

New York State Energy Research and Development Authority

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

Fiscal Year Ended March 31, 2018

Pursuant to Public Authorities Law Section 2800(1)

Final Report | June 2018

NYSERDA's Promise to New Yorkers:

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

Mission Statement:

Advance innovative energy solutions in ways that improve New York's economy and environment.

Vision Statement:

Serve as a catalyst – advancing energy innovation, technology, and investment; transforming New York's economy; and empowering people to choose clean and efficient energy as part of their everyday lives.

New York State Energy Research and Development Authority
Operations, Accomplishments, Mission Statement, and
Performance Measurement

Annual Report

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1 NYSERDA

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 Governor Andrew M. Cuomo 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 and Vision

NYSERDA's **mission** is to advance innovative energy solutions in ways that improve New York State's economy and environment.

NYSERDA's **vision** is to serve as a catalyst for advancing energy innovation, technology, and investment; transforming New York's economy; and empowering people to choose clean and efficient energy as part of their everyday lives.

NYSERDA seeks to support the widespread development and use of innovative technologies to improve the State's energy, economy, and environment. NYSERDA's programs and services provide a vehicle for the State to work collaboratively with businesses, academia, industry, the federal government, the environmental community, public interest groups, and energy market participants.

3 Operational Changes and New Initiatives

This section includes a description of NYSERDA's new initiatives and a chart of the current organizational structure (Figure 1). Several of the new initiatives this year modify and build upon prior offerings by NYSERDA and are mainly driven by the continued rollout of the Clean Energy Fund (CEF).

3.1 Clean Energy Fund

During 2017, NYSERDA accomplished several key milestones related to the CEF, including developing and receiving approval to launch many key initiatives. This section describes the establishment of the CEF portfolio, which began with the first initiatives introduced in 2016 and continued to build in 2017.

In June 2015, NYSERDA filed the Clean Energy Fund Information Supplement, paving the way for the 10-year, \$5 billion CEF. Through the CEF, NYSERDA seeks to build on its success and momentum to meet evolving market and customer needs. NYSERDA designed the CEF to pursue three long-term outcomes: thriving and self-sustaining clean energy industries able to operate without subsidies; greater levels of private capital invested in clean energy and jobs in New York State; and significant reductions in greenhouse gas (GHG) emissions from the State's energy sector. This investment will span across four program portfolios: Market Development, Innovation and Research, NY Green Bank, and NY-Sun. NYSERDA designed these portfolios to complement the other pillars of the State's energy agenda, including the Reforming the Energy Vision (REV) Regulatory Proceeding, the Clean Energy Standard (CES), and initiatives advanced by the New York Power Authority.

The CEF will employ innovative solutions that remove barriers, solve customer needs, and provide value. The CEF represents a shift in strategies toward engaging market forces and leveraging capital through investments that lower costs and make clean energy more affordable and accessible. Through the CEF, NYSERDA will continue to act as a catalyst for advancing energy innovation and technology, transforming New York State's economy and empowering consumers to make informed energy choices.

In positioning the organization for success under the CEF, NYSERDA is continuing to streamline operations to become more responsive, adaptive, and easier to use. NYSERDA also orients more towards a strategic, market-based approach to identify and size market opportunities as well as to uncover and address customer value propositions in a meaningful way.

The following sections provide a description of new CEF initiatives approved in the reporting year, although some but not all have been launched in this period.

3.1.1 Agriculture

Thus far, NYSERDA has committed almost \$9 million of CEF funds toward two initiatives to address energy efficiency opportunities in the agricultural sector that focus on providing trusted information and build on strengthening relationships with farm partners. One initiative, the Greenhouse Lighting and Systems Engineering, was approved in 2016. The other initiative in this area, Advancing Agricultural Energy Technologies, was approved in 2017 with \$3.76 million of CEF funding. The Advancing Agricultural Energy Technologies initiative seeks to identify and demonstrate advanced and commercially viable energy-efficient technologies and processes that are currently not standard practices on New York State farms. Through a series of demonstration projects, the development of business-case scenarios for dissemination, and market outreach, the initiative aims to increase the number of farms adopting underused or emerging energy-efficient technologies throughout the State.

3.1.2 Commercial

In the Commercial area, \$128.5 million of CEF funds have been approved for 2016–2028 toward four initiatives aimed at growing smart technologies and practices in commercial buildings. Commercial Real Estate Tenant and REV Campus Challenge initiatives were previously approved. While the Real Time Energy Management initiative was approved in 2016, it was broadened and renamed (now called Energy Management), expanding the scope to explore less sophisticated remote energy management (REM) opportunities and to expand into other sectors (i.e., industrial and multifamily). In addition, market feedback and vendor capabilities have identified untapped potential in energy management system enhancements and the targeted market segment. As a result, \$7 million was added to the pool of incentives and services to support the installation of additional control components on energy management systems, as well as projects outside of the commercial sector. The K-12 School initiative was approved in 2017 at a funding level of \$21.6 million and encourages schools to lower energy use and utility bills while reducing GHG emissions through promoting clean energy efforts. The initiative advances clean energy and energy efficiency by educating, guiding, and assisting schools that implement clean energy projects and commit to sustainability-focused principles at their facilities and in the classroom.

3.1.3 Clean Energy Products

Through its Clean Energy Products strategy, NYSERDA will implement approaches and interventions that accelerate the adoption of certain underutilized clean energy products—those with proven savings but limited adoption—by working to develop supply chains and service networks. Accelerating the adoption of these products requires availability in the market and support by key actors, such as distributors

and contractors. NYSERDA will focus initially on Air Source Heat Pumps (ASHP). Underutilized Product Support is a \$28.9 million initiative which aims to address the barriers in the market and work to bolster availability of advanced products in the supply chain, expand demand for more advanced HVAC technologies among end users, and support successful business models in the market to increase sales. Clean Energy Products began activities under the CEF in 2016 and continued into 2017.

3.1.4 Residential

The one-to-four family residential market consists of more than five million low-rise (three stories or less) residential buildings with up to four living units. Approximately 75% of the homes were built prior to 1979, when the Energy Conservation Construction Code became effective in New York State. Engaging New Markets is a \$16 million initiative, approved in 2017, that takes a multifaceted approach to drive energy efficiency in the single-family residential market, through investments targeted at mid-stream and up-stream market actors training and consumer education. Intervention strategies include pilots to influence home purchasing decisions and training of contractors in energy efficiency offerings and tools, such as home energy ratings, with the overall objective to increase the number of businesses providing energy efficiency services, and consumer demand for these services and energy-efficient homes.

3.1.5 Industrial

The industrial sector represents 7.4% of total energy use in the State and 4% of total electric economic energy efficiency potential. The Continuous Energy Improvement initiative was modified in 2017 to increase funding by \$1 million to support an additional Strategic Energy Management pilot cohort to include a broader pool of industrial facilities. In addition, a new Energy Management Information Systems (EMIS) offering was added. EMISs are software tools utilized to gather and analyze energy and production data streams in real time, supporting the long-term realization of continuous energy efficiency improvements through organization awareness and change.

3.1.6 Clean Heating and Cooling

Clean heating and cooling technologies have the potential to contribute significantly to decarbonization of the heating and cooling sector. They also offer other benefits to those directly using the technologies, including energy bill savings, increased comfort levels, and health benefits compared to conventional heating and cooling technologies. Other benefits to the electricity grid, including the value renewable heating and cooling (RH&C) technology, are not yet fully accessible to RH&C customers. Under the CEF, \$46.7 million of investment has been approved towards two initiatives, the Heat Pumps and Solar Thermal and Renewable Heat New York. The Heat Pumps and Solar Thermal initiative, approved in

2017, will invest \$33.2 million to advance timely interventions focusing on reducing soft costs. This includes improving access to reliable information, supporting the development of a customer targeting tool to identify high-potential sites, supporting local clustering of installations through community campaigns, and developing standardized contracts, data protocols and requirements, and quality assurance processes. The Renewable Heat NY initiative, also approved in 2017, will invest \$13.5 million to pursue a multipronged market support strategy to promote development in a manner that enables individuals to heat their buildings with biomass, thereby supporting best available, high-efficiency, low-emissions biomass installations. Support includes direct incentives for installations to encourage adoption, research and development to advance high-efficiency and low-emissions technologies, workforce development to train skilled workers, education and outreach to inform consumers and market participants, and policy development support for State and local governments.

3.1.7 Low- to Moderate-Income

Under the CEF, NYSERDA has approved \$333.4 million through 2025 toward seven market development interventions with a comprehensive, three-pronged strategy for improving energy affordability and access to clean energy solutions for low- to moderate-income (LMI) communities, customers, and building owners. Four initiatives have been previously approved: RetrofitNY, REVitalize, Low-Income Forum on Energy and Healthy Homes Feasibility Study while three initiatives have been added to this chapter in 2017. The Single Family Residential Low-to-Moderate Income initiative, funded at \$229.3 million, will build on and replace previous programs administered by NYSERDA and provide incentives that address the first cost barrier for low- and moderate-income customers to reduce their energy consumption and improve the health, safety, and comfort of their homes. The Low- to Moderate-Income Multifamily Initiative, funded at \$50.2 million, builds previous programs administered by NYSERDA to address first cost barriers experienced by owners of low-to-moderate income properties, reduce the disparity between LMI and market-rate properties in terms of awareness of and access to energy-efficient solutions, and provide foundational support for the launch of various CEF market transformation initiatives. The Low-to-Moderate Income Community Solar initiative, funded at \$21.2 million, is designed to ensure that low-income customers are sufficiently served by the community solar market. The near-term goal of the program is to enable as many as 10,000 low-income New Yorkers to participate in community solar subscriptions and reduce their electricity bill. Long-term objectives include increasing solar penetration in the LMI community in support of the broader NY-SUN goal of installing 3 GW of solar capacity by 2023.

3.1.8 Multisector Solutions

NYSERDA has approved \$51.2 million toward four initiatives aimed at supporting the development and deployment of clean and renewable sources of energy, a more efficient and responsive grid, and more energy-efficient buildings. These multisector solutions will address cross-cutting barriers and opportunities that are not specific to one market sector, including reducing soft costs, providing technical assistance, and increasing confidence in clean energy solutions. The Energy Efficiency Soft-Cost Challenge is a \$10 million initiative designed to facilitate the deployment of energy efficiency improvements by reducing soft-cost barriers, such as customer acquisition, workforce development, project design, financing, and monitoring and verification. Technical Services is a \$21.9 million initiative that will assist private market actors across sectors in obtaining technical advisement on project-specific assessments as well as connecting with energy consultants. Clean Energy Advanced Market Performance (AMP) Challenge is a \$10.5 million initiative seeking to enable large-commercial and industrial projects by reducing upfront capital investment. These self-directed, multiyear projects will be driven by specific carbon reduction goals, while maintaining flexibility toward the approach. Clean Energy Siting and Soft Cost Reduction is an \$8.8 million initiative to further accelerate adoption of clean energy by reducing permitting, interconnection, and other transaction costs. As a result of this initiative—through assisting local governments with navigating regulatory paradigms such as the Value of Distributed Energy Resources (VDER) and payment-in-lieu-of-tax (PILOT)—more municipalities will be able to deploy clean energy.

3.1.9 Codes

Energy codes set minimum energy efficiency requirements for designing, constructing, and renovating buildings, thereby broadening adoption of energy-efficient construction to the market. When enforced, energy codes promise long-term energy and cost savings over the lifetime of a building. Code to Zero is a \$21 million initiative that builds on NYSERDA's past efforts to help support adoption of energy codes with higher performance goals and strengthen compliance and enforcement by supporting code compliance and enforcement, including general support services (e.g., training, compliance platforms, etc.) for local jurisdictions statewide as well as customized support services for jurisdictions that pay into the System Benefits Charge (SBC). The initiative will promote code development and advancement activities and conduct pilots to identify barriers and opportunities surrounding code development and advancement, test alternative code enforcement structures, and assess approaches to stretch and zero codes.

3.1.10 New Construction

NYSERDA aims to influence design and construction of new buildings and substantial renovations to increase efficiency in commercial, multifamily and single-family new construction, moving the market to ultimately pursue net zero energy performance. The New Construction initiative, funded at \$96.6 million, will help facilitate a new construction market in New York State, where residential and commercial building owners, occupants, and developers routinely demand, and the construction community routinely delivers, successful deep energy savings and net zero energy performance buildings. This initiative is made up of six activities that will increase the awareness of and confidence in the performance of advanced clean energy buildings.

3.1.11 Clean Transportation

Transportation is currently responsible for 40% of fossil-fuel based GHG emissions in the State, with New York State Department of Environmental Conservation regulations calling for automakers to sell more than 750,000 electric vehicle (EV) cars by 2025, up from 14,000 as of 2016. In support of this goal, the CEF Clean Transportation Program has thus far dedicated \$69.9 million, with an additional \$20 million in non-CEF funds (primarily RGGI), from 2016 to 2024 toward three initiatives: the EV Rebate, EV Innovation, and Public Transportation and Electrified Rail programs. The EV Rebate and EV Innovation initiatives were previously approved in 2016. The Public Transportation and Electrified Rail program, approved in 2017 at \$18.5 million, will work with transit agencies to develop and deploy operational solutions to support increasing ridership and energy efficiency for public transit systems.

3.1.12 On-Site Power

On-site power production, also known as distributed generation (DG), involves the self-production of electricity at or near its point of use. Although New York State is experiencing great adoption of on-site power by building owners who value the economic savings, enhanced energy resiliency, and reduction in carbon emissions several emerging on-site power technologies continue to have very low penetration in the marketplace and relatively high costs. In 2017, NYSERDA approved \$15 million for the Fuel Cells initiative to provide financial support to assist facilities with projects to install on-site, stationary power, continuous-duty fuel cells to help reduce their energy expenses and GHG emissions, to relieve strain on the electric utility grid, and when applicable to enhance the resiliency of the host site.

3.1.13 Grid Modernization

NYSERDA approved \$133.5 million of CEF funds through 2025 that includes three initiatives aimed at accelerating realization of a digitally enhanced and dynamically managed high-performing electric grid. The DER Interconnection initiative and High-Performing Grid initiative have been previously approved. Power Electronics Manufacturing Consortium initiative, added in 2017 at the funding level of \$16.7 million, will support the development of manufacturing facilities fabricating state-of-the-art materials used in power electronics. These materials, including silicon-carbide (SiC), offer significant performance improvements over current silicon (Si) based components, yielding greater energy savings for electronic devices.

3.1.14 Innovation Capacity and Business Development

NYSERDA supports a vibrant, self-sustaining, clean energy technology innovation ecosystem to accelerate the growth and scale of new cleantech enterprises in the State. To achieve this goal, NYSERDA has approved \$77.3 million of CEF funds through 2021 toward three initiatives to increase the number and success rate of clean energy startups, encourage private investment in startups, facilitate strategic partnerships with corporations, and accelerate scaling. The Manufacturing Corps initiative and Cleantech Startup Growth initiative were previously approved; however, NYSERDA approved three additional components of the Cleantech Startup Growth initiative in 2017: Investor, Corporate, and Customer Engagement, Entrepreneurs-In-Residence, and Proof-of-Concept Centers. These components, funded at \$49.2 million, will further the access entrepreneurs have available to advisors and other resources critical to developing their businesses. Novel Business Models and Offerings is a \$16.1 million initiative approved in 2017 to support promising companies in making business model investments and to accelerate the deployment of innovative firms. NYSERDA will provide these companies financial resources to assist with validation, implementation, and scaling of new business models and offerings.

3.1.15 Renewable Optimization

The Energy Storage Technology and Product Development initiative is a \$33 million CEF program (2016–2027) focused on reducing hardware (including balance-of-system hardware) costs of energy storage devices, as well as improving their performance in terms of efficiency, energy and power density, and thermal stability. The initiative will provide competitive funding opportunities for the development of energy storage technologies, explore the viability of establishing technical performance specifications to drive innovation, and facilitate partnerships between companies and large-equipment manufacturers to expedite commercialization. This initiative complements NYSERDA's market development initiative focused on reducing soft costs of energy storage, which will work together to develop and deploy energy storage products and remove market barriers for adoption.

3.2 Clean Energy Standard

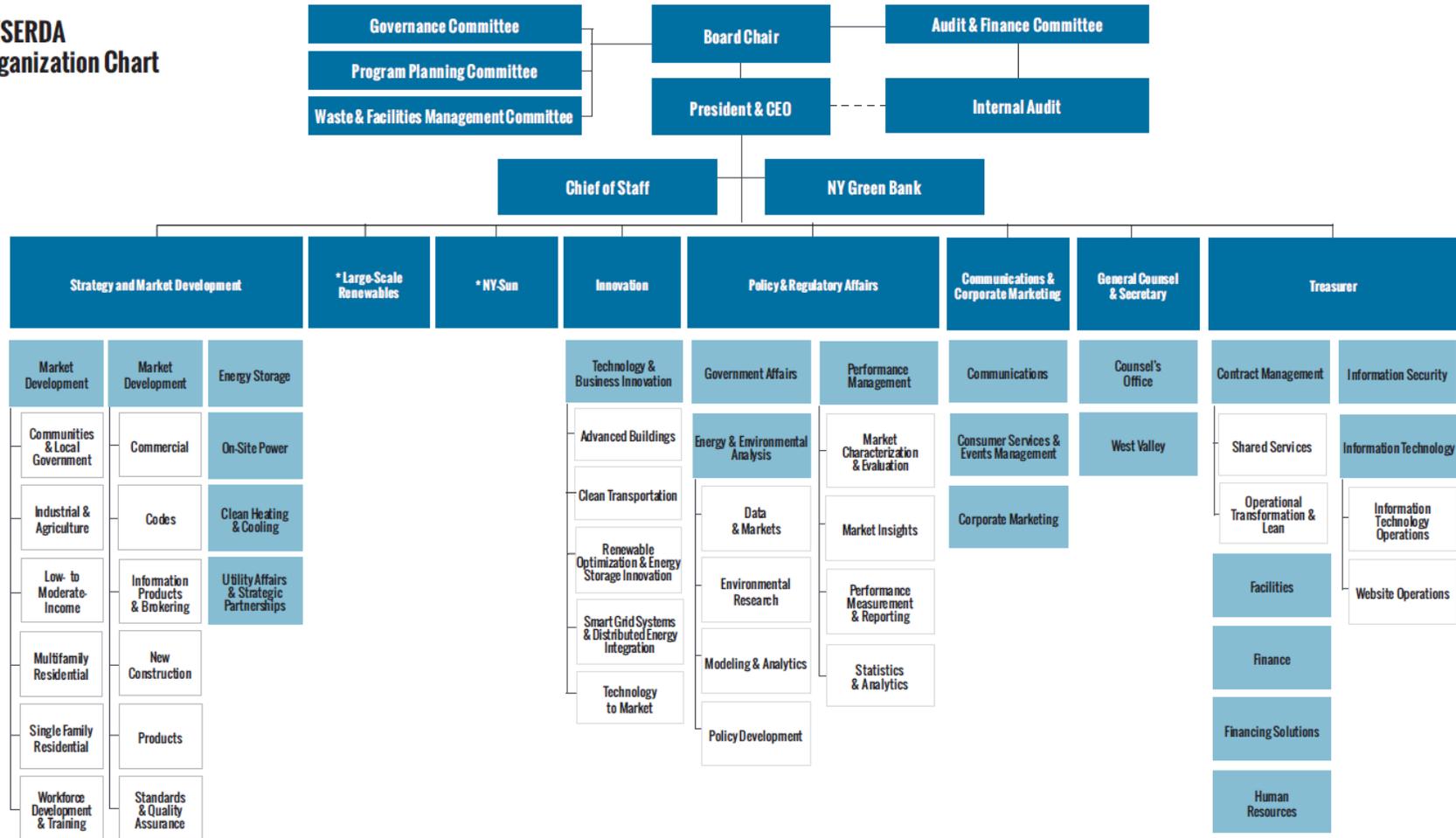
In August 2016, the Public Service Commission issued an order adopting a Clean Energy Standard (CES) that, among other items, advances the State’s clean energy goal, stipulating that 50% of all electricity consumed in New York State by 2030 should come from renewable energy sources. The CES is made up of a Renewable Energy Standard (RES) and a Zero-Emissions Credit (ZEC) requirement. The RES consists of an obligation on every Load Serving Entity (LSE) to serve their retail customers with increasing quantities of new renewable resources, either through the procurement of qualifying Tier 1 Renewable Energy Credits (REC) or by making Alternative Compliance Payments (ACP). Through competitive solicitations, NYSERDA will also enter long-term contracts with eligible generators for Tier 1 RECs and resell any procured Tier 1 RECs to obligated LSEs. In March of 2018, Governor Cuomo announced the results of the 2017 solicitation, which resulted in the single largest commitment to renewable energy by a state in U.S. history at \$1.4 billion, which will advance 26 large-scale renewable energy projects across the State.

The ZEC requirement consists of an obligation that LSEs purchase ZECs from NYSERDA in amounts proportionate to the load served. Eligibility is limited to zero-emissions attributes from existing at-risk nuclear facilities in New York State. NYSERDA entered into long-term contracts to purchase ZECs from eligible generators and completed its first year of payments in March of 2018.

The CES will be implemented through a series of implementation plans—two of which were the subject of Public Service Commission orders in 2017.

Figure 1. NYSERDA Organizational Structure

**NYSERDA
Organization Chart**



* While not shown as part of Market Development organization, these areas are included in the Clean Energy Fund Market Development Chapter

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 2017 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 innovative energy solutions in ways that improve the State’s economy and environment.				
Vision	NYSERDA’s vision is to serve as a catalyst for advancing energy innovation and technology, transforming New York State’s economy, and empowering people to choose clean and efficient energy as part of their everyday lives.				
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.

Tables 2 through 6 provide performance information for each of the five outcomes, including data that describes NYSERDA’s annual incremental performance for calendar years 2016 and 2017 and the total achievement through December 2016 and through December 2017.

Targets for calendar year 2018 are also provided for performance measures, when possible. Note that NYSERDA's 2018 targets are expressed on a commitment basis (i.e., having to do with when funds are committed to a specific contractual activity), versus the prior approach in this report which established most targets based on acquired/installed values. This shift to commitment-based targets more appropriately aligns target setting with the new strategies of the CEF that emphasize engaging market forces toward longer-term, more transformative clean energy outcomes, rather than quick turn-around resource acquisition. Commitment-based targets are the best measure of NYSERDA's success at engaging the market to uncover and address customer value propositions and of NYSERDA's continued endeavors to streamline operations and become more responsive, adaptive, and easier to work with. Tables 2-5 contain two new columns on the right side representing the move to a commitment-based view:

- The column **Total Commitments at end of CY 2017** provides transparency as to the size of the current NYSERDA project pipeline at year end 2017.
- The column **Target CY 2018 Commitments Addition** represents NYSERDA's expected target for additional commitments made during the calendar year 2018, representing work to build the project pipeline.

The quantitative performance measurement data are supplemented with contextual information, as needed and when available, and highlights of additional 2017 accomplishments.

While the listed 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 indicators of progress in the context of these external factors.

Table 2 presents NYSERDA's progress toward the efficient use of energy performance measures. Under the CEF, NYSERDA was ordered to achieve minimum projected benefits of 10.6 million megawatt-hours (MWh) and 13.4 million British thermal units (MMBtu) of annual energy efficiency savings at the end of the 10-year funding period (2016-2025). During 2017, NYSERDA's prior round of programs under the Energy Efficiency Portfolio Standard continued to wrap up, while the new initiatives under CEF were developed and launched. Performance against energy efficiency delivery targets shown in Table 2 (electricity and fuel saved)

was strong, with both targets exceeded in 2017. Performance against the commercial/industrial customers served metric significantly surpassed the target while performance against the households served metric indicates a shortfall, mainly due to slower than expected completion of legacy multifamily projects that are in the pipeline. These multifamily projects experienced changes to work scope and construction delays, which were beyond NYSERDA's direct control. NYSERDA continues to engage projects to track construction and completion progress as related to funding deadlines.

Given the nature of NYSERDA's new CEF programs, which in many cases have smaller numbers of direct participants and aim to enable a more significant indirect response in the market, transactional metrics on a number of commercial/industrial customers or households served are no longer meaningful for this report and, as a result, will be phased out. NYSERDA will still track and report participant counts for individual initiatives in its separate CEF quarterly reporting. NYSERDA will also phase out the metric on dollars of participant bill savings per energy efficiency dollar spent by NYSERDA, given the evolution of its programs.

Table 2. Performance Measures—Efficient Use of Energy

EFFICIENT USE OF ENERGY								
<i>NYSERDA reduces market barriers and spurs demand for energy solutions that reduce energy consumption and increase the energy efficiency of New York State's residents and businesses.</i>								
Performance Measures	ACHIEVED CY 2016 Addition	Total at end of 2016	TARGET CY 2017 Addition	ACHIEVED CY 2017 Addition	Total at end of CY 2017		Total Commitments at end of CY 2017	TARGET CY 2018 Commitments Addition
Electricity^a (GWh) saved due to improved energy efficiency in New York's buildings and facilities.	490	7,868	560	621	8,126 ^b		1,084	675.8
Fossil Fuels^a (MMBtu) saved (in millions) due to improved energy efficiency in New York's buildings and facilities.	1.6	15.4	1.9	2.0	15.9 ^b		7.0	4.0
Number of New York households served.^c	66,211	790,802	95,000	59,530	850,332		Metric to be phased out of this report	Metric to be phased out of this report
Number of commercial and industrial customers served.	1,795	37,236	775	1,425	38,661		Metric to be phased out of this report	Metric to be phased out of this report
Energy Bill Savings 1) Annual direct energy bill savings realized by participating customers (all programs).	\$76 million	\$1,226 million	**d	\$95	\$1,264 ^b	**	\$252 million	**d
2) Cumulative energy bill savings realized by participating customers per energy efficiency dollar spent by NYSERDA.	**e	\$3.85	**d	**e	\$3.84 ^b	**	Metric to be phased out of this report	Metric to be phased out of this report

Table notes on the next page

- a Starting in 2016, targets and achieved values include, consistent with NYSERDA CEF reporting, only the energy savings from CHP systems, electric vehicles, air source heat pumps, and ground source heat pumps. However, CO₂e emission reductions and customer bill savings are fully net, accounting for both the energy savings and the energy use of these measures.
- b 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 362-GWh and 1.4-MMBtu installations will be “retired” in 2017. These amounts and the associated emission reduction and customer bill savings have been netted out of the Total at End of CY 2017 values reported.
- c Households served include American Recovery and Reinvestment Act appliance rebates and completed multifamily units.
- d The measure will be monitored and reported but a target has not been set. NYSERDA has elected not to establish a target in cases where the measurement 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.
- e Not additive—annual analysis only.

Table 2a. Comparison Points—Efficient Use of Energy

Comparison Points	
Electricity (GWh)	2016 statewide sales of electricity—147,803 GWh ^a
Fossil Fuels (MMBtu)	2015 statewide natural gas and petroleum usage—1,102 million MMBtu ^a
Number of New York households served	2014 occupied housing units in NYS—7,209,054 ^b
Number of commercial and industrial customers served	2015 business establishments in NYS—540,298 ^c

^a NYSERDA, Patterns and Trends, Energy Information Administration (EIA), 2014

^b American Community Survey

^c U.S. Census Bureau: State and County Quickfacts

Additional highlights for strategic goal/outcome Efficient Use of Energy:

- Since 1998, NYSERDA achieved more than \$11.6 billion in cumulative participant energy bill savings through System Benefits Charge, Energy Efficiency Portfolio Standard, and CEF programs. For every dollar in energy efficiency funds spent by NYSERDA, \$3.84 in energy bill savings were realized to date as a result of the energy efficiency improvements installed by customers participating in NYSERDA programs. Additional energy bill savings will continue to accrue to customers over the lifetime of the measures installed.
- Since 1998, NYSERDA-administered energy efficiency programs have saved enough electricity to power nearly 1.2 million homes each year and enough natural gas, propane, oil, and other heating fuels to heat 217,500 homes each year.
- More than 850,000 households and 38,000 commercial, industrial, and institutional customers reduced their energy use and annual energy bills by participating in NYSERDA programs since 1998.

Table 3 presents NYSERDA's progress toward the renewable and diverse energy performance measures. Under the CES, NYSERDA was ordered to conduct regularly scheduled solicitations for the long-term procurement of qualifying RECs to achieve anticipated and minimum results for the years 2017–2021. NYSERDA's statewide procurement of new large-scale renewable generation is expected to result from Tier 1 renewable resources (facilities that came into operation on or after January 1, 2015) during the period 2017 to 2021 and is expected to total at least 9,347,020 MWh, or approximately 1,869,400 MWh per year.

In 2017, performance was moderately lower than expected on electricity production delivered to the wholesale power market. The target was modest, mainly due to the transition from the former Renewable Portfolio Standard to the new CES program and the timeline of associated builds. In addition, one project was cancelled. On solar PV capacity installed, performance was lower than the 2017 target, mainly due to slower-than-expected progress and longer-than-expected timelines on installation of commercial/industrial projects in the pipeline. NYSERDA actively works to address local siting challenges and the interconnection queue, and developers are coming to understand the new solar compensation structure in New York State arising from the Value of Distributed Energy Resources proceeding.

Table 3. Performance Measures—Renewable and Diverse Energy

RENEWABLE AND DIVERSE ENERGY								
<i>NYSERDA diversifies New York State's portfolio of energy resources by accelerating development of renewable and distributed generation resources.</i>								
Performance Measures	ACHIEVED CY 2016 Addition	Total at end of 2016	TARGET CY 2017 Addition	ACHIEVED CY 2017 Addition	Total at end of CY 2017		Total Commitments at end of CY 2017	TARGET CY 2018 Commitments Addition
Renewable resources electricity produced								
1) Electricity Production (GWh) delivered to wholesale power market from incentivized installations ¹⁵	7 ^a	3,368 ^b	94 ^c	68 ^d	3,436		3,292	1,483
2) Electricity Production (GWh) from on-site installations ^e	272	985	536	385	1,370		1,410	570
Solar PV capacity (GW) from all NYSERDA funded solar PV programs, including NY-Sun 3 GW goal^{e,f}	0.227	0.744	0.404	0.228	0.972		1.133	0.402

Table notes on the next page

- a Generation from new renewable resources that commenced commercial operation in 2016.
- b A net decrease in electricity production in 2016 from NYSEDA-contracted facilities was primarily due to 10-year RPS Main Tier contracts which had reached their terminus year, after which NYSEDA no longer has rights to claim the attributes of their generation.
- c The target included expected new generation from new and existing renewable resources.
- d New generation from new and existing renewable resources.
- e NYSEDA does not, by filing this report, make any claim to the environmental attributes associated with those megawatt-hours. NYSEDA 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.
- f Solar capacity (GW) was a new measure in 2015. All NYSEDA funded solar PV is currently and historically included in “Electricity production (GWh) from on-site installations.”

Table 3a: Comparison Points—Renewable and Diverse Energy

Comparison Points	
Renewable resources electricity produced	2016 statewide sales of electricity—147,803 GWh ^a

^a NYSEDA, Patterns and Trends, Energy Information Administration (EIA), 2014.

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

- NYSERDA is currently supporting 102 large-scale renewable generation projects representing 3,448 MW of renewable generation capacity. There are 63 facilities operating with the remainder of the projects under design and construction.
- Of 83 communities awarded funding to conduct feasibility assessments at Stage 1 of the NY Prize Competition, all but one completed their Stage 1 assessment and the completed assessments are posted to the NY Prize website. Of those communities that vied for funding to conduct detailed engineering design and commercial/financial plans at Stage 2 of the competition, 11 were awarded nearly \$11 million and work on these plans is anticipated to be completed in late 2018.

Table 4 presents NYSERDA's progress toward the clean energy economy performance measures. NYSERDA fell moderately short of the 2017 target due to the previously described shortfalls on renewable energy. However, as noted earlier, the pipeline of projects in development is robust. In fact, NYSERDA's awards resulting from the 2017 CES solicitation represented the largest investment in large-scale renewables by a state in history.¹ In the first quarter of 2018, additional large-scale renewable contracts have been executed which are expected to leverage nearly \$1 billion of private investment.

¹ See <https://www.nyserra.ny.gov/About/Newsroom/2018-Announcements/2018-03-09-Governor-Cuomo-Announces-Formal-Request-for-New-York-Exclusion-From-Federal-Offshore-Drilling-Program>

Table 4. Performance Measures—Clean Energy Economy

CLEAN ENERGY ECONOMY							
<i>NYSERDA catalyzes technology innovation, new business opportunitie and private investment in clean energy in New York State.</i>							
Performance Measures	ACHIEVED CY 2016 Addition	Total at end of 2016	TARGET CY 2017 Addition	ACHIEVED CY 2017 Addition	Total at end of 2017	Total Commitments at end of CY 2017	TARGET CY 2018 Commitments Addition
Total funding leveraged from all NYSERDA investments (\$million)^a	\$1,746	\$9,266	\$2,491 ^b	\$1,716 ^c	\$10,356	\$6,595	\$3,241

- a NYSERDA’s data set for leveraged funds began in 2010.
- b A revision has been made to the 2017 target based on the addition of leverage from solar PV, including NY-Sun. This addition was made after the original 2017 target was set due to the development of the methodology to account for this leverage.
- c 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 strategic goal/outcome Clean Energy Economy:

- As a component of the leveraged funding presented in Table 4, NYSERDA's investment in technology and business development has leveraged \$50 million in 2017 for a total of \$1,284 million through the end of calendar year 2017.
- As a result of NYSERDA's technology and business development investments, there are more than 434 new and improved clean energy products in the market (including 20 new products added in 2017) in all end-use energy sectors from high-efficiency furnaces to advanced lighting controls and hybrid electric buses.
- As of the end of 2017, there are currently 114 new clean energy products in development with support from NYSERDA's technology and business development programs.
- As of the end of 2016, annual sales of products developed with NYSERDA support have reached \$2,415 million.²
- As of the end of 2017, there are currently 119 clean energy businesses receiving financial support from NYSERDA's technology and business development programs.
- NYSERDA's incubator program, which supports six cleantech incubators across the State, assisted 166 clients and helped these startups raise more than \$320 million in private capital as well as almost \$99 million of non-NYSERDA grant funding, while generating 1,088 jobs and bringing dozens of new clean energy and clean technology products to the market.

Table 5 presents NYSERDA's progress toward the cleaner environment performance measures. The 2017 target for carbon reductions was nearly met (achieving 93%) and was only slightly hampered by the slower renewable energy pipeline development noted previously.

² Annual product sales data lags by one year.

Table 5. Performance Measures—A Cleaner Environment

A CLEANER ENVIRONMENT^a <i>NYSERDA enables markets for new clean energy products and services that can produce meaningful reductions in the environmental impact of energy production and use.</i>							
Performance Measures	ACHIEVED CY 2016 Addition	Total at end of 2016	TARGET CY 2017 Addition	ACHIEVED CY 2017 Addition	Total at end of CY 2017	Total Commitments at end of CY 2017	TARGET CY 2018 Commitments Addition
CO ₂ equivalent emission reductions due to NYSERDA's energy efficiency, renewable and diverse energy programs (annual metric tons) (All programs) ^b	469,032	7,226,551	711,468	659,041	7,639,379 ^c	3,660,596	824,871

^a Beginning in the 2016 Operations and Accomplishments and Mission Statement and Performance Measurement Annual Report, for consistency with NYSERDA's Clean Energy Fund investment plans, all emissions reductions are reported in metric tons, revised from short tons in prior years. A metric ton is equivalent to 1.102 short tons.

^b With the submittal of its Clean Energy Fund Investment Plan Budget Accounting and Benefits Chapter on February 22, 2016, NYSERDA adopted the NYS Public Service Commission's recommendation in its January 21, 2016 Order Establishing the Benefit Cost Analysis Framework that New York's GHG emissions factor methodology shift from an average grid emission profile to a marginal grid emission profile. Due to this shift, beginning in 2016, New York's factor to calculate GHG emissions reductions has changed from 625 pounds CO₂e/MWh to 1,160 pounds CO₂e/MWh. The emissions reductions calculated for this report reflect the new factor of 1,160 pounds CO₂e/MWh. The emissions reductions calculated for the 2016 achieved and 2017 target reflect the new factor of 1,160 pounds CO₂e/MWh.

^c The System Benefit Charge was authorized in 1998 and NYSERDA began programs the following year. Substantial installations had taken place beginning in 2001 and their CO₂ equivalent emission reductions are "retired" here based on a 16-year measure life. These amounts and the associated emission reductions have been netted out of the total at the end of 2017.

Table 5a: Comparison Points—A Cleaner Environment

Comparison Points	
CO ₂ equivalent emission reductions	2015 annual NYS power sector emissions—37.1 million metric tons CO ₂

Energy-related environmental policies in 2017 informed by NYSERDA reports/studies:

- Following rigorous fieldwork, analysis, and stakeholder outreach regarding appropriate locations for wind installations off New York State's Atlantic Coast, NYSERDA led the submission of an identified Area for Consideration to the federal government's Bureau of Ocean Energy Management (BOEM). The submission was accompanied by extensive information supporting the Area for Consideration, which the State views as best suited for future offshore wind development.
- The New York Climate Change Science Clearinghouse (NYCCSC) team has been asked to work with the U.S. Climate Alliance, a bipartisan coalition of states committed to the goal of reducing GHG emissions consistent with the goals of the Paris Agreement. The NYCCSC team created a webpage (<http://usclimateallianceclearinghouse.org/>) for the alliance as a placeholder for a larger, national clearinghouse site that will be built over the next year. NYSERDA launched the NYCCSC in 2017 to help educate policymakers, provide practitioners the specific climate information they need, identify data gaps, and promote information shared across scientific and engineering disciplines.
- NYSERDA sponsored the New York City Metro Area Energy & Air Quality Data Gaps Workshop, coordinated by NESCAUM and held at Lamont-Doherty Earth observatory, drawing over 150 scientists. The workshop focused on identifying data gaps that hinder informed decision-making aimed at improving air quality and public health in the greater NYC urban area and downwind areas affected by emissions from that region.
- NYSERDA sponsored Columbia University's NASA Health and Air Quality Applied Sciences Team (HAQAST) meeting. This included national scientists reporting on current projects using satellite and other remote sensing tools applied to study air quality and public health. Of special interest was how projects could be addressed by HAQAST scientists that apply remote sensing to answer air quality and health questions for NYS in general and NYC in particular.
- NYSERDA sponsored the 13th International Conference on Mercury as a Global Pollutant (ICMGP) in Providence, RI. This week-long conference was attended by over 1,000 participants from academia, non-government organizations (NGO), federal and state government agencies as well as industry. During the conference, attendees discussed the global- and local-scale issues of mercury contamination and mercury exposure while considering the challenges associated with the recently ratified Minamata Convention, which will limit mercury releases and emissions globally. Multiple NYSERDA-supported projects in NYS were presented to an international audience of top researchers, policymakers, and stakeholders.

Table 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 strong performance with regard to prompt payment of invoices, and the improvement for all contract processing cycle time measures, with the exception of open enrollment and task work orders, can be attributed to new tools and processes that simplified the contracting process. The cycle time of open enrollment (automated) increased in 2017 based on a larger percentage of applications received from less experienced contractors, which often requires additional internal review, thereby increasing the time to completion.

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

CONTRACT AND CYCLE TIME—INVOICING					
<i>NYSERDA is responsive to customer needs—delivering accurate and timely information, services, and programs.</i>					
Performance Measures	CY 2015	CY 2016	TARGET CY 2016	CY 2017	TARGET CY 2018
Invoice payment:					
1) Number of invoices paid within 30 days	95,557 invoices	86,138 invoices	**a	65,210 invoices	**27
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)

CONTRACT AND CYCLE TIME—SOLICITATIONS				
<i>NYSERDA is responsive to customer needs—delivering accurate and timely information, services and programs.</i>				
Performance Measures	CY 2016 Median Total No. of Weeks	Target CY 2017	CY 2017 Median Total No. of Weeks	Target CY 2018
Contract Processing Time—Median time to Process (Weeks):				
1) Due Date Solicitations	41	32	32	32
2) Open Enrollment and Task Work Orders	4.6	3.8	2.14	3
3) Open Enrollment (Automated) ^a	0.1	0.2	.71	1
4) All Other Actions (Direct Contracts and Contract Modifications)	3	3.5	1.71	3

^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

5.1 Commercial

The Commercial unit works to spur innovation, investment, and demand in clean energy and energy efficiency in the State's commercial existing building stock. Commercial will address overcoming market barriers to develop a well-functioning market for clean energy in the buildings sector, increasing energy service companies (ESCO) that provide for this market; customers positioned to invest in clean-energy projects via market-rate, long-term, self-sustaining financing options; the use of cost-effective, technology-enabled tools, real-time energy management, energy services, and clean energy marketplaces; and deep, comprehensive efficiency projects occurring in all significant market segments.

5.2 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 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.

5.3 Codes

The Codes unit works across all the participants in the construction market, including building owners, developers, and elected officials to accelerate code requirements and guides them toward zero-carbon or even net-carbon positive building performance. The team works with the market on strategies that enable and enact advances to clean energy and green codes, increase compliance with these codes, and improve enforcement. The strategies address market needs such as cost effectiveness, coordination with other codes, and the safety and durability issues of buildings, among other issues. Codes coordinates closely with New Construction, leveraging their success on market enablement efforts to develop and apply appropriate code structures and feeding information on code advancements and gaps to inform their future strategies.

5.4 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.

5.5 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, data center, and agriculture sectors.

5.6 Low- to Moderate-Income

The Low- to Moderate-Income 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 LMI households.

5.7 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.

5.8 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.

5.9 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.

5.10 Products

The Products unit, which includes digital solution strategies, conceptualizes, drives, and implements strategies and interventions that accelerate the adoption of emerging or underutilized energy-relevant products by working to develop supply chains and service networks. Interventions are likely to include support for product availability in relevant channels, channel and customer awareness, and capacity development in key service networks (e.g., installation, maintenance). Digital Solutions seeks to accelerate the impactful deployment of digital and information technology solutions that improve the energy performance of distributed energy resources and energy consuming devices. Examples of promising digital products and solutions include wireless sensors, data analytics, advanced algorithms, energy management as a service, demand response, real-time energy monitoring and systems controls, smart equipment, and digitally enabled tools (e.g., audit, modeling, measurement and verification, project development).

5.11 Information Products and Brokering

The Information Products and Brokering unit is responsible for facilitating the development and use of market-based information solutions, platforms, and applications to support market confidence and lower soft costs.

5.12 Standards and Quality Assurance

The Standards and Quality Assurance unit provides effective and efficient infield quality assurance to support NYSERDA investment in clean energy technologies and foster market-based strategies to increase consumer and investor confidence in clean energy technology and solutions. This includes working to deploy professional certifications and technical/work standards to support quality assurance within the clean energy market.

5.13 Technology and Business Innovation

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 multi-use 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 multi-use 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.
- **Clean Transportation:** Accelerate the movement toward an efficient, low-GHG emissions transportation system—enhancing the quality of life in communities across the State.

- 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.

5.14 Energy Storage

The Energy Storage unit will develop and implement a robust energy storage strategy that removes the most impactful barriers preventing adoption in the electric grid, buildings, and transportation sectors. This will enable renewable generation to be used as “flexible resources,” increase electric system utilization and resiliency, flatten peak demand, and reduce petroleum dependence to help achieve the State’s GHG reduction goals. Initiatives will include targeting soft costs to reduce total installed cost, validating new financing and ownership models, participating in ratemaking and tariff design, removing safety and performance uncertainty, and developing and demonstrating new products and integrated systems—including microgrids. These strategies will be delivered in conjunction with public and private organizations and other NYSERDA teams.

5.15 Large-Scale Renewables

The Large-Scale Renewables unit will sustain and expand the penetration of large-scale renewables in the State and also support the development of the next frontier of renewable resources, including offshore wind resources. The program will facilitate New York State’s renewables voluntary market through the design and management of the New York Generation Attribute Tracking System, provide technical and pre-development assistance to reduce soft costs associated with the development of these assets, assess alternate energy market valuation for renewables, and enable the development of the next generation of renewable technologies including offshore wind. The team will also manage over \$1 billion in existing Renewable Portfolio Standard Main Tier contracts, actively execute its Renewable Energy Standard procurement and contracting role and assume a lead role in any offshore wind procurement responsibilities as assigned by the New York Public Service Commission.

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 On-Site Power

The On-Site Power unit will direct its major focus on individual buildings and their adoption of natural gas-fueled Combined Heat and Power systems that run daily as well as during a grid outage. The team will also assist the Anaerobic Digester Gas marketplace and the fuel cell marketplace with identifying business models that can lead to self-sustaining markets. On-site Power will also seek to advance the market for hybrid on-site power systems.

5.18 Clean Heating and Cooling

The Clean Heating and Cooling unit will seek to enable a self-sustaining market for clean heating and cooling solutions, helping to increase the viability of net zero energy buildings in the State. Solar thermal, biomass heating, and air and ground source heat pump systems will be explored. Clean heating and cooling will address barriers to market growth, including low-customer awareness and confidence, limited trained service providers, high-upfront costs, significant soft costs, variable performance data, and lack of affordable financing solutions.

5.19 Financing Solutions

The Financing Solutions unit will develop strategies for mobilizing private capital and market-based financing solutions to support scaled investments in clean energy across sectors and technology areas.

5.20 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.

5.21 Utility Affairs and Strategic Partnerships

The Utility Affairs and Strategic Partnerships unit manages the Authority's utility engagement strategy under REV, oversees our funding agreement with the Long Island Power Authority, and leads the development of a \$50 million energy efficiency Pay-for-Performance partnership program with National Grid and Con Edison.

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 nyserda.ny.gov or follow us on Twitter, Facebook, YouTube, or Instagram.

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