

New York State Energy Research and Development Authority

Operations, Accomplishments, Mission Statement, and Performance Measurement Annual Report

Fiscal Year Ended March 31, 2024

Final Report | June 2024



NYSERDA

NYSERDA's Promise to New Yorkers:

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

Our Vision:

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

Our Mission:

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

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and Performance Measurement
Annual Report

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Pursuant to Public Authorities Law Section 2800(1)

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1 NYSERDA

The New York State Energy Research and Development Authority (NYSERDA) is governed by a board consisting of 13 members, including the Commissioner of the Department of Transportation, the Commissioner of the Department of Environmental Conservation, the Chair of the Public Service Commission, and the President and CEO of the Power Authority of the State of New York, who serve ex officio. The remaining nine members are appointed by the Governor of the State of New York with the advice and consent of the Senate and include, as required by statute, an engineer or research scientist, an economist, an environmentalist, a consumer advocate, an officer of a gas utility, an officer of an electric utility, and three at-large members.

2 Mission, Vision, and Promise

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.

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

3 Operational Changes and New Initiatives

This section begins with information on major clean energy policies that were enacted in 2023 and represent key drivers and context for NYSERDA's programs. This section continues to include a description of each new or significantly modified initiative in NYSERDA's portfolio, including several that build upon prior offerings.

3.1 Clean and Resilient Buildings

3.1.1 Energy Efficiency and Building Electrification Proposals

Pursuant to the Public Service Commission's July 2023 Order Directing Energy Efficiency and Building Electrification Proposals, NYSERDA filed proposals in November 2023 for its post-2025 Low- to Moderate- Income (LMI) Energy Efficiency and Building Electrification (EE/BE) and non-LMI program portfolios, with subsequent supplemental information filings in January 2024 and held technical conferences in February 2024. NYSERDA's proposals build on a Strategic Framework established by the PSC, whereby a minimum of 85% of the funding is dedicated toward "strategic" measures that advance electrification and electrification-readiness, such as heat pumps and building shell improvements. NYSERDA's proposal submission set a yearly expenditure budget of \$300M for EE/BE programs across the 2026 to 2030 period with key elements including:

- Establishment of NYSERDA as the primary LMI Program Administrator for 1-4 family homes statewide and upstate multifamily LMI homes, and coordination with the downstate utilities to jointly serve multifamily LMI customers in that region.
- Reaffirmation of NYSERDA's role in administering statewide Market Development programs, including continuing and evolving offerings in workforce development, technical assistance and audits, codes and standards, demonstration projects, and general consumer awareness and education.
- Maintenance of an energy reduction goal, with parallel introduction of new ways to measure the success of electrification activities.
- Further operationalization of the Climate Act goal to ensure a minimum of 35%, and goal of 40% of benefits, to Disadvantaged Communities across the ratepayer-funded EE/BE portfolio.

New York received approval on the partial-scope application for Department of Energy's (DOE) Home Electrification and Appliance Rebates (HEAR) Program formula grant funding, making it the first state in the country to have secured funds under the Home Energy Rebate Programs. NYSERDA's approved application requested \$39.6 million in initial funding to amplify the efforts of EmPower+, allowing additional energy efficiency and beneficial electrification improvements for low-income New Yorkers through that program. The approval represents the first step in receiving Inflation Reduction Act (IRA) funding for the full portfolio of IRA Home Energy Rebate programs under which New York State is eligible to receive a total of \$317.7

million: \$159.3 million for the Home Efficiency Rebates (HER) and \$158.4 million for HEAR program. The Department of Energy expects to release detailed program rules and the full Opportunity Announcements in Summer 2024. These funds, in combination with the new Federal tax credits and existing programs in New York State will achieve a significant cost savings for consumers, and dramatically reduce energy use and emissions, while modernizing and improving the indoor health, comfort, safety and resiliency of our homes.

3.1.2 EmPower+

In the 2023 State of the State, Governor Hochul announced a \$200M appropriation for services and expenses, grants and other costs related to clean energy projects including NYSERDA's Empower Plus Program. EmPower+ supports residential low-income energy efficiency, heating and cooling, health and safety and other energy related improvements and expenses.

3.1.3 Clean Energy Fund Modifications

A number of modifications were made to Clean Energy Fund programs including the following.

- The LMI Multifamily initiative was previously approved and was modified to increase the budget by \$20 million to support comprehensive, multi-year decarbonization projects in the LMI Multifamily
- The New Construction – LMI initiative was previously approved and was modified to increase the budget by \$.5 million to provide additional support for existing activities currently approved in the initiative.
- The RetrofitNY LMI initiative was previously approved and was modified to decrease the budget by \$21.6 million as the program is being closed. The program was unable to make sufficient progress on cost compression and there is an opportunity to better leverage this funding in other program areas.
- The Heat Pumps Phase 2 initiative was previously approved and was modified twice with a net addition of \$3.7 million. \$2 million was removed as the critical tools activities planned in this initiative were consolidated within the Single-Family Residential Plan. \$5.7 million was added to provide additional funding for Thermal Energy Networks.
- The Codes and Standards for Carbon Neutral Buildings initiative was previously approved and was modified to reduce the budget by \$5 million as the program has been able to achieve program activities at a lower cost than originally anticipated.
- The Product and Appliance Standards initiative was previously approved and was modified to reduce the budget by \$5 million as the program has been able to achieve program activities at a lower cost than originally anticipated.
- The Energy Management Practices initiative was previously approved and was modified to decrease the budget by \$1.9 million due to a lower-than-expected response rate. NYSERDA will leverage this funding in other program areas.
- The Technical Services initiative in the Commercial/Industrial/Ag focus area was previously approved and was modified to add an additional \$1.7 million to support an increase in the demand for studies.

- The Market Challenges initiative in the Commercial/Industrial/Ag focus area was previously approved and was modified to increase the budget by \$2.2 to provide additional support for decarbonization in the industrial sector with NYSERDA's Carbon Challenge.
- The Advancing Agriculture Energy Technologies initiative was previously approved and was modified to decrease the budget by \$1.7 million due to a lower-than-expected response rate. NYSERDA will leverage this funding in other program areas.
- The Technical Services initiative in the Multifamily focus area was previously approved and was modified to increase the budget by \$5 million to meet demand for Local Law 97 decarbonization planning.
- The Market Challenges initiative in the Multifamily focus area was previously approved and was modified to increase the budget \$3.3 million to demonstrate additional technical-economic pathways for Local Law 97 compliance.
- The Multifamily Low-Carbon Pathways initiative was previously approved and was modified to reduce the budget by \$5 million as the Low-Carbon Capital Planning activities are being consolidated with the Technical Services initiative.
- The New Construction initiative was previously approved and has been modified to add \$7 million for sector specific intervention strategies currently approved in the plan.
- The Heat Pumps Phase 2 (2020) initiative in the Single-Family Residential focus area was previously approved and was modified to add \$5.5 million to expand on the existing Supply Chain activities currently approved in the initiative.
- Market Characterization and Design (MCD) was previously approved and modified to decrease the budget \$5.7 million as remaining funding originally slated for Innovative Market Strategies is being reduced and NYSERDA will consolidate demo programs through specific initiatives and does not require the remaining balance of funding dedicated in MCD.

3.1.4 Regional Greenhouse Gas Initiative Modifications

A number of modifications were made to the RGGI program including the following.

- Funding for LIPA Energy Efficiency and Renewable Energy programs was previously approved and modified to add \$80 million (\$20 million per year through the planning period). These funds enhance the portfolio of clean energy activities for energy consumers on Long Island as approved by the Long Island Power Authority and administered by PSEG-Long Island. Program activities align with the LIPA energy efficiency program plan and the goal of advancing benefits of investments in disadvantaged communities.
- The Empower+ program was previously approved and modified to add \$135 million. This program provides comprehensive energy efficiency services programs for low- and moderate-income-qualified households living in one-to-four family homes. These funds allow inclusion of customers of municipal utilities and customers using delivered fuel, which cannot be funded through the Clean Energy Fund.

- The Building Retrofit and New Construction Challenges program was previously approved and modified to add \$56 million. These competitive opportunities leverage new technical solutions and building designs to create economically viable pathways for replicable approaches to reducing emissions from new construction and hard to decarbonize existing buildings. This funding allows these programs to serve non-SBC paying customers from Long Island or served by municipal electric utilities.
- Climate Resiliency Implementation Planning was previously approved and modified to add \$20 million. This funding supports research and analysis to perform a climate change risk assessment for clean energy and electrification assets and investments to help ensure they will remain durable solutions over time. This work informs a roadmap for integrating climate risks as well as the Climate Act Scoping Plan.
- Support for the 2 Million Climate Friendly Homes goal was previously approved and modified to add \$25 million. This funding allows programs in support of building efficiency and electrification to serve customers of municipal utilities and customers using delivered fuel who not pay into the system benefits charge.
- Innovative Finance & Risk Management is a new program with an initial investment of \$6 million. This funding supports demonstrations and later-stage business acceleration of novel insurance products applied to climate technology solutions.
- The Clean Heat Consortium is a new program with an initial investment of \$12 million. This consortium connects building owners with manufacturers and solution providers to advance the development, production, and adoption of new technologies, such as packaged terminal heat pumps and cold climate all electric rooftop units.

3.2 Communities and Partnerships

3.2.1 Energy Efficiency and Building Electrification Proposals

NYSERDA's proposal is outlined in detail under the Clean and Resilient Buildings

- Outreach and engagement efforts specific to Disadvantaged Communities (DAC) will drive DAC resident and stakeholder participation in EE/BE approaches including those focused on LMI buildings. This will be essential to achieving the goal of delivering 40% of clean energy benefits to DACs as defined by the Climate Act. This goal will be more achievable by leveling inherent power dynamics through historically marginalized communities actively engaged in designing clean energy programs and policies. NYSERDA's close cooperation with interagency partners will also help to reduce barriers that limit access to clean energy in these overburdened communities and facilitate improved use of public resources to provide DAC-centered solutions.
- Local governments have a unique role in implementing local policies, enforcing codes and regulations, leading by example, and influencing private action. However, local governments are challenged by resource constraints, competing priorities, and limited knowledge of advanced building electrification and efficiency approaches. This initiative will partner with local governments to implement impactful and replicable building

electrification and energy efficiency strategies. The activities proposed in this section complement those of the Regional Clean Energy Hubs described in the LMI Proposal by working with municipalities to reduce friction points that could stifle building decarbonization at greater scale both within DACs and among market rate customers.

- Critical workforce development activities are proposed which represent another key enabling factor to ensure a skilled, high-quality workforce and job opportunities for NYS residents and disadvantaged community residents and are also pivotal to support resident demand and future scaling of EE/BE adoption. This includes developing the in-state workforce capacity to implement these measures cementing New York’s status as a hub for these solutions.

3.2.2 Clean Energy Fund Modifications

A number of modifications were made to the CEF including the following.

- The Regional Clean Energy Hubs initiative was previously approved and was modified to increase the budget by \$5 million to expand translation services capacity across all regions beyond what is currently available and fund additional statewide marketing and DAC resident outreach campaigns.
- The Talent Pipeline initiative was previously approved and was modified to add \$10.0 million to expand funding for workforce training with at least 50% used to train & place residents of Disadvantaged Communities or priority populations to address critical industry skill gaps.
- The Clean Energy Communities initiative was previously approved and was modified to reduce the budget by \$15 million. NYSERDA will leverage this funding in other program areas where opportunity exists.

3.2.3 Regional Greenhouse Gas Initiative Modifications

A number of modifications were made to RGGI programs including the following.

- Funding for Disadvantaged Communities Schools and Affordable Housing was previously approved and modified to add \$33.8 million. These funds support high-performance energy efficiency and electrification projects in schools located in disadvantaged communities as well as for decarbonization projects for regulated affordable housing located in non-SBC regions (in partnership with NYS Homes and Community Renewal, NYC Housing Preservation and Development, and the New York City Housing Authority.)
- The Community Thermal Energy Networks (formerly Community Heat Pumps) program was previously approved and modified to add \$16.7 million. This program facilitates the design and implementation of thermal energy networks for State and local government facilities, as well as affordable housing developments statewide.
- The Clean Energy Communities program was previously approved and modified to add \$10 million. This statewide program provides local governments with expertise, coaching, and

technical assistance to implement the local-level policies, planning, and activities needed to advance decarbonization and the development of the clean energy market.

- The Healthy New Home Design & Construction Challenges program was previously approved and modified to add \$12.05 million. This program encourages the design and construction of carbon neutral homes to build market capability across the state, with these funds used to include Long Island and other non-SBC customers.
- The Clean Energy Workforce Development program was previously approved and modified to add \$80 million. This program supports the just transition of fossil fuel workers as well as new entrants from disadvantaged communities to the clean energy workforce, with these funds allowing statewide delivery of services by including residents that do not pay the System Benefits Charge.
- The Clean Energy Hubs program was previously approved and modified to add \$18 million. This funding allows for statewide community engagement and capacity building via clean energy concierge services for residents.
- The Clean Energy Engagement program was previously approved and is now closed, with \$3 million reallocated to the rest of the portfolio. The current Clean Energy Hubs program is building on the success of this earlier program's energy-related community engagement activities.
- The Cleaner Greener Communities program was previously and is now closed, with \$4.9 million reallocated to the rest of the portfolio. The program encouraged communities to use public-private partnerships and develop regional sustainable growth strategies related to energy efficiency, renewable energy, low-carbon transportation, and other carbon reductions.
- Climate Action Consumer Awareness & Education efforts were previously approved and modified to add \$20 million. These activities include both a broad engagement campaign and targeted marketing efforts to impact the purchase decisions and actions needed to reach the State's climate goals.

3.3 Distributed Energy Resources

3.3.4 Solar for All Expansion

New York State was awarded \$249.8 million under the EPA's \$7 billion Solar For All Competition. Solar For All is a \$7 billion competition within the \$27 billion Greenhouse Gas Reduction Fund (GGRF) created by the federal Inflation Reduction Act. The funding awarded will allow New York to expand benefits for disadvantaged communities and low-income residents by enhancing our state's portfolio of highly successful and effective solar deployment, technical assistance, and workforce development programs, including NY-Sun.

3.3.5 Community Solar

NYSERDA and National Grid have jointly administered two rounds of project applications for the Expanded Solar For All (E-SFA) program. E-SFA is a novel model for DER project configuration and will use the solar generation from 300 MW of community solar to provide guaranteed electric bill savings for 160,000 Energy Affordability Program (EAP) customers in National Grid service territory.

3.3.6 Energy Storage

- As of March 31, 2024, 344 MW of storage had been deployed across New York State, with an additional 581 MW of NYSERDA-funded projects in development.
- NYSERDA’s 2022 Energy Storage Roadmap, which requests additional funding to procure an additional 4.7 GW of energy storage to support the realization of the 6 GW by 2030 target, is before the Public Service Commission for review.
- In August 2023, NYSERDA awarded nearly \$15 million in awards to four demonstration projects that advance long duration energy storage solutions that will help harness and provide stored renewable energy to New York's electric grid.
- In July 2023, following fires at battery energy storage systems at facilities in Jefferson, Orange and Suffolk Counties, Governor Hochul announced the creation of a new Inter-Agency Fire Safety Working Group to ensure the safety and security of energy storage systems across the state. The Working Group, led by NYSERDA and Division of Homeland Security and Emergency Services (DHSES), has released reports detailing initial findings from the incidents, as well as draft code improvement recommendations relating to fire risk mitigation for stationary battery storage systems. At Governor Hochul’s directive, NYSERDA has also commenced safety inspections of operational grid-scale battery storage facilities across the state.

3.3.7 Regional Greenhouse Gas Initiative Modifications

A number of modifications were made to RGGI programs including the following.

- The NY-Sun program was previously approved and modified to add \$53.82 million to fund statewide incentives for residential and commercial solar installations for customers of New York Power Authority and Upstate municipal utilities who do not pay Clean Energy Fund surcharges.
- NY-Sun’s Solar Energy Equity Framework (SEEF, previously known as NY-Sun Community Solar) was previously approved and modified to add \$5 million. This funding provides incentives to support solar projects benefiting low-to-moderate income households, disadvantaged communities, and affordable housing for Long Island Power Authority customers that do not pay into the System Benefits Charge.
- NY-Sun’s Residential PV Plus Storage program was previously approved and modified to add \$9 million. This funding provides incentives for the co-location of solar panels and battery storage systems for single-family residential projects on Long Island that are enrolled in a Dynamic Load Management program.
- The Agrivoltaics program was previously approved and modified to add \$27 million. This program advances the technological, economic, and agricultural viability of solar energy technologies co-located within active farmland through demonstration projects and the development of technical tools, guidance, and strategies to facilitate responsible siting.

3.4 Transportation

3.4.8 Electric School Buses

In September 2023, Governor Hochul announced the New York State Electric School Bus Roadmap and The Electric School Bus Guidebook to help New York schools transition bus fleets to zero-emission. These new resources provide school districts and bus operators with technical assistance to inform their efforts to remove fossil fuel vehicles from service and help reduce transportation emissions with a focus on disadvantaged communities and high-need school districts. In addition, the Governor announced the first \$100 million out of a total of \$500 million would be made available for zero-emission school buses, marking the first round of funding available for zero-emission school buses under the historic \$4.2 billion Clean Water, Clean Air, and Green Jobs Environmental Bond Act of 2022. Through the New York School Bus Incentive Program, school districts and bus operators will be able to phase out fossil fuel vehicles and curb emissions through a point-of-sale voucher program that will offset some, or all, of the purchase price difference between zero-emission school buses and comparable diesel or gas-powered buses. These resources will help school bus operators achieve the New York State goal to have all new school buses sold be zero-emission by 2027 and all school buses on the road be zero-emission by 2035.

3.4.9 Federal Highway Administration (FHWA) Charging and Fueling Infrastructure Program

NYSERDA was directly awarded \$15 million in funding via the Charging and Fueling Infrastructure Grant Program to improve access to charging infrastructure and clean transportation in small- to medium-sized cities, state parks and other tourist destinations to continue expanding the availability of charging across the state. NYSERDA will administer funds for a community-focused program aimed at filling key gaps in charging infrastructure while matching sites with the most cost-effective and location-appropriate charging types (DCFC or L2 chargers, depending on the site typology and charging needs).

3.4.10 FHWA Electric Vehicle Charger Reliability and Accessibility Accelerator Grant

As EV charging infrastructure has developed over approximately 15 years, both anecdotal accounts and data collected by the Alternative Fueling Station Locator suggest some existing chargers are in a state of disrepair, creating challenges around reliability of the charging network for drivers. Repairing or replacing these chargers presents a strategic opportunity to improve the performance of the existing network to complement the build out of new stations and corridors. As part of the Electric Vehicle Charger Reliability and Accessibility Accelerator Grant Program, NYSERDA and NYSDOT were awarded \$13 million to repair or replace existing, publicly accessible chargers that are listed as “temporarily unavailable” in the Alternative Fuels Station Locator (maintained by the National Renewable Energy Laboratory through its Alternative Fuels Data Center) because they are broken or non-operational.

3.4.11 Upstate Micromobility Program

The PSC, in its Electric Vehicle Midpoint Review Order, set aside \$5 million for the upstate utility territories, to be administered by NYSEERDA, for the creation of a research and development micromobility program. All funds are to be invested in Disadvantaged Communities or adjacent to multi-unit dwellings (MUD) with a high proportion of low-income residents. The Upstate Micromobility Program bears much in common with the work that NYSEERDA is already planning to undertake as part of its Clean Transportation Innovation Plan in the Innovation and Research Portfolio of the Clean Energy Fund, which is designed to advance low-carbon modes of transportation including shared micromobility, micro-transit, and zero emission shared multi-passenger vehicles in communities across the State. NYSEERDA intends to add the \$5 million in Upstate Micromobility Program funds to this larger effort, with NYSEERDA reserving the new funds explicitly for electric micromobility projects (such as e-bike sharing and e-scooter sharing) in upstate disadvantaged communities or adjacent to qualifying MUDs.

3.4.12 Regional Greenhouse Gas Initiative Modifications

- The ChargeNY program was previously approved and modified to add \$148.9 million. This program addresses community-identified needs to expand access to public transportation and improve equitable access to electric vehicles in a replicable and scalable way.

3.5 Innovation

3.5.1 Grid Resiliency, Innovation and Modernization

The Department of Energy has issued a series of program support grid modernization and reliability work. NYSEERDA has provided several direct applicants letters of support and has submitted an application to a formula grant supporting electric grid reliability. This work has been advanced in collaboration with the Department of Public Service, the New York Power Authority, utilities, and other key stakeholders. This funding will help modernize the grid and prepare for the growing amount of electrification, renewable energy generation and electric vehicle charging infrastructure that is expected in the coming decades.

3.5.2 Clean Energy Fund Modifications

- The Grid ClimateTech Ready Capital initiative in the Grid Modernization focus area was previously approved and was modified twice for a total addition of \$13 million. \$8 million was added to provide additional support to accelerate adoption of critical technologies that enable a flexible, reliable and affordable high-performing, renewable future grid. An additional \$5 million was added for Utility EV Managed Charging program design enhancements adding a technical challenge to round 2 of PON 5354 to propose solutions to the following issues: data quality, software/hardware platform integration, system integration costs, and customer engagement.

- The Grid ClimateTech Ready Capital initiative was introduced to the Climate Resilience Focus Area with an initial budget of \$12.0 million. This initiative focuses on studies, pilots and demonstrations of technologies that must achieve widespread adoption to enable a flexible and resilient high-performing, renewable future grid.
- The Hydrogen Innovation initiative in the Gas Innovation focus area was previously approved and was modified to increase the budget by \$4.8 million to support front-end engineering design (FEED) studies for clean-hydrogen-powered fuel cell and combustion turbine power plants and safety studies to remove regulatory barriers restricting hydrogen transportation via key NYC bridges and tunnels.
- The Natural Carbon Solutions initiative was previously approved and was modified to increase the budget \$8 million to support an innovation challenge for PON 5180, Round 2, tied to demonstrating commercial products not yet available in the NYS market, or not at scale, that propose to offer negative emissions, cost reduction, and reduced energy demand from buildings.
- The Future Grid Performance Challenges initiative was previously approved and was modified to increase the budget by \$15.1 million for two areas: 1) Demonstration test beds for advanced transmission technologies that will feed into the coordinated grid planning process and 2) Consultancy support for Distribution System Implementation plan.

3.5.3 Regional Greenhouse Gas Initiative Modifications

- Clean Energy Business Development funding was previously approved and modified to add \$5.4 million. These activities support supply chain analysis and forums, clean energy recruiting campaigns, planning assistance, and analytical work to develop the manufacturing and supplier capacity for clean energy products and solutions.
- The Natural Carbon Solutions program was previously approved and modified to add \$10 million. This program facilitates a marketplace of natural emissions-lowering solutions that demonstrate pathways to support disadvantaged rural communities, economic development, existing agriculture, and forestry industries, while increasing jobs and revenue.
- Scoping Plan Implementation Research funding was previously approved and modified to add \$20 million. These efforts support the planning and implementation of key policy components of the Climate Action Council’s final Scoping Plan.

3.6 Large-Scale Renewables

NYSERDA’s Large-Scale Renewables (LSR) portfolio is comprised of Tier 1, Tier 2, Tier 3 (ZEC), Tier 4, Off-Shore Wind, and Build-Ready that collectively operate to help New York achieve its renewable energy goals. Each portfolio unit with significant updates since the prior period are described below, including administration of the Clean Energy Standard (CES) programs.

3.6.1 Portfolio Administration

The Commission has designated NYSERDA as the administrator of all CES programs. In addition to establishing the various CES programs, the 2016 CES Order acknowledged that additional measures, including those necessary to administer the CES programs, would be necessary to fully implement the CES, and would be determined during an implementation phase. To date, NYSERDA and New York State Department of Public Service (DPS) Staff have filed, and the Commission has approved, five implementation plans which describe the processes and activities to be performed by NYSERDA Staff in administering the various programs. Each year NYSERDA files a petition seeking approval to access or collect the funds necessary to cover its costs for administering the various CES programs for the upcoming compliance period.

The scale of New York's commitments and the concomitant activities related to clean energy have grown over the past few years with the initiatives launched in response to the Climate Act which mandates that at least 70% of New York State's electricity come from renewable energy sources by 2030 and that the State's power system achieve zero emissions by 2040. The Climate Act also requires New York to install 3,000 megawatts (MW) of energy storage by 2030 and 9,000 MW of offshore wind by 2035.

On December 18, 2023, the Commission approved NYSERDA's proposed administrative budget with modifications¹ approving approximately \$33.5M that will allow NYSERDA to effectively manage the ever-increasing and more complex renewable energy contracts, while also overseeing increased technical services for the Renewable Energy Standard (RES) (comprised of Tiers 1, 2 and 4), Offshore Wind, and the Zero Emissions Credit (ZEC) programs.

3.6.2 Offshore Wind

In July of 2022, NYSERDA issued its third solicitation seeking to procure Offshore Wind Renewable Energy Certificates associated with 2,000 megawatts to 4,640 megawatts of offshore wind generation coordinated with local and private investments in New York-based offshore wind supply chain infrastructure. This included leveraging up to \$300 million of New York State funding in pursuit of New York State's goal of developing 9,000 megawatts of offshore wind energy by 2035. On October 24, 2023, NYSERDA provisionally awarded three offshore wind projects, subject to successful conclusion of contract negotiations. These provisionally awarded projects included: Attentive Energy One – 1,404 MW (developed by TotalEnergies, Rise Light & Power, and Corio Generation), Community Offshore Wind – 1,314 MW (developed by RWE Offshore Renewables and National Grid Ventures), and Excelsior Wind – 1,314 MW (developed by Vineyard Offshore). NYSERDA also provisionally awarded \$300 million of New York State grant funding to GE Vernova and LM Wind Power for nacelle and blade manufacturing in New York's Capital Region, which was associated with the provisionally awarded projects. Subsequent to the provisional award announcement, material modifications to projects bid into New York's third offshore wind solicitation caused technical and commercial complexities

¹ <https://www.nysERDA.ny.gov/-/media/Project/Nyserda/Files/Programs/Clean-Energy-Standard/Order-Approving-2024-Clean-Energy-Standard-Administrative-Budget.pdf>

between provisional awardees and their partners, resulting in the provisionally awarded parties' inability to come to terms. Of note, GE Vernova's offshore wind turbine product pivot away from the initially proposed 18 MW Haliade-X turbine platform to a 15.5/16.5 MW platform caused material changes to projects proposed into ORECRFP22-1. Given these developments, no final awards were made in ORECRFP22-1. NYSERDA will continue to advance future competitive solicitation(s). With regards to the up to \$300 million in grant funding that was provisionally awarded to GE Vernova and LM Wind Power, these funds will be made available through a future competitive solicitation to continue the development of the offshore wind supply chain in New York.

On November 30, 2023, NYSERDA issued its fourth offshore wind solicitation (ORECRFP23-1) on an accelerated timeline with proposals due January 25, 2024. Following the release of the solicitation, mutual termination agreements were reached between NYSERDA and the Empire Wind 2 and Beacon Wind 1 projects, which were selected under NYSERDA's second offshore wind solicitation (ORECRFP20-1). The two projects selected in the first solicitation (ORECRFP18-1), Empire Wind 1 and Sunrise Wind, both re-bid their projects into the fourth solicitation (ORECRFP23-1), along with a new project, Community Offshore Wind 2. Conditional awards were announced in February 2024 and included Empire Wind 1, a planned 810-megawatt project (developed by Equinor), and Sunrise Wind, a planned 924-megawatt project (developed by Ørsted and Eversource).

LIPA's South Fork Wind Farm received final permitting approval in early 2022 and construction is in progress. In December 2023, South Fork Wind—developed by Orsted and Eversource—achieved the first delivery of clean power to Long Island from the first operational wind turbine, marking the historic milestone as the first utility-scale offshore wind farm in federal water. South Fork Wind, which is located 35 miles east of Montauk Point, consists of 12 Siemens wind turbine generators, running 318 feet in blade length and spanning over 656 feet in rotor diameter—about the length of two football fields. The 130-megawatt project will deliver power to the local substation in the Town of East Hampton through undersea and underground transmission cables from the offshore wind farm. Once completed, it will add enough renewable electricity to the Long Island grid to power 70,000 homes and offset 300,000 tons of carbon emissions annually.

3.6.3 Tier 1

RES Tier 1-eligible RECs are those generated by renewable energy projects that qualify as eligible resources under appendix A of the CES Order² or the clarified renewable energy systems

² Case 15-E-0302, Proceeding to Implement a Large-Scale Renewable Program and a Clean Energy Standard, Order Adopting a Clean Energy Standard (issued and effective August 1, 2016). (CES Order) See Appendix A for eligible technologies.

definition expanded in the 2020 CES Order³ with a commercial operation date on or after January 1, 2015. NYSERDA's first RES solicitation was issued in June of 2017

In late 2023, NYSERDA issued the seventh annual Renewable Energy Standard (RES) request for proposals, RESRFP23-1, to continue progress toward the Climate Act target of generating 70% of New York State's electricity from renewable sources by 2030. Through the 2023 solicitation, NYSERDA seeks to procure Tier 1 eligible Renewable Energy Certificates (RECs) from eligible facilities. In April of 2023, NYSERDA formally concluded the solicitation and provisionally awarded 24 projects to support the continued development of large-scale onshore wind and solar resources in New York toward the achievement of the state's Climate Act goals. The 24 provisional awards, issued as part of the expedited 2023 solicitation, include nearly 2.4 gigawatts of mature, late-stage projects, some of which could be completed and operating as early as 2025.

3.6.4 Tier 4

The PSC's 2020 CES Order established a new Tier 4 within the CES aimed to increase the penetration of renewable energy in New York City and thereby reduce reliance on fossil fuel generation in this densely populated area. NYSERDA issued its first Tier 4 solicitation in January 2021. In April 2022, the New York State Public Service Commission approved contracts with Clean Path New York LLC for its Clean Path NY project and H.Q. Energy Services Inc. for its Champlain Hudson Power Express project to deliver clean, renewable solar, wind and hydroelectric power from upstate New York and Canada to New York City. Combined, the selected projects are expected to deliver 18 million megawatt-hours of clean energy per year, or more than a third of New York City's annual electric consumption, from a diverse and resilient clean generation portfolio including onshore wind, solar, and hydroelectric power, backed by energy storage, from upstate New York and Quebec. These are the largest transmission projects contracted in New York State in the last 50 years and will add 2,550 MW to the State's grid using high-voltage direct current (HVDC) technology.

NYSERDA's contracts with each project are for the purchase of renewable energy certificates for clean energy delivered into New York City. NYSERDA's purchase of these RECs will commence for each respective project once the project has (1) obtained all required permits and local approvals, (2) completed construction, and (3) is delivering power to New York City. The CHPE project is expected to begin operation in 2026. The CPNY project is expected to begin operation in 2027.

³ Case 15-E-0302, Proceeding on Motion of the Commission to Implement a Large-Scale Renewable Program and Clean Energy Standard, Order Adopting Modifications to the Clean Energy Standard ("CES Order") (issued and effective Oct. 15, 2020).

3.6.5 Build-Ready

The Accelerated Renewable Energy Growth and Community Benefit Act⁴ (the Act) established the Build-Ready Program. The Act directs NYSERDA to identify, assess, and facilitate the development of suitable sites for renewable power-generating facilities, giving priority to “previously developed sites” and “existing or abandoned commercial sites,” such as brownfields, landfills, or other disused or underutilized sites, and provide benefits to host communities. In October 2020, the PSC issued an order formally approving the Build-Ready Program⁵.

Over the last year, the Build-Ready Program made significant progress in achieving the program’s goals:

Expanded and Advanced the Pipeline - The Program engaged with landowners representing 60 potential sites resulting in the successful execution of four exclusive memorandums of understanding (MOUs) representing 14 potential sites. The MOUs are with the Town of East Hampton for a portfolio of 11 potential sites totaling up to 15 megawatts (MW) of solar PV and battery energy storage projects, Orange County for an 8.5 MW solar PV project on the Orange County Landfill, Tompkins County for a 15 MW solar PV and battery energy storage project on the Caswell Landfill, and a 10 MW solar PV project at the Ithaca Tompkins International Airport. At year-end 2023, the Program had a pipeline of 33 potential sites in different stages of development and anticipates entering into MOUs for up to nine locations in 2024. The Build-Ready Program also completed screening all 62 counties in New York for potential sites including dormant electric generators, parking lots, mines, landfills, and previously contaminated sites. Finally, the Program finished a data normalization and mapping initiative that resulted in an easily accessible and searchable state-wide map and database that includes most sites previously identified for review or evaluation by the Build-Ready Program.

- *Increased the Number of Projects in Development* - The Program’s projects in the process of being developed continued to expand and mature with 21 sites now in the development phase. The projects represent a mix of single sites and portfolios of sites across the State located on mines, landfills, parking lots, airports, former industrial sites, and previously contaminated properties. The sites are in varying stages of development with all sites advancing through due diligence activities including site control, environmental assessments, interconnection, engineering, design, permitting, stakeholder engagement, and host community benefit package development.
- *Advanced the Auction Process* - The Program initiated its first auction with the Build-Ready (BR) Benson Mines Solar Photovoltaic (PV) Project. In 2024, the Program anticipates completing the award, sale, and transfer of the BR Benson Mines Solar PV Project to an eligible proposer to complete the remaining development milestones,

⁴ Accelerated Renewable Energy Growth and Community Benefit Act. Chapter 58 (Part JJJ) of the laws of 2020

⁵ New York Public Service Commission. CASE 15-E-0302 - Proceeding on Motion of the Commission to Implement a Large-Scale Renewable Program and a Clean Energy Standard. “Order Approving Build-Ready Program.” Issued and Effective October 15, 2020. A

finance, construct, own and operate the project. The awarded proposer will enter into a Membership Interest Purchase Agreement (MIPA) to acquire the project from the Build-Ready Program and enter into a 20-year agreement to sell Tier 1 Renewable Energy Certificates (RECs) generated by the BR Benson Mines Solar PV Project (REC Agreement) to NYSERDA.

3.7 Cross-cutting & Other Updates

3.7.1 Disadvantaged Communities

- 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.
- NYSERDA has established the 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.
- On January 3, 2024, NYSERDA, in conjunction with the Department of Environmental Conservation (DEC), released the Draft Disadvantaged Community Investments and Benefits Accounting Guidance for public comment. 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.

3.7.2 New York Cap-and-Invest

Governor Kathy Hochul announced a Cap-and-Invest Program to fund a sustainable and affordable future for all New Yorkers as part of the 2023 State of the State. Accordingly, in December 2023 and January 2024, the Department of Environmental Conservation (DEC) and NYSERDA released a Pre-Proposal Outline, a Climate Affordability Study, and preliminary analysis on emissions, costs, air quality and health, workforce, and other components. DEC and NYSERDA have solicited public comment on the pre-proposal in advance of a draft proposal. New York's Cap-and-Invest program will establish a declining cap on greenhouse gas emissions, investments in programs that drive emissions reductions in an equitable manner prioritizing disadvantaged communities, and limit costs to New Yorkers while maintaining the competitiveness of New York industries. As part of the enacted New York State Budget, the foundation for an affordable Cap-and-Invest Program was established through the Consumer Climate Action Account which will provide rebates to New Yorkers to reduce the cost of our climate action, as well as the Climate Investment Account to invest the proceeds in programs that drive emissions reductions as identified in the Scoping Plan. NYSERDA and DEC, in collaboration with the State Departments of Taxation and Finance and Public Service and

Division of Budget released a Climate Affordability Study in with recommendations for the distribution of benefits from a Cap-and-Invest program in an equitable manner to New Yorkers, specifically low-income households and disadvantaged communities.

3.7.3 New York Green Bank

The Environmental Protection Agency (EPA) announced awardees for all \$27 billion in funding through the Inflation Reduction Act's Greenhouse Gas Reduction Fund in April 2024. As part of this announcement, the Coalition for Green Capital (CGC) was one of three awardees through the National Clean Investment Fund. NY Green Bank is a sub-awardee in the CGC application and is now well positioned to receive significant new funding to accelerate its lending activity in New York, with a focus on driving equitable climate solutions. CGC received \$5 billion and NY Green Bank is working with CGC to finalize negotiations regarding NY Green Bank's total sub grant funding amount.

3.7.4 The Climate Pollution Reduction Grant Fund

The Environmental Protection Agency made \$5 billion available nationally to fund planning and implementation of projects that will reduce climate pollutants and invest equitably in our communities. NYSERDA collaborated and supported the Department of Environmental Conservation's application to \$3 million of planning funds. NYSERDA and DEC each submitted proposals to the implementation funding. The EPA indicated it expects to make funding announcements later in 2024.

3.7.5 Green Jobs-Green New York

The Green Jobs-Green New York program funded through Regional Greenhouse Gas Initiative was previously approved and modified to add \$65.6 million. This program provides residents with access to energy assessments, installation services, and low interest financing, as well as commercial energy audits and pathways to training for various green-collar careers.

4 Program Accomplishments

NYSERDA’s activities are focused on achieving the five strategic goals/outcomes titled, Efficient Use of Energy, Renewable and Diverse Energy Supplies, Clean Energy Economy, A Cleaner Environment, and Contract and Cycle Time/Accessibility, as shown in Table 1. NYSERDA’s 2023 accomplishments are organized and reported in alignment with these five strategic outcomes. The accomplishments are stated in a cross-program manner, and notably, include results spanning pre-CEF and CEF initiatives.

Table 1. Mission, Vision, Outcomes

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.				
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.				
Stakeholders	New York State energy users, businesses, and institutions engaged in the clean energy economy.				
Core Value	NYSERDA will serve as a source of objective, credible information.				
Strategic Goals/Outcomes	Efficient Use of Energy NYSERDA reduces market barriers and spurs demand for energy solutions that reduce the energy consumption and increase the energy efficiency of New York State’s residents and businesses.	Renewable and Diverse Energy Supplies NYSERDA diversifies New York State’s portfolio of energy resources by accelerating development of renewable and distributed generation resources.	Clean Energy Economy NYSERDA catalyzes technology innovation, new business opportunities, and private investment in clean energy in New York State.	A Cleaner Environment NYSERDA enables markets for new clean energy products and services that can produce meaningful reductions in the environmental impact of energy production and use.	Contract and Cycle Time, Accessibility NYSERDA is responsive to customer needs by delivering accurate and timely information, services, and programs.

The Strategic Outlook for 2024-2027⁶ builds on the progress NYSERDA has made and evolves to include additional opportunities to increase impact across New York State. Specific target areas defined in this publication may be expanded in the future to include Clean and Efficient Buildings, Clean Transportation and Sustainable and Climate-Resilient Communities.

Tables 2 through 7 provide performance information for each of the five outcomes, including data

⁶ <https://www.nyserdera.ny.gov/About/Publications/Program-Planning-Status-Reports/Strategic-Outlook>

that describes NYSERDA's annual incremental commitment performance for calendar year 2023, cumulative commitments through December 2023, and the total cumulative acquired progress achieved through December 2023.

Targets for calendar year 2024 are also provided for performance measures, when possible. NYSERDA's targets are expressed on an acquired basis (i.e., having to do with when funds are expended, and projects completed). Acquired targets place a greater emphasis on putting money to work in the market and completing projects in a timely manner.

Each metrics table contains two columns on the left side representing a commitment-based view and four columns on the right side representing the acquired-based view.

- The column **Cumulative Committed Benefits at End of 2022** represents NYSERDA's total benefits expected from projects committed through 2022, representing the prior year pipeline.
- The column **Cumulative Committed Benefits at End of 2023** represents NYSERDA's total benefits expected from projects committed through 2023, representing the current pipeline.
- The column **Acquired Target CY 2023 Addition** represents NYSERDA's expected target for new acquired benefits achieved during the calendar year.
- The column **Acquired Achieved CY 2023 Addition** represents NYSERDA's actual progress for new acquired benefits achieved during the calendar year.
- The column **Acquired Total Cumulative at end of 2023** represents the total benefits NYSERDA achieved from projects that have been completed through 2023.
- The column **Acquired Target CY 2024 Addition** represents NYSERDA's expected target for new acquired benefits achieved during the calendar year.

The quantitative performance measurement data are supplemented with contextual information, as needed and when available, and highlights of additional 2023 accomplishments.

While the listed targets and performance measures are used to evaluate NYSERDA's progress toward goals, many of the measures are influenced by factors that are out of NYSERDA's direct control, such as economic conditions, changes in energy markets and prices, and Federal and State policy and funding decisions. The measures are intended to serve as good indicators of progress in the context of these external factors.

New York State and the entire nation continued to feel the lasting impact from the pandemic and related economic effects during 2021. Manufacturing, shipping and workforce capacity issues have all led to increased construction costs and timelines. Supply chain disruptions have resulted in restricted supply and thus increase costs for equipment and consumer goods while contractors are experiencing challenges finding qualified labor, leading to cost increases on construction projects. Additionally, project timelines are also increasing due to these issues. While NYSERDA programs have not

been immune to these near-term economy-wide disruptions, clean energy projects are still proceeding toward the State's long-term goals.

Table 2 presents NYSERDA's progress toward the efficient use of energy performance measures.

During 2023, performance against energy efficiency delivery targets shown in Table 2 fell short of the targets for both electricity (47%) and fossil fuel saved (72%) and therefore energy bill savings (60%). Progress against these near-term targets continue to be impacted by 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. Several NYSERDA programs expected to be the largest contributors to the 2023 acquired savings targets faced delays to large projects that were expected to be completed. These projects are now expected to be completed in 2024. NYSERDA updates its forecasts of energy savings each year to ensure alignment with long term goals and targets, and the latest reforecast indicates that the CY 2023 shortfall will be made up in time for NYSERDA's expected 2030 progress to be unaffected.

2023 targets included only the direct energy-efficiency impacts acquired in the calendar year in order

to most directly focus on NYSERDA operations to support projects and provide immediate benefits to participants. 2024 targets are set on the same basis. Reporting of total cumulative acquired benefits also includes indirect energy-efficiency savings brought about by market transformation and verified through the completion of market studies which will occur gradually and grow over time. Approximately 110 GWh and 1,800,000 MMBtus of indirect impacts were quantified through evaluation studies in 2023 and approximately 430 GWh and 2,600,000 MMBtus of indirect benefits have been quantified in total through December 31, 2023.

Table 2. Performance Measures—Efficient Use of Energy

Performance Measures	Commitment Pipeline		Acquired Benefits			
	Total (Cumulative) End of CY 2022	Total (Cumulative) End of CY 2023	Target CY 2023 Addition	Achieved CY 2023 Addition	Total (Cumulative) End of CY 2023	Target CY 2024 Addition
Electricity^{a,b} (GWh) saved annually due to improved energy efficiency in New York State's buildings and facilities.	1,305	1,375	704	334	8,854	627
Fossil Fuels^{a,b} (MMBtu) saved (in millions) annually due to improved energy efficiency in New York State's buildings and facilities.	7.6	13.7	3.6	2.6	33.0	3.2
Energy Bill Savings Annual direct energy bill savings realized by participating customers (all programs).	\$250	\$275	\$63	\$38	\$1,786	\$58

^a The system benefit charge (SBC) was authorized in 1998 and NYSERDA began programs the following year. Substantial installations had taken place beginning in 2001 and based on an average 16-year measure life, NYSERDA's 598 GWh and 464,000 MMBtu's will be "retired" in 2023. These amounts and the associated emission reduction and customer bill savings have been netted out of the Total Cumulative End of CY 2023 values reported.

^b All energy savings values are gross, i.e. not reflecting adjustments made through evaluation, measurement and verification.

Table 2a. Comparison Points—Efficient Use of Energy

Comparison Points	
Electricity (GWh)	2021 statewide annual sales of electricity—141,424 GWh ^a
Fossil Fuels (MMBtu)	2021 statewide annual (residential, commercial, industrial) natural gas and petroleum usage—1,126 million MMBtu ^b
Number of New York State households served	2021 occupied housing units in NYS—7,774,308 ^c
Number of commercial and industrial customers served	2021 business establishments in NYS—535,758 ^d

^a <https://www.eia.gov/electricity/data/state/xls/861/HS861%202010-%20.xls>^b NYSERDA, Patterns and Trends, Energy Information Administration (EIA), 2023

^b NYSERDA, Patterns and Trends, Energy Information Administration (EIA), 2023

^c DP04: SELECTED HOUSING CHARACTERISTICS - Census Bureau Table

^d U.S. Census Bureau QuickFacts: New York

Additional highlights for Efficient Use of Energy:

- Since 1998, NYSERDA-administered energy efficiency programs have saved enough electricity to power more than 1.74 million homes each year and enough natural gas, propane, oil, and other heating fuels to heat 480,000 homes each year.
- More than 1.12 million households and 52,200 commercial, industrial, and institutional customers reduced their energy use and annual energy bills by participating in NYSERDA programs since 1998.

For the 2022 CES compliance year, the contribution from renewable energy resources to meet the State’s electric load was 25.1%. New York State’s electric load served increased by 1.3 million MWh in 2022 which is a 0.87% increase compared to 2021. Furthermore, hydroelectric generation imported from adjacent control areas decreased by approximately 2.6 million MWh in 2022 compared to 2021. Although imported electricity overall remained comparatively flat, the decrease in imported hydroelectric generation was replaced with imported fossil-fueled generation. Exports of baseline renewables remained relatively stable compared to 2021 as was total in-State clean energy generation.

Table 3 presents NYSERDA’s progress toward the renewable and diverse energy performance measures including renewable energy production from on-site installations and solar PV capacity. Production delivered fell slightly short of their target (95%) due to two projects that were expected to come online in 2023 but were delayed and came online in Q1 2024. Changes in the commitment pipeline are the result of Tier 1 and Offshore Wind contracts which terminated in late 2023 following the filing of petitions requesting an adjustment to pricing due to inflation and supply chain issues and the Public Service Commission’s October 12, 2023, order denying

those petitions. NYSERDA is actively continuing to conduct RFP’s seeking new contracts in accordance with New York State’s 10-point action plan.⁷

Table 3. Performance Measures—Renewable and Diverse Energy

Performance Measures	Commitment Pipeline		Acquired Benefits			
	Total (Cumulative) End of CY 2022	Total (Cumulative) End of CY 2023	Target CY 2023 Addition	Achieved CY 2023 Addition	Total (Cumulative) End of CY 2023	Target CY 2024 Addition
Renewable resources electricity produced. 1) Annual Electricity Production (GWh) delivered to wholesale power market from incentivized installations ^{a,b}	47,584	30,633	1,825	1,740	3,089	77
2) Annual Electricity Production (GWh) from on-site installations	4,388	4,500	1,036	1,002	5,215	862
Solar PV capacity (GW) from all NYSERDA funded solar PV programs, including NY-Sun 6 GW goal^b	3.4	3.4	0.8	0.75	4.15	0.66

^a Amount is net of any NYSERDA-contracted facilities which have reached their terminus year, after which NYSERDA no longer has the rights to claim the attributes of their generation.

^b NYSERDA does not, by filing this report, make any claim to the environmental attributes associated with the megawatt-hours. NYSERDA has relinquished all such rights and disavows any and all rights to any environmental claims or renewable energy to which it had made claims under previous policies.

^c Target has been adjusted to account for program benefits that overlap with each other to avoid double counting.

Table 3a: Comparison Points—Renewable and Diverse Energy

Comparison Points	
New York Load Served by Renewables^a	2022 Renewable Energy Serving Load—25.1% (35,046 GWh)

^a CES Annual Progress Report—2022
<https://documents.dps.ny.gov/public/Common/ViewDoc.aspx?DocRefId={D06E618D-0000-C658-AB65-2C21446C29F6}>

Additional highlights for strategic goal/outcome Renewable and Diverse Energy supplies:

- NYSERDA is currently supporting 64 large-scale renewable generation projects representing 3,520 MW of renewable generation capacity. There are 40 facilities operating with the remainder of the projects under design and construction.

⁷ <https://www.nyserderda.ny.gov/About/Newsroom/2023-Announcements/2023-10-12-Governor-Hochul-Announces-New-10-Point-Action-Plan-to-Expand>

- NYSERDA is currently supporting two offshore wind generating projects, which are both under design and construction, and once operating will represent 1,734 MW of renewable capacity.
- NYSERDA is also supporting two Tier 4 projects aimed to increase the penetration of renewable energy in New York City and leverage the State’s existing robust contracted and awarded pipeline of large-scale renewable energy, comprised of nearly 100 solar, land-based and offshore wind projects totaling 12,300 MW of clean power—enough to power over six million New York State homes when completed.
- 2023 was the most active year for New York distributed solar deployment, with 885 MW installed statewide (approximately 748 MW of which was NYSERDA funded), representing 4 percent growth over 2022.
- New York ranked first in the U.S. in 2023 for community solar and second for distributed solar.⁸ New York ranks third in the U.S. for full-time solar jobs, with a more than 11,500 jobs.⁹

Table 4 presents NYSERDA’s progress toward the clean energy economy performance measures. The 2023 leveraged funding acquired fell slightly short of the target (94%) mainly due to the shortfall in energy efficiency project savings described earlier.

Table 4. Performance Measures—Clean Energy Economy

Performance Measures	Commitment Pipeline		Acquired Benefits			
	Total (Cumulative) End of CY 2022	Total (Cumulative) End of CY 2023	Target CY 2023 Addition	Achieved CY 2023 Addition	Total (Cumulative) End of CY 2023	Target CY 2024 Addition
Total funding leveraged from all NYSERDA investments (\$billions) ^{a,b}	\$42.9	\$31.6	\$3.1	\$2.9	\$25.6	\$2.3

^a NYSERDA’s data set for leveraged funds began in 2010.

^b Data collection for leveraged funds associated with NYSERDA’s Technology and Business Development programs is an ongoing effort and the reported values included in this figure represent incomplete data that will be supplemented in future years.

Additional highlights for Clean Energy Economy:

- As a component of the leveraged funding presented in Table 4, NYSERDA’s investment in technology and business development has leveraged \$2.3 billion in 2023 for a total of \$5.8 billion through the end of calendar year 2023.
- As a result of NYSERDA’s technology and business development investments:

⁸ Wood Mackenzie, US Solar Market Insight Full Report, 2023 Year in Review. Published March 2024. <https://www.woodmac.com/industry/power-and-renewables/>

⁹ Interstate Renewable Energy Council, 13th Annual National Solar Jobs Census 2022. Published July 2023. <https://irecusa.org/programs/solar-jobs-census/>

- There are more than 727 new and improved clean energy products in the market (including 71 new products added in 2023) in all end-use energy sectors from high efficiency furnaces to advanced lighting controls and hybrid electric buses.
- There are 37 new clean energy products currently in development with support from NYSERDA.
- Annual sales of products developed with NYSERDA support have reached approximately \$2,554 million.
- There are currently 75 clean energy businesses receiving financial support.
- NYSERDA’s incubator program has 390 clients and helped these startups raise more than \$2.5 billion in private and non-NYSERDA public investment, while generating and retaining 3,900 jobs and bringing dozens of new clean energy and clean technology products to the market.

Table 5 presents NYSERDA’s progress toward cleaner environment performance measures. The 2023 achieved carbon reductions fell short of target (89 percent) mainly due to the shortfall in acquired electricity and fossil fuel savings benefits described earlier.

Table 5. Performance Measures—A Cleaner Environment

Performance Measures	Commitment Pipeline		Acquired Benefits			
	Total (Cumulative) End of CY 2022	Total (Cumulative) End of CY 2023	Target CY 2023 Addition	Achieved CY 2023 Addition	Total (Cumulative) End of CY 2023	Target CY 2024 Addition
CO ₂ equivalent emission reductions (in millions) due to NYSERDA’s energy efficiency, renewable, and diverse energy programs (annual metric tons) (All programs)	27.2	18.9	1.85	1.65	11.62 ^a	0.94

^a Reporting of total cumulative acquired benefits includes indirect energy-efficiency impacts brought about by market transformation as they are quantified and to account for program benefits that overlap with each other to avoid double counting.

Table 5a. Comparison Points—A Cleaner Environment

Comparison Points	
CO ₂ emission ^a	2021 annual NYS power sector emissions—26 million metric tons CO ₂

^a In-state power generation only. Source: New York State Department of Environmental Conservation. 2023 NYS Greenhouse Gas Emissions Report -- “Table ES.2. 2021 New York State GHG Emissions, by IPCC Sector”. <https://dec.ny.gov/environmental-protection/climate-change/greenhouse-gas-emissions-report>. GHG emissions associated with imported power as well as the upstream impacts of fossil fuel extraction, processing, and transportation are assessed in collaboration with DEC as part of a separate reporting process established by the Climate Act.

Energy-related environmental policies in 2023 informed by NYSERDA reports/studies:

- Environmental Research Program is managing a portfolio of six research projects initiated to better understand the implications of solar development on agricultural lands and practices, under the advisement of the Agricultural Technical Working Group (A-TWG), which is also led by NYSERDA. These research project outcomes aim to inform solar energy procurement, siting, and mitigation practices. In addition, NYSERDA is supporting two A-TWG specialist committees to characterize the potential for dual-use of agriculture and solar, and to characterize the potential agronomic impacts from solar development in agricultural areas.
- The Environmental Research Program continued to support a suite of research projects focused on monitoring methane and other greenhouse gases from compressor stations, landfills, and other sources. These research projects will assist state regulators in developing and refining NYS's greenhouse gas inventory and support the state's methane reduction plan and climate mitigation goals pursuant to the Climate Act.
- The Environmental Research Program continues to convene and support a State agency Cables Working Group, which and published the Offshore Wind Cable Corridor Constraints Assessment.¹⁰The Assessment informed NYSERDA's 2022 and 2023 offshore wind Request for Proposals, (ORECRFP22-1 and ORECRFP23-1), as well as the Public Service Commission's Order Addressing Public Policy Requirements for Transmission Planning Purposes in 2023.
- On behalf of 11 East Coast States, NYSERDA's Environmental Research Program released a Request for Proposal to select a qualified entity to serve as a regional fund administrator to design and develop an offshore wind energy-related comprehensive fisheries compensatory mitigation fund and associated claims processes to serve states, the fishing community, and offshore wind developers working on projects along the East Coast of the United States. The funding associated with this RFP is intended to provide support to the successful proposer for the collaborative development of the detailed Fund and associated claims process.
- The Environmental Research Program continued to support the development of the New York State Climate Impacts Assessment. The assessment's climate projections were used by the state's major public utilities in development of their climate change vulnerability studies mandated by the Public Service Commission. The assessment will continue to provide foundational science to inform climate change policy across all sectors of the state at all levels of decision making, including implementation of Climate Action Council Scoping Plan recommendations and development of the statewide Extreme Heat Action Plan.

Tables 6 and 7 present NYSERDA's progress toward the contract and cycle-time performance measures, which NYSERDA assesses in terms of invoice payment and contract processing timelines. NYSERDA maintained its long-standing record of strong performance regarding prompt payment of invoices. Contract cycle time continues to improve and exceeded all targets set for 2023 with the exception of due date solicitations. In 2023, there were more non-defined

¹⁰ <https://www.nyserdera.ny.gov/-/media/Project/Nyserda/Files/Programs/Offshore-Wind/2306-Offshore-Wind-Cable-Corridor-Constraints-Assessment--completeacc.pdf>

task type solicitations offered during the year which take longer to negotiate causing an increase in processing time. However, in general the contract cycle time has seen a reduction over the years in cycle times across most solicitation types. This can be attributed to the many improvements made and continuous monitoring of solicitation and contract status on a monthly basis, which help NYSERDA ensure efficiency while appropriately managing risk.

Table 6. Performance Measures—Contract and Cycle Time (Invoicing)

CYCLE TIME—INVOICING					
<i>NYSERDA is responsive to customer needs—delivering accurate and timely information, services, and programs.</i>					
Performance Measures	CY 2021	CY 2022	TARGET CY 2023	CY 2023	TARGET CY 2024
Invoice payment:					
1) Number of invoices paid within 30 days	93,599 invoices	103,407 invoices	**a	119,965 invoices	**a
2) Percent of payments made within 30 days	99.99%	99.99%	100%	99.99%	100%

^a The measure will be monitored and reported but a target has not been set. NYSERDA elected not to establish a target in cases where the measure is a function of a parameter that cannot be reliably predicted (e.g., energy costs) or in cases where the metric is new to NYSERDA.

Table 7. Performance Measures—Contract and Cycle Time (Solicitations)

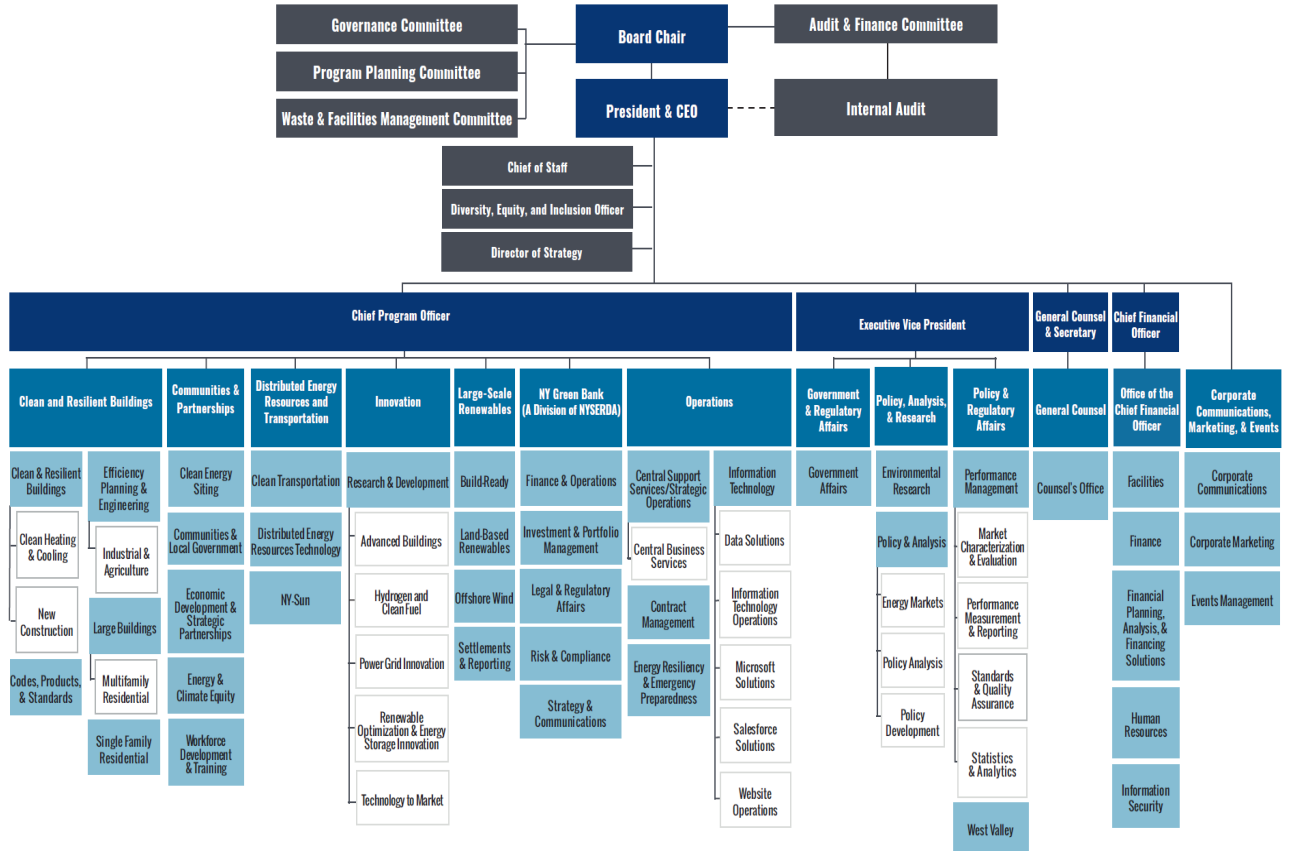
CYCLE TIME—CONTRACTS				
<i>NYSERDA is responsive to customer needs—delivering accurate and timely information, services, and programs.</i>				
Performance Measures	CY 2022 Median Total No. of Weeks	Target CY 2023	CY 2023 Median Total No. of Weeks	Target CY 2024
Contract Processing Time—Median time to Process (Weeks):				
1) Due Date Solicitations	27	28	31	28
2) Open Enrollment and Task-Work Orders	0.86	2	.86	2
3) Open Enrollment (Automated) ^a	0.14	.28	.14	.28
4) All Other Actions (Direct Contracts and Contract Modifications)	1.14	2	1	2

^a The contracting process for Residential NY-Sun projects has been automated, leading to reduced cycle times. As these processes are fundamentally different than other open enrollment solicitations, we have broken them out into their own category.

5 Program Units

This section includes NYSERDA’s program units, as represented on the organization chart below. Each unit includes a brief overview. The organization units not described in this section but included on the organization chart are operational and administrative rather than program units.

Figure 1. NYSERDA Organizational Structure



5.1 Communities and Local Government

The Communities and Local Government unit provides a unified approach toward local energy action

to better serve local communities' needs and to advance clean energy policies and practices statewide. The program is intended to implement a common framework that enables communities to embed clean energy into their planning, help facilitate and prioritize implementation, and recognize/showcase community energy and sustainability actions.

5.2 Multifamily Residential

The Multifamily Residential unit works to overcome market barriers in the multifamily sector (residential structures containing five or more dwelling units), pursuing strategies to create awareness and demand

for energy-efficient and high-performance buildings; increase market capacity to deliver energy services; stimulate consumer demand for energy and environmentally friendly buildings through clear and widely used labeling; expand the pool of trusted energy professionals serving the needs of multifamily building owners by increasing their technical skill sets and tools; demonstrate viability of deep energy retrofits in multifamily affordable housing stock; and further the emergence of performance contracting.

5.3 Single-Family Residential

The Single-Family Residential unit works to overcome market barriers towards the development of a robust, self-sustaining, market-based energy efficiency industry for the existing homes sector

(residential structure containing one to four dwelling units) and facilitates the growth of demand for energy services.

5.4 Workforce Development and Training

The Workforce Development and Training unit enables workforce development and training where

the lack of a trained workforce inhibits growth in a particular energy industry, or where training is

needed to perform critical functions; establishes energy training as a permanent and sustainable part

of the community infrastructure; and enables growth of jobs in disadvantaged communities.

5.5 Advanced Efficiency Solutions

The Advanced Efficiency Solutions team is a cross-sectoral group whose primary goal is to accelerate the adoption of energy efficiency and electrification in buildings by increasing private sector investment in building decarbonization technologies and services. Initiatives run by the Advanced Efficiency Solutions team advance commercially available energy efficiency, electrification, and load flexibility solutions that deliver carbon reductions. This team is focused on engagement with large building portfolio owners and leveraging solutions within and across their portfolios.

5.6 Codes, Products, and Standards

The Codes, Products, and Standards team promotes energy efficiency across sectors through regulatory and supply chain interventions. The team supports building energy code advancement, education, and compliance, working with actors across the construction market, including building owners, developers, and elected officials, with a goal of promoting zero carbon or even net-carbon positive building performance. The team also drives the promotion of improved product and appliance standards, along with the adoption and expansion of building energy and water benchmarking. The team continues to find ways to improve the efficiency and success of program delivery models, including the promotion of a statewide supply chain.

5.7 Efficiency Planning and Engineering

The Efficiency Planning and Engineering Team is an inter-disciplinary group with the primary goal of increasing clean energy investment in commercial buildings. To accomplish this objective the Team engages with commercial stakeholders, sector organizations, service providers and customers to deliver monetary and informational incentives. This team manages the multi-sector Technical Services platform and its qualified engineering vendor community. Sector specific initiatives such as REV Campus Challenge, and the P-12 Initiative are examples of segment targeted efforts under this team.

5.8 Industrial and Agriculture

The Industrial and Agriculture unit looks to advance the latest technologies and techniques to drive the adoption of energy efficiency and process improvements through new strategies, including optimizing energy use and productivity as well as providing credible information toward integrating clean energy into the business mission of the industrial and agriculture sectors.

5.9 New Construction

The New Construction unit works across all sectors, including low- to moderate-income (LMI) households, to build market capacity, demonstrate value propositions, and disseminate credible information to drive the market to deep energy savings and zero-net energy performance in construction and substantial renovation projects. This includes strategies to improve contracting, design and construction practices, and promote zero- and positive-net carbon construction and renovation practices that maximize cost-effective carbon reductions.

5.10 Clean Heating and Cooling

The Clean Heating and Cooling unit will seek to enable a self-sustaining market for large scale clean heating and cooling solutions, helping to increase the viability of net zero energy buildings in the State and promote Thermal Energy Networks, which utilize various heating and cooling media in shared infrastructure loops, as a cost-effective and scalable business model on a statewide scale. The team is focusing on geothermal and waste heat recovery infrastructure to serve large facilities, campuses, and communities. This work will also address barriers to market growth, including low-customer awareness and confidence, limited trained service providers, high-upfront costs, significant soft costs, variable performance data.

5.11 Energy and Climate Equity

The Energy Affordability and Equity unit develops strategies and proposes policy, coordinating across all sectors and various State organizations to streamline and improve the effectiveness of energy services delivery to low- to moderate-income households. The unit also manages single-family residential energy efficiency incentive programs.

5.12 Economic Development and Strategic Partnerships

The Economic Development and Strategic Partnerships unit manages the Authority's utility engagement strategy including overseeing NYSERDA's clean energy funding agreement with the Long Island Power Authority and managing regularly occurring executive level collaboration efforts between NYSERDA and the major utilities in New York. This team also works closely with Empire State Development and other partners to attract clean energy manufacturing and supply chain companies to New York State, resulting in jobs and investments that can improve our communities.

5.13 Large-Scale Renewables

The Large-Scale Renewables unit will sustain and expand the penetration of large-scale renewables in the State and support the development of the next frontier of renewable resources, including offshore wind. The program will document New York State's progress toward its renewable goals and facilitate New York State's renewable voluntary market through the management of the

New York Generation Attribute Tracking System. The program will also provide stakeholder outreach, technical, and pre-development assistance to increase acceptance and reduce soft costs associated with the development of these assets as well as assess alternate energy market valuation and transmission solutions for renewables. Organizationally, the Large-Scale Renewables team includes Tier 1, Tier 2, Tier 3 (ZEC), Tier 4, Off-Shore Wind, Build-Ready staff, and Operations staff.

The team will manage over \$1 billion in existing Renewable Portfolio Standard Main Tier contracts as well as actively execute its Renewable Energy Standard, Build-Ready and Off-Shore Wind procurements and manage contracts with in-development and in-service generators associated with these procurements.

5.14 Clean Transportation

The Clean Transportation unit will develop and implement programs to expand the adoption of clean transportation options in New York State and support the development and demonstration of new clean transportation technologies. The unit will craft innovative approaches to expedite market adoption of electric vehicles and clean mobility options, removing barriers to increased clean transportation use such as cost, awareness, ease of access, and availability of financing. Additionally, the unit will work with public and private partners to develop and demonstrate novel technologies and business models that address key barriers to clean transportation market expansion in NYS.

5.15 Distributed Energy Resources Technology

The District Energy Resources Technology unit will develop and implement a robust energy storage strategy that removes the most impactful barriers preventing adoption in the electric grid and building sectors. This will enable renewable generation to be used as “flexible resources,” improve deliverability of solar and wind, increase electric system utilization, reliability, and resiliency, and flatten peak demand. Initiatives will include incentive programs for the residential, commercial retail and bulk sectors to accelerate market scale-up and deployment, targeting soft costs to reduce total installed cost, participating in ratemaking and tariff design, stakeholder education on safety and regulation, and engaging with stakeholders to facilitate improvements to regulatory policy for interconnection and other market rule changes. These strategies will be delivered in conjunction with public and private organizations as well as other NYSERDA teams.

5.16 NY-Sun

The NY-Sun unit has a multifaceted approach that aims to lower energy costs for all New Yorkers by increasing solar power capacity and the efficiency and reliability of the electric grid. Public-private partnerships help make installing solar technology more affordable for New Yorkers while scaling up the State’s solar industry. In addition to the Solar Electric Program, the NY-Sun initiative has programs to help lower statewide solar soft costs, including training for installers and public

officials,
a standardized permitting and interconnection process, customer aggregation, and consumer education.

5.17 Research and Development

The Technology and Business Innovation unit facilitates the research, development, and commercialization of new and innovative clean energy technologies that when deployed at scale will deliver meaningful reductions in GHG emissions. Technology and Business Innovation employs

a comprehensive strategy that integrates and leverages direct investment in startup and established

clean energy companies, establishes sustainable multiuse assets in the State, and fully engages important stakeholders such as researchers, established corporate entities, and the investment community. Technology and Business Innovation’s direct investments help to determine technical feasibility, assess market opportunities, achieve key product development milestones, and validate

new technologies at scale in real-world applications. Strategic investments in statewide multiuse assets provide business incubation, manufacturing support, mentorship, and access to private sector investors and potential development and commercialization partners. Technology and Business Innovation’s overall strategy contributes toward the growth of a vibrant clean energy business

ecosystem that delivers solutions to the State’s pressing environmental, energy, and economic needs.

Technology and Business Innovation has five teams focused on the following areas:

- Smart Grid Systems and Distributed Energy Integration: Accelerate the evolution to a smarter more integrated grid that allows for new value-added services in pursuit of efficiency, sustainability, reliability, resiliency, and affordability.
- Renewable Resource Optimization: Accelerate market adoption and realization of grid and consumer benefits from distributed and renewable resources.
- Buildings: Accelerate development of technologies and systems that can enable net zero energy buildings, deep energy efficiency retrofits and smart buildings—providing value and comfort to occupants and owners.
- Innovation Capacity and Business Development: Catalyze and enable a vibrant, self-sustaining cleantech innovation ecosystem that will accelerate the pace and scale of clean energy and make NYS the place for innovation.
- Hydrogen and Clean Fuel:

5.18 Technology to Market

The Tech to Market team is focused on commercializing the climatetech solutions NYSERDA needs to reach its nation-leading climate goals through the deployment of startup support programs and direct funding opportunities for climatetech companies. Key approaches from this

team include: offering expert support for business scale up, manufacturing, and demonstration, providing training in business building concepts and best practices, offering direct catalytic funding to accelerate company growth and impact, connecting innovators to local resources, investors, and customers in New York, and stimulating novel business models to move key markets that can increase climatetech solution adoption.

5.19 Energy and Environmental Analysis

The Energy and Environmental Analysis unit assists State policy decision-makers and stakeholders by objectively:

- Identifying and evaluating policy alternatives for addressing vital public needs related to the production, delivery, and use of energy as well as development of new technologies.
- Assessing the impact of energy and environmental policies, programs, and technologies on the State's residents, businesses, environment, and energy systems.
- Providing market intelligence across all energy and fuel types, including all energy systems, market participants, and customer sectors.

- Assessing operational status of energy delivery and fuel storage infrastructure components and advising corrective actions as necessary to expedite return to full operational capacity.
- Assessing retail petroleum fuels and natural gas prices, supplies, and production to enable analyses of and response to market conditions.
- Providing energy-related environmental accountability through analysis of long-term monitoring records and modeling.
- Evaluating the effectiveness of energy-related environmental protection strategies to support regulatory processes.
- Helping prioritize opportunities for mitigation and identifying cross-sector pollution control strategies.
- Coordinating the State's activities on nuclear energy matters, including the regulation of radioactive materials, and monitoring low-level radioactive waste generation and management.
- Fostering informed energy planning through economic analysis and modeling of energy and environmental issues.

5.20 Clean Energy Siting

The Clean Energy Siting unit offers several resources to help local governments understand how to manage responsible clean energy development in their communities. These resources include step-by-step instructions, tools, guidebooks, and educational workshops to guide the implementation of clean energy, including permitting processes, property taxes, siting, zoning, and more. The team also provides one-on-one technical assistance to local governments and maintains relationships with other stakeholders to ensure resources are up to date and provide meaningful, timely, relevant information.

5.21 Financing Solutions

Financing Solutions unit will work collaboratively across NYSERDA and NYS government to identify innovative ways to expand access to affordable financing for and catalyze private investment in decarbonization solutions, vetting and prioritizing those solutions for maximum impact, coordinating with internal and external stakeholders to reduce energy transition risk, and pursuing sustainable sources of outside capital to improve the affordability of NYS government-led initiatives.

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

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

**New York State
Energy Research and
Development Authority**

17 Columbia Circle
Albany, NY 12203-6399

toll free: 866-NYSERDA

local: 518-862-1090

fax: 518-862-1091

info@nyserderda.ny.gov

nyserderda.ny.gov



NYSERDA

State of New York

Kathy Hochul, Governor

New York State Energy Research and Development Authority

Richard L. Kauffman, Chair | Doreen M. Harris, President and CEO