increase risk tolerance. To date, NY Green Bank's main investment strategy has been to offer risk-adjusted terms at market rates to demonstrate developers are able to carry the commercial cost of debt, primarily in the form of senior secured debt financing. Other financial instruments, such as subordinated debt, equity, and credit enhancements, can be used to leverage additional private capital.

NYSERDA Response to Recommendation: Implemented. NY Green Bank completed some of the earliest community solar transactions in the State, setting precedents and leading the way for commercial lenders to follow such that competitively priced private capital is readily available for these projects. NY Green Bank continues to address financing gaps and barriers by creating replicable and scalable products (i.e., interconnection bridge, community solar interconnection, construction revolver, and tiered pricing for LMI community solar) and actively work to design other financial tools necessary to meet market needs and support the objectives and targets outlined in New York's Climate Leadership and Community Protection Act (Climate Act).

NYGB cannot alter the risk tolerance of another party, but it can work with project owners to prepare transaction offerings, which are attractive to a wider array of capital market participants. The evaluation recognized NYGB's ability to adapt existing project finance loan instruments to meet the needs of NYS community solar borrowers. NYGB continues to seek more opportunity to apply some of the same financing instruments within other clean energy markets in NYS, particularly, energy storage, clean transportation and building decarbonization.

Recommendation: Increase outreach and expand knowledge sharing. There are financiers and developers who remain unaware or unclear of NY Green Bank's role in facilitating clean energy transactions. Extensive outreach and engagement with financiers, developers and other sector stakeholders could provide NY Green Bank with

greater visibility in the market and clarify its purpose, while increasing opportunities to offer technical support and build sector-wide capacity.

NYSERDA Response to Recommendation: Implemented. NY Green Bank will develop and implement a communication outreach and engagement strategy that emphasizes NYGB's role in supporting and advancing clean energy investments, with a focus on less established clean energy markets.

Recommendation: Data transparency. An improved understanding of clean energy technologies and assets, including their revenue streams, can help expand and accelerate capital flows in less familiar markets. As such, NY Green Bank can play a role in advocating for greater transparency on transaction data to improve risk-return profiles and signal ESG impacts that align with sustainable finance disclosures, while promoting best practices and new program offerings.

NYSERDA Response to Recommendation: Implemented. NY Green Bank will advocate for greater transparency on transaction data to improve risk-return profiles and signal ESG impacts that align with sustainable finance disclosures, while promoting best practices and new program offerings.

Shared Mobility Network Case Study

The Shared Mobility Network (Network), a project funded by NYSERDA Innovation & Research and the New York State Department of Transportation (NYSDOT) and implemented by Shared Mobility, Inc. (SMI), is a network of 15 non-profits, transit agencies, municipal offices, service providers, and volunteer transit organizations that initiated and expanded a series of shared mobility programs across Upstate New York between 2015 and 2019.[24] The project supported the launch and expansion of mobility services in 6 different upstate areas such as carshare, bikeshare, vanpool, and the Volunteer Transportation Center (VTC) of Watertown, NY.[25] In service of these launch and expansion efforts across the Network, SMI worked with local governments and other non-government organizations to scope shared mobility feasibility studies and provide other types of assistance, including the development of business plans and grant applications.

Throughout the project, SMI worked with stakeholders to scope feasibility studies and provide other types of assistance, including the development of business plans and grant applications. The "ecosystem" of shared mobility services and network of partners was large, leveraging the strengths of its partners. Over the course of the project, NYSERDA invested a total of $255,073 for the Network and NYSDOT provided a cost share of $93,314.

This case study highlights the range of benefits of mobility services, programs, and partnerships developed through the Shared Mobility Network during the Phase I and Phase II project years (2015 – 2018) and beyond (2019 – 2021). Including funding for the Shared Mobility Network, total NYSERDA funding for related shared mobility service demonstration, research, projects was approximately $1.5 million between 2015 – 2019.[26]

Summary of Report Findings

Key findings from the Shared Mobility Network Case Study include:[27]

- **Leveraged funds:** Under the Shared Mobility Network, **every $1 spent by NYSERDA leveraged $14**. This value includes cost share and follow-on investment from other sources (primarily the NYS Transportation Alternatives Program and Congestion Mitigation and Air Quality Improvement Program (TAP-CMAQ) and Independent Health).
- **Bikeshare ridership:** Across all bikeshare programs, annual ridership increased 16-fold from 2016 to 2021, or from **~9,000 ~148,300** rides taken.
- **Carshare cost savings:** Estimated annual transportation cost savings range from **~$5,400 to ~$6,600** per participant across carshare programs.
- **Vehicles shed:** An estimated cumulative total of **552 gas vehicles** were shed across all years of the program from carsharing, bike-sharing and vanpooling. Vehicles shed is an estimated metric that assumes partial substitution of carshare vehicles for personal vehicles. It is an estimation of reduced car use across an entire fleet of shared vehicles based on published and peer-reviewed studies.
- **Emission reductions:** An estimated 21,784 MT CO2e emissions were avoided between 2015-2021. CO2e gas emissions avoided were highest from carsharing (17,637 MT CO2e) when compared to bike-sharing (4,068 MT CO2e) or vanpooling (79 MT CO2e) between the years of 2015-2021.
- **Societal benefits from reduced emissions:** Estimated benefits from CO2e reductions were $2.4 million during the same period. Estimated benefits from CO2e reductions were highest from carsharing (~$2.0 million) compared to bike-sharing (~$450,000) and vanpooling (~$8,800).
- **Health and wellness:** Bikeshare riders across Reddy Bikeshare, HOPR, and CDPHP Cycle! burned over 15.5 million calories in 2021 alone.
- **Equity:** A majority of carshare and bikeshare cars, bike racks, and bike stations were located within walkable distance (0.25 miles) of disadvantaged communities, providing increased mobility access.

Recommendation Tracking Updates

Q1 2023

NYSERDA periodically reviews and tracks the status of recommendations that have been "pending" in quarterly CEF reports. As shown in Table, 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, 181 recommendations have been published. Of these, 137 have been implemented, 25 have been rejected and 19 are still pending.

From the 2021 Annual CEF Performance Report through the latest status review (Q1 2023), recommendation statuses from evaluation studies have been updated as follows:

- Fifteen recommendations are still pending.
- Ten recommendations have since been implemented, as detailed in **Table**.
- Three recommendations have since been rejected, as shown in **Table**.

Table 6. Summary of CEF Evaluation Study Recommendations through Q1 2023

Study Name	Published Date	Recommendation	New Status	Update
REV Campus Challenge Impact Evaluation – (Q4 2015 – Q1 2020)	6/2022	The program should consider a per square foot or per baseline energy usage metric to scale program-reported savings more accurately.	Rejected	The program has met its 150-member goal and did not implement this recommendation given that it would only apply to 9 out of 150 members. There are no similar programs in which to adopt the recommendations at this time.
REV Campus Challenge Impact Evaluation – (Q4 2015 – Q1 2020)	6/2022	The program should consider acquiring permission from the customer and collecting two years of pre-participation utility billing data at the time of enrollment for campuses where this is feasible.	Rejected	The program has met its 150-member goal and did not implement this recommendation given that it would only apply to 9 out of 150 members. There are no similar programs in which to

Study Name	Published Date	Recommendation	New Status	Update
				adopt the recommendations at this time.
REV Campus Challenge Impact Evaluation – (Q4 2015 – Q1 2020)	6/2022	The program should consider collecting basic campus information upon sign-up such as baseline energy use, building area, and number of students.	Rejected	The program has met its 150-member goal and did not implement this recommendation given that it would only apply to 9 out of 150 members. There are no similar programs in which to adopt the recommendations at this time.
Heat Pump Impact Evaluation (2016-2018)	4/2022	ASHP savings claims should be based on site-specific baseline fuel, system type if electric, unit size, location, and expected load displacement relative to size. This study's ductless mini-split heat pump systems results suggest a default displacement factor of 0.3 relative to total building heating load. The current version of the New York TRM25 provides detailed guidance on estimating heating and cooling loads for partial- and full-displacement installations. Use of either a quasi-prescriptive calculator, or deemed savings options based on displacement fraction, would markedly improve savings estimates. Crucial to the success of this recommendation is contractor training and oversight to ensure that installed systems are right-sized and credibly characterized based on the portions of heating and cooling loads to be satisfied by the heat pumps. Based on the evaluators' review of its program manual, the Clean Heat Program requires administering utilities to abide by the current New York TRM.	Implemented	The NYS Joint Utilities, implementors of the current NYS Clean Heat Statewide Heat Pump (NYS Clean Heat) Program, and NYSERDA continually collaborate on enacting improvements through the NYS Clean Heat Program the Joint Management Committee. This collaboration includes incorporating lessons learned from NYSERDA's now closed ASHP and GSHP programs as well as implementing adjustments based on learnings from the current running of the NYS Clean Heat Program since its 2020 rollout. A review of the Recommendations made in the Heat Pump Impact

Study Name	Published Date	Recommendation	New Status	Update
		When an installation is not covered by a prescribed measure in the TRM, the program requires a custom track.		Evaluation Final Report will be included in the ongoing collaboration efforts between NYSERDA and the NYS Joint Utilities to act upon where deemed relevant and appropriate.
Heat Pump Impact Evaluation (2016-2018)	4/2022	Heat pump savings claims should distinguish among different displaced heating fuels as documented by the installation contractor. Fuel-specific impacts are critical for measuring program success versus statewide carbon emissions reduction goals. A single installation might displace more than one heating fuel; therefore, approved contractors should be trained to collect defensible information on pre-existing heating fuel types and shares. When feasible, utility-led programs should leverage historical natural gas consumption data at the participant address to corroborate the tracked estimates for pre-existing natural gas systems.	Implemented	The evaluated programs are no longer administered by NYSERDA and have been superseded by the NYS Clean Heat Program, administered by the state's electric utilities. The recommendations from this evaluation have been incorporated (where applicable) into the current NYS Clean Heat Program.
Heat Pump Impact Evaluation (2016-2018)	4/2022	For heat pump installations in new construction or end-of-life scenarios, savings should be informed by the customers' preferred alternative systems and fuel choices in the absence of the program. While accounting for program influence will continue to be a challenge, evaluators recommend that future heat pump installations comport with the guidance in the active New York TRM.27 Eligible Program tracking databases should intake relevant site-specific variables and triangulate the most	Implemented	The evaluated programs are no longer administered by NYSERDA and have been superseded by the NYS Clean Heat Program, administered by the state's electric utilities. The recommendations from this evaluation have been incorporated (where applicable) into the current NYS Clean Heat Program.

Study Name	Published Date	Recommendation	New Status	Update
		appropriate baseline against which new construction or end-of-life performance is measured.		
Heat Pump Impact Evaluation (2016-2018)	4/2022	GSHP-to-GSHP replacements should be considered as a prescribed scenario by the New York TRM Committee, as the team expects this to become more common as first generation GSHPs begin to reach their effective useful life. The Clean Heat Program does not appear to accommodate such a baseline, though new construction GSHP projects are required to be submitted through a custom track.	Implemented	The evaluated programs are no longer administered by NYSERDA and have been superseded by the NYS Clean Heat Program, administered by the state's electric utilities. The recommendations from this evaluation have been incorporated (where applicable) into the current NYS Clean Heat Program.
Heat Pump Impact Evaluation (2016-2018)	4/2022	Program administrators should consider a tiered incentive approach that rewards full-displacement installations. Training and requiring approved contractors to credibly collect and track this information is crucial to the success of this recommendation.	Implemented	The evaluated programs are no longer administered by NYSERDA and have been superseded by the NYS Clean Heat Program, administered by the state's electric utilities. The recommendations from this evaluation have been incorporated (where applicable) into the current NYS Clean Heat Program.
Heat Pump Impact Evaluation (2016-2018)	4/2022	Programs should reward partial-displacement installations that include integrated controls that manage heat pump use with legacy systems. There may be limitations to the ability of controls on older pre-existing systems that will need to be acknowledged in such an effort. Based on the evaluators' review of its program manual, the Clean Heat Program has established	Implemented	The evaluated programs are no longer administered by NYSERDA and have been superseded by the NYS Clean Heat Program, administered by the state's electric utilities. The recommendations from this evaluation have been

Study Name	Published Date	Recommendation	New Status	Update
		nine installation categories with varying incentive structures and eligibility criteria that distinguish among system types, partial- and full-displacement installations, and inclusion of integrated controls.		incorporated (where applicable) into the current NYS Clean Heat Program.
Heat Pump Impact Evaluation (2016-2018)	4/2022	Programs should educate eligible contractors and participating customers on the best practices for optimal heat pump usage, particularly for installations that supplement existing heating systems. Heat pump adoption and savings potential rely heavily on customer awareness of heat pump benefits and their ability to satisfy heat loads during extreme winter temperatures. The Clean Heat Program manual recommends continuous contractor training, and its website includes a list of educational resources for participating contractors. It is unclear if or how the program administrators ensure that contractors review such resources	Implemented	The evaluated programs are no longer administered by NYSERDA and have been superseded by the NYS Clean Heat Program, administered by the state's electric utilities. The recommendations from this evaluation have been incorporated (where applicable) into the current NYS Clean Heat Program.
Residential ccASHP Building Electrification Impact Evaluation (2020-2021)	6/2022	Incentive levels. Based on the projects metered, most sites will not achieve a payback during the system lifetime based on the incentive received. Incentive levels have since increased substantially for many NY and MA sites, which may enable greater savings. Energy savings. Electric resistance and propane customers were most likely to see significant energy savings, as well as oil customers in NY. High electricity costs limit energy savings in MA. Utility rate structures (particularly in MA) with lower volumetric costs to reflect higher grid utilization may improve economics, though such structures may be	Implemented	The evaluated programs are no longer administered by NYSERDA and have been superseded by the NYS Clean Heat Program, administered by the state's electric utilities. The recommendations from this evaluation have been incorporated (where applicable) into the current NYS Clean Heat Program.

Study Name	Published Date	Recommendation	New Status	Update
		inappropriate in the long term with increasing electrification and winter peak concerns.		
Energy Management Practices Market Evaluation	9/2022	Coordinate future market and impact evaluations; base the definition of adoption on cumulative evidence linking practices to verified energy savings. Continue to use the revised working definition of SEM adoption for future market evaluations and revisit the analysis of critical SEM savings drivers annually.	Implemented	
Energy Management Practices Market Evaluation	9/2022	NYSERDA should review participants' feedback and determine which to implement.	Implemented	

Q3 2023

NYSERDA periodically reviews and tracks the status of recommendations that have been "pending" in quarterly CEF reports. As shown in Table, during Q3, 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, 206 recommendations have been published. Of these, 158 have been implemented, 25 have been rejected and 23 are still pending.

From the 2021 Annual CEF Performance Report through the latest status review (Q3 2023), recommendation statuses from evaluation studies have been updated as follows:

- Fifteen recommendations are still pending.
- Six recommendations have since been implemented, as detailed in Table.
- No recommendations have since been rejected, as shown in Table.

Table 7. Summary of CEF Evaluation Study Recommendations through Q3 2023

Study Name	Published	Recommendation	New Status	Update
Clean Transportation Market and	9/9/2022	NYSERDA should coordinate with ongoing Federal efforts to increase the number of	Implemented	NYSERDA launched its new Charge Ready NY 2.0

Study Name	Published	Recommendation	New Status	Update
Impact Evaluation (2022)		charging stations in geographies where drivers rely on street parking or larger, shared facilities for their "at home" parking, and improve the prominence of charging stations in public spaces. Increasing prominence of charging stations in public places through better signage and location provides an opportunity to inform non-EV drivers of the accessibility of charging stations in their community.		program in Q3 2023, which specifically addresses this recommendation.
Clean Transportation Market and Impact Evaluation (2022)	9/9/2022	NYSERDA should determine what role they can play to further support EV Innovation partners. For example, coordination with other actors to address non-financial barriers and disseminate project findings and best practices would support grantees in continuing their important innovation and outreach work after NYSERDA project funding runs out. NYSERDA already provides some of this support, so if NYSERDA can take on even one additional role (e.g., developing procurement and proposal blueprints for transit agencies) the agency could provide significant additional value to the Clean Transportation EV Innovation Program and Public Transportation and Electrified Rail initiative.	Implemented	This is a key element of the Clean Transportation Prizes. NYSERDA is actively working with awardees to understand their business models and where future funding could come from. NYSERDA is developing findings from the projects that will inform other potential funders about the benefits of the projects.
Clean Transportation Market and Impact Evaluation (2022)	9/9/2022	NYSERDA should streamline the pipeline of project growth and development by providing support for grantees to help them to move past the "funding cliff," where grantees may find it unclear how or with which funding source a successful project could be continued. This support is particularly needed for business models designed to benefit low-income customers, where the value comes from price subsidization (e.g., car sharing).	Implemented	This primarily falls with the T2M team, but the Clean Transportation program has continued to emphasize business models and technologies that can work in lower-income and disadvantaged communities in its solicitations.

Study Name	Published	Recommendation	New Status	Update
Clean Transportation Market and Impact Evaluation (2022)	9/9/2022	In future requests for proposals, NYSERDA should require applicants to submit a plan for data collection and monitoring efforts from stakeholder engagement (who did they engage with the project?) to project outcomes (how many customers were reached by educational outreach or ride-and-drive events?). Improved coordination and data tracking will improve resources for evaluation efforts such as this one, as well as NYSERDA's ability to learn from and evaluate funded project outcomes. For example, understanding how many and what type of customers were reached by engagement and outreach can inform NYSERDA's requirements for future requests for proposals.	Implemented	This was included in PON 5354, released in Q3 2023
Codes and Standards for Carbon Neutral Buildings Market Evaluation	12/1/2022	Refine the initiative logic model to include the influence of the New Construction and Buildings of Excellence Initiatives, align outputs and outcomes to reflect expected near- and mid- to long-term outcomes, and complete an evaluability map.	Implemented	This has been implemented.

Report Endnotes

1 NYS Department of Public Service Commission Files http://documents.dps.ny.gov/public/MatterManagement/CaseMaster.aspx?Mattercaseno=18-M-0084 .

2 Governor Hochul proposes expansion of distributed solar target (10 GW by 2030) and energy storage target (6 GW by 2030), both of which can be referenced in the 2022 State of the State Book https://www.governor.ny.gov/sites/default/files/2022-01/2022StateoftheStateBook.pdf

3 New York's 6GW Energy Roadmap: Policy Options for Continued Growth in Energy Case 18-E- 030: https://documents.dps.ny.gov/public/MatterManagement/CaseMaster.aspx?MatterCaseNo=18-E-0130&CaseSearch=Search

4 DPS and NYSERDA jointly filed the Distributed Solar Roadmap on December 17, 2021, which proposed a pathway to a statewide goal of 10 GW of distributed solar by 2030. This goal is in alignment with Governor Kathy Hochul's previously announced target.

5 Statewide completion data are available at https://www.nyserda.ny.gov/All-Programs/NY-Sun/Solar-Data-Maps/Statewide-Projects. NYSERDA-supported completion data are available at https://www.nyserda.ny.gov/All-Programs/NY-Sun/Solar-Data-Maps/NYSERDA-Supported-Solar-Projects.

6 NYSERDA New York Clean Energy Jobs Report 2023.

7 NYSERDA's NY Green Bank Metrics, Reporting and Evaluation Report through December 31, 2022 was filed in the Department of Public Service's Document Matter Management System under case 13-M-0412 on February 28, 2023 and can also be found at: https://greenbank.ny.gov/Resources/Public-Filings

8 The final study is posted here: https://www.nyserda.ny.gov/-/media/Project/Nyserda/Files/Publications/PPSER/Program-Evaluation/2023-09-22-Matter-No-16-02180-NYSERDA-CEF-RTEM-Phase-III-Impact-Report.pdf

9 EDI is a method for NYSERDA to securely request and collect utility data information from various utilities within New York State

10 The final study is posted here: https://www.nyserda.ny.gov/-/media/Project/Nyserda/Files/Publications/PPSER/Program-Evaluation/Matter-No-1602180NYSERDAEnvironmental-ResearchCitation-Analysis-ReportSeptember2023.pdf

11 The final study is posted here: https://www.nyserda.ny.gov/-/media/Project/Nyserda/Files/Publications/PPSER/Program-Evaluation/2023-09-Matter-No-16-02180-NYSERDA-New-Construction-Market-Impact-Phase-1-Report.pdf.

12 The final study is posted here: https://www.nyserda.ny.gov/-/media/Project/Nyserda/Files/Publications/PPSER/Program-Evaluation/2023-University-at-Buffalo-Case-Study.pdf

13 The final memo summarizing findings is posted here: https://www.nyserda.ny.gov/-/media/Project/Nyserda/Files/Publications/PPSER/Program-Evaluation/Matter-No-1602180NYSERDAHeat-Pumps-Phase-2-Indirect-Impact-Analysis-ReportDecember-2023.pdf.

14 The final study is posted here: https://www.nyserda.ny.gov/-/media/Project/Nyserda/Files/Publications/PPSER/Program-Evaluation/2023-Agriculture-Market-Update-Final-Report.pdf.

15 Department of Energy. "Building Energy Modeling." Accessed 30 May 2023 from https://www.energy.gov/eere/buildings/building-energy-modeling

16 National Renewable Energy Laboratory. "BEopt: Building Energy Optimization Tool." Accessed 30 May 2023 from https://www.nrel.gov/buildings/beopt.html.

17 A sample of indoor agriculture/greenhouse trade shows include the Northeast Greenhouse Conference and Expo: registration opens in summer 2023, the Indoor Ag-Con (national) in February, and other regional agriculture shows aligned with universities and on ag university campuses.

18 This budget is current as of July 2023 and includes Rounds 1-4. This case study focuses on the first two rounds, which had a $40M budget.

19 The final study is posted here: https://www.nyserda.ny.gov/-/media/Project/Nyserda/Files/Publications/PPSER/Program-Evaluation/2023-Buildings-of-Excellence-Case-Study.pdf.

19 To compare building performance across certification paths, this report generally uses site energy use intensity (EUI)—total site energy per year divided by square footage—normalized by gross building area.

21 Phase III has an innovative envelope assembly that performs better and reduces the embodied carbon in the wall and foundation, while maintaining a similar cost to previous iterations.

[22] The final study is posted here: https://www.nyserda.ny.gov/-/media/Project/Nyserda/Files/Publications/PPSER/Program-Evaluation/Clean-Green-Campuses2021-2022-Evaluation-Report.pdf.

[23] The final study is posted here: https://www.nyserda.ny.gov/-/media/Project/Nyserda/Files/Publications/PPSER/Program-Evaluation/NYGB_MT-Evaluation-2019-22_Final-Study_October-2023.pdf

[24] Shared Mobility, Inc. 2019. Shared Mobility Network for New York State. *Prepared for New York State Energy Research and Development Authority and New York State Department of Transportation.* NYSERDA Contract 46831, NYSDOT Task Assignment C-14-08.

[25] The VTC works with Medicaid/Medicare to provide rides to medical appointments for qualifying individuals.

[26] Importantly, leveraged funds are associated with the Shared Mobility Network as a whole, beyond the NYSERDA funding received by SMI for this project ($255,073). For this reason, all related NYSERDA funds (including those with NYSDOT cost share) are included in the denominator of the leveraged benefits calculation.

[27] The final study is posted here: https://www.nyserda.ny.gov/-/media/Project/Nyserda/Files/Publications/PPSER/Program-Evaluation/Transportation/Matter-No1602180NYSERDASharedMobilityNetworkCaseStudyMarch-2024.pdf.

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