

Clean Energy Fund Quarterly Performance Report through December 31, 2021

Final Report | March 2022



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.

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Final Report

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About This Report

The Clean Energy Fund (CEF), approved by the Public Service Commission (PSC) Order on January 21, 2016¹ and later modified on September 9, 2021,² is designed to accelerate the adoption of clean energy and energy innovation while simultaneously delivering on New York State's commitment to reduce ratepayer collections and drive economic development. The CEF is comprised of four distinct portfolios (CEF Portfolio):

- Market Development (MD)
- Innovation and Research (I&R)
- NY-Sun
- NY Green Bank

This report provides a collective view of all four portfolios' progress against CEF targets (figures 1 and 2) and further details quarterly and cumulative activity for the MD and I&R portfolios through September 30, 2021 (figure 3). The September 9, 2021 PSC Order requires quarterly reporting for the MD and I&R portfolios which continue to include the following:

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

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

NY-Sun reports progress quarterly within the NYSERDA scorecard and CED and, as noted in section 3 of this report, will commence reporting summarized quarterly metrics starting Q1 2022. Quarterly reporting for NY Green Bank is similarly provided within NYSERDA's quarterly scorecard and the CED, but also within a separately filed report.³

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1 Clean Energy Fund Performance Overview

The Clean Energy Fund (CEF) supports New York State's advancement of clean energy and climate goals along with a more affordable and resilient energy system. Energy efficiency is a cornerstone of the State's strategy to promote clean energy solutions for consumers while addressing climate change. The New Efficiency New York recommendations, as advanced in the white paper issued by the Department of Public Service (DPS) and New York State Energy Research and Development Authority (NYSERDA or the Authority) on April 26, 2018, and as adopted by the Commission in its December 13, 2019 order, establishes a new 2025 energy efficiency target of 185 trillion British thermal units (TBtu) of cumulative annual site energy savings.⁴ The Climate Leadership and Community Protection Act (Climate Act), signed July 2019 and effective January 1, 2020, adopted this energy efficiency target 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 2030⁵
- 6,000 MW of Solar by 2025
- 22 Million Tons of Carbon Reduction through Energy Efficiency and Electrification
- Minimum 35 percent of the benefits of clean energy investments are directed to disadvantaged communities

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

1.1 Progress Toward Aggregate Clean Energy Fund Goals

Figures 1 and 2 below present a comprehensive picture of progress against the CEF authorized budget and associated benefit targets reflecting all four CEF Portfolios (MD, I&R, NY-Sun, and NY Green Bank). Progress shown against each key performance metric represents results through December 31, 2021 and nets out overlap across portfolios where it is known to occur.

Figure 1 captures the status of CEF funding while Figure 2 depicts progress of the combined portfolios against the latest CEF ordered benefit targets. The summary of benefit progress reflects evaluated totals, incorporating verified gross acquired savings where evaluations have been completed and 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 remaining plans, discounted by 50 percent, consistent with other plan filings to account for uncertainty in timing and potential overlap across the portfolio that has yet to be fully evaluated. Both figures should be viewed together to properly relate investments to results. In each of these visuals, expended/acquired and committed results are combined with the remaining expected (planned) results to demonstrate total progress toward NYSERDA’s targets.

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	\$ 2,274.0 M	96%	\$ 762.6 M	32%	\$ 585.0 M	24%	\$ 926.4 M	39%	\$ 99.1 M
	NYS Cost Recovery Fee		\$ 26.6 M		\$ 10.1 M		\$ 0.0 M		\$ 16.4 M		
Innovation & Research (IR)	Program Funds	\$ 631.7 M	\$ 422.7 M	68%	\$ 147.8 M	24%	\$ 158.2 M	25%	\$ 116.6 M	19%	\$ 204.1 M
	NYS Cost Recovery Fee		\$ 4.9 M		\$ 1.8 M		\$ 0.0 M		\$ 3.1 M		
MD and IR combined	Administration	\$ 274.4 M	\$ 243.9 M	89%	\$ 139.5 M	51%	\$ 0.0 M	0%	\$ 104.4 M	38%	\$ 30.5 M
	Evaluation	\$ 124.2 M	\$ 76.9 M	62%	\$ 15.9 M	13%	\$ 21.8 M	18%	\$ 39.2 M	32%	\$ 47.3 M
	MD and IR Total	\$ 3,430.0 M	\$ 3,049.0 M	89%	\$ 1,077.8 M	31%	\$ 765.1 M	22%	\$ 1,206.0 M	40%	\$ 381.0 M
NY-Sun	Program Funds	\$ 1,718.5 M	\$ 1,718.5 M	100%	\$ 673.9 M	39%	\$ 721.7 M	42%	\$ 322.9 M	19%	\$ 0.0 M
	NYS Cost Recovery Fee	\$ 26.0 M	\$ 26.0 M	100%	\$ 6.2 M	24%	\$ 0.0 M	0%	\$ 19.8 M	76%	\$ 0.0 M
	Administration	\$ 46.0 M	\$ 46.0 M	100%	\$ 17.9 M	39%	\$ 0.1 M	0%	\$ 28.0 M	61%	\$ 0.0 M
	Evaluation	\$ 2.5 M	\$ 2.5 M	100%	\$ 0.4 M	16%	\$ 1.6 M	64%	\$ 0.5 M	20%	\$ 0.0 M
	NY-Sun Total	\$ 1,793.0 M	\$ 1,793.0 M	100%	\$ 698.4 M	39%	\$ 723.4 M	40%	\$ 371.2 M	21%	\$ 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		\$ 6,170.1 M	\$ 5,789.1 M	94%	\$ 2,723.3 M	44%	\$ 1,488.5 M	24%	\$ 1,577.2 M	26%	\$ 381.0 M

- Authorized Funding per Order Approving Clean Energy Fund Modifications, issued and effective September 9, 2021.

Figure 2. Clean Energy Fund Portfolio Expected Benefits Versus Targets

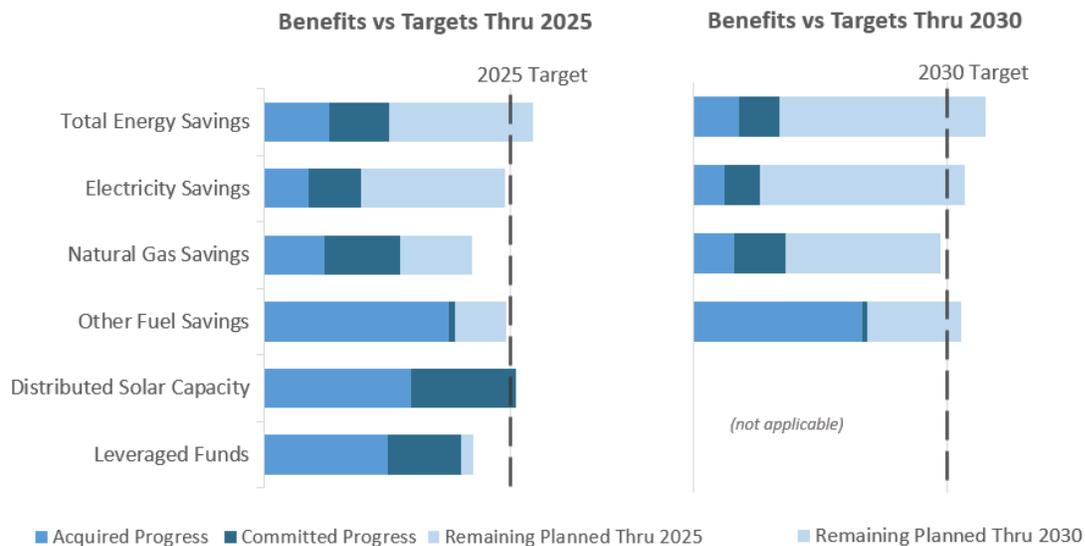


Figure 2 Supporting Data	Acquired Progress	Committed Progress	Remaining Planned Thru 2025	Total Expected Thru 2025	2025 Order Target	Remaining Planned Thru 2030	Total Expected Thru 2030	2030 Order Target
Total Energy Savings (MMBtu equivalent, millions)	14.0	12.8	30.9	57.7	53.0	63.9	90.7	79.0
Electricity Savings (MWh, millions)	1.2	1.4	3.9	6.5	6.7	8.0	10.7	10.0
Natural Gas Savings (MMBtu, millions)	6.1	7.7	7.3	21.1	25.0	23.1	36.9	38.0
Other Fuels Savings (MMBtu, millions)	11.3	0.4	3.1	14.7	15.0	6.3	17.9	17.0
Distributed Solar Capacity (Renewable MW)	3,593	2,550	-	6,143	6,000	-	6,143	n/a
Leveraged Funds (\$ millions)	\$ 10,064	\$ 5,892	\$ 972	\$ 16,928	\$ 20,000	\$ 2,428	\$ 18,384	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 Thru 2025	2025 Order Target	Total Expected Thru 2030	2030 Order Target
Total Energy Savings (MMBtu equivalent, millions)	26.8		46%	51%	30%	34%
Electricity Savings (MWh, millions)	2.6		40%	39%	25%	26%
Natural Gas Savings (MMBtu, millions)	13.8		65%	55%	37%	36%
Other Fuels Savings (MMBtu, millions)	11.7		79%	78%	65%	69%
Distributed Solar Capacity (Renewable MW)	6,143		100%	102%	100%	n/a
Leveraged Funds (\$ millions)	15,956		94%	80%	87%	n/a

- Distributed Solar Capacity includes 973 MW of non-NYSERDA solar capacity from statewide interconnection data.
- Leveraged funds expected benefits does not currently include anticipated indirect impacts.
- Benefits metrics that have not been given 2030 Targets in the Order are shown as “not applicable.”

As Figures 1 and 2 illustrate, the sum of expended, committed, and remaining planned funding across the CEF has reached 94 percent while the total projections for benefit outcomes are outpacing this for nearly all except Leveraged Funding (the only metric not factoring anticipated indirect impacts at this time).

An explanation of performance to these primary metrics is as follows:

- Total Energy Savings (MMBtu equivalent) is a measure of NYSERDA effectiveness in building and delivering site energy efficiency savings, primarily through the combined MD/I&R portfolios, to meet the expected contribution toward overall NE:NY goals. Unlike the individual energy savings goals, this metric accounts for both savings and usage in the overall pursuit for net impact. The data shows that NYSERDA has programmed initiatives anticipated to meet the aggressive target set forth in the CEF Order for 2025, and exceed them through what is expected to be acquired by 2030. Nearly six years into the CEF, the acquisition of benefits is accelerating and remains on a strong trajectory to meet near-term plans (see figure 3 below).
- Electricity savings MWh acquired and committed total has lagged the pace of fuel savings, but is still forecasted to reach CEF minimum targets as projects are completed, particularly when assessing against the longer-term 2030 targets.
- Even in light of a revised, and significantly increased target for MMBTU fuel savings adopted in the September 2021 CEF Order, progress remains strong, with realized benefits on par with MD/I&R spending through the end of 2021. NYSERDA expects this trend to continue.
- Renewable energy capacity MW is dominated by NY-Sun contributions, which began in 2014 and is performing exceedingly well against the 2025 target, on a trajectory to achieve the target early.
- Leveraged funding acquired and committed progress is outpacing other metrics, showing strong realization relative MD/I&R investments through the end of 2021. The longer-term outlook for leveraged funding planned is expected to improve over time as indirect impacts are better understood and carefully estimated.

2 Market Development and Innovation and Research Performance

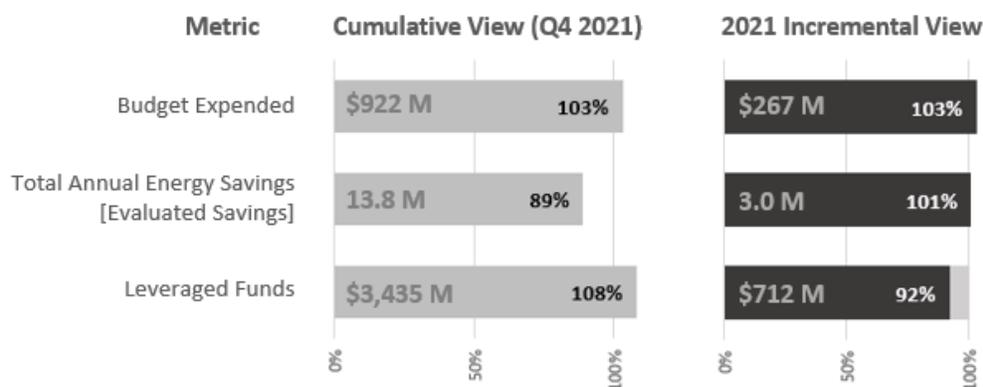
Each fall NYSERDA completes its annual update to forecasts for all CEF initiatives, which incorporates reported historical progress and revises forward looking plans to account for that history as well as to learn from the market. Cumulative performance against these latest filed plans is the ultimate measure of success for delivering on the CEF benefits targets; however, NYSERDA also monitors incremental progress toward the current year goal to provide another viewpoint from which to assess performance, including how quickly funds are put to work in the market based on near-term expectations. Both cumulative and incremental values can be reviewed in granular detail for the portfolio and for each program and metric within the [Clean Energy Dashboard](#).

Figure 3 provides a high-level view of NYSERDA’s MD and I&R portfolio performance to plan, measuring progress toward expended funding and acquired direct benefit plans through Q4 2021.

Key points to interpret this figure include:

- The Cumulative View (Q4 2021) represents all the years 2016–2020, plus all four quarters of 2021; 100 percent in this view represents the cumulative *planned* amounts for that timeframe.
- The 2021 Incremental View represents progress made in the current calendar year against the current calendar year plan, with the expectation that 100 percent of the plan should be achieved at the end of the fourth quarter, based on a simple assumption of linear progress during the year. There is no pro-rating by quarter in this view of performance.
- Total Annual Energy Savings is measured in MMBtu equivalents consistent with Figure 2
- For each of these metrics all CEF MD and I&R initiatives are included (no exclusions), however CEF Admin and Evaluation is excluded from the budget.

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



The year 2021 proved to be one of the more robust performances to plan yet for NYSERDA, with most core metrics achieving both cumulative and incremental goals established for the portfolios. The first evaluation results from early CEF program years have been introduced to reporting in Q4 and are shown to reduce the gross energy savings for the portfolio, however several of these studies have follow-on analysis for subsequent years (more mature CEF operations) and NYSERDA anticipates realization rates will improve and close the gap noted above. The general alignment between progress and plan shown in these metrics is as much a testament to NYSERDA's improvements in forecasting as it is to executing the collective plans. As NYSERDA noted during the 2021 CEF review conducted by the PSC, strengthening the processes and tools used to effectively manage the portfolio has been a key focus of the organization. NYSERDA has taken steps to improve both process and tools, refining the focus of quarterly performance discussions and bolstering the annual planning process used to set expectations for the immediate year ahead as well as the longer-term view of individual initiative and collective portfolio goals. A more detailed assessment of the portfolio's top programs with energy saving impact can be found in the following section.

2.1 Top Energy Impact Initiative Performance Summary

In NYSERDA's MD portfolio, 15 key initiatives currently account for approximately 89 percent of the expected total energy saving benefits (represented by equivalent annual MMBtu) and 48 percent of the total approved budget. These initiatives warrant special attention due to the weight they carry in terms of the overall success of the CEF in delivering expected benefits and are characterized in greater detail in Table 1 that follows.

Table 1. Performance Summary for Market Development’s Top Energy Impact Initiatives

Cumulative progress to plan is measured on a prorated basis through Q4 as described for figure 3 above. Budget Performance here is progress against approved funding expenditure plans while Energy Performance is progress versus equivalent annual MMBtu acquired plan. Benefits analysis is conducted on gross direct savings values.

Initiative	MMBtu Impact Rank	Cumulative Progress: Budget Performance	Cumulative Progress: Energy Performance	Progress Narrative
Energy Management Technology	1	124%	86%	Progress of expenditures continues to perform well against plan, exceeding the 2021 goal. Acquired savings lagged forecast due to changes in savings calculation methodology, in part based on learning provided through the evaluation. In years 2022 and 2023, larger, more complex projects will begin to report acquired savings and should address current shortfall. Evaluation will continue to measure and verify savings impacts from projects. There is a strong pipeline of projects in development across multifamily, commercial office, and small-to-medium businesses due to a robust network of vendors utilizing this initiative to support their business development efforts in New York State.
Product and Appliance Standards	2	142%	n/a	Energy performance remains dependent on legislation passing the NYS Assembly and being signed into law by the Governor.
Building Operations and Maintenance Partnerships	3	99%	77%	Two new proposals were received, recommended for funding, and are in contract negotiations. Contracts for three proposals approved in past quarters were signed and those projects are underway. Covid-related project delays continue, given the shift from hands-on/in-person training to online training. A total of nine projects were completed in 2021, with five additional projects expected to be completed early 2022. Evaluation results are expected mid-year.
Electric Vehicles - Rebate	4	101%	104%	CEF funding for this initiative has been fully committed and all rebates have been paid out as of Q1 2021. EV sales have been much stronger in 2021 than in previous years, in part due to the groundwork provided by the Drive Clean Rebate, which continues, leveraging other funding sources. An evaluation study to quantify indirect benefits of this program, on additional EV sales, will be completed and reflected in this reporting soon.
Technical Services	5	115%	142%	The program is performing well on both budget and energy benefits. The significant market response to the closing of the COVID-response FlexTech Program addendum in June led to an increase in commitments. NYSERDA continues to see strong participation from each commercial, industrial, multifamily, and agriculture sectors served. Additional funds were added and approved in September to the Investment Plan which will continue cost-sharing decarbonization studies for all sectors.
Energy Management Practices	6	91%	95%	Progress of budget expenditures and energy benefits finished the year just under plan as industrial facilities are managing the impact of COVID. Evaluation results are expected to be completed and reflected in this reporting soon.
Industrial Transition	7	83%	97%	Attrition of a few data center projects and COVID delays have resulted in actual expenditures falling short of plan at the end of 2021. Benefits remain strongly aligned with the plan through 2021.

Table 1 continued

Initiative	MMBtu Impact Rank	Cumulative Progress: Budget Performance	Cumulative Progress: Energy Performance	Progress Narrative
LMI Multifamily	8	106%	24%	<p>The LMI Multifamily initiative is comprised of several programs. Projects in the largest component - Multifamily Performance Program - experienced significant delays, largely due to COVID, including lack of access to buildings or tenant units, supply chain / labor issues slowing construction, and delays analyzing energy usage due to too many estimated meter readings. These delays have pushed back project completions and acquired energy savings. Additionally, a significant savings attrition has occurred due to cancelation of several large EEPS-era New Construction projects that were transferred to CEF funding but were unable to meet their final deadline of Nov 2021. Still, project development in 2021 was strong with MPP dwelling unit intake exceeding 2021 target by 75%. Lastly, Housing Agencies Direct Injection launched later than expected, resulting in expenditures, but no acquired savings yet.</p>
Market Challenges	9	117%	n/a	<p>Progress of expenditures continues to perform well against the plan, exceeding the 2021 goal. NYSERDA is seeing strong market interest from real estate portfolio owners and large energy users in pursuing deeper decarbonization through both challenges: Commercial and Industrial Carbon Challenge and Empire Building Challenge. The initiative does not anticipate acquiring the first project benefits until 2022.</p>
Clean Energy Communities	10	96%	111%	<p>Progress of expenditures and energy metrics are trending favorably to plan through the end of 2021. Additionally, a program modification was implemented in Q4 to enhance and clarify current actions to encourage greater participation.</p>
New Construction - Market Rate	11	104%	77%	<p>The Carbon Neutral Communities for Economic Development program received a robust response to the offering. Public announcement of awarded projects via the Consolidated Funding Application occurred in December. Program exceeded its 2021 commitment goals. A new Single Family offering—Building Better Homes—launched in December of this year. The composition and projection of estimated savings continues to evolve to reflect a fully electrified portfolio of projects. Modeling information gathered and tracked is also being updated to better reflect the projected increase in electrical usage in fully electrified buildings. Additional updates to projected savings are expected while these tracking issues are resolved; however, the entire portfolio of new construction projects are advancing the State's decarbonization goals and the 2 million climate friendly households goals. Energy saving estimates have been updated in the recent CEF filing to better reflect this new standard for project measures. Single family evaluation results are expected later this year.</p>

Table 1 continued

Initiative	MMBtu Impact Rank	Cumulative Progress: Budget Performance	Cumulative Progress: Energy Performance	Progress Narrative
New Construction - LMI	12	82%	113%	<p>NYSERDA has fully committed resources to its partnership with HCR in 2021, resulting in two pilot offerings of Clean Energy Incentive funding being issued inside of two of NYS HCR's RFPs (4% and 9%). The Energy Grants as a Source Pilot program was launched in early Q3. Awards for Phase 1A of the pilot occurred in Q4. The long-term technical support mini-bid was also conducted, with contracts to support Phase 1A pilot projects to be issued in Q1 of 2022. This initial funding amount is estimated to be \$7.5 million in direct awards this year for phase 1A, in addition to the open enrollment program activity. Single family evaluation results are expected later this year.</p>
P-12 Schools	13	127%	135%	<p>Progress of budget expenditures and energy benefits continues its favorable trajectory through the end of 2021. In September, the P12 Schools Initiative added \$36 million to its Investment Plan to launch a new program in 2022 focused on disadvantaged community schools. The current effort has a Benchmarking Program slated to end in March 2022 and an Energy Solutions program that will end in December 2022. Evaluation results are expected later this year.</p>
RetrofitNY - LMI	14	76%	0%	<p>The completion of the first RetrofitNY pilot is experiencing COVID-related construction delays leading to lower than expected budget expenditures. Specifically, the project's general contractor (GC) went insolvent due to COVID supply chain and labor issues and the project team had to select and contract with another GC to complete the project, substantially delaying completion. The last phases of work are being completed and the project is on track to complete in Q1 2022, at which time the savings for this project will be claimed. Two additional round-1 pilots are in process of re-assessing feasibility. Due to COVID-related delays in closing on financing with the housing agencies, the projects are now experiencing substantial increases in their development budget due inflationary effects. The RetrofitNY team is assessing the new development costs for these round-1 pilot projects to inform funding determination. In parallel, NYSERDA released Round 2 funding, and has qualified 5 building portfolio owners to participate. The first round-2 pilot project application has been received and is in process of approval.</p>
Multifamily	15	8%	n/a	<p>The development of the Low Carbon Pathways for Multifamily Buildings, the main incentive program under this investment plan, was launched later than planned in Q3 2021, leading to lower than expected expenditures for the year. However, NYSERDA has launched several initiatives that will support upcoming low-carbon retrofit projects. In Q1 2021, NYSERDA released the Low Carbon Multifamily Retrofit Playbooks, and in Q2 2021 NYSERDA launched support for Low Carbon Capital Planning, a new component of the Flexible Technical Assistance Program (under NYSERDA's Technical Services investment plan) that will support multifamily building owners with the development of capital plans featuring low-carbon retrofits, allowing them to leverage existing capital improvement milestones. There is strong market interest in Pathways program, which 4 projects, covering multiple buildings each, totaling 438 units in the pipeline. This initiative expects to acquire the first project benefits in 2023.</p>

2.2 Quarterly Benefits Progress Versus Plan

Table 2. Market Development and Innovation and Research Portfolio—Annual Direct Benefits

The table that follows represents the Market Development and Innovation and Research initiatives and their associated direct benefits. Progress reported here reflects evaluated totals, incorporating verified gross acquired savings where available. Otherwise, gross savings values are reported. NYSERDA will track additional benefits related to Innovation and Research projects; however, specific targets were not ordered.

Annual Benefits Metrics	Evaluated Totals (verified gross where evaluated; gross where not)								
	Planned Incremental Acquired Benefits in Current Year	Current Year Acquired Benefits through Current Quarter	Cumulative Acquired Benefits Thru Current Quarter	Committed Benefits as of Current Quarter (Committed but not acquired)	Total Progress as of Current Quarter (Total Acquired + Committed)	Total Expected Benefits Thru 2025	Total Progress as % of Total Expected Benefits Thru 2025	Total Expected Benefits Thru 2030	Total Progress as % of Total Expected Benefits Thru 2030
Total Energy Savings (MMBtu)	3,011,747	3,047,962	13,788,800	11,906,641	25,695,441	39,166,113	66%	48,219,641	53%
Electricity Savings (MWh)	514,215	324,458	1,149,095	1,670,853	2,819,948	4,134,906	68%	4,937,778	57%
Total Fuel Savings (MMBtu)	2,239,856	2,216,112	18,611,460	8,044,971	26,656,431	28,381,864	94%	34,727,331	77%
Natural Gas Fuel Savings (MMBtu)	1,979,969	1,636,015	5,829,322	7,661,017	13,490,338	13,753,235	98%	18,829,609	72%
Other Fuel Savings (MMBtu)	259,888	580,097	12,782,139	383,954	13,166,093	14,628,629	90%	15,897,722	83%
Renewable Energy Generation (MWh)	160,671	3,135	261,453	83,762	345,215	1,163,051	30%	1,258,600	27%
Renewable Energy Capacity (MW)	375	1	475	2	477	4,936	10%	6,256	8%
Total Leveraged Funds (\$M)	\$774	\$712	\$3,435	\$3,055	\$6,490	\$7,462	87%	\$8,918	73%

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

Indirect benefits are defined as long-term market effects from follow-on market activity not directly funded by NYSERDA. Progress is reported as market impacts are verified through the completion of market studies which will occur gradually and grow over time, depending upon the period of each study, which varies from one initiative to another. More information on the Evaluation, Measurement, and Verification can be found in section IV of this report (beginning Q1 2022). Expected benefits shown through 2025 and 2030 are discounted by 50 percent to account for uncertainty in timing and potential overlap that has not yet been assessed across the portfolio.

Market Development ** Indirect Only **	Cumulative Indirect Benefits Evaluated Thru Previous Period	Indirect Benefits Evaluated in Current Reporting Period	Total Indirect Benefits Evaluated Thru Current Reporting Period	Total Indirect Benefits Expected Thru 2025	Total Indirect Benefits Evaluated as % of Total Expected Thru 2025	Total Indirect Benefits Expected Thru 2030	Total Indirect Benefits Evaluated as % of Total Expected Thru 2030
Total Energy Savings (MMBtu)	909,863	104,252	1,014,115	21,087,295	5%	48,839,861	2%
Electricity Savings (MWh)	191,742	21,007	212,749	2,812,365	8%	6,179,950	3%
Total Fuel Savings (MMBtu)	255,639	32,576	288,215	12,197,508	2%	29,343,931	1%
Natural Gas Fuel Savings (MMBtu)	255,639	19,179	274,818	7,310,038	4%	18,036,271	2%
Other Fuel Savings (MMBtu)	-	13,397	13,397	4,887,470	0%	11,307,660	0%
Renewable Energy Generation (MWh)	-	478,683	478,683	379,201	126%	511,256	94%
Renewable Energy Capacity (MW)	-	58	58	312	19%	417	14%

- *Cumulative Indirect Benefits Evaluated Thru Previous Period* reflects the total reported indirect benefits as of the period, but not necessarily all indirect savings anticipated through the reporting period, since additional studies will likely conclude for past periods and add to these overall figures.

2.3 Quarterly Budgets Progress Versus Plan

Table 4. Market Development Initiatives by Focus Area—Budgets and Spending

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

Market Development Focus Area Initiative	Current Year Expenditures Plan	Current Year Expenditures through Current Quarter	Encumbrances as of Current Quarter	Total Progress as of Current Quarter (Expended + Encumbered)	Total Expected Expenditures Thru 2025	Total Progress as % of Total Expenditures Thru 2025	Total Expected Expenditures Thru 2030	Total Progress as % of Total Expenditures Thru 2030
Clean Heat & Cooling								
Heat Pumps Phase 1 (2017)	\$9,364,692	\$6,506,785	\$8,731,846	\$57,660,842	\$64,916,855	89%	\$65,776,685	88%
Heat Pumps Phase 2 (2020)	\$6,526,020	\$8,084,173	\$13,702,028	\$22,177,167	\$44,879,920	49%	\$56,200,000	39%
Renewable Heat NY - Clean and Efficient Biomass Heating	\$2,144,062	\$2,499,043	\$1,198,707	\$13,431,532	\$13,487,000	100%	\$13,487,000	100%
Solar Thermal Transition	\$6,257	-	-	\$287,513	\$293,770	98%	\$293,770	98%
Clean Heat & Cooling Total	\$18,041,031	\$17,090,001	\$23,632,581	\$93,557,054	\$123,577,545	76%	\$135,757,455	69%
Codes and Standards, & Other Multisector Initiatives								
Code to Zero	\$4,919,609	\$3,188,782	\$9,826,232	\$16,207,479	\$21,000,000	77%	\$21,000,000	77%
Information Products and Brokering	\$375,000	\$657,530	\$1,759,753	\$3,055,123	\$7,973,584	38%	\$8,500,000	36%
Market Characterization & Design Market Development	\$6,433,105	\$2,224,061	\$7,278,763	\$19,308,393	\$29,219,957	66%	\$29,452,510	66%
Product and Appliance Standards	\$250,000	\$605,862	\$1,252,340	\$2,031,039	\$10,346,908	20%	\$21,699,000	9%
REV Connect	\$2,175,000	\$699,875	\$3,392,665	\$7,373,587	\$13,000,000	57%	\$13,000,000	57%
Codes and Standards, & Other Multisector Initiatives Total	\$14,152,714	\$7,376,110	\$23,509,753	\$47,975,621	\$81,540,449	59%	\$93,651,510	51%
Commercial / Industrial / Agriculture								
2030 GLASE	\$1,405,298	\$814,583	\$2,675,790	\$5,000,000	\$5,000,000	100%	\$5,000,000	100%
Advancing Agricultural Energy Technologies	\$432,823	\$119,907	\$1,788,555	\$2,079,603	\$3,760,000	55%	\$3,760,000	55%
Agriculture Transition	\$3,235	\$3,235	-	\$3,598,821	\$3,598,821	100%	\$3,598,821	100%
Commercial Transition	\$1,648,369	\$1,238,789	\$1,807,248	\$12,292,528	\$12,576,271	98%	\$12,576,271	98%
Energy Management Practices	\$3,384,909	\$2,571,649	\$9,098,722	\$19,119,022	\$22,709,469	84%	\$28,876,778	66%
Energy Management Technology	\$9,515,496	\$12,822,799	\$40,397,336	\$71,756,814	\$93,806,097	76%	\$108,298,862	66%
Industrial Transition	\$11,866,755	\$6,097,043	\$15,134,674	\$54,989,436	\$61,158,483	90%	\$61,158,483	90%
Market Challenges	\$3,423,551	\$4,241,691	\$39,536,716	\$49,407,170	\$79,549,103	62%	\$95,222,650	52%
P-12 Schools	\$1,525,000	\$2,555,038	\$6,190,309	\$10,988,183	\$23,659,997	46%	\$57,600,000	19%
Pay for Performance	\$900,000	\$451,220	\$9,068,832	\$10,497,087	\$17,812,376	59%	\$33,969,049	31%
Real Estate Tenant	\$2,566,019	\$2,684,299	\$3,774,551	\$15,500,390	\$15,798,390	98%	\$15,798,390	98%
REV Campus Challenge	\$2,109,842	\$4,363,377	\$7,799,298	\$16,803,746	\$18,936,179	89%	\$21,650,002	78%
Technical Services	\$6,465,671	\$8,857,644	\$43,178,043	\$58,478,320	\$52,530,609	111%	\$71,597,185	82%
Commercial / Industrial / Agriculture Total	\$45,246,968	\$46,821,274	\$180,450,074	\$330,511,120	\$410,895,795	80%	\$519,106,491	64%
Communities								
Clean Energy Communities	\$8,462,058	\$6,473,469	\$9,687,820	\$28,732,170	\$68,119,574	42%	\$81,271,963	35%
Community Energy Engagement	\$927,431	\$1,006,510	\$69,690	\$4,388,546	\$4,407,818	100%	\$4,407,818	100%
Communities Total	\$9,389,489	\$7,479,979	\$9,757,510	\$33,120,716	\$72,527,392	46%	\$85,679,781	39%

Table 4 continued

Market Development Focus Area Initiative	Current Year Expenditures Plan	Current Year Expenditures through Current Quarter	Encumbrances as of Current Quarter	Total Progress as of Current Quarter (Expended + Encumbered)	Total Expected Expenditures Thru 2025	Total Progress as % of Total Expenditures Thru 2025	Total Expected Expenditures Thru 2030	Total Progress as % of Total Expenditures Thru 2030
Low-to-Moderate Income								
Healthy Homes Feasibility Study	-	-	\$35,021	\$212,147	\$212,147	100%	\$212,147	100%
Heat Pumps Phase 2 (2020)	\$6,168,625	\$3,844,736	\$5,659,172	\$9,516,797	\$29,750,000	32%	\$30,000,000	32%
LMI Multifamily	\$6,220,590	\$7,262,253	\$33,453,338	\$53,311,457	\$113,475,843	47%	\$128,808,112	41%
LMI Pilots	-	-	\$852,665	\$852,665	\$1,631,718	52%	\$2,443,532	35%
Low Rise New Construction Transition - LMI	\$1,207,364	\$1,476,859	\$1,372,070	\$8,067,497	\$8,487,000	95%	\$8,487,000	95%
Low-Income Forum on Energy	\$629,215	\$829,569	\$1,647,900	\$2,883,087	\$35,968,328	8%	\$44,467,401	6%
Multifamily	\$110,000	-	-	-	\$6,802,173	0%	\$10,000,000	0%
Multifamily New Construction Transition - LMI	\$871,985	\$1,327,081	\$4,721,474	\$8,734,967	\$10,879,000	80%	\$10,879,000	80%
New Construction - LMI	\$6,139,242	\$3,812,657	\$59,664,592	\$66,310,048	\$93,583,148	71%	\$138,831,361	48%
NYS Healthy Homes Value Based Payment Pilot	\$3,179,772	\$285,393	\$2,073,049	\$3,280,932	\$9,791,293	34%	\$9,791,293	34%
RetrofitNY - LMI	\$2,149,877	\$787,174	\$836,375	\$4,699,018	\$28,859,351	16%	\$30,503,500	15%
REVitalize	\$38,932	(84)	-	\$291,424	\$310,924	94%	\$310,924	94%
Single Family - Low Income	\$9,359,676	\$39,225,296	\$5,758,332	\$177,132,143	\$228,048,763	78%	\$235,627,453	75%
Single Family - Moderate Income	\$4,860,993	\$27,587,960	\$2,427,348	\$79,758,088	\$86,503,826	92%	\$89,751,836	89%
Solar for All	\$5,372,123	\$894,885	\$9,115,158	\$12,591,047	\$17,013,804	74%	\$21,218,418	59%
Low-to-Moderate Income Total	\$46,308,394	\$87,333,779	\$127,616,494	\$427,641,317	\$671,317,318	64%	\$761,331,977	56%
Multifamily Residential								
Energy Management Technology	\$966,249	\$1,693,268	\$3,055,622	\$8,096,383	\$12,764,445	63%	\$14,099,239	57%
Market Challenges	\$500,000	\$650,721	\$8,573,334	\$9,224,055	\$8,500,000	109%	\$10,000,000	92%
Multifamily	\$2,323,555	\$216,639	\$2,646,056	\$2,879,763	\$21,324,033	14%	\$27,138,016	11%
Multifamily Market Rate Transition	-	-	-	\$156,214	\$156,214	100%	\$156,214	100%
Technical Services	\$1,428,766	\$1,155,362	\$9,014,549	\$10,284,472	\$16,241,258	63%	\$25,749,999	40%
Multifamily Residential Total	\$5,218,570	\$3,715,990	\$23,289,561	\$30,640,887	\$58,985,950	52%	\$77,143,468	40%
New Construction								
Commercial New Construction Transition	\$1,622,027	\$1,502,912	\$7,178,711	\$15,157,898	\$17,020,645	89%	\$20,162,139	75%
Low Rise New Construction Transition - Market Rate	\$505,351	\$477,205	\$492,293	\$4,376,692	\$4,538,388	96%	\$4,538,388	96%
Multifamily New Construction Transition - Market Rate	\$396,132	\$111,179	\$446,001	\$1,632,444	\$2,487,777	66%	\$2,487,777	66%
New Construction - Market Rate	\$4,784,117	\$3,731,502	\$64,656,193	\$73,807,906	\$80,947,806	91%	\$131,029,194	56%
New Construction Total	\$7,307,627	\$5,822,798	\$72,773,198	\$94,974,940	\$104,994,616	90%	\$158,217,498	60%

Table 4 continued

Market Development Focus Area Initiative	Current Year Expenditures Plan	Current Year Expenditures through Current Quarter	Encumbrances as of Current Quarter	Total Progress as of Current Quarter (Expended + Encumbered)	Total Expected Expenditures Thru 2025	Total Progress as % of Total Expenditures Thru 2025	Total Expected Expenditures Thru 2030	Total Progress as % of Total Expenditures Thru 2030
Renewables / Distributed Energy Resources (DER)								
Anaerobic Digesters Transition	\$4,015,000	\$744,204	\$10,080,789	\$14,273,843	\$9,489,197	150%	\$13,634,032	105%
Clean Energy Siting and Soft Cost Reduction	\$1,262,507	\$288,386	\$625,234	\$1,930,377	\$8,795,000	22%	\$8,795,000	22%
Combined Heat & Power Transition	\$10,427,690	\$6,802,905	\$26,875,581	\$58,091,908	\$59,485,543	98%	\$59,485,543	98%
Fuel Cells	\$3,320,487	\$1,848,789	\$4,412,500	\$7,199,138	\$11,310,030	64%	\$11,310,030	64%
Offshore Wind Master Plan	\$81,565	\$42,219	\$34,396	\$4,995,051	\$5,000,000	100%	\$5,000,000	100%
Offshore Wind Pre-Development Activities	\$1,642,620	\$1,067,282	\$1,088,255	\$9,791,779	\$10,000,000	98%	\$10,000,000	98%
ORES Support	\$4,000,000	\$1,229,407	\$908,328	\$2,805,381	\$9,000,000	31%	\$9,000,000	31%
Reducing Barriers to Distributed Deployment	\$525,000	\$387,482	\$3,670,602	\$12,786,481	\$15,082,112	85%	\$24,450,000	52%
Small Wind Transition	\$783,347	\$265,160	\$479,633	\$3,572,902	\$3,569,207	100%	\$3,569,207	100%
Solar Plus Energy Storage	\$9,885,500	\$1,424,500	\$35,459,799	\$36,884,299	\$40,000,000	92%	\$40,000,000	92%
Renewables / Distributed Energy Resources (DER) Total	\$35,943,716	\$14,100,334	\$83,635,117	\$152,331,159	\$171,731,089	89%	\$185,243,812	82%
Single Family Residential								
Consumer Awareness	\$1,015,000	\$948,689	\$917,764	\$2,803,610	\$2,803,610	100%	\$2,803,610	100%
Heat Pumps Phase 2 (2020)	\$784,000	\$435,443	\$1,619,673	\$2,233,454	\$11,110,244	20%	\$12,000,000	19%
Pay for Performance	\$2,442,739	\$199,750	\$7,784,190	\$8,418,253	\$15,077,930	56%	\$21,787,660	39%
Residential	\$5,869,067	\$3,009,366	\$4,506,229	\$11,595,148	\$47,713,945	24%	\$49,641,366	23%
Single Family Market Rate Transition	\$439,709	\$93,301	\$24,163	\$23,540,233	\$23,805,217	99%	\$23,805,217	99%
Single Family Residential Total	\$10,550,515	\$4,686,549	\$14,852,019	\$48,590,698	\$100,510,946	48%	\$110,037,853	44%
Transportation								
Electric Vehicles - Rebate	\$2,190,266	\$2,639,165	\$318,037	\$39,500,000	\$39,500,000	100%	\$39,500,000	100%
Transportation Total	\$2,190,266	\$2,639,165	\$318,037	\$39,500,000	\$39,500,000	100%	\$39,500,000	100%
Workforce Development								
Building Operations and Maintenance Partnerships	\$2,867,660	\$2,488,058	\$9,377,291	\$17,443,025	\$29,449,414	59%	\$33,345,000	52%
Talent Pipeline	\$6,606,078	\$9,009,476	\$15,775,315	\$31,349,877	\$65,997,281	48%	\$75,000,000	42%
Workforce Development Total	\$9,473,738	\$11,497,534	\$25,152,606	\$48,792,902	\$95,446,695	51%	\$108,345,000	45%
NYS Cost Recovery Fee Market Development	\$2,349,828	\$2,505,054	-	\$10,147,090	\$23,027,182	44%	\$26,589,691	38%
Total Market Development	\$206,172,856	\$211,068,567	\$584,986,950	\$1,357,783,504	\$1,954,054,977	69%	\$2,300,604,536	59%

Table 5. Innovation and Research Initiatives by Focus Area—Budgets and Spending

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

Innovation & Research Focus Area Initiative	Current Year Expenditures Plan	Current Year Expenditures through Current Quarter	Encumbrances as of Current Quarter	Total Progress as of Current Quarter (Expended + Encumbered)	Total Expected Expenditures Thru 2025	Total Progress as % of Total Expenditures Thru 2025	Total Expected Expenditures Thru 2030	Total Progress as % of Total Expenditures Thru 2030
Buildings Innovation								
CleanTech Startup Growth	-	-	-	-	\$10,000,000	0%	\$10,000,000	0%
NextGen HVAC	\$2,625,000	\$2,354,620	\$14,539,908	\$20,650,851	\$24,081,125	86%	\$30,000,000	69%
Buildings Innovation Chapter Total	\$2,625,000	\$2,354,620	\$14,539,908	\$20,650,851	\$34,081,125	61%	\$40,000,000	52%
Clean Transportation Innovation								
Electric Vehicles - Innovation	\$1,585,000	\$1,896,493	\$4,438,201	\$9,648,230	\$19,243,339	50%	\$19,850,000	49%
Public Transportation and Electrified Rail	\$1,650,000	\$1,332,594	\$7,127,521	\$10,485,993	\$15,215,890	69%	\$18,500,000	57%
Clean Transportation Innovation Total	\$3,235,000	\$3,229,087	\$11,565,722	\$20,134,223	\$34,459,229	58%	\$38,350,000	53%
Climate Resilience Innovation								
Market Characterization & Design Innovation & Research	\$525,815	\$303,144	\$106,375	\$582,727	\$1,750,653	33%	\$1,750,653	33%
Climate Resilience Innovation Total	\$525,815	\$303,144	\$106,375	\$582,727	\$1,750,653	33%	\$1,750,653	33%
Energy Focused Environmental Research								
Energy-Related Environmental Research	\$5,050,000	\$5,505,804	\$12,494,331	\$30,452,206	\$35,062,006	87%	\$37,800,000	81%
Energy Focused Environmental Research Total	\$5,050,000	\$5,505,804	\$12,494,331	\$30,452,206	\$35,062,006	87%	\$37,800,000	81%
Grid Modernization								
High Performing Electric Grid	\$6,365,420	\$12,514,270	\$37,468,102	\$67,442,299	\$69,871,692	97%	\$116,800,000	58%
Power Electronics Manufacturing Consortium	-	-	-	\$16,694,490	\$16,694,490	100%	\$16,694,490	100%
Grid Modernization Chapter Total	\$6,365,420	\$12,514,270	\$37,468,102	\$84,136,789	\$86,566,182	97%	\$133,494,490	63%
Negative Emissions Technologies								
CleanTech Startup Growth	-	\$125,000	\$4,875,000	\$5,000,000	\$5,000,000	100%	\$5,000,000	100%
Negative Emissions Technologies Total	-	\$125,000	\$4,875,000	\$5,000,000	\$5,000,000	100%	\$5,000,000	100%
Renewables Optimization								
Energy Storage Technology and Product Development	\$1,230,000	\$2,091,015	\$21,333,103	\$28,232,444	\$26,811,966	105%	\$33,000,000	86%
National Offshore Wind Research & Development Consortium	\$3,251,500	\$3,646,068	\$11,615,995	\$18,076,347	\$22,500,000	80%	\$22,500,000	80%
Renewables Optimization Total	\$4,481,500	\$5,737,083	\$32,949,098	\$46,308,791	\$49,311,966	94%	\$55,500,000	83%
Technology to Market								
CleanTech Startup Growth	\$24,574,654	\$19,286,649	\$40,654,966	\$80,774,083	\$82,728,245	98%	\$82,728,245	98%
Manufacturing Corps	\$2,551,141	\$4,692,031	\$1,893,521	\$11,996,845	\$12,000,000	100%	\$12,000,000	100%
Novel Business Models and Offerings	\$2,556,400	\$1,206,337	\$1,700,534	\$6,051,404	\$16,100,000	38%	\$16,100,000	38%
Technology to Market Total	\$29,682,195	\$25,185,017	\$44,249,021	\$98,822,332	\$110,828,245	89%	\$110,828,245	89%
NYS Cost Recovery Fee Innovation & Research	\$599,091	\$619,039	-	\$1,797,630	\$4,174,468	43%	\$4,858,659	37%
Total Innovation and Research	\$52,564,021	\$55,573,064	\$158,247,557	\$307,885,549	\$361,233,874	85%	\$427,582,047	72%

3 NY-Sun Performance

NYSERDA will commence quarterly NY-Sun reporting per DPS Reporting Guidance in the first quarter of 2022. NY-Sun will continue reporting progress within each quarterly CEF scorecard filed which can ultimately be assessed in the [Clean Energy Dashboard \(CED\)](#) and associated Open NY data sets.

4 Evaluation, Measurement, and Verification

NYSERDA will commence quarterly Evaluation, Measurement, and Verification reporting per DPS Reporting Guidance in the first quarter of 2022.

Endnotes

- 1 Order Authorizing the Clean Energy Fund Framework, issued and effective January 21, 2016. [[LINK](#)]
- 2 Order Approving Clean Energy Fund Modifications, issued and effective September 9, 2021. [[LINK](#)]
- 3 <https://greenbank.ny.gov/Resources/Public-Filings> [NY Green Bank Public Filings]
- 4 <http://documents.dps.ny.gov/public/MatterManagement/CaseMaster.aspx?Mattercaseno=18-M-0084> [NYS Department of Public Service Commission Files]
Governor Hochul proposes expansion of distributed solar target (10GW by 2030) and energy storage target (6GW 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>
- 6 If solicitations with upcoming due dates were factored into the total NYSERDA commitments in the Market Development Budgets and Spending table, an additional \$65,481,506 or 62.1% of the total approved budget to date, would be included with total NYSERDA commitments.
- 7 The Market Characterization and Design initiative includes funds to support overarching, non-initiative-specific evaluation studies.
- 8 Initiative commitments that are in excess of their total budgets are in anticipation of program attrition. No initiative will have total expenditures in excess of that initiative's total budget at the close of the program.
- 9 If solicitations with upcoming due dates were factored into the total NYSERDA commitments in the Innovation and Research Budget and Spending table, an additional \$37,912,514 or 81.4% of the total approved budget to date, would be included with total NYSERDA commitments.
- 10 The Market Characterization and Design initiative includes funds to support overarching, non-initiative-specific evaluation studies.

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

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