2013 BuildSmartNY

New York State's Implementation of Executive Order 88

ANNUAL PROGRESS REPORT

New York Power Authority

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New York Power Authority

January 2014

The Honorable Andrew M. Cuomo
Governor of the State of New York
State Capitol
Albany, NY 12224

Dear Governor Cuomo:

I am extremely pleased to present to you the first annual Progress Report on BuildSmart NY, your strategic initiative to accelerate energy-related investments in New York State facilities and improve agency operations. BuildSmart NY, established by your Executive Order 88 in December 2012, will also support the State of New York's strong commitment to the mutually compatible goals of environmental protection, energy security, fiscal responsibility, and economic growth.

The Executive Order requires State agencies and authorities under your control to collectively reduce the energy use in State-owned and -managed buildings by at least 20 percent – from the baseline State fiscal year of 2011 – by April 1, 2020. We have collected results from State fiscal year 2012, and **the State has already reduced its source Energy Use Intensity by 4.7 percent.** Adding in estimates from subsequent years, we believe that the State may have already improved its performance by 6.9 percent. These energy savings have also resulted in **$50 to 60 million in cost savings and 130 to 180 thousand tons of greenhouse gas emissions avoided.**

The Order designates the New York Power Authority (NYPA) as the coordinator, charged with coordination of agency activities and overall administrator of implementation, and requires NYPA to submit an annual report each January. The following Report seeks to satisfy your annual reporting directive per Executive Order 88. Additionally, this transmittal is designed to inform New York's citizens and the general public on the progress of, and plans for, BuildSmart NY. We detail the launch activities and deliverables of the past year, and examine the progress of the participating agencies.

We also use this document as an opportunity to present NYPA's broad implementation plan for BuildSmart NY, which includes strategies that will propel State government forward toward its energy, environmental, and economic goals. In brief, these strategies are:

1. **Smart Analytics: Innovate with Building Intelligence and Big Data.** By installing smart meters and adopting energy information systems and analytics tools, New York State agencies will be able to understand and manage their energy use in ways never before possible.
2. **Smart Government: Transform State Government into an Enhanced Resource for Agencies.** We will incorporate energy efficiency into the State Capital Budget Program, clearly delineate roles and responsibilities among entities supporting energy projects, and provide resources that fill crucial gaps in the energy service landscape.
3. **Smart Infrastructure: Transform State Facilities by Implementing Energy-Saving Capital Projects and Leveraging the Marketplace.** We will systematically grow a robust portfolio of large, transformational investments in major facilities and buildings. While doing so, we will stimulate the clean energy industry by scaling up a wider variety of financing instruments, procurement vehicles, and implementation methods.
4. **Smart Operations: Strengthen the Operations and Maintenance of State Buildings.** We will create a Statewide organizational culture around operations and maintenance in agency facilities, making energy efficiency fundamental to agency routines.

With implementation of these strategies, the State will be equipped to reach and exceed the goals of BuildSmart NY. We at NYPA are grateful for the privilege of presenting this first annual BuildSmart NY Progress Report, and honored to serve as the coordinator of this important undertaking.

Sincerely,

Gil C. Quiniones
President and Chief Executive Officer

Background provides general information on BuildSmart NY, Executive Order 88, and the broader context of State energy efficiency efforts in New York.

Launch describes the activities involved in setting up the BuildSmart NY program, including governance structures and initial analysis aimed at preparing the State for success.

Implementation details the four macro strategies that will drive the State toward a 20 percent energy management improvement by 2020.

Progress tracks results to date and advancement toward Executive Order 88 objectives, and highlights projects of note.

BuildSmartNY

2013 ANNUAL PROGRESS REPORT

EXECUTIVE SUMMARY

BuildSmartNY

BACKGROUND

Executive Order 88

The State of New York has been working to improve energy efficiency in State government buildings for more than two decades. Governor Andrew M. Cuomo broadened and intensified the State's commitment to advancing energy efficiency in State buildings with the issuance of Executive Order 88 (EO 88 or the Executive Order) on December 28, 2012. The Executive Order mandates a 20 percent improvement in the energy efficiency performance of State agencies, authorities, departments, offices, and other gubernatorial organizations (hereafter collectively referred to as Agencies) by April of 2020. In addition, the Order sets minimum requirements for annual benchmarking, energy audits, submetering of master-metered campuses, implementation of cost-effective projects, the incorporation of energy efficiency in the capital budgeting process, and reporting.

BuildSmart NY

While EO 88 focuses Agencies on improving energy performance, this objective is a means to accomplishing broader State policy goals, including:

- **Fostering cost-effective investments, enhancing building operations and maintenance, and reducing utility expenses**
- **Supporting economic growth** by creating green jobs and stimulating the marketplace for clean energy and energy efficiency products and services
- **Protecting the environment and public health** by reducing the emissions of greenhouse gases and other pollutants
- **Advancing energy security and resiliency** by making State facilities more self-reliant and helping them serve as potential places of refuge to New Yorkers in the event of major storms, power losses, or other emergencies

LAUNCH

NYPA's Role as Coordinator

Executive Order 88 designates NYPA to coordinate compliance with its mandates and drive the State to the Order's 20 percent improvement target. The Executive Order explicitly directs NYPA to set guidelines for compliance, develop annual milestones to achieve the 20 percent target, engage stakeholders to refine policy, assess and mitigate risk, provide strategic and technical assistance and oversight, and report progress to the Governor's Office and the public. NYPA's BuildSmart NY team will serve as both the primary "scorekeeper" for EO 88 and as a resource to share, advance, and showcase a common set of practices, principles, and methods for achieving energy savings.

Executive Steering Committee

To ensure accountability at the highest levels of each State Agency, an Executive Steering Committee was established in April 2013. The Committee is chaired by the NYPA President and CEO, and includes key personnel from the Governor's Office and direct reports to State Agency heads. The Committee provides general oversight, addresses risks and emerging issues, and advises on implementation strategy.

Benchmarking

In August 2013, NYPA published the *BuildSmart NY Baseline Energy Performance of New York State Government Buildings*. The report represented New York State's first effort to benchmark the energy use of State government buildings. Key findings of the report, and subsequent benchmarking efforts, include:

- Portfolio Agency imbalance: More than 90 percent of the State's square footage and energy consumption is associated with six large New York State government Agencies. The resources and the initiatives implemented at these key state Agencies will therefore be critical to the overall achievement of Executive Order 88 goals.
- Master-metered campuses: The State's portfolio is largely comprised of large, master-metered campuses with groups of buildings all served by the same utility meter. In most cases the resulting data is available weeks after the energy has been used.
- Portfolio facility imbalance: A small number of State facilities (including some master-metered campuses) represent a disproportionate amount of total consumption. Just 19 State facilities represent more than 40 percent of the portfolio's total energy use, and just 75 facilities represent more than 75 percent of the energy use.

Guidelines

As required by Executive Order 88, NYPA created Guidelines that were finalized and issued in September of 2013. The Guidelines elaborate on the requirements established in the Executive Order, create roles and responsibilities for the State's participants, and detail the policies and protocols for EO 88 implementation. The full text of the Guidelines can be found at www.nypa.gov/BuildSmartNY/Guidelines.pdf

Annual Agency Reporting

Executive Order 88 requires that by October 1 of each year, Agencies submit building and energy data to NYPA. In addition, the BuildSmart NY team requested the completion of three other items from each Agency:

1. **Annual Report Narrative** – Describes the current status of, and plans for, energy auditing, project implementation, and building operations and maintenance protocols.

2. **Project Tracker** – Captures information on all major energy efficiency projects, planned or underway, that will contribute to reaching energy reduction targets.

3. **Auditing and Retrocommissioning Plan** – Provides a schedule and strategy for meeting EO 88 auditing and retrocommissioning requirements within the timeframes allotted by the Guidelines.

Every Agency that was required to report did so in a way that was deemed compliant by the BuildSmart NY team.

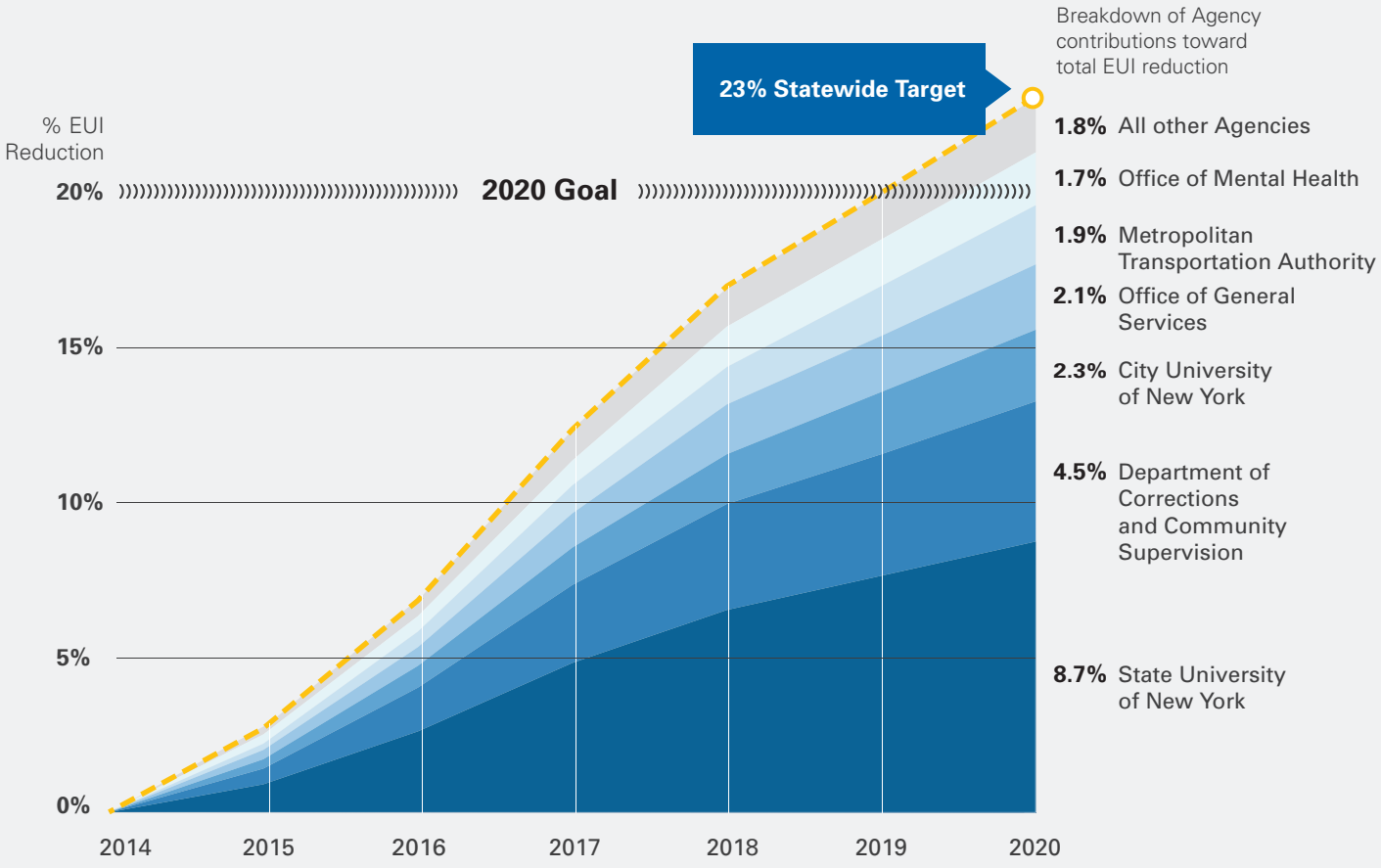
Operations and Maintenance Planning

Facility operations and maintenance (O&M) practices are vital to each Agency's overall plan to meet the energy reduction targets of EO 88. Properly managed and closely monitored facilities reduce energy consumption, avoid unwanted utility costs, protect capital investments in equipment, and avert unnecessary service interruptions and the costs of associated equipment failures. The BuildSmart NY team collaborated with several key Agencies and facilitated self-assessments of their O&M procedures. Through meetings, staff interviews, and procedure reviews, the team examined strengths, weaknesses, opportunities, and risks for Agencies with regard to O&M. Agencies subject to EO 88 submitted Preliminary Operations and Maintenance Plans on November 1, 2013, and will provide more detailed O&M action plans in 2014.

Targets

In December of 2013, the BuildSmart NY team established and issued source Energy Use Intensity (EUI) reduction targets for each of the State Agencies. As required by the Executive Order, targets were issued to Agencies as both cumulative numbers to be reached at the end of the program in April 2020 and as annual numbers for the years leading up to that end date. Collectively, these individual Agency targets amount to a weighted average target for the State of 23 percent; this is higher than the Governor's goal of 20 percent due to contingency built into each Agency's individual target and a portfolio-wide risk adjustment, both of which are intended to ensure that the State reaches the Governor's goal of 20 percent in April of 2020.

Source Energy Use Intensity is the amount of energy consumed per square foot of gross building area, taking into account the fuels consumed in the generation, transmission, and distribution of electricity, as well as the energy losses from storage, distribution, and delivery of natural gas. It incorporates all production, transmission, and delivery losses, thereby enabling a complete assessment of energy efficiency in a building on a per square foot basis.[1]



These targets do not include progress to date; please see the Progress section for further information.

IMPLEMENTATION

There is no singular solution to improving energy performance. The BuildSmart NY team believes that the following **four strategies** will play key roles in achieving the Governor's goal of 20 percent source EUI reduction.

Smart Analytics

Innovate with Building Intelligence and Big Data

STRATEGY: Stimulate the installation of smart meters, and adopt energy information systems and analytics tools. Utilize these enhanced analytical tools to drive intelligent decision-making around energy.

Smart Analytics Key Activities

AGENCIES
Submit submetering plans

Submit annual energy, square footage, and project data

Submeter buildings with floor areas larger than 100,000 gross square feet located on master-metered campuses for all fuels and energy sources

NYPA
Deploy NYEnergyManager to 5–10 pilot and early adopter facilities

Deploy BuildSmart.NY.gov version 2.0

Benchmarking

Energy benchmarking, which consists of comparing facility energy use to established standards or metrics, is an effective tool for accurately assessing facility energy performance, and is a key part of the Smart Analytics strategy. The benchmarking process is traditionally repeated over time to monitor progress.

Agency Reporting

Smart Analytics requires quality data, and that starts with the Agencies themselves. Agencies are required to submit utility data annually for all fuels and revisions to facility square footage. This information serves as the basis for calculating the updated source EUI for each Agency and tracking progress toward their targets. The team has instituted a gradual, staged schedule for bringing Agencies' reported energy data up-to-date. By October 1, 2014, the State's energy data will be up-to-date for the most recent and available State fiscal year.

Data Management

Advanced software systems can aid Agencies in their efforts to manage energy data and identify opportunities to improve energy use. As more Agencies adopt software systems and platforms, the State's ability to manage its energy data will increase exponentially, and the team is dedicated to helping the BuildSmart NY Agencies do so as part of the Smart Analytics strategy. One such example is NYPA's own NYEnergyManager, an online platform that serves as a virtual hub for continuous monitoring, analysis, forecasting, and management of facility energy supply, consumption, and cost. It will also serve as the central data repository and management system for the BuildSmart NY team to track EO 88 data on a State-wide basis. Utilizing NYEnergyManager, the team will be able to monitor Agency efforts, serve as a powerful lens for BuildSmart NY results, and supply accurate and timely reporting to a wide array of stakeholders.

Social Media

Online data-sharing and social media are key tools for increasing transparency, generating awareness, and sharing information – all important goals of Smart Analytics. The BuildSmart NY website (www.buildsmart.ny.gov) was established to achieve these goals by promoting State energy efficiency efforts and facilitating interactions between Agencies and the private market. The site provides a forum for information on energy use, energy projects, and energy services. By educating State energy and facility managers, private market contractors and consultants, and policymakers, the BuildSmart NY website allows a wide array of users to leverage the power of data in order to make the State's buildings more efficient – essentially, Smart Analytics in action.

Submetering

Submetering is the installation of meters for individual energy sources at discrete levels – by building, by floor, or by any other desired subsection of a facility. Submeters will allow Agency facility managers and decision-makers to analyze designated buildings or areas on an individual basis and help them identify energy efficiency measures that would have been difficult if not impossible to discern when looking at broader energy data. While submetering itself does not save energy, it is an important element of BuildSmart NY and Smart Analytics because it provides the backbone for better data and decision-making, and is therefore a catalyst for energy efficiency.

Smart Government

Transform State Government into an Enhanced Resource for Agencies

STRATEGY: Work with key government stakeholders to better incorporate energy efficiency into the State Capital Budget Program, more clearly delineate roles and responsibilities among currently overlapping service providers, and procure flexible contract resources that fill crucial gaps in the energy management puzzle.

Coordinated Support Services

State Agencies have a number of energy efficiency support services at their disposal, and have come to rely on them, to varying degrees, for engineering services, contracting, financing, and technical assistance. The BuildSmart NY team is working with NYPA, the New York State Energy Research and Development Authority (NYSERDA), the Dormitory Authority of the State of New York (DASNY), and the Office of General Services (OGS) to optimize their strengths, create synergies, and avoid overlap and unproductive competition. This will ensure that, as a coordinated group, they support Smart Government and meet the needs of the Agencies subject to EO 88.

Budgeting

Historically, Agency decisions involving the Division of the Budget (DOB)-administered Statewide capital budget and decisions about NYPA-financed investments in energy projects have been separate, even disjointed, management processes. Executive Order 88 calls for the integration of these two streams of infrastructure investment, and requires the inclusion of energy efficiency considerations in the development of the Statewide capital budget. In 2013, the BuildSmart NY team formed a working group to develop a Smart Government process for enhancing the energy efficiency components of traditional projects within the Capital Program.

Procurement and Contracting

Smart Government means matching needs with resources. And while it is beneficial that State Agencies have many options for procuring and contracting for energy services, these options vary widely in terms of ease, flexibility, and effectiveness, and the resulting choices can be confusing and even a major hindrance. The BuildSmart NY team will simplify processes while providing Agencies with a full set of alternatives that will meet any and all needs. NYPA is working with other government entities to assess the array of complementary capabilities, delineate clear roles and responsibilities, and create synergies toward the most effective actions.

Performance Management

The metrics of energy efficiency lend themselves to performance management and the transition to Smart Government. Facilities, Agencies, and the State at large can be assessed as they progress toward the 20 percent improvement target. Through clear quantitative means, successes can be identified and recognized, just as setbacks and risks of failure can be flagged for followup. In addition to tracking energy use reductions, the team will employ various measures of compliance to monitor progress, such as projects in progress or completed, buildings submetered, and developments in O&M procedures. Taken together, stakeholders will be able to compare Agencies to one another and examine the advancement of BuildSmart NY as whole.

Smart Government Key Activities

NYPA
Introduce Energy Savings Performance Contracting vehicle

Incorporate energy financing into Statewide capital budget process with issuance of "DOB Bulletin" and training of key Agency personnel

Issue Resource Guide for Agencies detailing NYPA, NYSERDA, DASNY, OGS, and other support service offerings

Hold first annual BuildSmart NY Awards event

Augment existing State contracts with new Statewide contract vehicles to support Agency energy efficiency activities

Smart Infrastructure

Transform State Facilities by Implementing Energy-Saving Capital Projects and Leveraging the Marketplace

STRATEGY: Systematically grow the robust portfolio of existing building retrofit projects, pursue large, transformational investments in major buildings and campuses, and do so with a fuller complement of market implementers.

Energy Audits

Energy audits and energy master plans are effective tools for identifying and prioritizing energy efficiency upgrades in buildings. The BuildSmart NY team has proposed a highly targeted yet flexible approach to performing energy audits to help maximize the benefits of this often time- and resource-intensive activity.

Retrofits and Replacements

The retrofitting and replacement of existing building systems with more energy efficient models is a proven energy reduction strategy and one of the core components of Smart Infrastructure. Building technology continues to become increasingly energy efficient, and existing facility equipment can often be augmented through retrofits, or replaced completely, to boost energy efficiency and reduce operating costs.

New Construction

New construction and major rehabilitation projects are prime opportunities to implement energy efficiency measures and shift toward Smart Infrastructure. Since Agencies will continue to pursue new construction projects in order to better serve their core purposes, it is vital that energy efficiency be built directly into the design of new buildings.

Distributed Generation

Smart Infrastructure is not only about systems that decrease energy consumption, but also about systems that generate energy more efficiently and cleanly. On-site, distributed generation of electricity is becoming more commonly implemented, both on large campuses and for individual buildings. Reducing the consumption of grid-purchased electricity by means of distributed generation can significantly lower a building's source EUI.

Smart Infrastructure Key Activities

AGENCIES

Conduct ASHRAE Level 2 Energy Audits for buildings that receive low benchmarking scores

Implement cost-effective portfolios of energy consumption measures identified by energy audits

NYPA

Test and deploy "virtual auditing" solutions at multiple State facilities

Identify and initiate three tranches of high-impact projects

Smart Operations

Strengthen the Operations and Maintenance of State Buildings

STRATEGY: Enhance Statewide awareness and practice of energy-related operations and maintenance in Agency facilities. Energy-efficient O&M routines will become fundamental to Agency performance management and goals. Combined with the implementation of metering and information technology solutions, O&M will become a rewarding cost-recovery enterprise.

Retrocommissioning

One key component of Smart Operations is retrocommissioning (RCx), a process that aims to restore building systems and operational parameters to design settings, or settings optimal for buildings' current needs, while incorporating changes in operational parameters. Due to the cost-effectiveness and quick paybacks of RCx measures, they can be very effective tools to help Agencies reach their energy savings goals under EO 88.

Operations and Maintenance

Operations and maintenance activities are also at the core of Smart Operations. Broadly, they include decisions and actions regarding the control and upkeep of property and equipment. O&M initiatives are generally far more cost-effective than capital upgrades, in some cases providing the same energy savings at costs twenty times less than capital upgrades.[2]

Continuous Commissioning

Continuous Commissioning (CCx) is an ongoing energy analysis and review process that resolves operating problems, improves tenant comfort, optimizes energy use, and identifies retrofit opportunities. Because few Agencies currently implement CCx programs, this initiative has major potential for energy savings. CCx can also ensure that State Agencies *maintain* energy savings, either from operational or capital improvements, which is required to achieve compliance with EO 88.

Smart Operations Key Activities

AGENCIES

Develop comprehensive O&M plans

Implement Computerized Maintenance Management Systems to manage the scheduling and tracking of energy-related maintenance

Implement building monitoring and control systems capable of receiving real-time energy usage data from smart meters

Conduct retrocommissioning studies at the three-quarters of buildings not subject to the EO 88 energy auditing requirement

NYPA

Commence comprehensive training programs for Agency facility and energy managers across a broad range of topics and tailored for varying levels of experience and expertise

Issue RCx guidelines, including suggested best practices and implementation tactics

PROGRESS

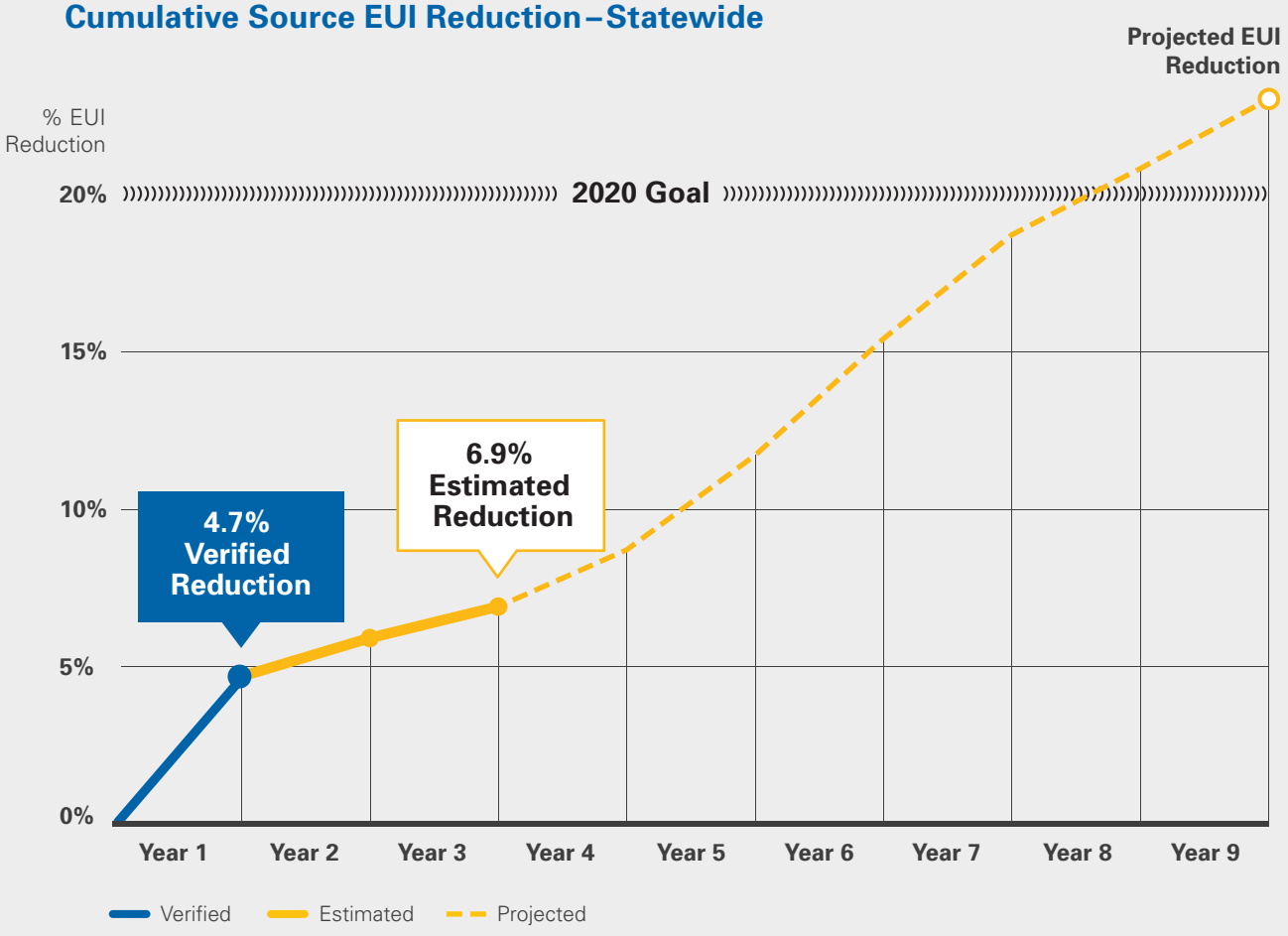
Verified Source EUI Changes

Progress toward EO 88 targets is measured through utility consumption data. At this point, the BuildSmart NY team has such data for State fiscal year 2011–12 (Year 1) – the year following the Baseline Year – that covers roughly 85 percent of State facilities' energy consumption. Based on that information, **the State's source EUI decreased during Year 1 by 4.7 percent.**

Estimated Source EUI Changes

In addition to the first year of utility consumption data, Agencies have submitted information on in-progress and anticipated projects for the two additional years leading up to this report (Years 2 and 3). While not yet actual EUI improvements, this information can be used as an indication of how Agencies are progressing. These estimates indicate that the State implemented projects that could result in an additional 1.1 percent reduction of its Baseline source EUI in Year 2, and an additional 1.0 percent reduction in Year 3. When these estimates are added to the verified savings from Year 1, **the BuildSmart NY team estimates that the State may have already achieved a 6.9 percent reduction in its source EUI.**

Cumulative Source EUI Reduction – Statewide



BuildSmartNY

Background

This section provides general information on the creation of BuildSmart NY and Executive Order 88, and lays out the primary goals and challenges of the program.

Energy Efficiency in NY State Buildings

The State of New York has been working to improve energy efficiency in State government buildings for more than two decades. Executive Order 132, issued in 1990, and Executive Order 111, issued in 2001, directed all State agencies and authorities to reduce their energy consumption. While these prior efforts expanded energy-related investments in State facilities with some success, the stakes are far greater today, given the challenges of global warming, rising energy costs, and the exploding use of information technology and other "plug loads." Responding to these challenges, Governor Cuomo broadened and intensified the State's commitment to leading technologies and practices that will advance energy efficiency in State buildings. Governor Cuomo recognized that aggressively advancing energy efficiency will upgrade public infrastructure, reduce environmental impact, and reduce government utility expenses. This work will in turn energize the clean energy marketplace by increasing related economic activity around the State and serving as a platform for large, highly visible, transformational projects.

Establishment of BuildSmart NY

In 2011, the Governor's Office formed a working group to develop a strategy to accelerate energy efficiency projects in the facilities of New York State Agencies. The working group examined the prior efforts and explored reforms to current policies that incorporated best practices and lessons learned from other jurisdictions. This working group – with support from NYPA, NYSERDA, and key stakeholders from State Agencies and the private sector – originated the initiative now known as BuildSmart NY.

NYPA commissioned a study in late 2011 to estimate the maximum achievable potential for energy efficiency in State facilities. The study examined New York State government's annual expenditure of $500 million on energy, and estimated that the State could avoid approximately $100 million per year, or 20 percent of current spending, by improving the efficiency of State facilities. In addition, the analysis projected that full implementation of the identified energy efficiency opportunities would generate 6,400 jobs and reduce lifecycle carbon dioxide emissions by 8.1 million metric tons – roughly equivalent to removing 1.6 million passenger vehicles from the road for one year.

Executive Order 88

With this extraordinary opportunity evaluated, the Governor incorporated BuildSmart NY into State operations with the issuance of Executive Order 88 on December 28, 2012. The Executive Order mandates a 20 percent improvement in the energy efficiency performance of State government buildings by April of 2020. The Order established State fiscal year 2010–11 (Baseline Year or Baseline) as the starting point against which the 20 percent reduction would be computed, and source Energy Use Intensity as the primary metric for measuring building energy performance and monitoring progress toward the reduction mandate.

In addition to the 20 percent target, the Order sets minimum requirements for annual benchmarking, energy audits, submetering of master-metered campuses, implementation of cost-effective projects, the incorporation of energy efficiency in the capital budgeting process, and reporting.

BuildSmart NY Goals

While EO 88 focuses Agencies on improving energy performance, this objective is a means to accomplishing broader State policy goals, including:

Fostering cost-effective investments, enhancing building operations and maintenance, and reducing utility expenses

Supporting economic growth by creating green jobs and stimulating the marketplace for clean energy and energy efficiency products and services

Protecting the environment and public health by reducing the emissions of greenhouse gases and other pollutants

Advancing energy security and resiliency by making State facilities more self-reliant and helping them serve as potential places of refuge to New Yorkers in the event of major storms, power losses, or other emergencies

Challenges

BuildSmart NY is an ambitious and wide-ranging initiative that brings with it substantial challenges. In fact, each affected State Agency faces its own distinctive hurdles to fostering energy efficiency on a large scale. Furthermore, complicated projects each have their own implementation obstacles and setbacks.

While on the surface BuildSmart NY is a set of energy engineering projects, in reality it is a complex management exercise. Some of the more prominent challenges include:

- Diverse organizational cultures and decision-making structures in Agencies' facility management and utility cost control groups
- Limited staff bandwidth and personnel resources, and competing facility management priorities
- Widely varying levels of skill and expertise among facility managers
- Wide range of building control systems and data management tools – or lack thereof
- Institutional hurdles to procuring energy- and facility-related services
- Underdeveloped understanding of available service types, business models, skills, and resource levels in the contracted energy services market
- Competing priorities and limited Agency capital budgets
- Difficulty and expense of achieving incremental energy savings in Agencies and facilities in which "low-hanging fruit" has already been picked

Executive Order 88

DIRECTING STATE AGENCIES AND AUTHORITIES TO IMPROVE THE ENERGY EFFICIENCY OF STATE BUILDINGS

WHEREAS, New York is dedicated to the mutually compatible goals of environmental protection, energy security, and economic growth; and

WHEREAS, increasing energy efficiency has been identified as among the most cost-effective methods for reducing greenhouse gas and other environmental pollutant emissions and increasing energy security; and

WHEREAS, increasing energy efficiency can lead to increased jobs and a reduction in building operating expenses; and

WHEREAS, New York is committed to implementing new policies to promote the efficient use of energy and natural resources in the interest of the long-term protection and enhancement of the State's environment, economy and public health;

NOW, THEREFORE, I, Andrew M. Cuomo, Governor of the State of New York, by virtue of the authority vested in me by the Constitution and the Laws of the State of New York, do hereby order as follows:

I. DEFINITIONS

For the purposes of this Executive Order, the following terms are defined as follows:

A. "Affected State Entities" means (i) all agencies and departments over which the Governor has Executive Authority, and (ii) all public-benefit corporations, public authorities and commissions, for which the Governor appoints the Chair, the Chief Executive, or the majority of Board Members, except for the Port Authority of New York and New Jersey.

B. "Average Source Energy Use Intensity" or "average EUI" means the average source energy use per square foot for all state-owned and managed buildings.

C. "Source energy" means all the energy used in delivering energy to a site, including power generation, transmission and distribution losses.

II. ENERGY REDUCTION TARGET

By April 1, 2020, all Affected State Entities shall collectively reduce the average EUI in State-owned and managed buildings by at least 20% from a baseline of the average EUI of such buildings for State fiscal year 2010/2011 ("Target").

III. OBLIGATIONS TO MEET TARGET

A. Central Management and Implementation Team

The New York Power Authority ("NYPA") shall establish a central management and implementation team ("CMIT") to administer this Executive Order.

(1) The CMIT is hereby directed and authorized to:

(a) Take all appropriate measures to ensure that the Target is met;

(b) Direct Affected State Entities to comply with the requirements of this Executive Order;

(c) Create guidelines ("Guidelines") within nine months of the issuance of this Executive Order to assist Affected State Entities in complying with this Executive Order, and thereafter update such Guidelines as necessary;

(d) Provide strategic, technical, and other assistance to each Affected State Entity to support implementation of this Executive Order;

(e) Develop annual milestones for achieving the Target over the next seven years within 12 months of the issuance of this Executive Order;

(f) Develop and implement reporting requirements to document each Affected State Entity's progress toward meeting the Target;

(g) Develop a comprehensive operations and maintenance plan for the State's building portfolio to help achieve no cost and low cost efficiency improvements and ensure that efficiency savings are sustained; and

(h) Submit an annual report to the Governor by January 15th of each year, beginning in 2014, detailing the overall progress Affected State Entities are making toward meeting the Target. Requirements for the annual report shall be contained in the Guidelines.

(2) The Office of General Services and the New York State Energy Research and Development Authority are hereby directed to provide technical assistance to the CMIT and each of the Affected State Entities with respect to complying with and implementing the requirements of this Executive Order and those established by the CMIT pursuant to this Executive Order.

B. Affected State Entities

In addition to the requirements established above, each of the Affected State Entities shall comply with the following:

(1) *Benchmarking*. For each State fiscal year, each Affected State Entity shall measure the energy use in State-owned and managed buildings having an area greater than 20,000 square feet. Buildings on master-metered campuses shall be benchmarked at the campus level until they are sub-metered at the building level, after which point those buildings shall be benchmarked at the building level.

(2) *Audits*. Buildings that receive low benchmark scores, as defined by the Guidelines, shall undergo an American Society of Heating, Refrigeration, and Air-Conditioning Engineers ("ASHRAE") Level II energy audit, or any other comparable audit that the CMIT approves. Campuses that have above-average EUIs or poor benchmark scores, as defined by the Guidelines, or are otherwise prioritized by the Affected State Entities and the CMIT, shall undergo a campus-wide ASHRAE Level II energy audit or any other comparable audit approved by the CMIT. In addition to energy efficiency measures, the audits shall identify opportunities for cost-effective on-site renewable generation and high-efficiency combined heat and power.

(3) *Required Capital Projects and Energy Optimization Measures*. Affected State Entities shall implement a cost-effective portfolio of measures identified and recommended in the audit and shall complete or make substantial progress toward completion of such

measures within two years of completion of the audit. A portfolio may include, but shall not be limited to, no- and low-cost operational improvements, retrocommissioning, capital energy efficiency retrofits, on-site renewable and high-efficiency combined heat and power, and other measures identified by the CMIT.

(4) *Submetering.* Affected State Entities shall work with the CMIT to prioritize sub-metering for all relevant energy sources of buildings larger than 100,000 square feet on a master-metered campus to identify ways to finance such sub-metering. All buildings having an area larger than 100,000 square feet on master-metered campuses shall be sub-metered for all fuels and other energy sources by December 31, 2016, to enable individual building benchmarking, unless the Affected State Agency that owns or operates the building can demonstrate to the CMIT that it is not cost-effective or feasible to do so.

(5) *Incorporating Energy Efficiency Analysis in the Capital Planning Process.* As part of the capital planning process, all Affected State Entities shall include an energy efficiency analysis in the design phase of all capital project plans. The capital project should include energy efficient measures or technologies determined to be the most cost-effective, as defined by the Guidelines.

(6) *Credits.* Affected State Entities may receive credit towards the Target for increasing energy efficiency in leased space. In addition, Affected State Entities may receive credit towards meeting the Target for installing on-site renewable generation if the host site for such renewable generation has deployed all cost-effective energy efficiency improvements consistent with the goals of this Executive Order. Affected State Entities shall consult with and apply to the CMIT concerning such credits.

(7) *Reporting.* No later than October 1st of each calendar year, each Affected State Entity shall submit all information requested by the CMIT on all State-owned and managed buildings having an area over 20,000 square feet, as well as any other information related to assessing compliance with this Executive Order.

C. Exemptions

Electric usage attributable to vehicle charging shall not be included in the Target and requirements of this Executive Order. The CMIT is authorized to provide other exemptions for good cause shown pursuant to criteria and procedures established in the Guidelines, including exceptions associated with buildings that have obtained and maintained ENERGY STAR or similar certification, or have benchmark scores placing such buildings in the top quartile of comparable buildings for the particular year at issue. Affected State Entities shall submit requests for annual exemptions to the CMIT. Any such request for exemptions and resulting determination by the CMIT shall be included in the annual report.

IV. REPEAL OF PRIOR EXECUTIVE ORDERS

Executive Order No. 111, promulgated on June 10, 2001, is hereby revoked and superseded by this Executive Order as of the date hereof.

GIVEN under my hand and the Privy Seal of the State in the City of Albany this twenty-eighth day of December in the year two thousand twelve.

The Honorable Andrew M. Cuomo

Governor of the State of New York

BuildSmartNY

Launch

This section depicts the approach applied during 2013 to launch BuildSmart NY and initiate the implementation of Executive Order 88, and describes the activities performed and deliverables produced to establish BuildSmart NY and set up program operations at NYPA.

BuildSmart NY was formally launched in 2013 with the creation of critical governance structures and the completion of early-stage deliverables. This launch included the accomplishment of key activities by both NYPA and the Agencies, and set the stage for program implementation in 2014 and beyond.

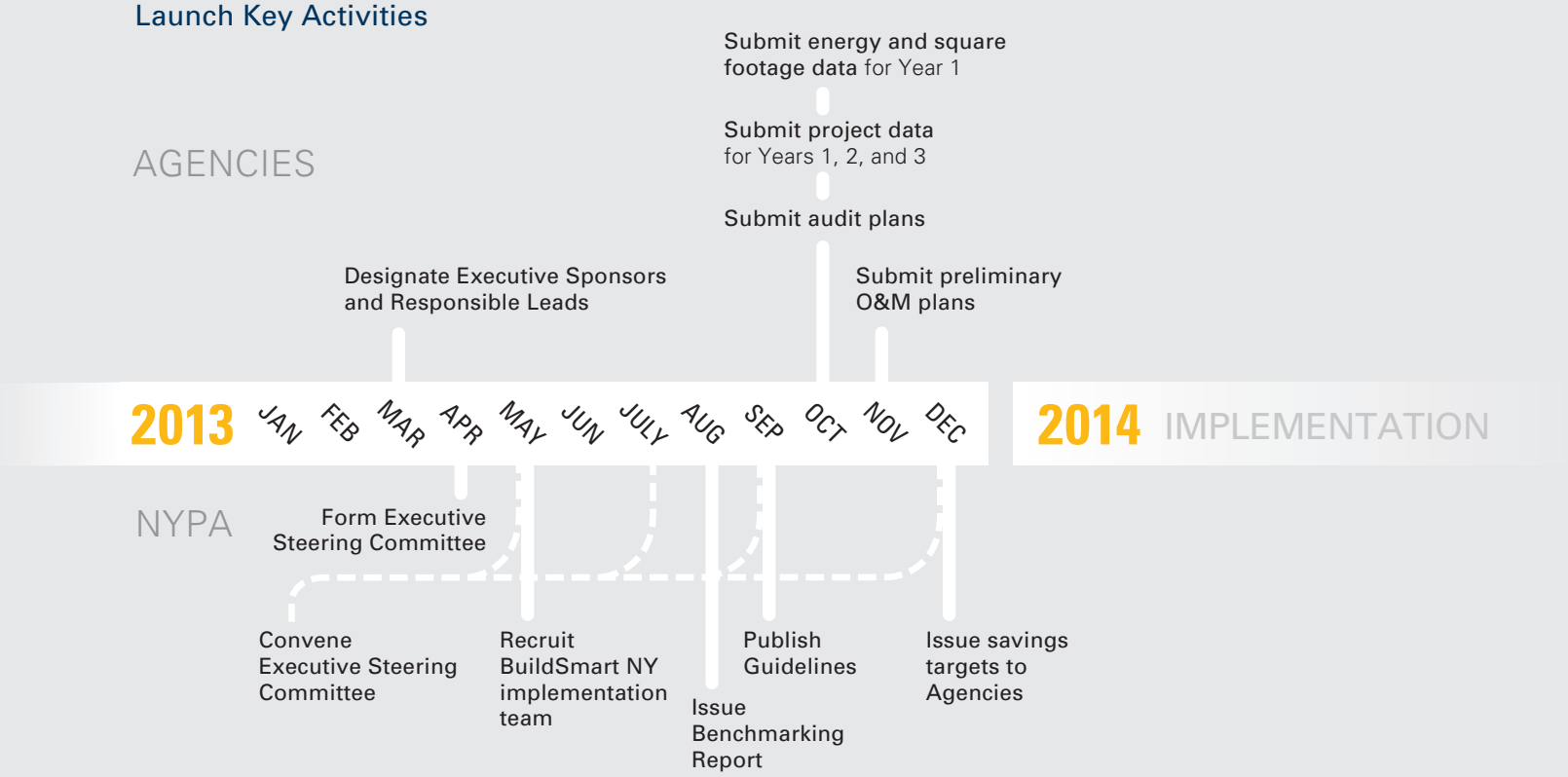
GOVERNANCE

NYPA's Role as Coordinator

Executive Order 88 designates NYPA to coordinate compliance with the Order's mandates and to drive the State to the 20 percent improvement target. NYPA, the largest state public power organization in the nation, has a long history of supporting the advancement of energy efficiency in governmental facilities. The Executive Order explicitly directs NYPA to establish a Central Management and Implementation Team (CMIT) to administer the operations of the program. Through this CMIT, NYPA is responsible for a number of tasks, including:

- Setting guidelines for compliance
- Developing annual milestones to achieve the 20 percent target
- Engaging stakeholders to refine policy
- Assessing and mitigating risk
- Providing strategic and technical assistance and oversight
- Reporting progress to the Governor's Office and the public

Launch Key Activities



Ultimately, the CMIT (hereafter referred to as the BuildSmart NY team) will serve as both the primary "scorekeeper" for EO 88 and as a resource to share, advance, and showcase a common set of practices, principles, and methods for achieving energy savings.

Affected State Agencies

According to Executive Order 88, "Affected State Entities" (herein referred to broadly as Agencies) subject to the Order's requirements are: "(i) all State agencies and departments over which the Governor has Executive Authority, and (ii) all public-benefit corporations, public authorities and commissions, for which the Governor appoints the Chair, the Chief Executive, or the majority of Board Members, except for the Port Authority of New York and New Jersey." A current working list of Agencies can be found in the Appendices. As government organization evolves over time, the inventory of Agencies which are subject to EO 88 may change, and the BuildSmart NY team will review the list at regular intervals to ensure compliance across State government.

Notably, more than 90 percent of New York State government buildings, associated square footage, and energy consumption are in facilities owned or managed by six State Agencies. A number of smaller State Agencies subject to EO 88 occupy buildings that are either owned or operated by the Office of General Services, which is responsible for their related energy consumption.

The following chart provides a brief summary of the largest six Agencies, detailing their strengths, challenges, opportunities, and risks as they pertain to EO 88 compliance.

Agency	Profile
State University of New York (SUNY)	SUNY is the largest comprehensive university system in the country, educating nearly 463,000 students in more than 7,500 degree and certificate programs, and more than 1.8 million New York State citizens in professional development and personal enrichment programs, on 64 campuses.
Department of Corrections and Community Supervision (DOCCS)	DOCCS is responsible for the confinement and habilitation of individuals under custody and parolees supervised through seven regional offices. DOCCS provides treatment and supportive services to facilitate successful completion of offenders' sentences. DOCCS had more than 60,000 inmates in the Baseline Year.
City University of New York (CUNY)	CUNY provides high-quality, accessible education through an integrated system of senior and community colleges, graduate and professional schools, research centers, institutes, and consortia. CUNY had a total full-time equivalent student enrollment of more than 125,000 in the Baseline Year.
Metropolitan Transportation Authority (MTA)	MTA is North America's largest transportation network, serving a population of 15.1 million people in the 5,000-square-mile area fanning out from New York City through Long Island, southeastern New York State, and Connecticut. MTA subways, buses, and railroads provide more than 2.6 billion trips each year to New Yorkers, the equivalent of roughly one in every three users of mass transit in the United States and two-thirds of the nation's rail riders.
Office of General Services (OGS)	OGS manages and leases real property, designs and builds facilities, contracts for goods, services, and technology, and delivers a wide array of support services. OGS provides government and nonprofit agencies with innovative solutions, integrated service, and best value, in support of cost-effective operations and responsible public stewardship. OGS has approximately 1,600 employees.
Office of Mental Health (OMH)	OMH operates psychiatric centers across New York State, and regulates, certifies, and oversees more than 4,500 programs operated by local governments and nonprofit agencies. These include various inpatient, outpatient, emergency, community support, residential, and family care programs. OMH services 700,000 individuals annually.

	Baseline Year Statistics	Strengths and Opportunites	Challenges and Risks
SUNY	33 EO 88-covered campuses 85,178,159 square feet (42% of total BuildSmart NY square footage) Total consumption of 20.3 million MMBtu (39% of total BuildSmart NY energy usage), with 58% electric and 42% heating	A strong commitment to energy management through its Energy-Smart New York initiative, which seeks to reduce system-wide energy consumption by 30% by 2020 High-performing campuses can provide strong examples for other campuses with less developed energy management programs	Decentralized structure can make implementation harder A large number of campuses are currently master-metered There is a concern within SUNY that new buildings are being built to be more energy-intensive due to increasing amenities and the demands of high-tech research facilities
DOCCS	71 EO 88-covered campuses 37,942,942 square feet (19% of total BuildSmart NY square footage) Total consumption of 9.2 million MMBtu (18% of total BuildSmart NY energy usage) with 40% electric and 60% heating	Recent large-scale energy efficiency investments provide a replicable model to expand within DOCCS's portfolio DOCCS's highly centralized top-down structure can make implementing energy efficiency initiatives easier Solid backbone of operations and maintenance procedures	A large number of master-metered facilities Project costs can be higher due to high-security environment
CUNY	14 EO 88-covered campuses 19,652,505 square feet (10% of total BuildSmart NY square footage) Total consumption of 5.4 million MMBtu (11% of total BuildSmart NY energy usage) with 73% electric and 27% heating	A strong, centralized energy management office that provides strategic oversight for CUNY-wide investments Has demonstrated a fully developed set of energy programs due to NYC Local Law 84, NYC Local Law 87, and the NYC Mayor's 30% by 2017 challenge Long run hours of facilities make investments in energy efficiency more cost-effective	Decentralized structure can make implementation harder A large number of master-metered campuses Operations and maintenance are not energy-focused at present Newly built facilities could be more energy-intensive due to increasing number of laboratories and research facilities
MTA	50 EO 88-covered facilities 10,636,646 square feet (5% of total BuildSmart NY square footage) Total consumption of 4.2 million MMBtu (8% of total BuildSmart NY energy usage) with 68% electric and 32% heating	Gains in energy efficiency can be made through advanced metering and operations and maintenance activities Existing energy efficiency project pipeline is robust	Most MTA facilities are industrial in nature, utilizing heavy-duty equipment, and operate around the clock, all year; consequently, they consume more energy than, and have EUIs not comparable to, more conventional facilities Most MTA facilities house "process" equipment used to maintain and repair buses and trains; such "process load" is generally not part of energy efficiency projects due to the specialized nature of the equipment but can contribute significantly to EUI
OGS	21 EO 88-covered facilities 19,231,422 square feet (9% of total BuildSmart NY square footage) Total consumption of 4.7 million MMBtu (9% of total BuildSmart NY energy usage) with 59% electric and 41% heating	A strong track record of energy management throughout its building portfolio Existing submetering and real-time energy monitoring system provide accurate and detailed energy data Has a dedicated utility operations team focused on energy performance and targeted development of projects	OGS manages and operates both its own facilities and those of other State Agencies, leading to a lack of clarity and accountability for energy use at certain facilities, and a potential "split-incentive" dilemma The two largest OGS facilities are master-metered, and have a wide variety of activities occurring within them OGS has had to reduce its energy management staffing levels, limiting the effectiveness of the policies and systems already in place
OMH	25 EO 88-covered campuses 15,423,054 square feet (8% of total BuildSmart NY square footage) Total consumption of 3.7 million MMBtu (7% of total BuildSmart NY energy usage) with 58% electric and 42% heating	A strong track record of energy management throughout its building portfolio Has demonstrated creative methods to finance large-scale energy efficiency upgrades	A robust energy monitoring and continuous commissioning program is already in place, making additional gains from such activities harder to attain As old facilities are closed, OMH's operations are consolidated into fewer facilities that become more energy-intensive due to the increase in activity

Agency Designees

The Governor's Office has required that all Agencies officially designate two key roles for their implementation of EO 88:

- **Executive Sponsors** who must be direct reports to their Agency heads, and who will be accountable for compliance with EO 88
- **Responsible Leads** who will serve as day-to-day contacts for EO 88 and be the central points of contact to the BuildSmart NY team

Executive Sponsors and Responsible Leads for each Agency can be found in the Appendices.

Executive Steering Committee

To ensure accountability at the highest levels, an Executive Steering Committee was established in April 2013. The Executive Committee is chaired by the NYPA President and CEO, and includes key policy and operations personnel from the Governor's Office. The balance of the Committee is comprised of direct reports to State Agency heads, such as Vice Chancellors and Deputy Commissioners (the current membership of the Committee can be found on the inside cover of this report). The Committee provides general oversight, addresses risks and emerging issues, and advises on implementation strategy. The Executive Committee was convened four times in 2013: in May, July, September, and December.

2013 DELIVERABLES

Initial Benchmarking

Benchmarking is the process of comparing the energy performance of a building, campus, or Agency with its energy baseline, or comparing that energy performance with the energy performance of similar types of buildings, campuses, or Agencies. Benchmarking can be used to compare performance over time, within and between peer groups, or to document top performers. Executive Order 88 requires each Agency to transmit square footage and energy data on a State fiscal year basis on October 1 of each year. This enables NYPA to benchmark the Statewide portfolio annually.

In August 2013, NYPA published the *BuildSmart NY Baseline Energy Performance of New York State Government Buildings* (the August 2013 Benchmarking Report). The report represents New York State's first effort to benchmark the energy use of State government buildings. A team comprising representatives from the Governor's Office, NYPA, and NYSERDA collected building characteristics and energy consumption data from 24 State Agencies representing more than 16,000 buildings and more than 200 million square feet of real estate.

Key findings of the Benchmarking Report, and subsequent benchmarking efforts, include:

Portfolio Agency Imbalance

More than 90 percent of the State's square footage and energy consumption is associated with six large New York State government Agencies: SUNY, DOCCS, CUNY, MTA, OGS, and OMH. The resources committed and the initiatives implemented at these key State Agencies will therefore be critical to the overall achievement of Executive Order 88 goals.

Master-Metered Campuses

Currently available technology allows facilities with modest degrees of metering tremendous opportunities to capture and observe their energy use "real-time" (at 15- or 60-minute intervals, or, at worst, previous day data). Commendably, most of OGS's and a handful of SUNY's facilities have such technology, and this is evidenced in their energy management capability. Additionally, NYPA's central office in White Plains recently activated this sort of monitoring software platform, which has been successfully used in thousands of government facilities around the country.

The State's overall portfolio, however, is largely comprised of large, master-metered campuses. This means that groups of buildings are all served by the same utility meter, and in most cases the only data available is monthly billing data, which may only be available weeks after the energy has been used. Of the 376 facilities that appear in the August 2013 Benchmarking Report, only 157 – with a total of 19 million square feet – were individually metered. In other words, more than 90% of the facility square footage benchmarked was on master-metered campuses.

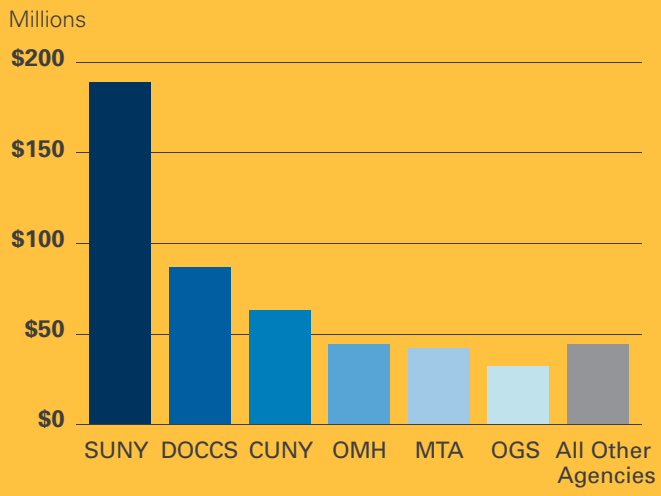
Further analysis of the data demonstrated that individually metered buildings are substantially more efficient than master-metered campuses and have lower energy costs. This underscores the criticality of EO 88's submetering requirement, which will enable building mangers to have more precise data about building performance, thereby improving their ability to improve or maintain the efficiency of those buildings.

Portfolio Facility Imbalance

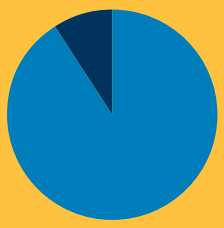
Just as the August 2013 Benchmarking Report revealed that only a few Agencies account for the vast majority of the State's energy use, it also revealed that a small number of State facilities (including some master-metered campuses) represent a disproportionate amount of total consumption.

Just 19 State facilities – five percent of the total number in the Baseline Year – represent more than 40 percent of the portfolio's total energy use; just 38 facilities (10 percent) represent nearly 60 percent of the energy use; and just 75 facilities (20 percent) represent more than 75 percent of the energy use. On the other end, the smallest 50 percent of facilities make up barely more than four percent of the State's energy use. The

Energy Spending by State Agencies
(Baseline Year)

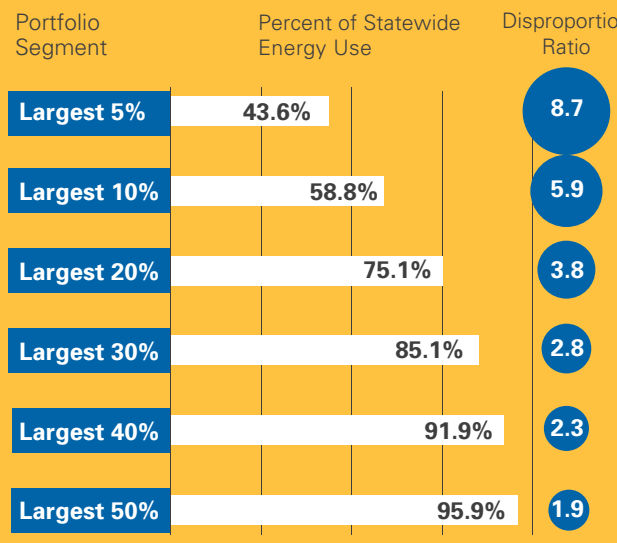


Master-Metered Campuses



91% of the facility square footage benchmarked was on master-metered campuses.

Facility Consumption Imbalance



BuildSmart NY portfolio is far from equally balanced, and it is imperative that programmatic efforts reflect that imbalance. In other words, resources and effort need to go toward the buildings that will truly make a difference in attaining the 20 percent EO 88 target.

Guidelines

As required by Executive Order 88, the BuildSmart NY team created Guidelines that were finalized and issued in September of 2013. (The full text of the Guidelines can be found at www.nypa.gov/BuildSmartNY/Guidelines.pdf.)

The requirements, deadlines, and engineering standards contained in the Guidelines serve as the administrative and procedural backbone of EO 88. The Guidelines:

- Elaborate on the requirements established in the Executive Order
- Create roles and responsibilities for the State's stakeholders and participants
- Detail the policies and protocols for EO 88 implementation
- Define how progress toward the Executive Order's target will be gauged

The Guidelines were largely structured to mirror the provisions of the Executive Order itself. With a few exceptions, the Guidelines are divided into sequential sections that reflect the timeline of the Executive Order and the required energy-related activities. The Guidelines addresss the following elements:

Reporting – Establishes quarterly and annual reporting requirements for State Agencies, and defines the reporting schedule; identifies which buildings are considered to be "covered" under the Executive Order.

Benchmarking – Describes the benchmarking process for covered buildings and how benchmarking results influence actionable requirements.

Energy Audits – Establishes ASHRAE Level 2 as the energy auditing standard; requires the lowest-performing quartile, based on benchmarking, to undergo energy audits.

Capital Project Implementation – Institutes lifecycle cost as the required analysis method for energy efficiency projects; defines cost-effectiveness; requires cost-effective projects to be implemented within two years of their identification.

Retrocommissioning – Requires all covered buildings not subject to energy audits to be retrocommissioned at least once before 2020.

Operations and Maintenance (O&M) – Provides recommended and required O&M actions for State Agencies, including the creation of comprehensive O&M plans and the implementation of Computerized Maintenance Management Systems.

Submetering – Requires facilities with over 100,000 gross square feet of floor area that are located on master-metered campuses to be submetered; provides recommendations for submeter equipment specification.

The development of the Guidelines was a highly interactive process. More than 50 senior managers, energy managers, facility administrators, and building engineers from a dozen State Agencies worked with the BuildSmart NY team throughout the summer of 2013 to provide input on the Guidelines. Functional working groups and steering committees will convene regularly to assess the progress of EO 88 and discuss whether the Guidelines need to be modified to advance the State toward the larger goals of BuildSmart NY.

Initial Agency Reporting

Executive Order 88 requires that by October 1 of each year, Agencies submit building and energy data to enable the BuildSmart NY team to track progress toward energy reduction targets. Annual reporting, however, is not limited to raw data sets. NYPA requested the completion of three additional items from each Agency:

1. **Annual Report Narrative** – Describes the current status of, and plans for, energy auditing, project implementation, and building operations and maintenance protocols.
2. **Project Tracker** – Captures information on all major energy efficiency projects, planned or underway, that will contribute to reaching energy reduction targets. The BuildSmart NY team examined this information to better understand current Agency efforts and forecast Agency and Statewide progress toward the reduction goal.
3. **Auditing and Retrocommissioning Plan** – Provides a schedule and strategy for meeting EO 88 auditing and retrocommissioning requirements within the timeframes allotted by the Guidelines.

All Agencies which needed to report did so in 2013, resulting in 100 percent compliance with the requirement.

Operations and Maintenance Planning

Facility operations and maintenance (O&M) practices are vital to each Agency's overall plan to meet the energy reduction targets of EO 88. Proactive facility management helps reduce energy consumption, avoid utility costs, protect capital investments in equipment, and avert unnecessary service interruptions and the costs of associated equipment failures.

Fostering and sustaining an organizational commitment to O&M best practices for building operators is extremely difficult. Successful O&M plans require both high-level commitment from facility managers and buy-in from building maintenance staff. Many State Agencies have diverse and decentralized building portfolios, which makes implementing Agency-wide O&M plans a particularly demanding task.

With the unique challenges of each Agency only partially understood and the EO 88 requirement of developing a statewide O&M plan needing to be met, the BuildSmart NY team collaborated with several key Agencies and facilitated self-assessments of their O&M procedures. Through meetings, staff interviews, and procedure reviews, the team evaluated strengths, weakness, opportunities, and risks for Agencies with regard to O&M. The results were helpful in informing the next steps in planning and action.

Agencies subject to EO 88 submitted Preliminary Operations and Maintenance Plans on November 1, 2013. Each Plan included the respective Agency's:

- Long-Term Vision for Operations and Maintenance
- Challenges and Opportunities
- Short-Term Immediate Actions
- Priorities for Change to Move toward Long-Term Vision

The underlying aim of these Plans was to facilitate more rigorous thinking at an enterprise level about how to transform O&M into a vehicle for energy savings. The Short-Term Immediate Actions represented an effort to advance "early wins." The BuildSmart NY team is leveraging the material found in these Plans to provide technical assistance and feedback to Agencies. As a follow-up, the team is requiring each Agency to provide a more detailed O&M action plan in 2014.

Targets

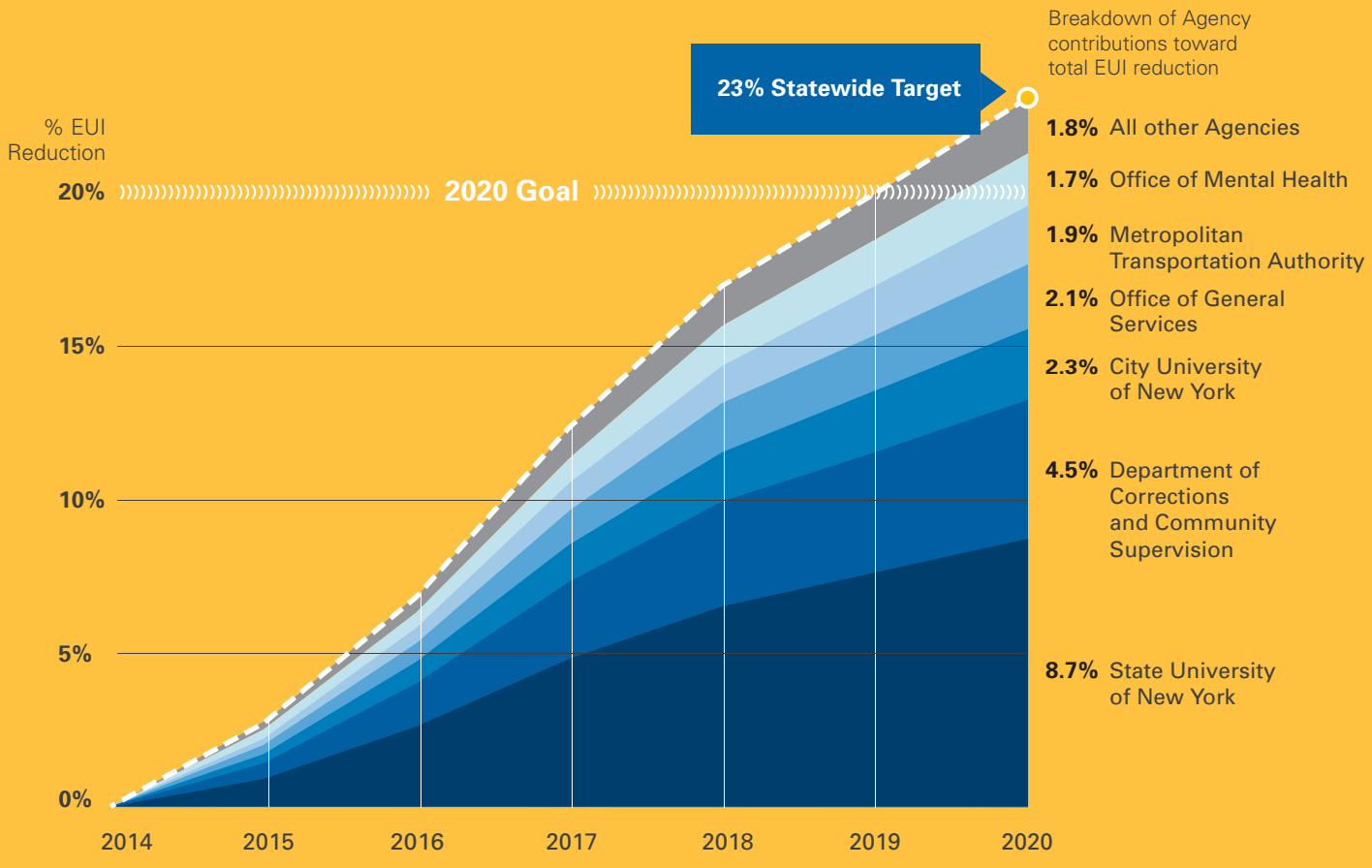
In December of 2013, the BuildSmart NY team established and issued individual source EUI reduction targets for each of the State Agencies. As required by the Executive Order, targets were issued to Agencies as both cumulative numbers to be reached at the end of the program in April 2020 and as annual numbers for the years leading up to that end date.

For the purpose of setting targets, the team assumed that each Agency's source EUI was the same as it was in the Baseline Year. In reality, progress was made during the three Years since the Baseline (chronicled in the Progress section of this Report), but the annual targets issued in December of 2013 are forward-looking and therefore begin with Year 4 (State fiscal year 2014–15).

Collectively, these individual Agency targets amount to a weighted average target for the State of 23 percent. This is higher than the Governor's goal of 20 percent due to contingency built into each Agency's individual target and a portfolio-wide risk adjustment (please see Appendix C for details), both of which are intended to ensure that the State reaches the Governor's goal of 20 percent in April of 2020.

All Agency targets are subject to change, and will be reviewed at least annually by the BuildSmart NY team. The team is currently in discussion with a number of Agencies regarding the targets listed on the following page, and it is possible that next year's Report will feature revisions based on new information.

Target Source EUI Reduction – Statewide



These targets do not include progress to date; please see the Progress section for further information.

Cumulative Agency Targets

Agency	Year 4 Target	Year 5 Target	Year 6 Target	Year 7 Target	Year 8 Target	Year 9 and Total Target
City University of New York	3.3%	6.6%	11.0%	15.4%	18.7%	**22.0%**
Metropolitan Transportation Authority	2.4%	6.6%	10.8%	15.0%	19.3%	**23.5%**
New York State Department of Corrections and Community Supervision	2.5%	7.5%	13.8%	18.8%	21.9%	**25.0%**
New York State Office of General Services	3.5%	6.9%	11.5%	17.3%	20.1%	**23.0%**
New York State Office of Mental Health	3.6%	7.2%	12.0%	18.0%	21.0%	**24.0%**
State University of New York	2.2%	6.6%	12.1%	16.5%	19.3%	**22.0%**
Adirondack Park Agency	1.9%	5.7%	10.5%	14.3%	16.6%	**19.0%**
Dormitory Authority of the State of New York	2.0%	6.0%	11.0%	15.0%	17.5%	**20.0%**
New York Convention Center Operating Corporation	2.2%	6.6%	12.1%	16.5%	19.3%	**22.0%**
New York Power Authority	2.3%	6.9%	12.7%	17.3%	20.1%	**23.0%**
New York State Department of Agriculture and Markets	2.2%	6.6%	12.1%	16.5%	19.3%	**22.0%**
New York State Department of Environmental Conservation	1.9%	5.7%	10.5%	14.3%	16.6%	**19.0%**
New York State Department of Health	2.3%	6.9%	12.7%	17.3%	20.1%	**23.0%**
New York State Department of Transportation	2.1%	6.3%	11.6%	15.8%	18.4%	**21.0%**
New York State Division of Military and Naval Affairs	2.1%	6.3%	11.6%	15.8%	18.4%	**21.0%**
New York State Division of State Police	2.1%	6.3%	11.6%	15.8%	18.4%	**21.0%**
New York State Energy Research and Development Authority	2.0%	6.0%	11.0%	15.0%	17.5%	**20.0%**
New York State Insurance Fund	2.2%	6.6%	12.1%	16.5%	19.3%	**22.0%**
New York State Office for People with Developmental Disabilities	2.4%	7.2%	13.2%	18.0%	21.0%	**24.0%**
New York State Office of Alcoholism and Substance Abuse Services	2.2%	6.6%	12.1%	16.5%	19.3%	**22.0%**
New York State Office of Children and Family Services	2.3%	6.9%	12.7%	17.3%	20.1%	**23.0%**
New York State Office of Parks, Recreation and Historic Preservation	2.1%	6.3%	11.6%	15.8%	18.4%	**21.0%**
New York Olympic Regional Development Authority	2.2%	6.6%	12.1%	16.5%	19.3%	**22.0%**
New York State Thruway Authority and Canal Corporation	2.3%	6.9%	12.7%	17.3%	20.1%	**23.0%**
Niagara Frontier Transportation Authority	2.3%	6.8%	12.4%	16.9%	19.7%	**22.5%**
Roosevelt Island Operating Corporation of the State of New York	2.2%	6.6%	12.1%	16.5%	19.3%	**22.0%**
State Total	2.6%	6.9%	12.2%	16.9%	19.9%	**23.0%**

BuildSmartNY

Implementation

This section lays out the four primary implementation strategies that will help the State achieve the Governor's 20 percent target, and outlines the key activities that the Agencies and NYPA will need to perform in the coming years to be successful. It also describes the tools that make up the strategies, and features notable projects and initiatives already underway.

There is no singular solution to improving energy performance. BuildSmart NY is a challenging and complex enterprise, and many diverse strategies must be employed in order to achieve energy savings. The following sections lay out the **four primary strategies** that NYPA believes will play key roles in achieving the Governor's goal of 20 percent source EUI reduction.

Smart Analytics: Innovate With Building Intelligence and Big Data

Recent, rapid advances in technology have created favorable conditions for State government facilities to be converted into "smart buildings." There has been progress in two key areas. First, the market for smart meter integration, direct digital building controls, and building management systems is fully developed and competitively priced. Second, web-based energy information systems and analytics tools that tie into the wide variety of building devices and sensor points are powerful and widely available.

Working together, the State will drive the installation of smart meters and the adoption of energy information systems and analytics tools. These activities will help Agencies understand – and, more importantly, manage – their energy use in ways never before possible.

Smart Government: Transform State Government into an Enhanced Resource for Agencies

There are tremendous opportunities to streamline State government administrative processes and remove barriers to action, and by doing so the State can more easily share resources, leverage the power of the private market, and ease the path to smart energy choices. There are two primary areas of opportunity:

- Active coordination between NYPA and DOB has identified process efficiencies that will help the State meet its fiscal challenges while supporting the Agencies.
- In recent years, NYPA, NYSERDA, DASNY, and OGS have developed valuable funding and financing programs, technical assistance, and contractor resources. These services need to be better aligned to be complementary and to optimize value for the Agencies they support.

The BuildSmart NY team will work with stakeholders throughout State government to better incorporate energy efficiency into the State Capital Budget Program, more clearly delineate roles and responsibilities among entities supporting energy projects, and provide resources that fill crucial gaps in the energy service landscape.

Smart Infrastructure: Transform State Facilities by Implementing Energy-Saving Capital Projects and Leveraging the Marketplace

Energy-efficient building upgrades can offer appealing financing opportunities on the basis of returns through utility cost savings. In addition to traditional investments in retrofits of heating and cooling systems, lighting, and building shells, new energy systems can yield cost-effective energy performance results. On-site renewable energy and combined heat and power equipment, for instance, also offer sound returns under the proper field conditions and economic circumstances. All of these types of projects offer compelling, cost-effective ways in which to contribute to the BuildSmart NY 20 percent by 2020 goal. Capital initiatives that penetrate the State's largest facilities and/or span the State's vast building portfolio can be transformational for New York.

In addition, while legacy energy efficiency implementation methods have proven to be effective, the BuildSmart NY team will work with stakeholders to identify a wider variety of funding instruments, contracting vehicles, and service delivery models to meet the Governor's mandate. This includes enhanced interaction between State Agencies and the private market, through outreach to market partners and the subsequent crafting of service offerings relevant to EO 88.

The BuildSmart NY team will systematically grow a robust portfolio of high-value building retrofit projects and pursue large, transformational investments in major facilities and buildings. While doing so, the State will better utilize and stimulate the clean energy industry by scaling up a wider variety of financing instruments, procurement vehicles, and implementation methods.

Smart Operations: Strengthen the Operations and Maintenance of State Buildings

There are promising opportunities to improve the State's approach to building operations and maintenance from an energy efficiency point of view, saving energy and money on a large-scale basis with limited or no capital investment. Furthermore, strengthened O&M in State buildings will ensure that the value inherent in major energy efficiency building retrofits and related capital projects is obtained and sustained over time. Much of the improvements in O&M will occur through:

- Commitment from Agency management and renewed attention from current personnel
- Value-added outsourced services that create net savings and augment current staffing levels
- New and expanded standard operating procedures at Agencies, such as equipment scheduling, temperature set-point standardization, and regular tune-ups and service on high-impact chillers and boilers
- A Statewide, multi-Agency BuildSmart NY training initiative that covers leading practices in energy management and includes targeted instruction on widely used equipment

The BuildSmart NY team will enhance Statewide awareness and practice of energy-related operations and maintenance. Through renewed focus, new service contracts, training, improved procedures, and performance management, energy efficiency will become fundamental to Agency routines, and O&M will become a rewarding cost-recovery enterprise.

BuildSmartNY STRATEGIC APPROACH

Smart Analytics

Smart Government

Smart Infrastructure

Smart Operations

- BENCHMARKING
- REPORTING
- DATA MANAGEMENT
- SOCIAL MEDIA
- SUBMETERING
- BUDGETING
- COORDINATED SUPPORT SERVICES
- PROCUREMENT AND CONTRACTING
- PERFORMANCE MANAGEMENT
- ENERGY AUDITS
- RETROFITS AND REPLACEMENTS
- NEW CONSTRUCTION
- DISTRIBUTED GENERATION
- OPERATIONS AND MAINTENANCE
- RETROCOMMISSIONING
- CONTINUOUS COMMISSIONING

The BuildSmart NY strategic approach was developed explicitly to help the State and its Agencies achieve the following key policy goals:

20% Statewide EUI Reduction

Improved Energy Performance at State Facilities

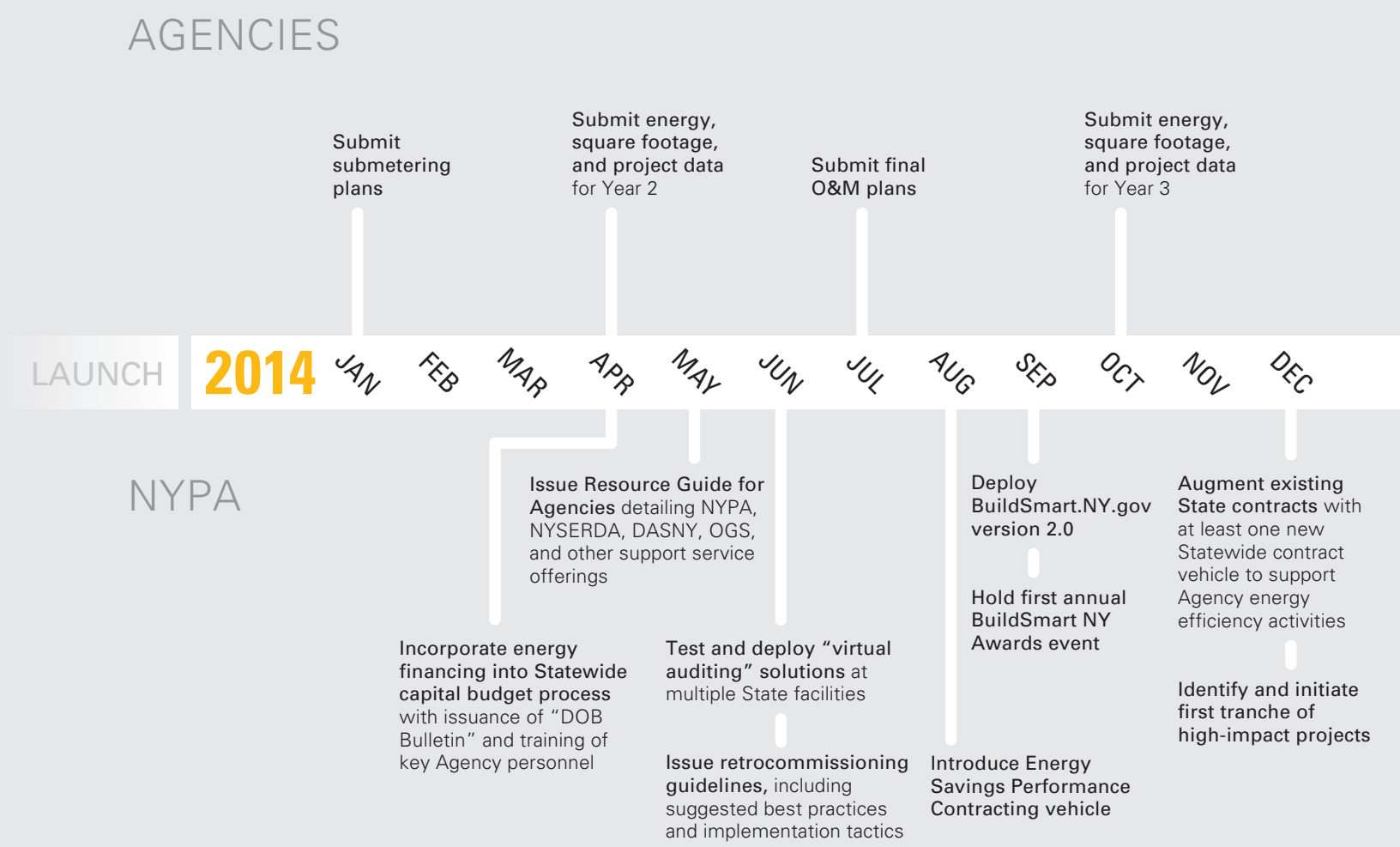
Economic Growth

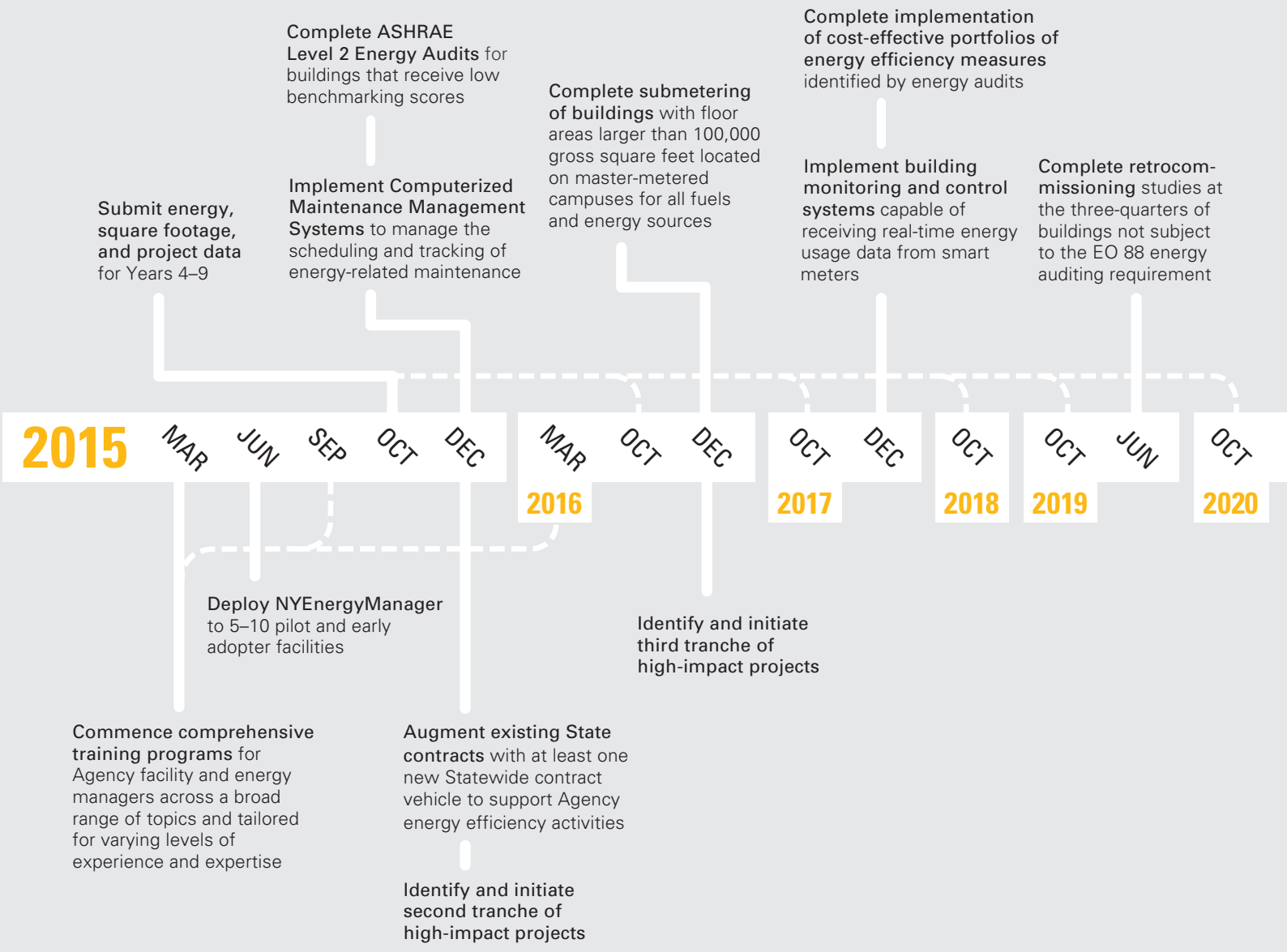
Increased Energy Security and Resiliency

Increased Environmental and Public Health

IMPLEMENTATION KEY ACTIVITIES TIMELINE

The four primary strategies provide a high-level framework for accomplishing the goals of BuildSmart NY. Ultimately, however, it is the specific actions that the Agencies, NYPA, other State service providers, and the private market take that will determine whether the State reaches the Governor's 20 percent mandate. The following timeline depicts the key activities that the Agencies and NYPA will execute as part of implementing BuildSmart NY and building off of the Launch phase.




Complete ASHRAE Level 2 Energy Audits for buildings that receive low benchmarking scores
Implement Computerized Maintenance Management Systems to manage the scheduling and tracking of energy-related maintenance
Complete submetering of buildings with floor areas larger than 100,000 gross square feet located on master-metered campuses for all fuels and energy sources
Complete implementation of cost-effective portfolios of energy efficiency measures identified by energy audits
Implement building monitoring and control systems capable of receiving real-time energy usage data from smart meters
Complete retrocommissioning studies at the three-quarters of buildings not subject to the EO 88 energy auditing requirement
Submit energy, square footage, and project data for Years 4–9
2015
MAR
JUN
SEP
OCT
DEC
MAR
OCT
DEC
2016
OCT
DEC
2017
OCT
2018
OCT
JUN
2019
OCT
2020
Deploy NYEnergyManager to 5–10 pilot and early adopter facilities
Identify and initiate third tranche of high-impact projects
Commence comprehensive training programs for Agency facility and energy managers across a broad range of topics and tailored for varying levels of experience and expertise
Augment existing State contracts with at least one new Statewide contract vehicle to support Agency energy efficiency activities
Identify and initiate second tranche of high-impact projects

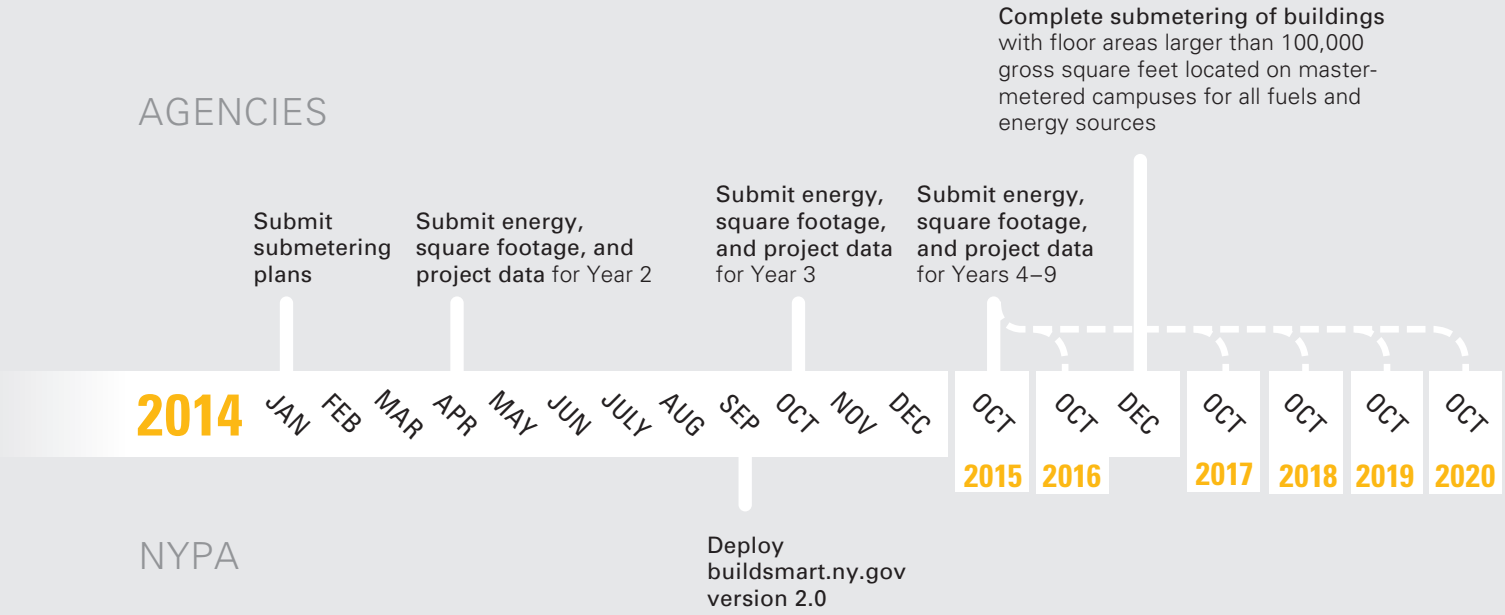
Smart Analytics

BENCHMARKING | REPORTING | DATA MANAGEMENT | SOCIAL MEDIA | SUBMETERING

Smart energy choices require quality, up-to-date, and precise information. Opportunities abound to modernize the State's energy data-gathering and analysis capabilities, as well as the associated IT infrastructure and software. Improvements in these areas will provide managers at State Agencies and facilities with the information and insight they need to prudently upgrade energy systems and operate them more intelligently. Equipped with advanced metering, building controls, IT infrastructure, and software, the State can capitalize on the benefits of continuous monitoring and innovative analytics to optimize its building systems and get the most value out of its investments.

Smart Analytics will allow State energy and facility managers to prioritize among system upgrades competing for scant resources. It will allow them to focus on the true problem areas and garner the largest source energy reductions for each dollar invested in advanced energy systems. Smart Analytics will also provide the feedback necessary to transform State operations and maintenance from occasional, reactive responses to a continuous, proactive process. Energy and facility managers will have true transparency into how their actions affect the State's energy consumption, and the tools necessary to improve that impact.

Smart Analytics Key Activities



BENCHMARKING

Benchmarking is an effective tool for accurately assessing facilities' energy performance, and is a key part of the Smart Analytics strategy. Energy performance benchmarking broadly consists of comparing facilities' energy use to established standards or metrics, usually based on how similar facilities consume energy. The benchmarking process is traditionally repeated over time to illustrate progress (or lack thereof) toward greater energy efficiency.

There are two primary approaches to benchmarking: (1) comparing facilities' energy performance to similar facilities; and (2) comparing facilities to their own performance. Smart Analytics utilizes both types of benchmarking for EO 88-covered facilities, by assessing Agency energy performance against their peers, both within and outside the State, and charting progress against historic energy usage levels.

Benchmarking began under EO 88 with the creation and issuance of the *BuildSmart NY Baseline Energy Performance of New York State Government Buildings,* which was released in August of 2013. Benchmarking was also used in the development of the EO 88 energy savings targets (see Appendix C for more information) that have been assigned to each State Agency. The BuildSmart NY team will continue to benchmark all covered facilities on at least an annual basis, utilizing NYPA's NYEnergyManager and other existing benchmarking programs, such as the U.S. Environmental Protection Agency's Portfolio Manager. Furthermore, benchmarking will drive a number of other project-related initiatives, including energy auditing, retrocommissioning, and targeted project development. This synergistic interaction between the Smart Analytics, Smart Infrastructure, and Smart Operations strategies will serve to reduce energy use throughout the State in a cost-effective manner.

Ongoing Support

The BuildSmart NY team will perform additional benchmarking as subsequent years of data become available.

REPORTING

Smart Analytics requires quality data, and that starts with the Agencies themselves. Agencies are required to submit, each October 1, accurate and complete utility data for all fuels, and revisions to facility square footage. This information, once checked for anomalies and adjusted for weather variability, serves as the basis for determining the updated source EUI of each Agency and tracking progress toward their targets.

The BuildSmart NY team recognizes the importance of accurate and timely energy data, and the current difficulties faced by Agencies in accessing and reporting this information. To overcome these obstacles, the team will work closely with Agencies, and provide resources when possible, to improve energy data management and create a consistent, Statewide energy data set.

Due to varying levels of data management capabilities among the Agencies, The BuildSmart NY team has instituted a gradual, staged schedule for bringing their energy data up-to-date. With the Agencies' submissions on October 1, 2014, the State's energy data will be up-to-date for the most recently completed State fiscal year at that point in time. Each subsequent October, the Agencies will provide data for the State fiscal year that ended six months prior.

It should be noted that as the Agencies move toward continuous energy management (see section on Continuous Commissioning below), the State's energy data will move closer and closer to "real-time." It is the team's goal that, going forward, the six-month lag between the end of each State fiscal year and the reporting of that year's data will begin to diminish, and, hopefully, disappear entirely.

The push toward more continuous energy management also goes hand-in-hand with the submetering provision of the Executive Order (see below). By the end of 2016, Agencies are required to have facilities larger than 100,000 square feet submetered for all fuels, which should increase the detail, precision, and overall quality of the State's energy data.

Ongoing Support

The BuildSmart NY team will advise on data management best practices and facilitate information-sharing between Agencies.

DATA MANAGEMENT

A wide range of software tools are available that can aid Agencies in their efforts to manage energy data and identify opportunities to improve energy use. In fact, many Agencies are already developing and utilizing such systems to great effect, including SUNY's central energy management system, OGS's Web-Enabled Advanced Metering (WEAM) systems, and the Office of Children and Family Services's Facility Reporting for Energy Efficiency (FREE) platform. As more Agencies adopt software systems and platforms, the State's ability to manage its energy data will increase exponentially, and the BuildSmart NY team is dedicated to helping the Agencies do so as part of the Smart Analytics strategy.

One example of this Smart Analytics approach is NYPA's NYEnergyManager. In an effort to provide expanded, more powerful, and closer to real-time services to its customers, NYPA is providing an online platform that will serve as a virtual hub for continuous monitoring, analysis, forecasting, and management of facility energy supply, consumption, and costs. NYEnergyManager will help participating Agencies reduce energy use and expenses by identifying operations and maintenance improvements and cost-effective energy efficiency measures. Similar monitoring services have been proven to reduce energy consumption by at least five percent through the identification of no-cost and low-cost measures.[3] As an ongoing resource, and a key Smart Analytics offering, NYEnergyManager will help participating Agencies achieve significant and sustained energy and cost savings.

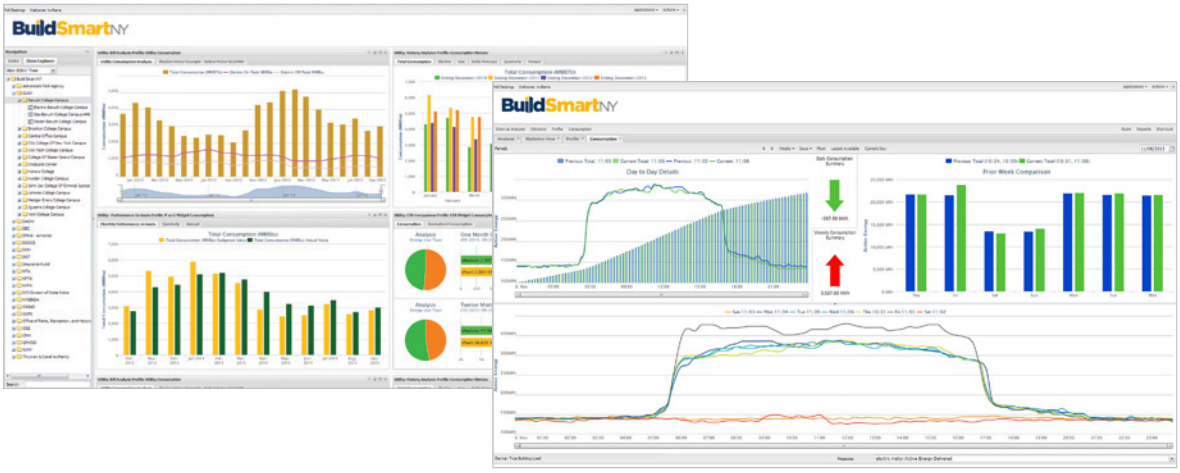
NYEnergyManager will also serve as the central data repository and management system for The BuildSmart NY team to track EO 88 data on a Statewide basis. The NYEnergyManager platform has been utilized for a number of government energy initiatives similar to BuildSmart NY – including the implementation of Executive Order 09-18 in Missouri, which has reduced that state's energy use in public buildings by more than 20 percent. It is expected that NYEnergyManager will be operational in early 2014, and that the team will be utilizing it for BuildSmart NY data management by the time of Agency data submittals in April of this year. With the State's energy data in NYEnergyManager, the team will be able to more directly impact the adoption of Smart Analytics by using NYEnergyManager to:

- Monitor Agency efforts more effectively
- Serve as a powerful lens for BuildSmart NY results
- Supply accurate and timely reporting to a wide array of key stakeholders, including the BuildSmart NY Executive Steering Committee and the Governor's Office

Ongoing Support

The team will manage and keep up-to-date the BuildSmart NY database, and provide corresponding energy analytics.

Graphic Presentations of Energy Trends



Energy management systems can display monthly, daily, hourly, and even real-time energy consumption and demand information, allowing managers to make better choices that can save significant amounts of energy and money.

SOCIAL MEDIA

Online data-sharing and social media are key tools for increasing transparency, generating awareness, and sharing information – all important goals of Smart Analytics. The BuildSmart NY website (www.buildsmart.ny.gov) was established to achieve these goals by promoting State energy efficiency efforts and facilitating interactions between Agencies and the private market. The site provides a marketplace for information on energy use, energy projects, and energy services. By educating State energy and facility managers, private market contractors and consultants as well as policy-makers, the BuildSmart NY website allows a wide array of users to leverage the power of data and social media in order to make the State's buildings more efficient – essentially, Smart Analytics in action.

Features of the site include:

- A dynamic homepage featuring the latest BuildSmart NY news
- Projects searchable by Agency, geography, technology, and contractor
- Comprehensive data, compelling case studies, and illustrative images of activities
- A New York contractor resource network and directory, and
- Social media tools

The BuildSmart NY website provides a window into program operations and results, and serves as a valuable tool for the program's diverse set of stakeholders. For example:

- Agencies can see their most recent energy savings numbers, as well as advertise their success stories in a visually-compelling way
- Policymakers have direct visibility into program results
- Contractors and consultants can see what kind of work is being done, and connect their own services where they're needed

Ongoing Support

The team will maintain and enhance the BuildSmart NY website, maximizing it as a vehicle to engage the market-place, network with EO 88 agencies, and showcase progress and projects.

Screenview of BuildSmart.NY.gov

The BuildSmart NY website provides a wide array of program stakeholders a view into projects, opportunities, and progress.

SUBMETERING

Submetering is the installation of meters for individual energy sources at discrete levels – by building, by floor, or by any other desired subsection of a facility. For BuildSmart NY Agencies, submeters will provide energy usage data at the building level, allowing facility managers and decision-makers to analyze designated buildings or areas on an individual basis. This will help them identify energy efficiency measures that would have been difficult – if not impossible – to discern when looking at broader energy data. So while submetering itself does not save energy, it is an important element of BuildSmart NY and Smart Analytics because it provides the backbone for better data and decision-making, and is therefore a catalyst for energy efficiency.

Submetering is particularly important for the BuildSmart NY portfolio because, as previously noted, more than 90 percent of data for facility square footage is currently on the master-metered level. The lack of building-level metering in large State campus facilities is a major obstacle, but implementing submetering will provide facility operators with access to an abundance of new energy-saving opportunities. When coupled with a web-based interface, submetered buildings rapidly reveal the inefficiencies that are driving wasted energy use. Meter data will also point out where managers should direct staff and service contractors to tune and repair equipment.

Submetering can also open the door to more advanced analytics that rely on 15-minute utility interval data, such as those provided by NYPA's NYEnergyManager (described on page 36). The general upgrade in meters within State facilities will vastly increase the number and diversity of options that Agencies can deploy to take advantage of breakthrough data analytics tools, which improve by the year. Additionally, the submetering of facilities means that reporting of energy usage data will be more accurate and nuanced, leading to better informed stakeholders throughout the State and the increased ability for The BuildSmart NY team to aid in subsequent energy efficiency efforts.

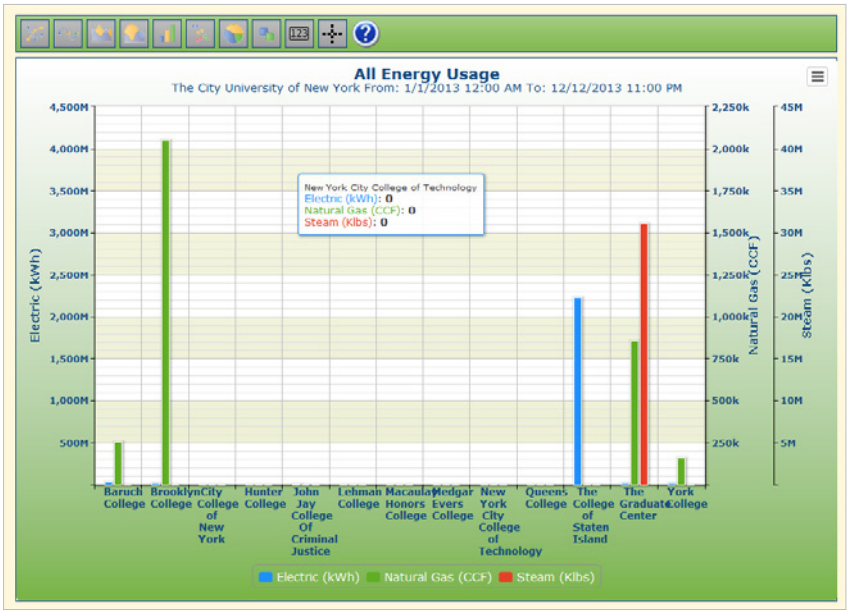
Ongoing Support

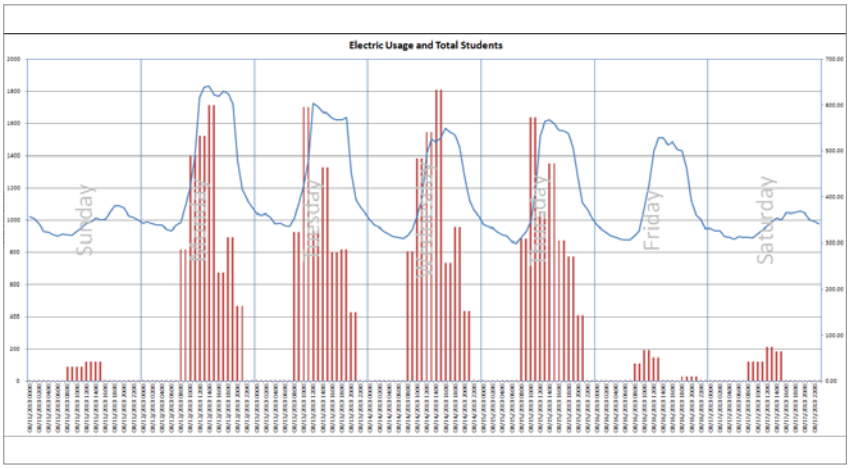
The team will work with government service providers, investor-owned utilities, and the private market to develop submetering offerings, resources, and incentives.

SUNY New Paltz Submeters to Improve Data Management

Cost: $2 million

In 2013, SUNY New Paltz completed a campus-wide submetering project for electricity, domestic water, high-temperature hot water, and natural gas. All buildings on campus larger than 2,000 square feet are now submetered for electricity, and all buildings larger than 5,000 square feet are submetered for domestic water. In addition, all non-residential buildings connected to the campus high-temperature hot water system are metered. Residence halls are being submetered for high-temperature hot water as they are renovated and constructed. More than half the buildings are currently metered for natural gas. Metering data is sent to a centralized building management system for monitoring and analysis. Facilities Management and the Office of Campus Sustainability work collaboratively to analyze the data. Lessons learned and opportunities for reduction in energy and water use are shared with maintenance and operations staff, design and construction staff, and the general campus community.





CUNY Expands its Energy Information System

Cost: $4.5+ million

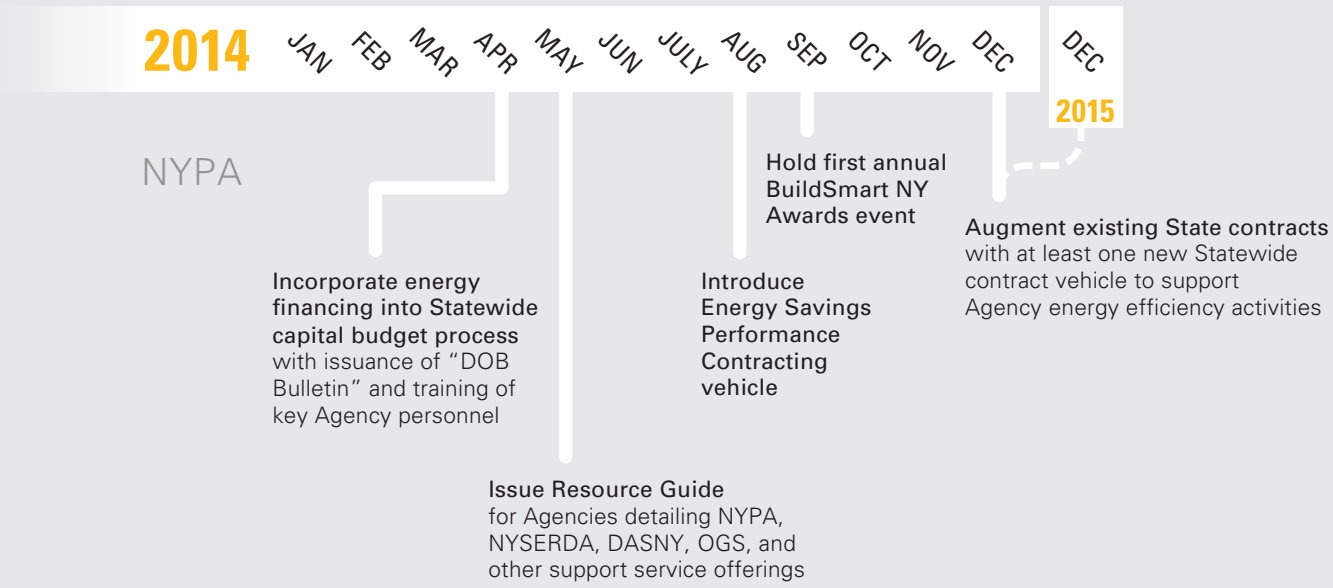
CUNY is currently implementing a submetering project through NYPA's Energy Efficiency group as part of an ongoing initiative to expand the CUNY Energy Information System (EIS). This project will submeter all fuels and other energy sources for each building on CUNY's campuses, and will fulfill the Executive Order 88 submetering requirements. The EIS is a utility metering system that measures, logs, and reports real-time energy use using a remote, web-based application for comprehensive energy analysis and reporting. Information gathered by the system is collected at CUNY's Central Office and is used to identify, implement, and confirm energy efficiency measures. Additionally, CUNY will be able to monitor and manage building energy usage more closely by comparing class scheduling and submetering data. Energy savings derived from this submetering project are estimated to be approximately two percent of each campus's overall annual energy bills.

Smart Government

BUDGETING | COORDINATED SUPPORT SERVICES | PROCUREMENT AND CONTRACTING | PERFORMANCE MANAGEMENT

The BuildSmart NY team has identified ways to streamline NY State government functions in a manner that will help to achieve BuildSmart NY goals and the EO 88-mandated target. By establishing collaborative inter-Agency initiatives and removing barriers to action, the State can ease the path for energy savings, share resources, and leverage the power of the private market. Smart Government will make easier the procurement, contracting, financing, and implementation of advanced systems, as well as the adoption, support, and funding of precision operations.

Smart Government Key Activities



BUDGETING

Historically, Agency decisions involving the DOB-administered Statewide capital budget and decisions about NYPA-financed investments in energy projects have been separate, even disjointed, management processes. Executive Order 88 calls for the integration of these two streams of infrastructure investment, and requires the inclusion of energy efficiency considerations in the development of the Statewide capital budget.

In 2013, the BuildSmart NY team formed a working group with DOB, DASNY, OGS, NYPA, SUNY, and CUNY to develop a Smart Government process for enhancing the energy efficiency components of traditional projects within the Capital Program. NYPA will direct its loan funding to Agencies, covering the marginal cost of improving the energy performance of the building being constructed or rehabilitated. The impact of this new mechanism will be substantial, leveraging the conventional capital project pipeline to add energy efficiency value. The energy savings generated by the incremental funding will, in the aggregate, be rapidly realized.

Ongoing Support

The BuildSmart NY team will work with Agencies to identify and overcome budgeting- and finance-related barriers to energy efficiency.

COORDINATED SUPPORT SERVICES

State Agencies have a number of energy efficiency support services at their disposal, and have come to rely on them, to varying degrees, for engineering services, contracting, financing, and technical assistance. For example:

- NYPA has historically provided turnkey project management (audit/design/bid/build) combined with term financing
- NYSERDA has (along with investor-owned utilities) offered financial incentives, grants, and technical assistance
- DASNY has supported and procured energy engineering, construction, and commissioning services for the Agencies it serves
- OGS has provided Agencies with access to NYPA energy audit, design, and construction services, as well as other contract vehicles (repair, service agreements, etc.)

The BuildSmart NY team is working within NYPA, and with each of these State service providers, to optimize their strengths, create synergies, and avoid overlap and unproductive competition – to ensure that, taken together, they support Smart Government and meet the needs of the Agencies subject to EO 88.

Ongoing Support

NYPA will continue to transform its energy service model into a more modular one, to allow Agencies to pick from among the services offered, and the BuildSmart NY team will work with State service providers to coordinate activities and streamline offerings.

NYPA Energy Master Plans for Albany, Buffalo, Rochester, Syracuse, and Yonkers: The team intends for the State at large – not just the BuildSmart NY Agencies – to benefit from any new or altered contracts and service vehicles. A good example of this leveraging of efforts is NYPA's current work developing comprehensive energy master plans for five of the largest cities in the State. By providing more-encompassing services to State Agencies, NYPA Energy Efficiency was also able to offer the cities of Albany, Buffalo, Rochester, Syracuse, and Yonkers crucial resources on their path to cost savings and sustainability. In turn, the State facilities in these five cities stand to benefit from the results of the master plan efforts.

PROCUREMENT AND CONTRACTING

Smart Government means matching needs with resources. And while it is beneficial that State Agencies have many options for procuring and contracting for energy services, these options vary widely in terms of ease, flexibility, and effectiveness, and the resulting choices can be confusing and even a major hindrance. Recognizing that procurement and contracting are crucial steps in improving energy performance, the BuildSmart NY team is dedicated to simplifying processes while providing Agencies with a full set of alternatives that will meet any and all needs.

One key step in this direction is the identification of energy efficiency service gaps, and the ensuing creation of standby contract vehicles that will serve as expedited ways in which to acquire services on an as-needed basis. This is particularly relevant for operations and maintenance efforts, which often require quick fixes that benefit from avoiding long and onerous procurement processes.

The BuildSmart NY team is also working with entities that provide technical and resource support for State facility energy projects, including NYPA, NYSERDA, OGS, DASNY, and the investor-owned utilities, to:

- Assess the array of complementary capabilities
- Delineate clear roles and responsibilities
- Create synergies toward the most effective actions

Ongoing Support

The BuildSmart NY team will work with Agencies to identify and overcome procurement- and contracting-related barriers to energy efficiency.

Energy Savings Performance Contracts (ESPCs) are a commonly used contracting vehicle for energy efficiency improvements. ESPCs are long-term contracts (typically 5–15 years) between building owners and energy service companies (ESCOs) for the identification, evaluation, recommendation, design, and construction of energy efficiency measures, including design-build contracts that guarantee energy savings or performance. Owners may finance parts or the entirety of their ESPCs, using the resulting energy cost savings to repay lenders. This contracting model is often most appropriate and effective for comprehensive, large-scale projects. ESCOs can provide an array of services as part of ESPCs, including:

- Conducting energy audits to identify cost-effective measures
- Identifying and developing scopes of work
- Structuring and securing financing
- Designing and engineering projects
- Developing and issuing subcontractor bids, and hiring subcontractors
- Managing all aspects of construction and commissioning, and handling equipment warranties
- Training facility managers to properly use and optimize new equipment
- Measuring and evaluating energy use to verify alignment with energy savings projections

NYPA is developing an on-call contract qualifying ESCOs to provide ESPCs for State Agencies. In addition, some investor-owned utilities in the State offer similar types of energy performance contracting referred to as Utility Energy Services Contracts. There are other variations of energy services contracts, and multiple methods can be "mixed and matched" to develop the appropriate solution for any single Agency, facility, or project.

PERFORMANCE MANAGEMENT

The metrics of energy efficiency lend themselves to performance management and the transition to Smart Government. Facilities, Agencies, and the State at large can be assessed as they progress toward the 20 percent improvement target. Through clear quantitative means, successes can be identified and recognized, just as setbacks and risks of failure can be flagged for follow-up. In addition to tracking energy use reductions, The BuildSmart NY team will employ various measures of compliance to monitor progress, such as projects in progress or completed, buildings submetered, and developments in O&M procedures. Taken together, these measures will enable stakeholders to compare Agencies to one another and examine the advancement of BuildSmart NY as a whole.

The establishment of Agency Responsible Leads and an Executive Steering Committee will aid in fostering accountability for energy decisions. Performance against EO 88 targets will be regularly conveyed to all appropriate stakeholders, ensuring that those responsible for compliance with EO 88 are well aware of their progress. Through this open channel of communication, the BuildSmart NY team hopes to achieve a cultural dedication within State Agencies to the importance of strong energy management.

Ongoing Support

The team will monitor and report the progress of Agencies' performance management efforts via a variety of quantitative and qualitative tools, including NYPA's NYEnergyManager, comprehensive Agency reports each October, and quarterly progress reports.

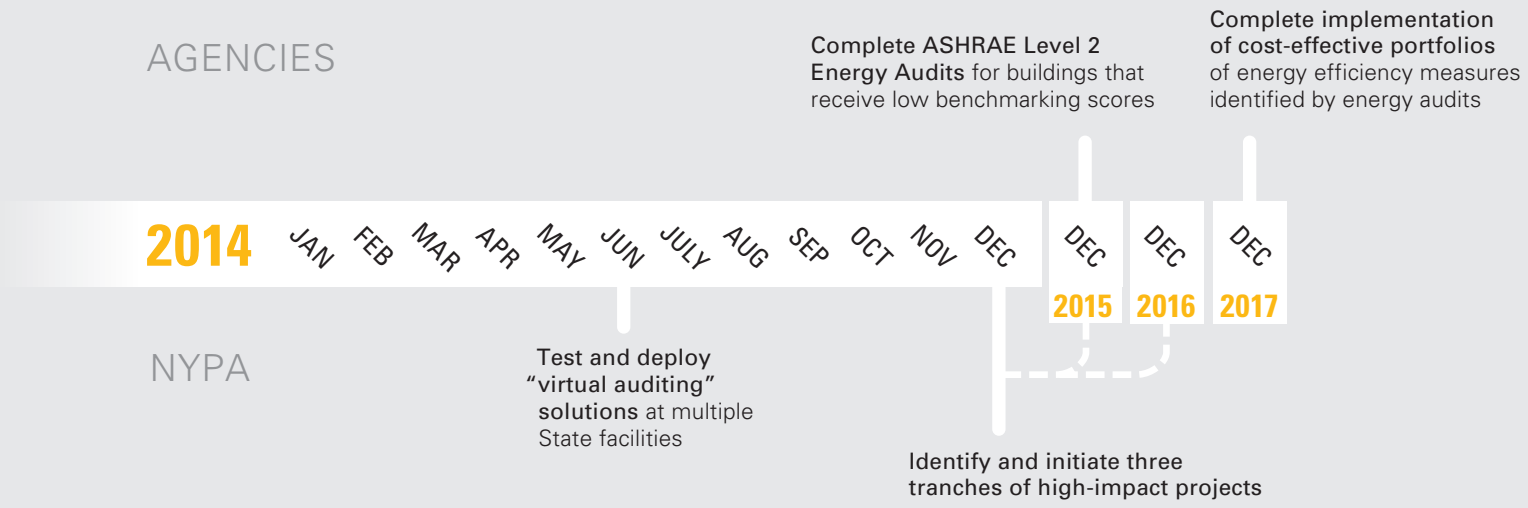
Smart Infrastructure

ENERGY AUDITS AND MASTER PLANS | RETROFITS AND REPLACEMENTS | NEW CONSTRUCTION | DISTRIBUTED GENERATION

Smart Infrastructure means making smart choices about investments in energy systems. Energy efficiency often offers opportunities to finance significant building upgrades on the basis of returns through utility cost savings. Investments in distributed energy generation (including renewable energy and combined heat and power) also offer sound returns under the proper field conditions and economic circumstances. Both types of projects offer compelling ways in which to contribute to the BuildSmart NY 20 percent by 2020 goal.

Projects that span the State's vast portfolio and those that penetrate the State's largest facilities can be transformational for New York. Many projects, however, are simply not cost-effective, and some are not as economical as others. Smart Infrastructure prioritizes the State's focus and resources, enabling intelligent decisions about energy projects and investments.

Smart Infrastructure Key Activities



ENERGY AUDITS AND MASTER PLANS

Energy audits and master plans are effective tools for identifying and prioritizing energy efficiency upgrades in buildings:

- Level 2 energy audits (as defined by the American Society of Heating, Refrigerating and Air-Conditioning Engineers, or ASHRAE) are required to meet EO 88's energy auditing requirements. ASHRAE Level 2 energy audits provide detailed analysis of energy usage, energy costs, and building characteristics, and make recommendations for energy efficiency measures that consider both the operational needs and financial constraints of the facilities and Agencies involved.
- Energy master plans consist of savings and cost analyses of all practical energy efficiency measures that meet building and campus constraints, and consider Agencies' financial requirements. Energy master plans take a holistic look at campus-wide operations, accounting for interactive effects between buildings and providing comprehensive recommendations for capital and operational improvements.

While energy audits provide detailed descriptions of how energy is used in buildings and identify energy savings opportunities, they can be both time- and resource-intensive. This is precisely why the BuildSmart NY team has instituted a highly targeted yet flexible approach to performing energy audits. For example:

- While energy audits and master plans will initially focus on low-performing buildings, Agencies may propose the substitution of other buildings if they believe greater opportunities exist at the replacement facilities or that there are other extenuating circumstances.
- The team is guiding Agencies to avoid in-depth examination if opportunities appear limited during the early phases of audits. Energy auditing can be deployed in a multi-phased manner, with broad, low-investment assessments of opportunities undertaken initially, and deeper evaluation, scoping of technical solutions, and economic feasibility analysis to follow only when authorized by decision-makers.
- The BuildSmart NY team is evaluating "virtual auditing" tools that are available to buildings that have hourly interval electric meter data. Mainstream software solution providers use the data to model trends in buildings and screen for potential energy efficiency measures. This emerging method may result in saving State government significant time and money in the identification of energy saving opportunities, particularly when coupled with submetering efforts (see page 38).

This level of flexibility will ensure that auditing resources are allocated as effectively as possible – a key goal of Smart Infrastructure and BuildSmart NY.

Ongoing Support

The BuildSmart NY team will work with NYSERDA, investor-owned utilities, and the private market to ensure that auditing resources are aligned and that Agency demand and the program's technical quality requirements are being adequately met.

DOCCS Pursues Energy Audits Across the State

DOCCS plans to perform energy master plans at its facilities in five phases. The first phase has begun at six correctional facilities in the northern region of the State. These master plans are being performed by a NYPA energy consultant, were initiated in March 2013, and are expected to be completed by the end of January 2014. Over the past 10 years, DOCCS has completed energy audits with the assistance of NYSERDA at approximately 20 facilities, and expects that many of these facilities may already be energy efficient. In these cases, DOCCS may consider retrocommissioning rather than full-scale audits of the energy systems.

CUNY Takes Stock of its Building Systems And Energy Use

CUNY has already completed energy audits at all of its facilities required to do so under EO 88. The University has completed or initiated 11 ASHRAE Level 2 Energy Audits in the past three years, and plans to audit two additional campuses during the first quarter of 2014. This level of auditing goes above and beyond the minimum requirements of EO 88, and demonstrates CUNY's strong commitment to energy efficiency.

RETROFITS AND REPLACEMENTS

The retrofitting and replacement of existing building systems with more energy efficient models is a proven strategy to reduce energy use and one of the core components of Smart Infrastructure. Building technology has become increasingly energy efficient over the past several years, as manufacturers strive to meet new efficiency standards and adapt to market conditions. Existing facility equipment can often be augmented through retrofits, or replaced completely, to boost energy efficiency and reduce operating costs. Energy efficiency measures affecting lighting systems, heating, ventilation, and air conditioning systems, boiler and steam systems, building envelopes (walls and windows), motors and drives, and other builidng components are options for retrofit or replacement.

Energy savings from retrofits and replacements tend to be persistent, since most new equipment is not easily or often removed. This can create the kind of long-term energy efficiency improvements needed for reaching EO 88 targets. However, payback periods for installing energy efficient equipment can vary greatly depending on the efficiency of existing equipment, proper installation, and adequate equipment operations. This last point is particularly important, as equipment considered energy efficient may not operate at peak efficiency if system operators are not using it correctly. That is precisely why the State's Smart Infrastructure and Smart Operations strategies need to work in concert together.

Ongoing Support

The BuildSmart NY team will accelerate the adoption of emerging energy efficiency technologies in State facilities, and demonstrate them for the broader, non-governmental market by identifying opportunities for deployment and working with Agencies to pursue them.

State Police Installs Lighting Upgrade at Carthage Barracks

Cost: $3,800 after $4,000 rebate

Estimated Facility Source EUI Impact:
8.4% reduction

Estimated Energy Savings:
320,000+ source kBtu per year

Estimated Cost Savings: $3,500+ per year

A National Grid energy audit was conducted on the Carthage State Police barracks, and a light-emitting diode (LED) lighting upgrade was recommended. The upgrade was completed and the project utilized over $4,000 of National Grid incentives.

Stony Brook University (SUNY) Finds Savings With Low-Cost Retrofit

Estimated Cost: $13,500

Estimated Energy Savings:
1.3 million source kBtu per year

Estimated Cost Savings: $13,000 per year

Not all energy efficiency upgrades are capital-intensive or involve complex equipment; many affordable, niche technologies exist that can save significant energy. For example, Stony Brook University has identified a project that will reduce the operating cost of 111 cold beverage machines using Passive Infrared Sensor technology to power down machines when their surrounding areas are vacant; monitor room temperature; automatically repower cooling systems at one- to three-hour intervals, independent of sales; and ensure that products stay cold. This initiative will have a payback of just over one year.

NEW CONSTRUCTION

New construction and major rehabilitation projects are prime opportunities to implement energy efficiency measures and shift toward Smart Infrastructure. Since Agencies will pursue new construction projects in order to better serve their core purposes, it is vital that energy efficiency be built directly into the design of new buildings. Many guidelines and standards provide specifications for the design of environmentally sustainable and energy efficient buildings, including the United States Green Building Council's LEED system, the U.S. Environmental Protection Agency's ENERGY STAR Buildings, and ASHRAE standards. In addition, New York State has an Energy Conservation Construction Code, which requires certain levels of energy efficiency performance for all new buildings.

Through their capital programs, State Agencies routinely construct new buildings and conduct end-to-end renovations of existing buildings. Historically, these projects have been developed independently from Agencies' pursuit of improved energy management. Potential energy-saving components are sometimes identified during the design of conventional capital projects, but these items are often at risk when Agencies seek to contain upfront construction costs, since energy efficiency tends to carry a price premium. However, modifications to the capital budget process (see Budgeting on page 41) will ensure that Agencies have options to finance the energy-saving portions of their capital projects. This will integrate energy efficiency into the Statewide capital program and ensure that the energy use of these new facilities will be optimized.

Even when buildings are designed efficiently, their subsequent operation often plays a major role in determining how energy efficient they actually are. This is another area where Smart Infrastructure and Smart Operations intersect. Making sure that new building systems are properly commissioned, and that those commissioning standards are maintained throughout the building's life, is vital to realizing the benefits of energy efficient design.

Ongoing Support

The BuildSmart NY team will work with DASNY, the SUNY Construction Fund, the CUNY Construction Fund, and other entities to strengthen and standardize new construction commissioning efforts at State facilities.

Agency's Taconic Region Headquarters Earns Coveted LEED Platinum Certification

The Office of Parks, Recreation, and Historic Preservation (OPRHP) recently completed construction of the first publicly owned, New York State LEED® Platinum-certified building – the highest level of certification under the U.S. Green Building Council's system. The adapted school building now serves as the OPRHP headquarters for the Taconic Region. The building's unique energy-efficient design has made it not only an office building for OPRHP, but also a "classroom" for local colleges and high schools studying LEED principles. Some of the building highlights include LED lighting, on-demand hot water tanks, and computerized heating and cooling controls. The building is estimated to use 70 percent less energy than similar buildings in the region.

OGS Demonstrates Efficiency Through ENERGY STAR

Currently, 11 of OGS's 21 facilities covered under EO 88 are ENERGY STAR-certified. ENERGY STAR is the U.S. Environmental Protection Agency's program for certifying energy-efficient buildings, and certification is only awarded to buildings that perform better than 75 percent of similar buildings nationwide. This achievement is a reflection of OGS's long-standing commitment to energy efficiency, also demonstrated in its achievement of a substantial EUI reduction under EO 111, the predecessor to EO 88.

DISTRIBUTED GENERATION

Smart Infrastructure is not only about systems that decrease energy consumption, but also about systems that generate energy more efficiently and cleanly. On-site, distributed generation of electricity, via solar photovoltaics, wind turbines, cogeneration/combined heat and power, and other systems, is becoming more common both on large campuses and for individual buildings. Reducing the consumption of grid-purchased electricity by means of distributed generation can significantly lower a building's source EUI. Due to the generation process and transmission losses, a megawatt hour of conventional grid electricity consumption is typically equivalent to more than three megawatt hours of source energy. So without any gains in building efficiency, onsite generation can create a 3-to-1 reduction in source energy.

Additionally, in the face of extreme weather events such as Superstorm Sandy, distributed generation offers increased reliability. These systems, particularly cogeneration, can provide electricity even when the grid is down; in fact, distributed generation can be utilized to create microgrids capable of disconnecting (or "islanding") from the grid entirely. Large State facilities – SUNY and CUNY campuses, for example – could thereby serve as places of refuge during cataclysmic weather events. The BuildSmart NY team will work with Agencies to strategically pursue investments in distributed generation, and take into account the non-energy benefits within the feasibility analysis.

Where energy efficiency has already been aggressively pursued, distributed generation may be the best remaining strategy for achieving source EUI reductions. For example, under EO 88's predecessor, EO 111, OGS substantially reduced its EUI. Now, OGS is targeting the development of distributed generation plants to serve its two largest campuses – Empire State Plaza and the Harriman Campus – as a way to reach its EO 88 target.

Ongoing Support

The BuildSmart NY team will work with NYSERDA and the investor-owned utilities to align distributed generation programs and promote a better understanding among Agencies and project developers of interconnection and standby tariff issues.

OMH Proposes Innovative Fuel Cell to Provide Power and Protect Research Data

Cost: $5.7 million

Estimated Facility Source EUI Impact: 15.3% reduction

Estimated Energy Savings: 121 million source kBtu per year

Estimated Cost Savings: $315,000+ per year

The New York State Psychiatric Institute (NYSPI) is one of the top psychiatric research facilities in the nation. Located in Washington Heights in northern Manhattan, it is part of a complex of facilities that is the largest employer in the neighborhood. OMH has proposed a large fuel cell project at NYSPI to reduce energy consumption and cost, reduce greenhouse gas emissions, and increase the reliability and resilience of the facility in the event of power loss, which could potentially lead to a devastating loss of information. NYSPI currently undertakes research projects valued in the tens of millions of dollars, and critical genetic and other materials must be maintained at controlled temperatures. The loss of these materials would not only result in economic damage, but might set NYSPI's medical research back a number of years. This proposed project includes the installation of a 400-kW fuel cell power plant for a combined heat and power application. In addition to the substantial economic and environmental benefits this fuel cell would provide, it would also have a significant impact on helping OMH achieve its EO 88 savings goals.

SUNY Cornell Wins EPA Award for its Combined Heat and Power Project

Cost: $82 million

Estimated Energy Savings: One billion source kBtu per year

Resulting from a rigorous energy master plan, the Cornell Combined Heat and Power Project went into construction in the Spring of 2008, and began commercial operation in December 2009. The combined heat and power installation produces roughly 75 percent of campus electricity at Cornell University in Ithaca. The project included a major renewal of the plant electrical system and includes two 1,000-kW emergency diesel generators. During its first year of operation, the efficiency of heat and power supplied to the campus increased from roughly 50 percent to roughly 80 percent. This resulted in an overall reduction in greenhouse gas emissions of around 34 percent, which equates to 85,000 tons per year, the equivalent of more than 15,000 passenger vehicles. The installation of this highly efficient project has allowed Cornell to cease the combustion of 65,000 tons of coal per year, resulting in significant environmental benefits. The U.S. Environmental Protection Agency recognized this project for outstanding pollution reduction and energy efficiency qualities by presenting Cornell University with a 2011 ENERGY STAR CHP Award.

Parks and SUNY Partner for Big Solar Win

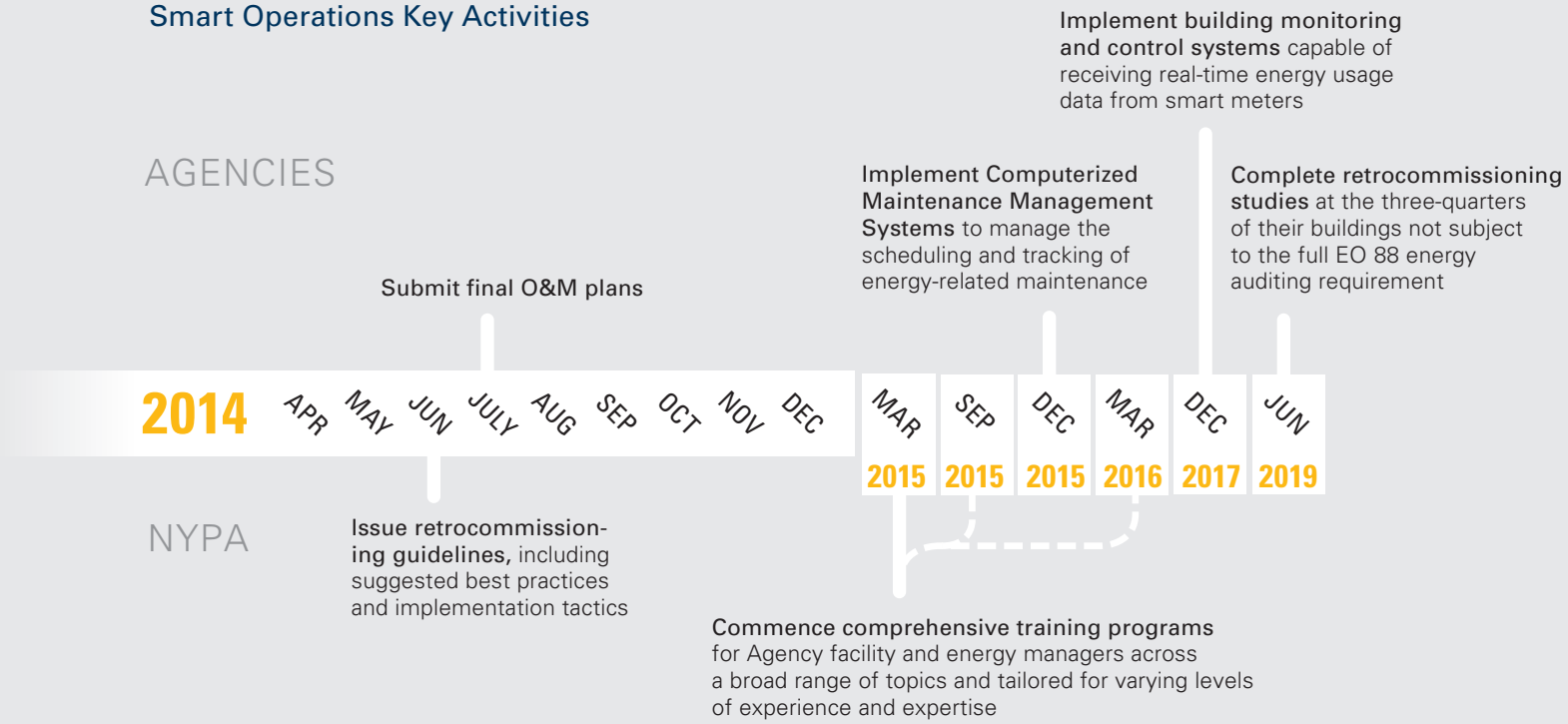
Thanks to the Office of Parks, Recreation, and Historic Preservation's (OPRHP) commitment to expanding renewable energy use across the State, solar electric generation in the State's parks has increased tenfold over the past year. OPRHP sent twenty of its electricians to receive photovoltaic systems installation training through SUNY Alfred State College's job training program, which has operated since 1996. A $2.1 million NYSERDA grant has helped expand the College's clean energy training program, further increasing the pool of trained professionals in the field. Through the Alfred State program, all twenty OPRHP trainees were provisionally certified with NYSERDA as solar installers, and have been implementing solar projects at OPRHP sites throughout the State since–they installed 50 kW of solar power in 2013 alone, with an additional 175 kW planned for 2014. Using in-house labor and taking advantage of NYSERDA rebates has allowed OPRHP to realize payback periods between five and ten years for these solar projects.

Smart Operations

RETROCOMMISSIONING | OPERATIONS AND MAINTENANCE | CONTINUOUS COMMISSIONING

Smart Operations is about reassessing how facilities are operated and maintained, and refocusing efforts to prioritize energy efficiency. Change will be fostered in each Agency's organizational culture, where equipment scheduling and utilization hours will be constantly monitored, set points will be standardized and adhered to, and regular tune-ups and service on high-impact equipment will be diligently addressed. The Smart Analytics strategy will contribute significantly to Smart Operations, with real-time data and analysis driving decision-making and validating new approaches to conservation.

Smart Operations Key Activities



RETROCOMMISSIONING

One key component of Smart Operations is retrocommissioning (RCx) – a process that aims to restore building systems and operational parameters to design settings, or settings optimal for buildings' needs, while incorporating changes in operational parameters. Since operational parameters in equipment settings naturally change over time, retrocommissioning is an effective efficiency strategy that saves energy while improving building performance. Such measures have been shown to save between five and 15 percent on building energy usage, and on average have short payback periods.[4] Thanks to the cost-effectiveness and quick paybacks of RCx measures, they can be a very effective tool in helping Agencies reach their energy savings goals under EO 88.

As State Agencies move ahead with efforts to improve O&M practices, retrocommissioning offers a platform for "zero-basing" facilities and provides roadmaps for keeping them running well. RCx's benefits include:

- Improved system operation and equipment performance
- Equipment training for building personnel, and
- Improved building documentation

Retrocommissioning measures tend to be less cost-intensive than large capital investments; however, initial RCx studies do include upfront costs. These costs can be recouped through the implementation of retrocommissioning measures, but some initial costs must be borne by State Agencies. There is also a lack of awareness about retrocommissioning, with many building operators unsure of its definition and benefits. State Agency buildings are likely candidates for RCx opportunities, since they have not been commonly implemented. Both older and newer building systems can benefit from retrocommissioning, as set point drift and suboptimal equipment settings may be present in all buildings.

Ongoing Support

The BuildSmart NY team will work with energy service providers, DASNY, OGS, NYSERDA, and the investor-owned utilities to develop new models for financing and deploying retrocommissioning and increase the availability of new and existing RCx contract vehicles.

SUNY Cortland Retrocommissions through its Green Building Collaborative

In 2007, SUNY Cortland launched a retrocommissioning project for two of its most energy-intensive buildings. Key campus stakeholders formed a committee, the "Green Building Collaborative," which focused on expanding the scope of typical RCx projects. The committee set a goal of systematically retrocommissioning two buildings every two years for the foreseeable future. Cortland began the series of building RCx in 2008, utilizing a cadre of consultants and contractors. The retrocommissioning efforts have resulted in low-capital, high-return improvements with quick paybacks ranging from two to 4.5 years. Initial project costs were born through shared funding from Campus Reserves, minor rehabilitation funding through SUNY and the State University Construction Fund, and pre-qualified incentives from National Grid and NYSERDA.

OPERATIONS AND MAINTENANCE

Operations and Maintenance (O&M) activities are also at the core of Smart Operations. Broadly, they include decisions and actions regarding the control and upkeep of property and equipment. It is critical that facility O&M practices be a major part of each Agency's overall plan to meet the savings targets of EO 88. O&M initiatives are generally far more cost-effective than capital upgrades, in some cases providing the same energy savings at costs 20 times less than capital upgrades.[2] Properly managed and closely monitored facilities reduce energy consumption, avoid unwanted utility costs, protect capital investments in equipment, and avert unnecessary service interruptions and the costs of equipment failures.

O&M includes actions focused on scheduling, procedures, and work/systems control and optimization, and performance of routine, preventive, predictive, scheduled, and unscheduled actions aimed at preventing equipment failure or decline with the goal of increasing efficiency, reliability, and safety. O&M also includes the education and training that allow facility staff to perform these activities, and the broader change management initiatives that give staff the proper structure within which to be effective. Energy efficiency-related O&M measures are generally cost-effective actions that can be performed with in-house staff (or requirements contractors) and have very short-term or immediate paybacks.

As Agencies perform retrofits and large capital projects in facilities to improve energy performance, strong O&M programs are critical to ensure the sustained benefit of these investments. Regardless of the origins of energy savings, or when they were first achieved, any gains from energy efficiency measures need to persist and be accounted for through the April 2020 target date in the Executive Order. To ensure this persistence of energy savings, dependable O&M procedures must be in place as permanent components of Agency operations. Smart Operations are vital to getting the most out of Smart Infrastructure.

That being said, O&M plans can be difficult to implement and sustain. Successful O&M plans require both a high-level commitment from facility managers and buy-in from building maintenance staff. Attaining this widespread level of acceptance can be challenging, especially when staff is accustomed to current practices. O&M plans are only as effective as the staff implementing them; without training and adequate resource levels, the best plans can be rendered ineffective. Additionally, many State Agencies have diverse and decentralized building portfolios, which makes implementing Agency-wide O&M plans a difficult task. The BuildSmart NY team will work with Agencies – providing additional resources when possible – to ensure that they are successful in making O&M a critical part of the Smart Operations strategy.

Ongoing Support

The BuildSmart NY team will recognize and celebrate successful O&M initiatives of high-performing Agencies and facilities through communications campaigns and an annual awards program.

OMH Leverages the Market to Improve its Operations

To manage energy use in its portfolio of 800 buildings across the State, OMH maintains contracts with two firms that perform energy management services at all of its facilities. These "Energy Partners" deploy field specialists who provide various forms of technical assistance that complement the work of OMH staff. Assistance provided by these Energy Partners includes equipment training, commissioning support, the development of energy efficiency projects, and the performance of payback analysis to secure project funding through OMH's energy minor rehab fund. The Energy Partners are funded through the value they create; they generate cost savings that easily outweigh their costs, making contracts revenue-positive expenditures. This model is replicable and scalable, and may be highly effective for other State Agencies.

DASNY Achieves Energy Savings Through Staff Training

In 2010, DASNY implemented a floor-by-floor approach to office cleaning in its Albany headquarters after Building Management staff realized that the eight-hour overnight cleaning process took place with all overhead lighting left on. After educating the cleaning staff about the initiative's energy-savings goal, DASNY instituted a floor-by-floor approach that requires lights to be used on only one floor at a time. While there was a need to train workers and to review the success of the initiative, there was no capital outlay involved. The new approach reduced lighting use during the cleaning shift by nearly 80 percent.

CONTINUOUS COMMISSIONING

Continuous Commissioning (CCx, also referred to as Constant Commissioning, Monitoring-Based Commissioning, and Intelligent Efficiency) is an ongoing process to resolve operating problems, improve tenant comfort, optimize energy use, and identify retrofit opportunities. As such, it can play a central role in the integration of the Smart Analytics, Smart Infrastructure, and Smart Operations strategies. Because few Agencies currently implement CCx programs, this initiative has major potential for energy savings opportunities. CCx can also ensure that State Agencies *maintain* energy savings, either from operational or capital improvements, which is a key component of compliance with EO 88.

Continuous commissioning offers all of the same benefits as RCx, but facilities are monitored on an ongoing basis, ideally with the use of energy information system tools. Real-time monitoring, combined with useful syntheses of data, rapid responses from building personnel, and improved equipment optimization, creates significant opportunities for improvements. No longer does an anomaly need to arise and slowly reveal itself to the building staff, with energy being wasted all the while. Slippage in system operations can be detected instantaneously, and building staff may learn about the risk of excessive energy use *before* problems occur. Furthermore, solutions like these educate facility managers, improve their job performance, and allow management to fully monetize their contributions to operations.

Continuous commissioning plans rely heavily on detailed energy metering data to manage building equipment. This level of metering is uncommon at most State Agency buildings, which poses a challenge to CCx activities prior to submetering. This is why Smart Analytics and Smart Operations need to occur simultaneously and in a coordinated fashion.

Buildings need to have sufficient and adequately trained staffing resources in order to properly implement CCx programs. Obtaining and maintaining this level of staffing can be a challenge for State Agencies. The BuildSmart NY team will work with Agencies to identify staffing shortfalls and provide resources, when available, to bridge the gap, including access to its new NYEnergyManager platform (see Data Management on page 36).

Ongoing Support

The BuildSmart NY team will investigate, pilot, and pursue the deployment of a variety of CCx methods, software, and analytical tools.

University at Albany (SUNY) Implements Continuous Commissioning Process

In November 2010, the University at Albany developed the "UAlbany High Performance Building Guidelines: Minimum Energy and Sustainability Goals." One requirement in these Guidelines is the continuous commissioning of new construction and gut rehab projects for a minimum of three years post-occupancy. Liberty Terrace, a new 500-bed, apartment-style housing complex, is the first of UAlbany's buildings to implement this requirement. Through DASNY, the University has retained the services of the original commissioning agent on the project. The goals of the continuous commissioning process are to:

- Optimize building energy performance
- Ensure that the building performs per design intent and owner/occupant/operator needs
- Identify and implement low- and no-cost O&M measures
- Evaluate and address indoor environmental quality and comfort issues
- Train building operators to continue commissioning practices even after the three-year period has expired

The process started in Fall 2013 at Liberty Terrace, and the University is tracking its progress during this crucial first year.

BuildSmartNY

Progress

This section examines the progress made to date by the State and individual Agencies, and highlights notable projects. First, it lays out some of the metrics that are used to track progress. Second, it looks at Statewide progress toward the 20 percent source EUI reduction, as well as key activities that will support energy savings. And third, it narrows its focus to individual Agencies, tracking progress on EUI improvements and activities undertaken, and describing noteworthy projects.

One year has elapsed since the issuance of Executive Order 88, and nearly three full State fiscal years have elapsed since the Baseline Year. Through a rigorous data reporting effort undertaken by the Agencies (described in Launch), the BuildSmart NY team now has a substantial amount of information at its disposal, and has been working to digest and interpret it.

The team is using a wide variety of metrics to track BuildSmart NY operations and results. These metrics vary from quantitative to qualitative to account for the complexity of managing change at large public Agencies, and to provide a richer picture of the situation.

Source Energy Use Intensity

Source Energy Use Intensity is Executive Order 88's primary metric for measuring energy consumption and monitoring progress toward the 20 percent reduction mandate.

- **Energy Use Intensity (EUI)** is a commonly used index which expresses a facility's energy use as a function of its size. EUI is a ratio, computed by dividing the quantity of total energy consumed (measured in thousands of British Thermal Units, or kBtu) in a facility by its total floor space (measured in square feet).
- **Source energy** accounts for all of the various fuels consumed in the power generation, transmission, and distribution of electricity; it also includes the energy losses from the storage and transportation of natural gas. As opposed to just accounting for the energy consumption measured at the site, source EUI represents a more holistic depiction of energy use in relation to a facility's dimensions.

Since source EUI is a ratio that is recalculated annually, there is a risk that an Agency could achieve its overall EO 88 savings target in a given year, and then have its source EUI increase in a subsequent year, thereby backsliding from the target level. **In order to comply with EO 88, State Agencies must achieve and maintain their savings target through 2020. If a State Agency achieves its savings target prior to 2020, it is expected that it will continue to pursue all planned energy efficiency projects and comply with other EO 88 requirements.**

Other Compliance Metrics

While achieving their respective EUI reduction targets is the primary mark of compliance for Agencies, there are a number of other activities that they need to undertake in order to be considered compliant with Executive Order 88. Therefore, NYPA will also be tracking and monitoring progress toward submetering, audits, retrocommissioning, operations and maintenance planning, and any other activities deemed integral to achieving EUI reductions and complying with the Governor's mandate.

Other Impact Metrics

In addition to monitoring source EUI changes and the activities that will help Agencies achieve those changes, NYPA is tracking the broader impact of BuildSmart NY activities, including cost savings and greenhouse gas emissions reductions.

Alternative Metrics

In addition to source EUI, the BuildSmart NY team will track and consider other metrics to assess the State's progress toward EO 88 goals. For example, Agencies engaged in higher education may choose to monitor kBtu per student enrolled. These alternative metrics will be Agency-specific, and will be created and reported by the Agency; the team will review requests for alternative metric use but will not create the metrics. These alternative performance indicators will serve as supplemental, stand-alone measurements of energy and operational performance, and will not affect the calculation of source EUI.

Organizational Capacity

It is important to remember that not all progress can be quantified. There are many things that the New York State Agencies can and should do that are hard to quantify, but that create the favorable circumstances in which energy savings can occur. Essentially, each Agency needs to focus on improving its organizational capacity for energy management. The BuildSmart NY team will monitor, assess, and report on Agencies' organizational capacities through the duration of the program, helping them benchmark their efforts and identify additional needs.

STATEWIDE PROGRESS

Verified Source EUI Changes

Progress toward EO 88 targets is measured through utility consumption data, rather than engineering calculations. This is done for two primary reasons: First, utility consumption data better encapsulates savings from non-traditional energy efficiency efforts such as operations and maintenance improvements, which are difficult to project and quantify beforehand. And second, engineering calculations often vary from actual results, since the latter are influenced by operating conditions, late-stage design changes, and other factors.

At this point, utility consumption data is available for most Agencies for State fiscal year 2011–12 (Year 1), the year immediately following the Baseline Year. By the time of the next BuildSmart NY Progress Report in January 2015, it is expected that utility consumption data through Year 4 will be available, bringing verified EUI improvement information much more up-to-date.

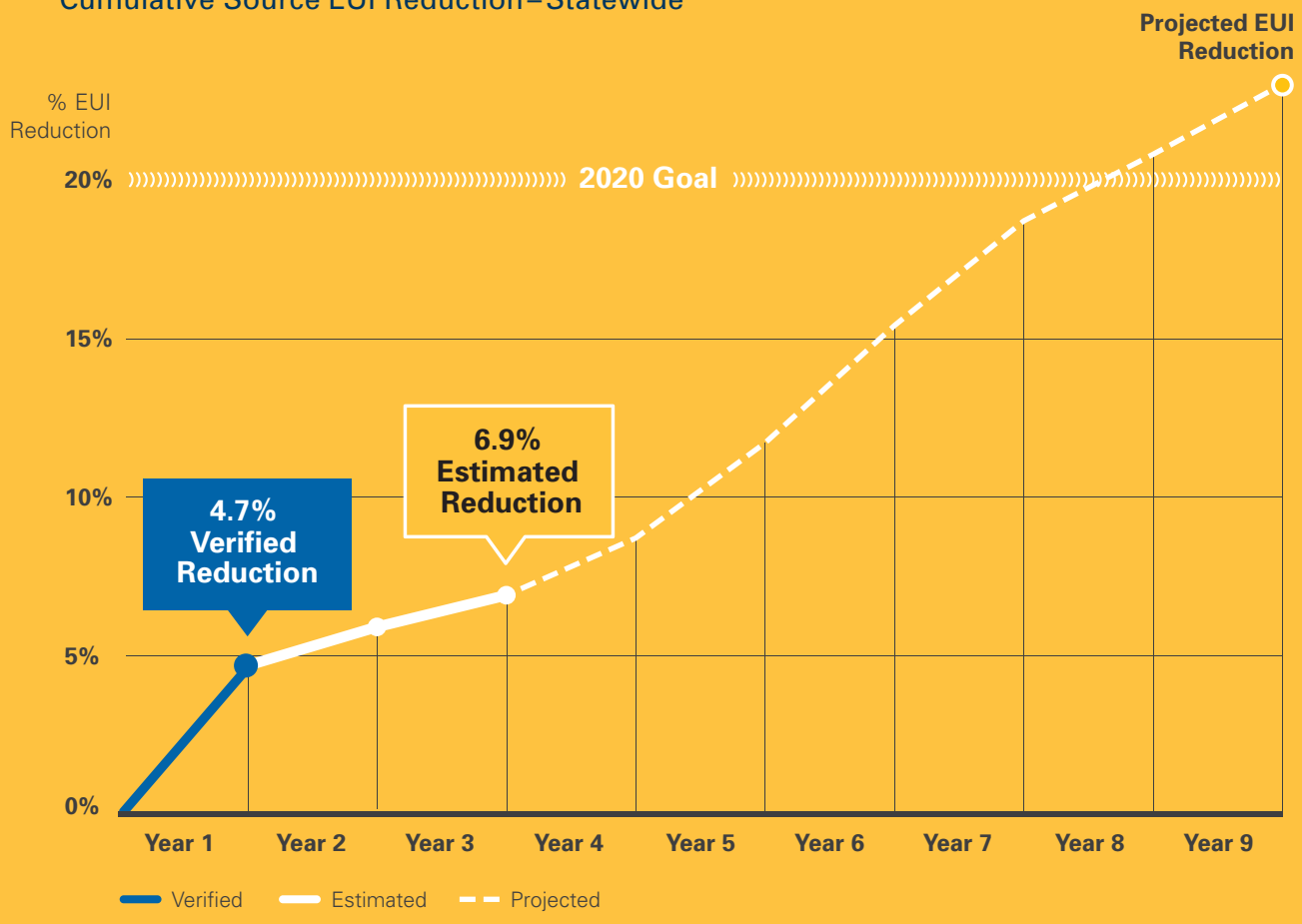
Currently, the BuildSmart NY team has data for Year 1 that covers roughly 85 percent of State facilities' energy consumption for that year. Based on that information, **the State's source EUI decreased during Year 1 by 4.7 percent.**

This improvement represents nearly one-quarter of the Governor's 20 percent goal, and more than one-fifth of the aggregated Statewide target of 23 percent (a weighted combination of the individual Agency targets issued in December 2013). Furthermore, the improvement was achieved in just the first year of nine total program years. If the Governor's 20 percent goal were evenly distributed across the nine program years, each year would be expected to account for a 2.2 percent source EUI reduction. So in essence, **the State is more than twice as far along as might be expected.**

Agency Progress – Source EUI

Agency	2020 Target	Year 1 Results	2020 Target Remaining
City University of New York	22.0%	-2.6%	19.4%
Dormitory Authority of the State of New York	20.0%	-10.5%	9.5%
New York Power Authority	23.0%	0.6%	23.6%
New York State Department of Corrections & Community Supervision	25.0%	-6.5%	18.5%
New York State Department of Environmental Conservation	19.0%	1.1%	20.1%
New York State Energy Research & Development Authority	20.0%	-4.0%	16.0%
New York State Insurance Fund	22.0%	-2.5%	19.5%
New York State Office of General Services	23.0%	1.2%	24.7%
New York State Office of Mental Health	24.0%	-7.4%	16.6%
State University of New York	22.0%	-5.4%	16.6%
State Total	23.0%	-4.7%	18.3%

Cumulative Source EUI Reduction–Statewide



Impact of Weather

While normalizing for weather had a marginal aggregate impact on both the Baseline and Year 1 data (-0.47% and +0.35%, respectively), shifts to the EUI of some facilities were larger. This was due to a number of factors, most notably the significant deviation in Year 1 from long-term heating degree day (HDD) averages. During that year, the number of HDD was 19% lower than the long-term average – an effect seen across all climate regions of the State. This means that Agencies should theoretically not have used as much energy to heat facilities in Year 1, because less heating was required. Therefore, using the same amount of energy in Year 1 as in the Baseline Year actually equates to a decrease in efficiency. This had an impact on a number of BuildSmart NY facilities that used the same amount or slightly less energy in Year 1 as they did in the Baseline Year, and yet saw their EUI increase.

Estimated Source EUI Changes

In addition to the first year of utility consumption data, Agencies have submitted to the BuildSmart NY team information on in-progress and anticipated projects for the two additional years leading up to this report – Years 2 and 3. While these projects' projected savings are not considered actual EUI improvements until they show up in utility consumption data, this information can be used as an indication of how Agencies are progressing.

Because this information is based on engineering calculations, and because those estimates of energy savings typically differ from observed savings, the team applied a "realization rate" to the information. The rate of 92.5 percent applied is a weighted blend of realization rates from the most recent iterations of NYSERDA's commercial and industrial energy efficiency programs for which evaluation data is available. The team reduced these estimates by an additional 10 percent in order to build in contingency; while the realization rate accounts for a difference between calculated and observed savings, this contingency adjustment accounts for the possibility that the projects will not happen within their anticipated timeframes, or at all.

These estimates indicate that the State implemented projects that could result in an additional 1.1 percent reduction of its Baseline source EUI in Year 2, and an additional 1.0 percent reduction in Year 3.

Actual savings in these two Years, however, will likely vary from these estimations. That is due not only to the likelihood that some existing projects are not currently reflected in the information, but also to the fact that some of the most potent energy-saving efforts – for example, operations and maintenance improvements – are not encapsulated in typical project information. Additionally, these estimates do not account for any potential changes in facility utilization or square footage, both of which could have significant effects on observed EUI. As the BuildSmart NY team has the opportunity to compare additional utility data with project estimates, it will learn more about the relationship between the two. Furthermore, as the team works with Agencies over the next few years, a closer understanding of their projects will likely lead to better estimates. These efforts should bring verified data and estimated data more in line with one another over time. For now, however, these estimated savings should be interpreted very carefully. It should be reiterated that they will never be used in place of actual utility data to determine EUI.

When these estimates are added to the verified savings from Year 1, **the BuildSmart NY team estimates that the State may have already achieved a 6.9 percent reduction in its source EUI.** This would represent more than a third of the Governor's 20 percent goal and more than a quarter of the 23 percent cumulative target assigned by the team.

Cost Savings

The State's improvement in source EUI in Year 1 also resulted in a complementary reduction in energy costs. **Expenditures on energy for BuildSmart NY facilities were estimated to have dropped by more than 12 percent between the Baseline Year and Year 1, resulting in more than $50 million less in spending.** Estimates for Years 2 and 3 indicate that the State saved an additional $12 million in energy expenditures over that time, meaning that **the State may have saved more than $60 million to date.**

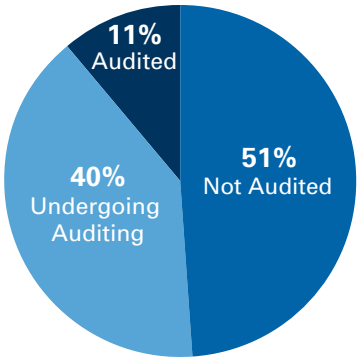
Greenhouse Gas Emission Reductions

The State's improvement in source EUI also meant that it reduced its greenhouse gas emissions. Based on available utility data, **in Year 1 the State reduced its emission of greenhouse gases by more than 131,500 tons from its Baseline performance.** Factoring in Years 2 and 3, which were estimated to reduce emissions by an additional 49,000 tons, and **the State may have avoided roughly 180,000 tons of greenhouse gas emissions to date.**

Energy Audits

State Agencies have made significant progress in the auditing of their building portfolios. To date, **11 percent of the total BuildSmart NY portfolio has undergone energy audits,** while an additional 40 percent currently has audits in progress. In many instances Agencies have gone beyond the requirements set out by the EO 88 Guidelines and are auditing more than a quarter of their portfolio. For example, Agencies such as SUNY, DOCCS, and the Department of Environmental Conservation have been conducting energy master plans that span a number of facilities in order to devise roadmaps for long-term energy efficient facility operation. CUNY has been particularly proactive in terms of audits: it has already audited more than 82 percent of its EO 88 square footage, and has funding in place to audit its remaining four campuses.

State Energy Audits

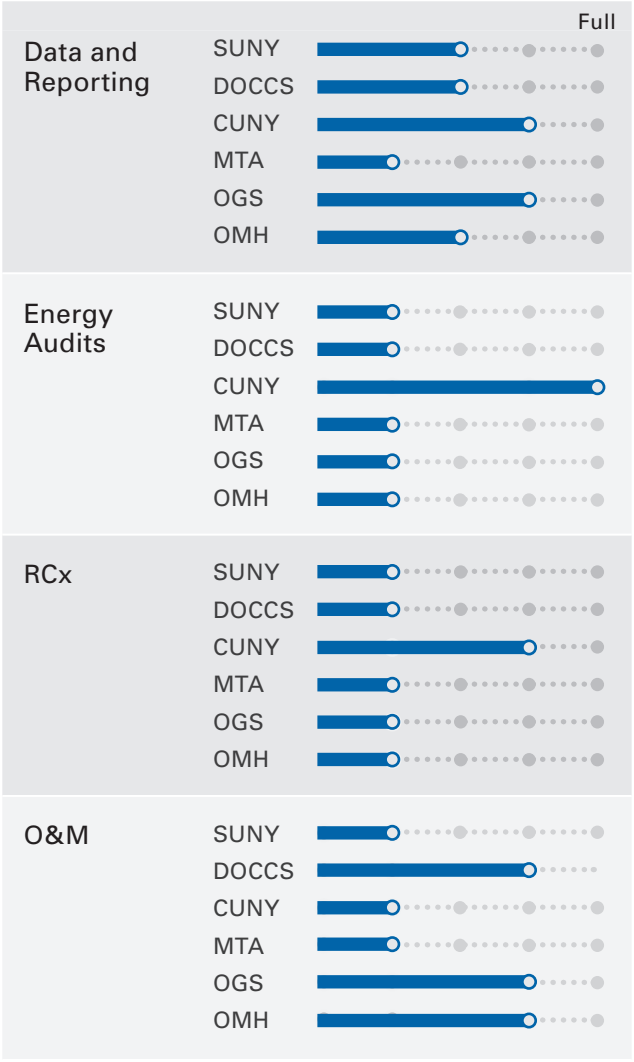


Compliance Progress

Agencies are required to perform a number of specific, energy-related activities (detailed in Guidelines on page 24) to help them achieve their EUI reduction targets. Based on the Agencies' own reports of their activities, the BuildSmart NY team has tracked and monitored compliance with these requirements to date, summarized in the following table and on the ensuing pages.

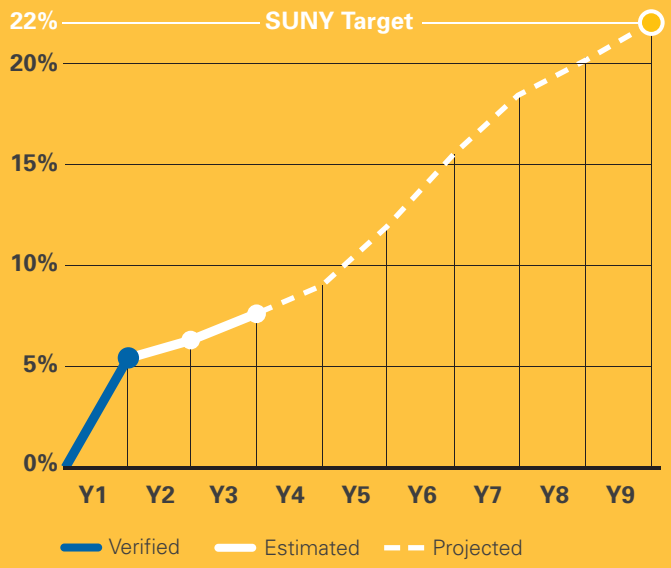
In addition to the activities listed, Agencies are required to submeter facilities and pursue cost-effective projects identified through energy audits. However, Agencies are currently working on detailed submetering inventories, and energy audits need to be completed before implementation of cost-effective projects can be pursued. Therefore, progress toward these two requirements will be provided in future Reports.

Required Activity Compliance



State University of New York

Cumulative Source EUI Reduction



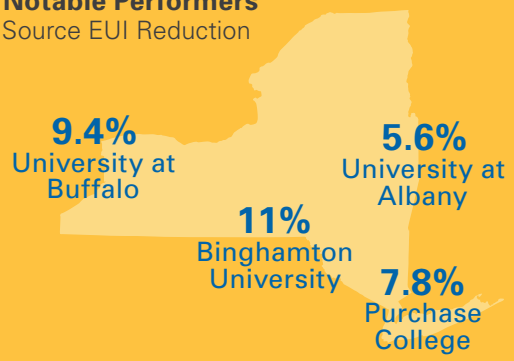
Year 1 Performance Summary

-5.4%
Source EUI Change

Energy Use Change **-3.8%**

Square Footage Change **+2.6%**

Notable Performers
Source EUI Reduction



Required Activity Compliance

Compliance to Date

Data and Reporting	Full	SUNY gathers energy consumption and cost data for all of its campuses at its System Administration Office for Capital Facilities using energy management software that receives information from both campus master-meters and building submeters.
Energy Audits		Out of its 32 campuses identified for energy master plans, SUNY has completed two such plans (representing roughly six percent of its total square footage) and has an additional 21 plans in progress (representing more than 90 percent of its total square footage).
Retrocommissioning		SUNY has already retrocommissioned buildings on some of its campuses, and a more extensive retrocommissioning effort will be undertaken in the coming years.
Operations and Maintenance		O&M plans and programs exist at varying levels across SUNY's campuses, largely dictated by the policies and personnel present at the campus level. Efforts to centralize and standardize these policies are underway.

STATE UNIVERSITY OF NEW YORK

Verified Source EUI Changes

In Year 1, **SUNY improved its source EUI by 5.4 percent** from its Baseline performance. This represents more than a quarter of the Governor's 20 percent goal and nearly a quarter of the 22 percent target assigned to SUNY by the BuildSmart NY team.

The primary driver of SUNY's EUI reduction was a reduction in kBtu used. A substantial majority (27 of 33, or about 82 percent) of campuses reduced the amount of energy they used in Year 1 from the Baseline Year. Additionally, SUNY as a whole increased its total square footage by 2.6 percent between the Baseline Year and Year 1, which further reduced its EUI. The energy use associated with this additional square footage was likely not fully captured in Year 1, so it is possible that an uptick in usage will be seen in the Year 2 once that data is available and analyzed.

Estimated Source EUI Changes

SUNY also submitted data for projects spanning Years 2 and 3. This data, once adjusted (please see Statewide Progress above), formed the basis for an estimate of additional savings achieved during those years. This estimate indicates that SUNY implemented projects that could result in an additional 0.9 percent reduction of its Baseline source EUI in Year 2, and an additional 1.2 percent reduction in Year 3.

As noted above, these numbers are simply estimates, and do not count toward SUNY's achievement of source EUI reduction. Once changes show up in utility consumption data, the BuildSmart NY team will incorporate them into revised figures for next year's Progress Report. In the meantime, these estimates should be interpreted very carefully, and should not be treated as actual proxies for EUI reduction.

When added to the verified savings from Year 1, **the BuildSmart NY team estimates that SUNY may have already achieved a 7.6 percent reduction in its source EUI.** This would represent nearly 40 percent of the Governor's 20 percent goal for SUNY and more than a third of the 22 percent target assigned to SUNY by the team.

Cost Savings

SUNY's improvement in source EUI also resulted in a complementary reduction in its energy costs. Expenditures on energy for SUNY facilities dropped by nearly 15 percent between the Baseline Year and Year 1, resulting in nearly $30 million less in spending. Estimates for Years 2 and 3 indicate that SUNY saved an additional $7.8 million in energy expenditures over that time, meaning that **SUNY may have saved nearly $40 million to date.**

Greenhouse Gas Emission Reductions

SUNY's improvement in source EUI also meant that it reduced its greenhouse gas emissions. Based on available utility data, **in Year 1 SUNY reduced its emission of greenhouse gases by nearly 67,000 tons** from its Baseline performance. Factoring in Years 2 and 3, which were estimated to reduce emissions by an additional 29,000 tons, and SUNY may have avoided nearly 100,000 tons of greenhouse gas emissions to date.

Binghamton University (SUNY) Looks to the Sun for its Energy

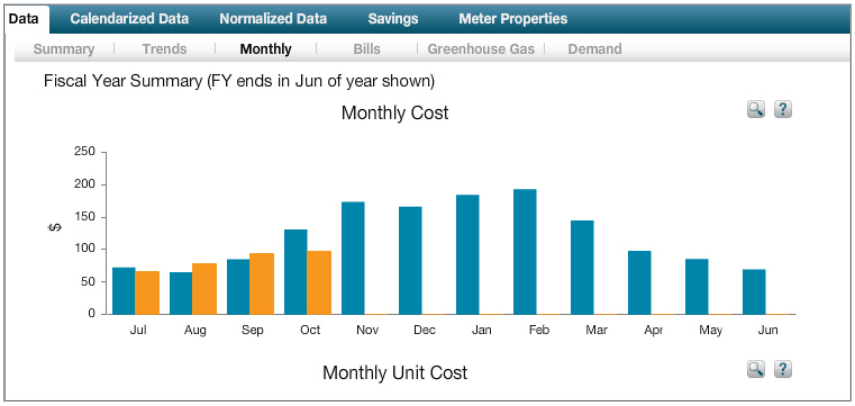
Cost: $400,000
Estimated Campus Source EUI Impact: 1.6% reduction
Estimated Energy Savings: 1.76 million source kBtu per year
Estimated Cost Savings: $10,000 per year

The Engineering and Science Building at Binghamton University, constructed in 2010, features two types of photovoltaic technologies: a 5-kW "thin film" solar array that is embedded in the building facade, and a 127-kW flat panel solar array located on the rooftop. The electricity generated by these two systems supplies up to 20 percent of the total building demand and offsets the need for grid power. Power generation data from these photovoltaic systems are also shared with students who are interested in researching renewable energy technologies. Annual electricity production from these units since November 2012 totaled 155 MWh, which is equivalent to about 110,000 kilograms of avoided CO_2 emission from conventional power generation.

University at Albany (SUNY) Saves Big with Innovative Operations

Estimated Cost Savings: Cumulative savings of over $1.1 million to date

In the Winter of 2008, the University at Albany piloted a "Winter Intersession Energy Initiative" and formalized the practice in October of 2010. Each year, during the four-week Winter Intersession, when most students are not on campus, the University implements a two-phase shutdown. The "Limited Operations" period covers 10 to 15 days that fall around the holidays. During this phase, the heat in all buildings is turned down to 55 degrees Fahrenheit, ventilation, lighting, and domestic hot water systems are turned off, and buildings are officially closed. The "Energy Conservation" period covers the rest of the Intersession, roughly 15 to 18 days. During this phase, temperatures are reduced to 62 degrees Fahrenheit in occupied zones, lighting is limited, and building systems are shut down after 6 pm and during weekends. The University Library serves as an alternate work site throughout the Intersession. Through diligent planning, nightly walkthroughs, constant monitoring of critical spaces, and the cooperation of the campus community at large, the University has successfully implemented the initiative for the past five years.

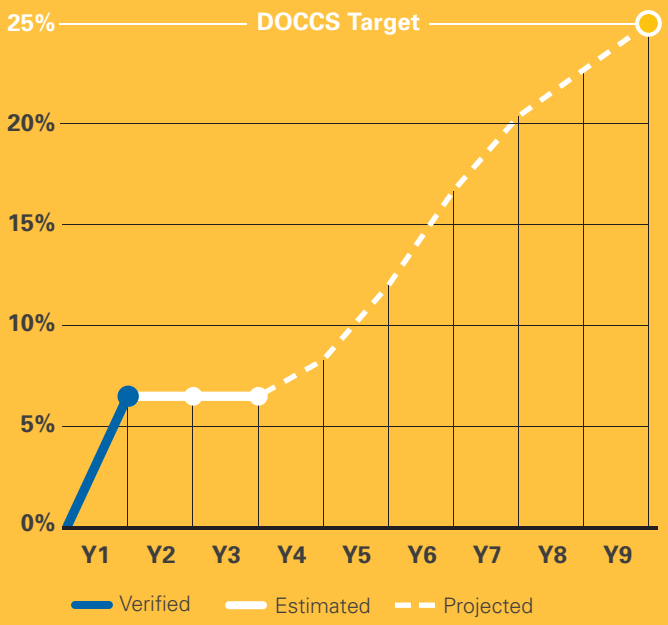


SUNY Collects and Coordinates Energy Data from Across the State

With a large portfolio of campuses spread across New York State, aggregating energy consumption and cost data is no easy task for SUNY. Many campuses use a variety of utility providers, fuel types, and software tracking systems, which compounds the already difficult endeavor of measuring and managing energy use. To address these challenges, in 2012 SUNY purchased a web-based energy information management system that tracks usage and cost data for all utility accounts across its campuses. The system captures monthly energy usage and cost data by site, campus, accounts, meter, vendor, commodity type, and rate classification. Its functionality is effective for the decentralized nature of SUNY campuses and the diversity of fuel mixes they employ. SUNY's System Administration Office for Capital Facilities is able to view and audit utility invoices within this system, as well as identify usage anomalies. Information is available to campus personnel to view or use on-demand, without waiting for other staff members to assist in the compilation of data. The system is currently tracking over 2,100 utility accounts on 64 campuses throughout the State.

Department of Corrections and Community Supervision

Cumulative Source EUI Reduction



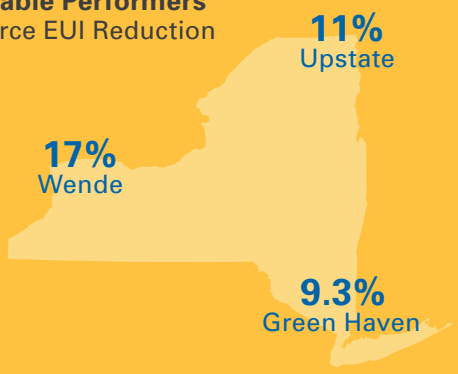
Year 1 Performance Summary

-6.5%
Source EUI Change

Energy Use Change **-6.2%**

Square Footage Change **+0.3%**

Notable Performers
Source EUI Reduction



Required Activity Compliance

Compliance to Date

Data and Reporting — Full	DOCCS's energy data is well organized electronically at its central office and used effectively as an energy management tool.
Energy Audits	Energy audits are scheduled to be performed at nearly all DOCCS facilities as part of energy master plans, with an initial focus on large, low-performing facilities. DOCCS has energy master plans in progress at 17 campuses, with six near completion.
Retrocommissioning	Several DOCCS facilities, including those in the Green Haven and Wende hubs, have been retrocommissioned in the past.
Operations and Maintenance	DOCCS has a number of energy-related O&M directives currently in place across all facilities.

DEPARTMENT OF CORRECTIONS AND COMMUNITY SUPERVISION

Verified Source EUI Changes

In Year 1, **DOCCS improved its source EUI by 6.5 percent** from its Baseline performance. This represents nearly a third of the Governor's 20 percent goal and more than a quarter of the 25 percent target assigned to DOCCS by the BuildSmart NY team.

DOCCS saw a substantial reduction (6.2 percent) in kBtu usage across its portfolio in Year 1 from Baseline Year levels. A majority of DOCCS facilities (57 of 71) saw reductions, although a significant number of facilities (11) were in various phases of being closed, and therefore did not have a full year of consumption data to report. While facility closures likely played a role in DOCCS's initial EUI reduction, it is possible that this effect will rebound in Year 2 as these facilities are officially removed from the building portfolio and their occupants are moved to other locations.

Estimated Source EUI Changes

There is not currently enough DOCCS project data for Years 2 and 3 to estimate source EUI changes for those years. Given this lack of data, and until additional information becomes available, the team has assumed that DOCCS's source EUI has remained constant since Year 1.

Cost Savings

DOCCS's Year 1 improvement in source EUI also resulted in a complementary reduction in its energy costs. **Expenditures on energy for DOCCS facilities dropped by nearly 23 percent** between the Baseline Year and Year 1, resulting in nearly $20 million less in spending.

Greenhouse Gas Emission Reductions

DOCCS's improvement in source EUI also meant that it reduced its greenhouse gas emissions. Based on available utility data, in Year 1 **DOCCS reduced its emission of greenhouse gases by nearly 30,000 tons** from its Baseline performance.

DOCCS Utilizes Performance Contracts to Save Energy and Money

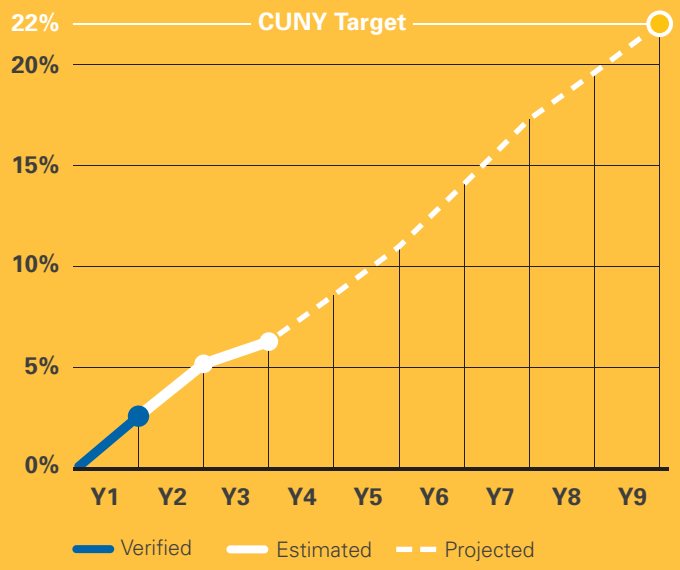
Cost: $81.7 million

Estimated Cost Savings: $6+ million per year

DOCCS maintains an active Energy Management Program (EMP) that has provided considerable results since its inception in the late 1980s. Reflecting a phased and regionalized approach, the success realized by DOCCS to date can be attributed to a series of targeted capital and minor rehab projects, facility initiatives, and operational and maintenance improvements. At the heart of DOCCS's EMP is Energy Savings Performance Contracting. DOCCS contracted with three experienced Energy Service Companies to implement 121 energy improvement projects at 20 correctional facilities in the Hudson Valley and the Western regions of the State. The projects have ranged from energy efficient lighting and LED fixtures to combined heat- and power-generating units.

City University of New York

Cumulative Source EUI Reduction



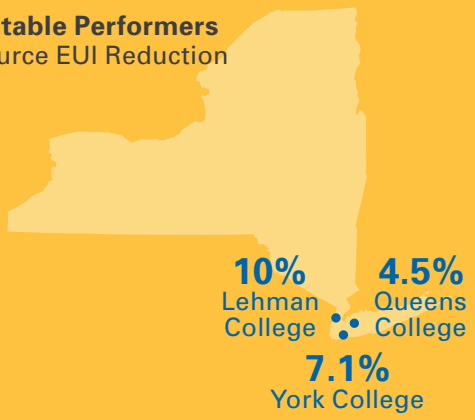
Year 1 Performance Summary

-2.6%
Source EUI Change

Energy Use Change **-2.4%**

Square Footage Change **+1.5%**

Notable Performers
Source EUI Reduction



Required Activity Compliance

Compliance to Date

Data and Reporting	Full	CUNY uses energy management software to track consumption and cost data at each campus, resulting in accurate and timely reporting.
Energy Audits		CUNY has already completed energy audits at all of its facilities required to do so under EO 88. However, the University is carrying out additional audits to identify further energy-saving opportunities.
Retrocommissioning		CUNY has retrocommissioned nearly all of its campuses over the past three years in order to comply with NYC Local Law 87.
Operations and Maintenance		CUNY's O&M activities tend to be determined by staff at each campus, but initiatives are ongoing to standardize these policies to reflect industry best practices and University-wide needs.

CITY UNIVERSITY OF NEW YORK

Verified Source EUI Changes

In Year 1, **CUNY improved its source EUI by 2.6 percent**. This represents more than 13 percent of the Governor's 20 percent goal and 12 percent of the 22 percent target assigned to CUNY by the BuildSmart NY team.

A substantial majority (10 of 14, or 71 percent) of CUNY campuses saw a reduction in EUI in Year 1. John Jay College made a significant building addition during Year 1, but the building was not fully occupied throughout the Year, and therefore its energy use was lower than might be expected given its square footage. This may lead to a slight increase in John Jay's EUI during subsequent reporting periods.

Estimated Source EUI Changes

CUNY also submitted utility consumption and square footage data for Year 2. Although this data set has not yet been vetted and weather-normalized, it does provide an estimate of CUNY's progress. This estimate indicates that CUNY's source EUI decreased by an additional 2.6 percent in Year 2. CUNY also submitted project data for Year 3, which indicated that it implemented projects that could result in an additional 1.0 percent reduction of its Baseline source EUI in that Year.

As noted above, these numbers are simply estimates, and do not count toward CUNY's achievement of source EUI reduction. Once the data has been fully analyzed and adjusted for weather and other considerations, the BuildSmart NY team will incorporate the results into revised figures for next year's Progress Report. In the meantime, these estimates should be interpreted very carefully, and should not be treated as actual proxies for EUI reduction.

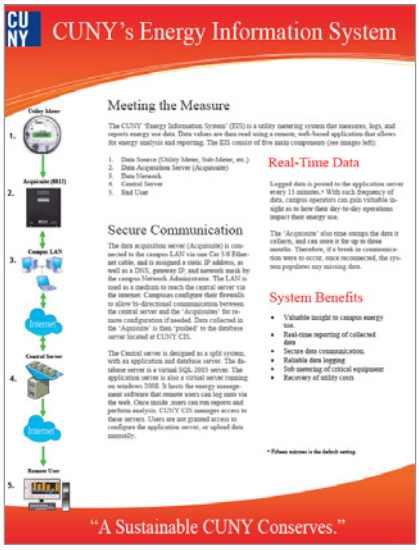
When added to the verified savings from Year 1, the BuildSmart NY team estimates that **CUNY may have already achieved a 6.3 percent reduction in its source EUI.** This would represent nearly a third of the Governor's 20 percent goal for CUNY and more than a quarter of the 22 percent target assigned to CUNY by the team.

Cost Savings

Utility data from Year 1 and estimates for Years 2 and 3 indicate that **CUNY may have saved more than $375,000 in energy expenditures** over that time.

Greenhouse Gas Emission Reductions

CUNY's improvement in source EUI also meant that it reduced its greenhouse gas emissions. Based on available utility data, in Year 1 **CUNY reduced its emission of greenhouse gases by more than 7,000 tons** from its Baseline performance.

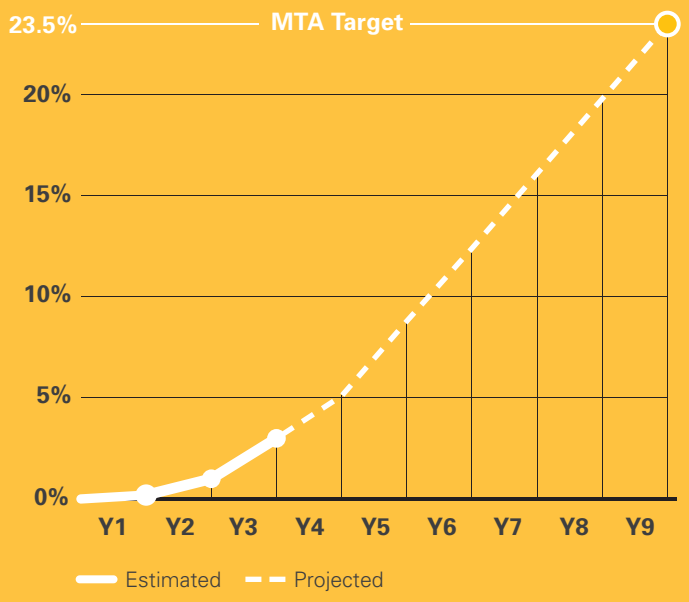


CUNY Engages Staff to Improve Energy Operations

In order to ensure the highest degree of engagement from facilities staff regarding energy efficiency and improvements to O&M, "Sustainable CUNY Conserves" initiated a large-scale change management project focused on improving communications and promoting tools and resources. Sustainable CUNY Conserves holds regular training sessions for dozens of campus staff members on topics such as lighting upgrades, optimizing campus Building Management Systems, and understanding utility bills, with a particular focus on peak load and its impact on utility budgets. CUNY has also developed a powerful and interactive communications tool which will foster an even greater sense of community and shared communications among campus and University staff members with similar responsibilities. This knowledge will enable campus staff to make effective arguments for resource allocations to support implementation of energy-saving initiatives. This effort began in 2012, and CUNY has already seen a marked improvement in energy management. Work continues with the campuses on O&M as Sustainable CUNY Conserves assists them in developing their unique inventories that will inform CUNY's Computerized Maintenance Management System.

Metropolitan Transportation Authority

Cumulative Source EUI Reduction



Required Activity Compliance

Compliance to Date

Data and Reporting	Full	MTA consolidates energy data electronically at its headquarters for reporting and analysis. MTA Buses operates an online energy dashboard detailing consumption across all of its facilities.
Energy Audits		MTA has prioritized audits based on the total energy consumption of its facilities in order to identify projects with the largest potential energy savings. Based on this, MTA has identified seven energy audits to complete in order to comply with EO 88.
Retrocommissioning		Much of MTA's building stock and equipment is past the age where RCx studies are useful, and consequently MTA is focusing mainly on energy audits. That being said, where appropriate, the MTA will perform retrocommissioning studies and has identified six facilities to retrocommission in order to comply with EO 88.
Operations and Maintenance		The diverse nature of MTA's building types and functions among the Authority's sub-agencies makes centralized planning of operations and maintenance difficult; however, the MTA has already made progress in developing an "enterprise-level" O&M strategy.

METROPOLITAN TRANSPORTATION AUTHORITY

Verified Source EUI Changes

MTA does not currently have utility consumption data available for Year 1, so the BuildSmart NY team is unable to compute a revised source EUI for the Authority at this time. Once that data is available, the team will inform MTA of its progress in Year 1, and publish the results in the next annual Progress Report.

Estimated Source EUI Changes

MTA submitted data to NYPA for projects spanning Years 1 through 3. This data, once adjusted (please see Statewide Progress above), formed the basis for an estimate of savings achieved during those years. This estimate indicates that MTA implemented projects that could result in a 3.0 percent reduction of its Baseline source EUI. This would represent 15 percent of the Governor's 20 percent goal for MTA and nearly 13 percent of the 23.5 percent target assigned to MTA by the team.

As noted above, these numbers are simply estimates, and do not count toward MTA's achievement of source EUI reduction. Once changes show up in utility consumption data, the BuildSmart NY team will incorporate them into revised figures for next year's Progress Report. In the meantime, these estimates should be interpreted very carefully, and should not be treated as actual proxies for EUI reduction.

Cost Savings

Estimates for Years 2 and 3 indicate that **MTA may have saved more than $660,000 in energy expenditures** over that time.

Greenhouse Gas Emission Reductions

Estimates for Years 2 and 3 indicate that **MTA may have avoided more than 1,600 tons of greenhouse gas emissions** over that time.

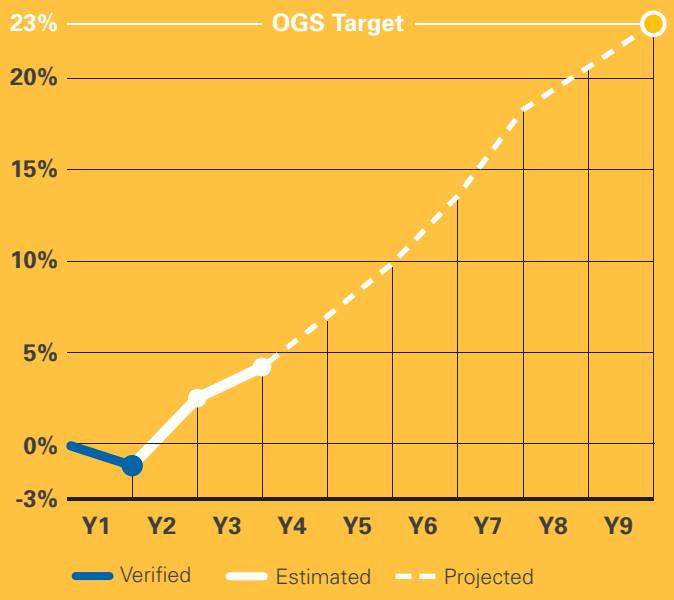
MTA Invests Heavily in Historic Grand Central Terminal

Cost: $26.3 million
Estimated Facility Source EUI Impact: 27.6%
Estimated Energy Savings: 24+ million source kBtu per year
Estimated Cost Savings: $2.6 million per year

The largest energy efficiency project that MTA has ever undertaken with NYPA is currently underway in Grand Central Terminal in Manhattan. The project will conserve energy and reduce Metro-North Railroad's annual carbon emissions by 10,000 tons. Many of Grand Central's building systems are being replaced through a multi-phased project plan. Phase 1 of the Grand Central project – consisting of a facility-wide lighting upgrade, motor replacement, compressed air system upgrades, and the installation of electric, steam, and chilled water submeters – has already been completed. Phase 2 is currently underway and consists of chiller and pump replacements, variable frequency drive installations, retrocommissioning of air handling units, and repairs to the steam distribution system, all of which should have significant impacts on energy use at Grand Central. The upfront costs of the new energy-efficient equipment will be borne by NYPA and will be repaid annually over 12 years by Metro-North with the money it saves as the result of the reduction in energy use. MTA's continued commitment to energy efficiency at this iconic facility will help drive its achievement of EO 88 savings targets.

Office of General Services

Cumulative Source EUI Reduction



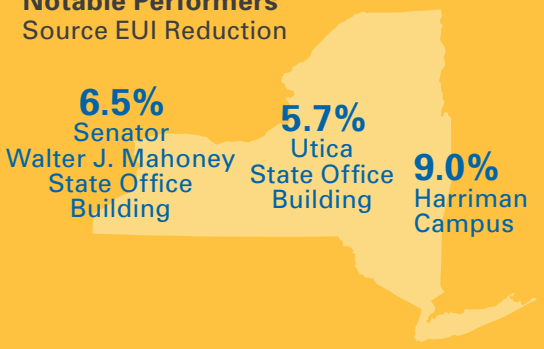
Year 1 Performance Summary

+1.2%
Source EUI Change

Energy Use Change **-0.5%**

Square Footage Change **+0.0%**

Notable Performers
Source EUI Reduction



Required Activity Compliance

Compliance to Date

Data and Reporting	Full	OGS utilizes its Web-Enabled Advanced Metering System to track and manage energy use at a detailed level throughout its building portfolio.
Energy Audits		OGS has numerous ENERGY STAR-rated buildings that do not require energy audits at this time. Currently, three buildings have been identified for energy audits, which are scheduled for 2014.
Retrocommissioning		OGS's use of real-time data aids in performing some level of continuous commissioning, and two facilities have been identified for detailed retrocommissioning studies.
Operations and Maintenance		OGS has an effective O&M plan currently in place that uses real-time energy data to influence both O&M and retrocommissioning activities.

OFFICE OF GENERAL SERVICES

Verified Source EUI Changes

In Year 1, OGS's source EUI went up by 1.2 percent from its Baseline level. OGS did see a net reduction in kBtu consumption in Year 1 from the Baseline Year, and its square footage remained constant over that time. However, OGS's EUI increased once its kBtu consumption was normalized for weather. Unusual weather patterns in the Capital Region during Year 1 meant that using only slightly less energy – as OGS did – actually represented a slight decrease in efficiency.

At the same time, the fact that OGS saw kBtu reductions at 17 of its 21 facilities in Year 1 is generally a positive sign, and did mean that OGS saved money on energy costs related to those facilities and reduced its greenhouse gas emissions. Additionally, OGS's EUI increase is understandable in the context of its Facility Re-Stack Initiative. In an effort to operate more effectively, OGS has been relocating staff from leased properties to State-managed facilities; to date, the occupancy of its State-managed buildings has increased by roughly 2,500 employees, or 13 percent. In particular, the number of occupants at Empire State Plaza – OGS's largest facility – has increased by 25 percent; yet between the Baseline Year and Year 1, Empire State Plaza's unadjusted energy consumption rose by just one percent, a meager increase given the sharp escalation in occupancy. Meanwhile, the source EUI for the rest of OGS's EO 88 portfolio actually decreased during that time – a testament to energy efficiency investments that have helped mitigate the effects of the Facility Re-Stack Initiative.

Estimated Source EUI Changes

OGS also submitted data to NYPA for projects spanning Years 2 and 3. This data, once adjusted (please see Statewide Progress above), formed the basis for an estimate of additional savings achieved during those years. This estimate indicates that OGS implemented projects that could result in an additional 3.7 percent reduction of its Baseline source EUI in Year 2, and an additional 1.8 percent reduction in Year 3.

When added to the verified changes from Year 1, **the BuildSmart NY team estimates that OGS may have already achieved a 4.2 percent reduction in its source EUI.** This would represent more than one-fifth of the Governor's 20 percent goal for OGS and more than one-sixth of the 23 percent target assigned to OGS by the team.

Cost Savings

Utility data from Year 1 and estimates for Years 2 and 3 indicate that **OGS may have saved nearly $2.5 million in energy expenditures** over that time.

Greenhouse Gas Emission Reductions

Although OGS's source EUI increased slightly during Year 1, as noted above, its total energy consumption actually declined. Because of this, OGS also reduced its greenhouse gas emissions. Based on available utility data, in Year 1 **OGS reduced its emission of greenhouse gases by more than 4,000 tons** from its Baseline performance. Factoring in Years 2 and 3, which were estimated to reduce emissions by an additional 14,600 tons, OGS may have avoided nearly 19,000 tons of greenhouse gas emissions to date.

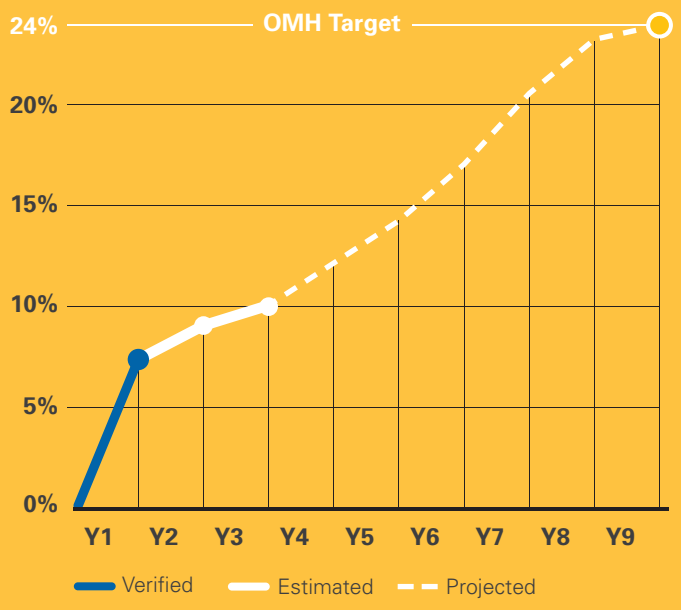
OGS Installs Cutting-Edge Energy Management System

Cost: $3.3 million
Estimated Agency Source EUI Impact: 1.8% reduction
Estimated Energy Savings: 90+ million source kBtu per year
Estimated Cost Savings: nearly $500,000 per year

The Web-Enabled Advanced Metering (WEAM) system is OGS's smart metering network and energy management platform. It continuously collects, stores, and analyzes energy and water utilization data transmitted from remote smart meters located in 53 OGS buildings throughout New York State. The WEAM network helps to verify electric demand, ensuring that billing information is accurate and trustworthy. Alarm capabilities are also integral to the WEAM system, allowing OGS staff to take corrective action in the event of abnormal utility system occurrences such as outages, poor power quality, or water leaks. In addition to these emergency capabilities, OGS's Utilities and Statewide Energy Management Center staff uses WEAM to generate energy performance measurements, consumption analysis, and benchmarking reports to compare the relative energy efficiency of its building inventory. NYPA assisted OGS with the system's installation, which was completed in 2010.

Office of Mental Health

Cumulative Source EUI Reduction



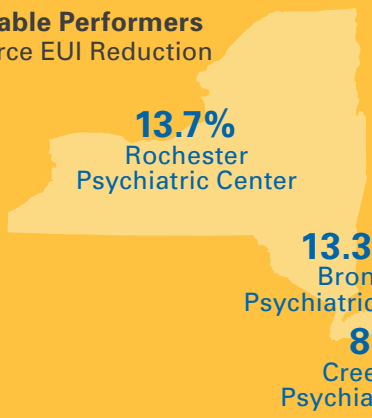
Year 1 Performance Summary

-7.4%
Source EUI Change

Energy Use Change **-8.4%**

Square Footage Change **-1.1%**

Notable Performers
Source EUI Reduction



13.7%
Rochester Psychiatric Center

13.3%
Bronx Psychiatric Center

8.2%
Creedmoor Psychiatric Center

Required Activity Compliance

Compliance to Date

Data and Reporting	Full	OMH centrally maintains and manages energy consumption and cost data for all of its facilities.
Energy Audits		OMH has performed energy audits at facilities in the past, and has identified six additional facilities to perform audits at in 2014.
Retrocommissioning		OMH plans to retrocommission all facilities that have not been energy audited or do not currently have a continuous commissioning program in place.
Operations and Maintenance		OMH has a strong O&M program in place, driven by staff in its capital planning office and supplemented by outside energy management partners. These energy partners design and implement O&M and continuous commissioning programs across all OMH facilities, provide training to OMH facility staff, and track energy consumption and cost data using software platforms.

OFFICE OF MENTAL HEALTH

Verified Source EUI Changes

In Year 1, **OMH improved its source EUI by 7.4 percent.** This represents more than a third of the Governor's 20 percent goal and nearly a third of the 24 percent target assigned to OMH by the BuildSmart NY team.

Given that its square footage remained largely unchanged, OMH's Year 1 EUI reduction was driven by a significant decrease in energy consumption. Twenty-two of 25 OMH facilities saw decreases in kBtu consumption for Year 1 compared to the Baseline Year. However, OMH is expecting to close and consolidate some of its facilities over the next several reporting periods, which may increase its EUI as the same amount of activity is compressed into a smaller facility footprint.

Estimated Source EUI Changes

OMH also submitted data to NYPA for projects spanning Years 2 and 3. This data, once adjusted (please see Statewide Progress above), formed the basis for an estimate of additional savings achieved during those years. This estimate indicates that OMH implemented projects that could result in an additional 1.7 percent reduction of its Baseline source EUI in Year 2, and an additional 1.1 percent reduction in Year 3.

As noted above, these numbers are simply estimates, and do not count toward OMH's achievement of source EUI reduction. Once changes show up in utility consumption data, the BuildSmart NY team will incorporate them into revised figures for next year's Progress Report. In the meantime, these estimates should be interpreted very carefully, and should not be treated as actual proxies for EUI reduction.

When added to the verified savings from Year 1, the BuildSmart NY team estimates that **OMH may have already achieved a 10.2 percent reduction in its source EUI.** This would represent more than half of the Governor's 20 percent goal for OMH and more than 40 percent of the 24 percent target assigned to OMH by the team.

Cost Savings

OMH's improvement in source EUI also resulted in a complementary reduction in its energy costs. **Expenditures on energy for OMH facilities dropped by nearly 8 percent** between the Baseline year and Year 1, resulting in nearly $3 million less in spending. Estimates for Years 2 and 3 indicate that OMH saved an additional $280,000 in energy expenditures over that time, meaning that OMH may have saved more than $3.25 million to date.

Greenhouse Gas Emission Reductions

OMH's improvement in source EUI also meant that it reduced its greenhouse gas emissions. Based on available utility data, in Year 1 **OMH reduced its emission of greenhouse gases by nearly 23,000 tons** from its Baseline performance. Factoring in Years 2 and 3, which were estimated to reduce emissions by an additional 2,000 tons, OMH may have avoided nearly 25,000 tons of greenhouse gas emissions to date.

OMH Overhauls Creedmoor Psychiatric Center for Huge Energy Savings

Cost: $1.8 million
Estimated Facility Source EUI Impact: 17.6% reduction
Estimated Energy Savings: 50+ million source kBtu per year
Estimated Cost Savings: $80,000+ per year

A prime example of OMH's commitment to energy efficiency is the comprehensive upgrade recently implemented at the Creedmoor Psychiatric Center in Queens. OMH identified significant energy-saving opportunites through energy audits, and, over the course of several years, upgraded Creedmoor's lighting systems, heating plant, and cooling plant. The project was funded through a combination of NYSERDA incentives, which provided funds for lighting and motors, and NYPA's low-interest financing. In addition, a new boiler and chiller plant was constructed in 2010 to serve three buildings. The operation of this new plant allowed for the decommissioning of the former central heating plant in May 2012, which produced immediate energy savings through increased boiler efficiency and the elimination of distribution losses.

All Other Agencies

Adirondack Park Agency

Office of Alcoholism and Substance Abuse Services

Department of Agriculture and Markets

Office of Children and Family Services

Convention Center Operating Corporation

Dormitory Authority

Energy Research and Development Authority

Department of Environmental Conservation

Department of Health

New York State Insurance Fund

Division of Military and Naval Affairs

New York Power Authority

Niagara Frontier Transportation Authority

Olympic Regional Development Authority

Office of Parks, Recreation and Historic Preservation

Office for People with Developmental Disabilities

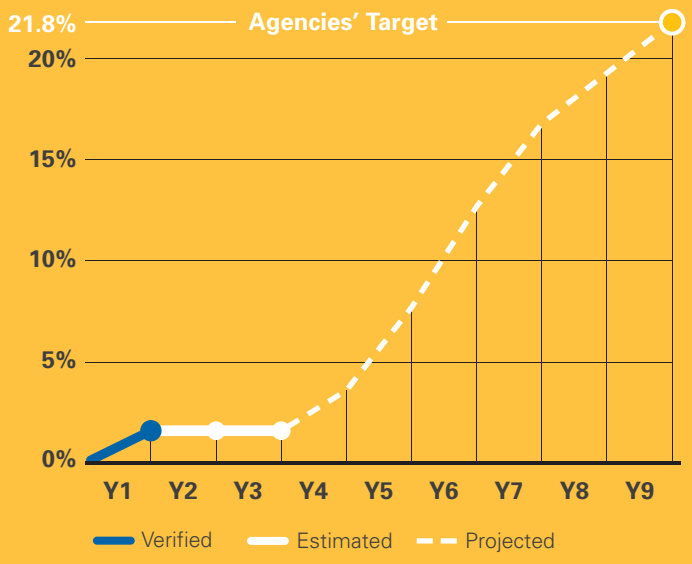
Roosevelt Island Operating Corporation

Division of State Police

Thruway Authority and Canal Corporation

Department of Transportation

Cumulative Source EUI Reduction



ALL OTHER AGENCIES

Verified Source EUI Changes

In Year 1, **the remaining Agencies improved their source EUI by a collective 1.6 percent.** This represents eight percent of the Governor's 20 percent goal and more than seven percent of the collective 21.8 percent target assigned to these Agencies by the BuildSmart NY team.

Estimated Source EUI Changes

There is not currently enough project data for the remaining Agencies for Years 2 and 3 to estimate source EUI changes for those years. Given this lack of data, and until additional information becomes available, the team has assumed that these Agencies' source EUIs have remained constant since Year 1.

Cost Savings

The improvement in source EUI for these Agencies also resulted in a complementary reduction in their energy costs. **Expenditures on energy for these Agencies' facilities dropped by nearly 12 percent** between the Baseline Year and Year 1, resulting in more than $500,000 less in spending. Estimates for Years 2 and 3 indicate that these Agencies saved an additional $80,000 in energy expenditures over that time, meaning that they may have saved nearly $600,000 to date.

Greenhouse Gas Emission Reductions

These Agencies' improvement in source EUI also meant that they reduced their greenhouse gas emissions. Based on available utility data, in Year 1 **these Agencies reduced their emission of greenhouse gases by more than 1,000 tons** from their Baseline performance.

Energy Audits

The remaining Agencies have already completed audits of nearly 15 percent of their total square footage. In addition, they have 34 audits currently in progress.

Division of Military and Naval Affairs Uses Utility Programs to Upgrade its Lighting

Cost: $60,000
Estimated Facility Source EUI Impact: 10.9%
Estimated Energy Savings: 1.2 million source kBtu
Estimated Cost Savings: $14,500 per year

Using small business lighting programs offered by New York State Electric and Gas, Rochester Gas and Electric, and Central Hudson Gas and Electric, the Division of Military and Naval Affairs identified multiple facilities that received free lighting assessments and the installation of high-bay LED fixtures and LED wall-pack units. Utility incentives paid for nearly 50 percent of the installations, which had a savings-to-investment ratio of nearly 7.4.

Office of Children and Family Services Develops Its Own Software to Manage Energy Use

The Office of Children & Family Services (OCFS) has developed software for energy tracking and reporting. The Facility Reporting for Energy Efficiency (FREE) software is used to record monthly meter readings and track energy usage. OCFS uses the software to find anomalies in usage patterns and identify potential energy-related issues. Staff can then examine problems and take corrective actions. The FREE software also has an O&M component: assets, including HVAC systems, boilers, furnaces, and more, are listed in it, along with schedules for periodic maintenance, which can be generated and printed for the use of facility staff. When equipment needs repair or buildings need maintenance, entries are made in the software, which then tracks these items through their completion. OCFS is using the FREE software not only in its eight EO 88-covered buildings, but also in the rest of the facilities it owns and operates.

CONCLUSION

BuildSmartNY

BuildSmart NY is an intricate and challenging initiative that mirrors the complexity and size of New York State government itself. In order to reach the Governor's ambitious goal of reducing the State's source Energy Use Intensity by 20 percent by 2020, many people serving in diverse roles throughout the State will need to contribute. Although there will undoubtedly be numerous obstacles along the way, NYPA believes that the structures, processes, strategies, tools, and reporting mechanisms in place and being put into place have set the State on a course toward success.

LAUNCH

2013 was an extremely busy year for BuildSmart NY. Working together, the State put in place crucial governance structures – such as Executive Sponsors, Responsible Leads, the Executive Steering Committee, and the Central Management and Implementation Team – that will help it reach its goals by providing management buy-in and transparent reporting mechanisms. In addition, the BuildSmart NY team and the Agencies worked to complete a set of key early-stage deliverables, including initial benchmarking, the issuance of Executive Order 88 Guidelines, the creation of audit plans and initial operations and maintenance plans, and the reporting of utility and project data that led to the issuance of Agency savings targets. Taken together, these launch activities have set the stage for successful implementation.

IMPLEMENTATION

The implementation of Executive Order 88 and the achievement of energy savings will require many moving parts over numerous years. In order to provide order and direction to these activities, the BuildSmart NY team has devised four macro strategies to guide the State's efforts: Smart Analytics, Smart Government, Smart Infrastructure, and Smart Operations. These strategies are each in turn made up of a corresponding set of tools that the Agencies, and other stakeholders will utilize to drive results. Furthermore, the team has identified key activities and plotted them over the coming months and years as a tangible plan for reaching the Governor's mandate. Implementation will not be easy, but having a "blueprint" for success is half the battle.

PROGRESS

One year has elapsed since the issuance of Executive Order 88, and nearly three years since the Baseline Year, and already the State is showing encouraging signs of progress. In addition to setting up the structures of BuildSmart NY and devising its core strategies and tactics, the State is achieving significant energy savings. In just one year, the State reduced its source Energy Use Intensity by 4.7 percent – more than twice as much as might be expected in that time. Factoring in estimates from the second and third years of the program, the BuildSmart NY team estimates that the State may have already achieved a 6.9 percent source EUI reduction – equal to more than a third of the Governor's savings mandate, and with six years to go. In addition, the State has completed or has in progress energy audits that make up more than half of the BuildSmart NY portfolio; saved more than $50 million in energy spending; and reduced its greenhouse gas emissions by at least 131,500 tons. By any measure, New York is well on its way toward becoming a model for energy performance in the region and the country as a whole.

Appendices

A. Affected State Entities

B. Baseline and Year 1 Data

C. Target-Setting Methodology

D. Other Calculation Methodologies

E. References

F. Glossary of Terms

A. Affected State Entities

EO 88 identifies the State entities subject to its requirements as "All agencies and departments over which the Governor has Executive Authority, and all public-benefit corporations, public authorities and commissions, for which the Governor appoints the Chair, the Chief Executive, or the majority of Board Members, except for the Port Authority of New York and New Jersey."

In March 2013 the Director of State Operations issued a memorandum directing all Commissioners and Agency Heads to support NYPA in meeting EO 88 mandates. The memo included a list of State Agencies and requested that Agency Heads appoint Executive Lead and day-to-day managers responsible for coordination of Agency compliance. Since then, NYPA has followed a rigorous process of verifying the obligation of Agencies to comply with Executive Order 88. This process has included:

1. Canvassing and surveying Agency contacts listed in the Director of State Operations memo to verify EO 88 designation. This resulted in the following classifications (set forth in the tables on the following two pages):

- *Agencies responsible for Executive Order 88 compliance:* These Agencies are subject to all Executive Order requirements as established by the EO 88 Guidelines, and have been issued energy reduction targets.
- *Agencies covered under the New York State Office of General Services portfolio:* These Agencies fall under the "Affected State Entities" definition, but do not own or operate their buildings and therefore do not need to participate in EO 88 mandates. Most of these Agencies occupy facilities that are managed by the Office of General Services or are located in privately leased space.
- *Agencies reported as occupying leased space:* These Agencies are located in privately leased space and are not subject to EO 88 requirements.

2. Engaging NYPA legal counsel to identify all State entities for which the Governor appoints the Chair, the Chief Executive, or the majority of Board members. This research included the following steps:

- Review of the Public Authorities Law to establish the list of Public Authorities
- Review of the list of New York State Departments maintained by the Division of the Budget; these divisions will be canvassed to ensure that subsidiary entities are captured
- Review of the New York Codes, Rules and Regulations to establish a list of offices and commissions established by the New York State Executive Branch
- Communication with the Office of General Services's Real Estate and Planning Department, to establish a list of State entities managed by OGS

This extended list of State entities will be researched and contacted via a standardized questionnaire to review State entity board composition, legal classification, and building portfolio management and operation. The results of this research will be included in next year's Progress Report.

As New York State government evolves over time, the population of Agencies may change, and the BuildSmart NY team will review the list on an annual basis to ensure compliance across State government. It is the responsibility of Agencies to alert the team to operational changes that might necessitate changes in Executive Order 88 designation.

State Agencies Subject to Executive Order 88 Compliance

Agency	Executive Sponsor	Responsible Lead
Adirondack Park Agency	Elaine M. Caldwell	Clarence Hare
City University of New York	Iris Weinshall	Art Fasolino
Dormitory Authority of the State of New York	Joel Pierre-Louis	Jodi Smits Anderson
Metropolitan Transportation Authority	Craig Stewart	Ernest Tollerson
New York State Division of State Police	Terence O'Mara	Mark Chaffee
New York Convention Center Operating Corporation	Ken Sanchez	Rebecca Marshall
New York Power Authority	Gil Quiniones	Lloyd Kass
New York State Department of Environmental Conservation	Anne Reynolds	Jim Morier
New York State Department of Transportation	Rod Sechrist	Bob Winans
New York State Department of Agriculture and Markets	Jim Bays	Lucy Roberson
New York State Department of Corrections and Community Supervision	Daniel Martuscello	Thomas Varelli
New York State Department of Health	Michael Nazarko	Charles McElrath
New York State Division of Military and Naval Affairs	Michael Friess	Benjamin Fox
New York State Energy Research and Development Authority	Tom Barone	Scott Smith
New York State Insurance Fund	Joseph Mullen	Alan Angelo
New York State Office for People with Developmental Disabilities	Kevin Valenchis	Don Hughes
New York State Office of Alcoholism and Substance Abuse Services	Michael Lawler	David Sawicki
New York State Office of Children and Family Services	Derek Holtzclaw	Raymond Farina
New York State Office of General Services	Franklin Hecht	Bob Lobdell
New York State Office of Mental Health	Emil Slane	Ed Killeen
New York State Office of Parks, Recreation and Historic Preservation	Tom Alworth	Michael Wise
New York State Olympic Regional Development Authority	Ted Blazer	Bob Hammond
New York State Thruway Authority and Canal Corporation	John Barr	Joe Stahl
Niagara Frontier Transportation Authority	Michael Bykowski	Dennis Lupp
Roosevelt Island Operating Corporation of the State of New York	Sean Singh	Sean Singh
State University of New York	Robert Haelen	Karren Bee-Donohoe

State Agencies Covered Under the Office of General Services

Agency	Executive Sponsor	Responsible Lead
Division of Homeland Security and Emergency Services	Jerry McCarty	Andrew Feeney
Empire State Development Corporation	Ed Hamilton	Brenda Grober
New York State Homes & Community Renewal	Forrest Taylor	Ted Minissale
New York State Department of State	Daniel Shapiro	Becky Sebesta
New York State Department of Civil Service	Deirdre Taylor	Brian Bopp
New York State Department of Labor	Mario Musolino	Paul Danaher
New York State Department of Public Service	Judith Lee	Sorelle Brauth
New York State Department of Taxation and Finance	Jamie Woodward	Eric Mostert
New York State Division of Criminal Justice Services	Mark Bonacquist	Tim O'Neill
New York State Environmental Facilities Corporation	Matthew Driscoll	Maureen McGrath
New York State Gaming Commission	Gardner Gurney	Michael Houlton
New York State Governor's Office of Employee Relations	Mary Hines	Mary Hines
New York State Liquor Authority	Chad Loshbaugh	Kim Ciccone
New York State Office for the Aging	Jack Lynch	Rebecca Frament
New York State Office of Human Rights	Valerie Dent	Valerie Dent
New York State Office of The Inspector General	Michael Clarke	Peggy Gaudet
Office of Information Technology Services	Theresa Papa	Dan Healy
Office of Temporary and Disability Assistance	Eric Schwenzfeier	Teri Vazquez
Public Employment Relations Board	Anthony Zumbolo	Anthony Zumbolo
Workers Compensation Board	Uluss Thompson	Cheryl Contento

State Agencies Reported as Occupying Leased Space

Agency	Executive Sponsor	Responsible Lead
Battery Park City Authority	Anne Fenton	Anne Fenton
New York State Bridge Authority	Tara Sullivan	Bob Russo
New York State Council on the Arts	Brenda Brown	Jerry Pecchia
New York State Department of Financial Services	Eric Madoff	Lori Fraser
New York State Department of Motor Vehicles	Gregory Kline	Meghann O'Connell
New York State Division of Veterans Affairs	Todd Rosenfield	Sharon Van Wagner
New York State Office of the Medicaid Inspector General	Vittoria Parry	Nancy Conroy
New York State Office of Victim Services	Danny Morgan	Danny Morgan

B. Baseline and Year 1 Data

Since the creation of the initial Benchmarking Report in August 2013, additional energy consumption and building data was made available to the BuildSmart NY team that affected the initial benchmarking results. Because the Baseline information plays such a large role in determining compliance with EO 88, the BuildSmart NY team decided to update the Baseline data with the best available information to maximize the accuracy of these measurements. Due to this update, the Baseline presented in this Progress Report varies slightly from what was presented in the August 2013 Benchmarking Report.

Agency/Facility Name	Baseline Year			Year 1			% Change in Square Footage	% Change in kBtu	% Change in EUI
	Gross Floor Area (S.F.)	Adjusted Source kBtu	Adjusted Source EUI	Gross Floor Area (S.F.)	Adjusted Source kBtu	Adjusted Source EUI			
Adirondack Park Agency									
Adirondack Park Agency Office	22,000	3,159,296.9	143.6	N/A	N/A	N/A	N/A	N/A	N/A
City University of New York									
Baruch College Campus	1,572,632	402,313,517.2	255.8	1,572,632	388,392,221.5	247.0	0.0%	-3.5%	-3.5%
Brooklyn College Campus	2,411,705	814,261,966.0	337.6	2,409,923	841,202,031.8	349.1	-0.1%	3.3%	3.4%
Central Office Campus	423,309	64,224,516.1	151.7	526,465	62,421,837.6	118.6	24.4%	-2.8%	-21.9%
City College of New York Campus	2,989,918	795,175,045.4	266.0	2,993,602	813,988,722.5	271.9	0.1%	2.4%	2.2%
City Tech College Campus	1,161,402	208,856,860.0	179.8	1,152,248	201,244,178.3	174.7	-0.8%	-3.6%	-2.9%
College of Staten Island Campus	1,354,984	434,485,101.9	320.7	1,354,984	419,855,247.6	309.9	0.0%	-3.4%	-3.4%
Graduate Center	614,962	151,708,889.5	246.7	616,781	157,232,399.5	254.9	0.3%	3.6%	3.3%
Honors College	24,096	7,618,495.9	316.2	24,096	7,153,105.9	296.9	0.0%	-6.1%	-6.1%
Hunter College Campus	2,608,702	637,201,637.6	244.3	2,660,096	637,587,205.2	239.7	2.0%	0.1%	-1.9%
John Jay College of Criminal Justice Campus	800,856	291,912,214.4	364.5	1,138,923	344,483,805.9	302.5	42.2%	18.0%	-17.0%
Lehman College Campus	1,524,527	422,752,038.3	277.3	1,524,527	380,591,059.8	249.6	0.0%	-10.0%	-10.0%
Medgar Evers College Campus	583,310	191,325,809.4	328.0	576,046	198,679,641.3	344.9	-1.2%	3.8%	5.2%
Queens College Campus	2,644,319	667,839,198.3	252.6	2,464,478	594,147,747.6	241.1	-6.8%	-11.0%	-4.5%
York College Campus	937,783	269,333,497.1	287.2	937,783	250,157,626.2	266.8	0.0%	-7.1%	-7.1%
Dormitory Authority of the State of New York									
Delmar Building	43,000	9,206,442.8	214.1	43,000	5,220,482.0	121.4	0.0%	-43.3%	-43.3%
Headquarters (Albany)	180,000	28,579,502.0	158.8	180,000	28,614,891.0	159.0	0.0%	0.1%	0.1%
Metropolitan Transportation Authority									
126th Street Depot	115,839	59,248,361.1	511.5	N/A	N/A	N/A	N/A	N/A	N/A
130 Livingston Street	565,650	217,222,366.8	384.0	N/A	N/A	N/A	N/A	N/A	N/A
2 Broadway Office	1,600,000	353,819,066.8	221.1	N/A	N/A	N/A	N/A	N/A	N/A
99th Street Lighting	23,260	4,415,497.4	189.8	N/A	N/A	N/A	N/A	N/A	N/A
Amsterdam Depot	87,061	15,492,999.5	178.0	N/A	N/A	N/A	N/A	N/A	N/A
Baisley Park Depot	83,295	17,293,874.7	207.6	N/A	N/A	N/A	N/A	N/A	N/A
Bergen Street	48,700	7,856,496.4	161.3	N/A	N/A	N/A	N/A	N/A	N/A

Agency/Facility Name	Baseline Year			Year 1			% Change in Square Footage	% Change in kBtu	% Change in EUI
	Gross Floor Area (S.F.)	Adjusted Source kBtu	Adjusted Source EUI	Gross Floor Area (S.F.)	Adjusted Source kBtu	Adjusted Source EUI			
Metropolitan Transportation Authority (continued)									
Brewster North Maint. Facility	65,000	42,105,499.5	647.8	N/A	N/A	N/A	N/A	N/A	N/A
Casey Stengel Depot	142,350	68,020,267.0	477.8	N/A	N/A	N/A	N/A	N/A	N/A
Castleton Depot	148,239	64,265,937.1	433.5	N/A	N/A	N/A	N/A	N/A	N/A
Central Substation	35,200	4,071,017.6	115.7	N/A	N/A	N/A	N/A	N/A	N/A
College Point Depot	127,018	75,498,723.6	594.4	N/A	N/A	N/A	N/A	N/A	N/A
Eastchester Depot	66,217	30,340,668.3	458.2	N/A	N/A	N/A	N/A	N/A	N/A
Far Rockaway Depot	27,371	10,235,653.4	374.0	N/A	N/A	N/A	N/A	N/A	N/A
Flatbush Depot	186,762	98,991,240.6	530.0	N/A	N/A	N/A	N/A	N/A	N/A
Fresh Pond Depot	165,895	74,843,868.9	451.2	N/A	N/A	N/A	N/A	N/A	N/A
Grand Avenue Depot	566,290	289,312,336.8	510.9	N/A	N/A	N/A	N/A	N/A	N/A
Grand Central Terminal	762,000	808,415,213.4	1,060.9	N/A	N/A	N/A	N/A	N/A	N/A
Gun Hill Depot	297,600	73,632,438.1	247.4	N/A	N/A	N/A	N/A	N/A	N/A
Hillside Support Facility – Building 2	314,811	132,830,851.2	421.9	N/A	N/A	N/A	N/A	N/A	N/A
Jackie Gleason Depot	308,333	93,386,061.8	302.9	N/A	N/A	N/A	N/A	N/A	N/A
Jamaica Corporate	64,275	45,317,301.3	705.1	N/A	N/A	N/A	N/A	N/A	N/A
Jamaica Depot	97,674	59,553,518.8	609.7	N/A	N/A	N/A	N/A	N/A	N/A
JFK Depot	154,982	42,523,968.7	274.4	N/A	N/A	N/A	N/A	N/A	N/A
Kingsbridge Depot	332,489	85,916,867.7	258.4	N/A	N/A	N/A	N/A	N/A	N/A
La Guardia Depot	112,464	90,935,814.4	808.6	N/A	N/A	N/A	N/A	N/A	N/A
Manhattanville Depot	417,793	115,791,421.4	277.2	N/A	N/A	N/A	N/A	N/A	N/A
Maspeth Warehouse	424,201	39,776,025.4	93.8	N/A	N/A	N/A	N/A	N/A	N/A
Michael J. Quill Depot	473,640	163,898,460.0	346.0	N/A	N/A	N/A	N/A	N/A	N/A
MTA Headquarters – 341 Madison Ave.	46,515	11,279,439.5	242.5	N/A	N/A	N/A	N/A	N/A	N/A
MTA Headquarters – 345 Madison Ave.	79,800	27,477,738.4	344.3	N/A	N/A	N/A	N/A	N/A	N/A
MTA Headquarters – 347 Madison Ave.	212,000	75,426,320.8	355.8	N/A	N/A	N/A	N/A	N/A	N/A
NYCT Learning Center	56,000	6,897,373.5	123.2	N/A	N/A	N/A	N/A	N/A	N/A
Print Shop	32,750	13,387,579.5	408.8	N/A	N/A	N/A	N/A	N/A	N/A
Quay Street Depot	73,000	12,523,658.9	171.6	N/A	N/A	N/A	N/A	N/A	N/A
Queens Village Depot	213,492	73,626,470.4	344.9	N/A	N/A	N/A	N/A	N/A	N/A
Rail Control Center	248,000	102,576,993.0	413.6	N/A	N/A	N/A	N/A	N/A	N/A
Sheridan Shop – Richmond Hill	74,413	38,020,397.8	510.9	N/A	N/A	N/A	N/A	N/A	N/A
Signal Learning Center	28,000	2,183,537.6	78.0	N/A	N/A	N/A	N/A	N/A	N/A
Spring Creek Depot	59,904	32,788,438.4	547.3	N/A	N/A	N/A	N/A	N/A	N/A
Tiffany Street Warehouse	375,000	21,182,119.8	56.5	N/A	N/A	N/A	N/A	N/A	N/A
Tiffany Street Iron Shop	69,000	21,543,178.8	312.2	N/A	N/A	N/A	N/A	N/A	N/A
Tuskegee Airmen Depot	375,383	165,879,595.1	441.9	N/A	N/A	N/A	N/A	N/A	N/A
Ulmer Park Depot	136,957	98,000,103.9	715.6	N/A	N/A	N/A	N/A	N/A	N/A

Agency/Facility Name	Baseline Year			Year 1			% Change in Square Footage	% Change in kBtu	% Change in EUI
	Gross Floor Area (S.F.)	Adjusted Source kBtu	Adjusted Source EUI	Gross Floor Area (S.F.)	Adjusted Source kBtu	Adjusted Source EUI			
Metropolitan Transportation Authority (continued)									
West Farms Depot	160,680	64,220,014.1	399.7	N/A	N/A	N/A	N/A	N/A	N/A
Woodside Revenue 33-33	25,000	8,135,498.6	325.4	N/A	N/A	N/A	N/A	N/A	N/A
Woodside Revenue 33-61	31,070	7,423,302.1	238.9	N/A	N/A	N/A	N/A	N/A	N/A
Yonkers Depot	29,404	16,125,371.2	548.4	N/A	N/A	N/A	N/A	N/A	N/A
Yukon Depot	267,516	87,437,765.8	326.9	N/A	N/A	N/A	N/A	N/A	N/A
Zerega Central Maintenance Facility	228,353	93,676,210.2	410.2	N/A	N/A	N/A	N/A	N/A	N/A
New York Power Authority									
Clarence D Rappleyea	420,000	103,215,546.4	245.8	420,000	102,208,121.5	243.4	0.0%	-1.0%	-1.0%
Clark Energy Center/MOMC Building	116,267	50,922,595.9	435.4	116,267	52,810,272.8	454.2	0.0%	3.7%	4.3%
New York State Department of Corrections and Community Supervision									
Adirondack Correctional Facility	500,512	97,306,781.1	194.4	492,821	84,784,196.5	172.0	-1.5%	-12.9%	-11.5%
Albion Correctional Facility	655,726	195,040,630.2	297.4	655,726	178,192,004.1	271.7	0.0%	-8.6%	-8.6%
Altona Correctional Facility	224,212	61,357,546.3	273.7	220,958	58,857,673.6	266.4	-1.5%	-4.1%	-2.7%
Arthurkill Correctional Facility	354,455	104,915,394.5	296.0	353,105	38,665,085.4	109.5	-0.4%	-63.1%	-63.0%
Attica Correctional Facility	1,145,022	277,876,207.1	242.7	1,149,952	263,949,363.4	229.5	0.4%	-5.0%	-5.4%
Auburn Correctional Facility	1,214,714	263,011,609.5	216.5	1,213,994	247,910,771.5	204.2	-0.1%	-5.7%	-5.7%
Bare Hill Correctional Facility	491,621	187,941,447.0	382.3	475,682	179,709,897.9	377.8	-3.2%	-4.4%	-1.2%
Bayview Correctional Facility	107,854	33,152,402.2	307.4	107,854	31,143,093.8	288.8	0.0%	-6.1%	-6.1%
Beacon Correctional Facility	104,166	20,026,587.1	192.3	104,016	19,033,217.1	183.0	-0.1%	-5.0%	-4.8%
Bedford Hills Correctional Facility	642,101	175,692,384.1	273.6	642,101	179,675,259.2	279.8	0.0%	2.3%	2.3%
Buffalo Correctional Facility	34,276	10,007,937.6	292.0	34,276	1,702,822.6	49.7	0.0%	-83.0%	-83.0%
Butler Correctional Facility	102,509	42,357,662.0	413.2	102,509	40,908,975.6	399.1	0.0%	-3.4%	-3.4%
Camp Gabriels Correctional Facility	167,030	2,756,726.6	16.5	167,030	273,326.4	1.6	0.0%	-90.1%	-90.1%
Camp Georgetown Correctional Facility	82,870	21,981,473.3	265.3	82,768	11,512,540.1	139.1	-0.1%	-47.6%	-47.6%
Cape Vincent Correctional Facility	309,729	99,046,618.2	319.8	309,729	93,411,900.5	301.6	0.0%	-5.7%	-5.7%
Cayuga Correctional Facility	369,944	123,434,892.3	333.7	369,944	125,733,470.2	339.9	0.0%	1.9%	1.9%
Chateaugay Correctional Facility	98,907	30,808,590.2	311.5	90,756	28,299,877.1	311.8	-8.2%	-8.1%	0.1%
Clinton Correctional Facility	1,949,707	479,190,028.2	245.8	1,949,707	451,177,259.5	231.4	0.0%	-5.8%	-5.8%
Collins Correctional Facility	890,476	180,433,536.6	202.6	889,509	145,295,263.7	163.3	-0.1%	-19.5%	-19.4%
Coxsackie Correctional Facility	658,906	151,569,982.8	230.0	659,419	142,341,934.6	215.9	0.1%	-6.1%	-6.2%
Downstate Correctional Facility	584,254	302,303,681.6	517.4	584,254	326,849,492.6	559.4	0.0%	8.1%	8.1%
Eastern Correctional Facility	953,272	173,444,653.0	181.9	953,272	175,465,966.8	184.1	0.0%	1.2%	1.2%
Edgecombe Correctional Facility	86,122	23,975,808.6	278.4	86,122	22,858,704.8	265.4	0.0%	-4.7%	-4.7%
Elmira Correctional Facility	1,575,830	315,559,191.4	200.2	1,570,340	302,812,317.1	192.8	-0.3%	-4.0%	-3.7%
Fishkill Correctional Facility	1,556,913	379,136,074.1	243.5	1,556,913	360,335,029.5	231.4	0.0%	-5.0%	-5.0%

Agency/Facility Name	Baseline Year			Year 1			% Change in Square Footage	% Change in kBtu	% Change in EUI
	Gross Floor Area (S.F.)	Adjusted Source kBtu	Adjusted Source EUI	Gross Floor Area (S.F.)	Adjusted Source kBtu	Adjusted Source EUI			
New York State Department of Corrections and Community Supervision (continued)									
Five Points Correctional Facility	997,438	199,173,480.5	199.7	996,856	204,880,200.3	205.5	-0.1%	2.9%	2.9%
Franklin Correctional Facility	544,054	177,267,801.0	325.8	544,054	172,193,986.3	316.5	0.0%	-2.9%	-2.9%
Fulton Correctional Facility	90,688	19,664,789.8	216.8	90,688	5,921,987.2	65.3	0.0%	-69.9%	-69.9%
Gouverneur Correctional Facility	372,764	129,354,073.0	347.0	372,764	123,950,030.3	332.5	0.0%	-4.2%	-4.2%
Gowanda Correctional Facility	885,820	178,757,527.2	201.8	885,820	179,335,056.0	202.5	0.0%	0.3%	0.3%
Great Meadow Correctional Facility	1,098,651	258,333,398.5	235.1	1,098,351	240,442,530.0	218.9	0.0%	-6.9%	-6.9%
Green Haven Correctional Facility	1,537,919	320,502,780.3	208.4	1,537,919	290,728,369.2	189.0	0.0%	-9.3%	-9.3%
Greene Correctional Facility	568,902	164,980,889.2	290.0	568,902	164,478,968.1	289.1	0.0%	-0.3%	-0.3%
Groveland Correctional Facility	1,119,994	176,671,829.8	157.7	1,119,994	167,023,607.6	149.1	0.0%	-5.5%	-5.5%
Hale Creek Correctional Facility	129,594	40,380,794.1	311.6	129,594	38,866,108.3	299.9	0.0%	-3.8%	-3.8%
Hudson Correctional Facility	349,222	68,446,521.1	196.0	360,644	68,380,336.7	189.6	3.3%	-0.1%	-3.3%
Lakeview Correctional Facility	430,237	95,576,228.3	222.1	430,237	87,851,207.8	204.2	0.0%	-8.1%	-8.1%
Lincoln Correctional Facility	56,919	14,910,568.8	262.0	56,919	12,750,801.4	224.0	0.0%	-14.5%	-14.5%
Livingston Correctional Facility	287,232	143,859,750.3	500.8	287,232	139,348,307.0	485.1	0.0%	-3.1%	-3.1%
Lyon Mountain Correctional Facility	86,997	13,559,005.4	155.9	86,997	53,522.0	0.6	0.0%	-99.6%	-99.6%
Marcy Correctional Facility	615,738	156,843,195.2	254.7	615,738	150,414,425.4	244.3	0.0%	-4.1%	-4.1%
Mid-Orange Correctional Facility	564,297	122,607,594.7	217.3	565,497	34,585,627.0	61.2	0.2%	-71.8%	-71.9%
Mid-State Correctional Facility	1,077,248	319,482,578.5	296.6	1,077,248	311,101,175.8	288.8	0.0%	-2.6%	-2.6%
Mohawk Correctional Facility	778,563	221,647,498.6	284.7	934,159	336,369,097.4	360.1	20.0%	51.8%	26.5%
Monterey Correctional Facility	97,983	18,479,379.4	188.6	97,983	19,304,913.9	197.0	0.0%	4.5%	4.5%
Moriah Correctional Facility	113,881	22,571,743.5	198.2	113,881	22,334,980.5	196.1	0.0%	-1.0%	-1.0%
Mt. Mcgregor Correctional Facility	575,352	91,619,025.9	159.2	575,352	86,092,336.7	149.6	0.0%	-6.0%	-6.0%
NYCC	50,000	786,334.3	15.7	50,000	3,767.7	0.1	0.0%	-99.5%	-99.5%
Ogdensburg Correctional Facility	524,842	79,920,166.9	152.3	524,842	78,610,879.9	149.8	0.0%	-1.6%	-1.6%
Oneida Correctional Facility	1,006,228	278,439,011.2	276.7	856,536	171,815,612.7	200.6	-14.9%	-38.3%	-27.5%
Orleans Correctional Facility	356,243	96,289,037.0	270.3	356,243	86,622,531.9	243.2	0.0%	-10.0%	-10.0%
Otisville Correctional Facility	402,366	82,946,386.1	206.1	402,208	76,463,421.7	190.1	0.0%	-7.8%	-7.8%
Queensboro Correctional Facility	128,372	40,245,244.5	313.5	128,372	38,126,012.6	297.0	0.0%	-5.3%	-5.3%
Riverview Correctional Facility	310,340	106,330,913.6	342.6	310,340	106,952,335.8	344.6	0.0%	0.6%	0.6%
Shawangunk Correctional Facility	341,601	82,378,579.7	241.2	341,701	77,748,348.2	227.5	0.0%	-5.6%	-5.6%
Sing Sing Correctional Facility	1,068,852	241,358,965.8	225.8	1,068,852	236,676,563.1	221.4	0.0%	-1.9%	-1.9%
Southport Correctional Facility	430,326	100,069,632.1	232.5	430,326	94,832,579.4	220.4	0.0%	-5.2%	-5.2%
Sullivan Annex	59,246	4,292,395.7	72.5	59,246	3,487,283.4	58.9	0.0%	-18.8%	-18.8%
Sullivan Correctional Facility	367,204	126,833,109.2	345.4	367,204	116,844,451.2	318.2	0.0%	-7.9%	-7.9%
Summit Correctional Facility	81,952	18,937,338.7	231.1	81,952	8,702,306.5	106.2	0.0%	-54.0%	-54.0%

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	Gross Floor Area (S.F.)	Adjusted Source kBtu	Adjusted Source EUI	Gross Floor Area (S.F.)	Adjusted Source kBtu	Adjusted Source EUI			
New York State Department of Corrections and Community Supervision (continued)									
Taconic Correctional Facility	241,852	68,921,506.4	285.0	241,852	75,326,161.2	311.5	0.0%	9.3%	9.3%
Training Academy	93,066	18,134,775.6	194.9	93,066	15,319,225.3	164.6	0.0%	-15.5%	-15.5%
Ulster Correctional Facility	275,534	73,340,180.2	266.2	275,534	79,768,411.6	289.5	0.0%	8.8%	8.8%
Upstate Correctional Facility	717,173	190,151,756.9	265.1	787,775	185,908,297.6	236.0	9.8%	-2.2%	-11.0%
Wallkill Correctional Facility	515,311	103,981,108.8	201.8	515,311	88,832,911.7	172.4	0.0%	-14.6%	-14.6%
Washington Correctional Facility	471,270	120,443,489.3	255.6	471,270	113,583,125.3	241.0	0.0%	-5.7%	-5.7%
Watertown Correctional Facility	341,785	87,460,500.0	255.9	341,785	86,064,373.4	251.8	0.0%	-1.6%	-1.6%
Wende Correctional Facility	623,100	155,037,421.4	248.8	622,405	128,595,645.2	206.6	-0.1%	-17.1%	-17.0%
Willard D.T.C.	1,176,933	168,249,807.0	143.0	1,176,933	156,462,978.9	132.9	0.0%	-7.0%	-7.0%
Woodbourne Correctional Facility	410,400	124,736,703.1	303.9	410,400	116,047,680.3	282.8	0.0%	-7.0%	-7.0%
Wyoming Correctional Facility	708,325	144,208,713.0	203.6	783,627	141,750,866.8	180.9	10.6%	-1.7%	-11.2%
New York State Department of Environmental Conservation									
Avon Office	45,248	5,303,082.1	117.2	45,248	5,554,192.0	92.8	0.0%	4.7%	-20.8%
Herkimer Suboffice	21,355	676,233.3	31.7	21,355	899,377.7	42.1	0.0%	33.0%	33.0%
New Paltz Regional Office	41,400	4,646,717.9	112.2	41,400	4,912,417.7	118.7	0.0%	5.7%	5.7%
Raybrook Office	39,856	3,892,771.7	97.7	39,856	3,981,172.6	99.9	0.0%	2.3%	2.3%
Salmon River Fish Hatchery	41,000	12,393,940.1	302.3	41,000	11,384,730.1	277.7	0.0%	-8.1%	-8.1%
Stamford Suboffice	23,949	2,007,577.8	83.8	23,949	1,972,412.9	82.4	0.0%	-1.8%	-1.8%
Stonybrook Office	43,298	10,542,871.0	243.5	43,298	11,413,787.4	263.6	0.0%	8.3%	8.3%
Warrensburg Suboffice	38,051	5,043,788.2	132.6	38,051	4,873,805.8	128.1	0.0%	-3.4%	-3.4%
New York State Department of Health									
David Axelrod Institute	250,500	206,879,530.0	825.9	N/A	N/A	N/A	N/A	N/A	N/A
Griffin Laboratory	80,000	73,082,109.8	913.5	N/A	N/A	N/A	N/A	N/A	N/A
Helen Hayes Hospital	500,000	103,663,099.6	207.3	N/A	N/A	N/A	N/A	N/A	N/A
Veterans' Home at Batavia	80,000	27,344,252.5	341.8	N/A	N/A	N/A	N/A	N/A	N/A
Veterans' Home at Montrose	186,000	51,963,469.0	279.4	N/A	N/A	N/A	N/A	N/A	N/A
Veterans' Home at St. Albans	156,000	45,712,252.0	293.0	N/A	N/A	N/A	N/A	N/A	N/A
Skilled Nursing Facility– Veterans' Home at Oxford	250,000	80,906,395.8	323.6	N/A	N/A	N/A	N/A	N/A	N/A
New York State Department of Transportation									
Broome Residency	31,000	4,730,724.7	152.6	N/A	N/A	N/A	N/A	N/A	N/A
Region 5 Fleet Shop	43,250	7,514,014.5	173.7	N/A	N/A	N/A	N/A	N/A	N/A
Hamburg	22,963	3,876,308.9	168.8	N/A	N/A	N/A	N/A	N/A	N/A
Lockport	43,000	5,975,387.2	139.0	N/A	N/A	N/A	N/A	N/A	N/A
Lowville HQ	27,579	3,715,194.9	134.7	N/A	N/A	N/A	N/A	N/A	N/A
Melville HQ	32,500	4,978,893.3	153.2	N/A	N/A	N/A	N/A	N/A	N/A
Monroe East Residency HQ	25,829	4,570,200.5	176.9	N/A	N/A	N/A	N/A	N/A	N/A
North Merrick HQ	57,250	10,150,172.9	177.3	N/A	N/A	N/A	N/A	N/A	N/A
Jefferson County Residency	30,000	5,685,138.0	189.5	N/A	N/A	N/A	N/A	N/A	N/A

Agency/Facility Name	Baseline Year			Year 1			% Change in Square Footage	% Change in kBtu	% Change in EUI
	Gross Floor Area (S.F.)	Adjusted Source kBtu	Adjusted Source EUI	Gross Floor Area (S.F.)	Adjusted Source kBtu	Adjusted Source EUI			
New York State Department of Transportation (continued)									
Ogdensburg Sub-Residency	30,000	4,026,064.1	134.2	N/A	N/A	N/A	N/A	N/A	N/A
Onondaga East Residency	30,453	5,102,086.1	167.5	N/A	N/A	N/A	N/A	N/A	N/A
Region 3 Fleet Administration Shop	65,044	8,507,033.0	130.8	N/A	N/A	N/A	N/A	N/A	N/A
Region 6 Fleet Administration Shop	44,339	4,773,701.2	107.7	N/A	N/A	N/A	N/A	N/A	N/A
Region 7 Fleet Administration Shop	37,200	6,234,515.0	167.6	N/A	N/A	N/A	N/A	N/A	N/A
Riverhead HQ	30,000	4,633,376.8	154.4	N/A	N/A	N/A	N/A	N/A	N/A
Schuyler/Yates Residency	35,710	3,199,803.3	89.6	N/A	N/A	N/A	N/A	N/A	N/A
Syosset HQ	30,000	3,639,632.3	121.3	N/A	N/A	N/A	N/A	N/A	N/A
Wyoming County Residency	27,125	4,131,027.4	152.3	N/A	N/A	N/A	N/A	N/A	N/A
New York State Division of Military and Naval Affairs									
Auburn Armory	55,705	7,163,002.5	128.6	N/A	N/A	N/A	N/A	N/A	N/A
Binghamton Armory and Facility Maintenance Shop	125,401	6,505,425.8	51.9	N/A	N/A	N/A	N/A	N/A	N/A
Bronx Armory	34,265	3,538,273.6	103.3	N/A	N/A	N/A	N/A	N/A	N/A
Buffalo Connecticut Street Armory and Field Maintenance Shop	384,501	15,282,820.5	39.7	N/A	N/A	N/A	N/A	N/A	N/A
Buffalo Masten Ave. Armory	301,743	12,510,879.5	41.5	N/A	N/A	N/A	N/A	N/A	N/A
Buffalo Masten Ave. Facility Maintenance Shop	36,696	1,806,778.0	49.2	N/A	N/A	N/A	N/A	N/A	N/A
Camp Smith Training Site Campus	621,292	56,847,526.8	91.5	N/A	N/A	N/A	N/A	N/A	N/A
Dunkirk Armory	23,845	2,485,169.4	104.2	N/A	N/A	N/A	N/A	N/A	N/A
Geneseo Armory	45,252	2,909,186.5	64.3	N/A	N/A	N/A	N/A	N/A	N/A
Geneva Armory	33,626	2,656,611.2	79.0	N/A	N/A	N/A	N/A	N/A	N/A
Gloversville Armory	42,352	2,322,619.8	54.8	N/A	N/A	N/A	N/A	N/A	N/A
Hornell Armory	41,919	1,810,588.4	43.2	N/A	N/A	N/A	N/A	N/A	N/A
Horseheads Armory	27,641	3,196,246.4	115.6	N/A	N/A	N/A	N/A	N/A	N/A
Ithaca Armory	29,661	2,147,766.8	72.4	N/A	N/A	N/A	N/A	N/A	N/A
Jamaica Armory and Facility Maintenance Shop	312,231	30,919,090.6	99.0	N/A	N/A	N/A	N/A	N/A	N/A
Jamestown Armory and Facility Maintenance Shop	42,771	3,574,044.6	83.6	N/A	N/A	N/A	N/A	N/A	N/A
Kingston Armory	111,745	7,448,847.9	66.7	N/A	N/A	N/A	N/A	N/A	N/A
Latham Army Aviation Support Facility	38,797	8,023,756.3	206.8	N/A	N/A	N/A	N/A	N/A	N/A
Latham HQ, Armory and Facility Maintenance Shop Campus	196,658	35,595,183.9	181.0	N/A	N/A	N/A	N/A	N/A	N/A
Leeds Armory	37,732	2,906,321.3	77.0	N/A	N/A	N/A	N/A	N/A	N/A
Lockport Armory	28,281	3,059,417.3	108.2	N/A	N/A	N/A	N/A	N/A	N/A
Morrisonville Armory	22,187	1,366,562.4	61.6	N/A	N/A	N/A	N/A	N/A	N/A
New York Fifth Avenue Armory	245,395	21,588,210.9	88.0	N/A	N/A	N/A	N/A	N/A	N/A
New York Lexington Avenue Armory	226,785	13,122,044.0	57.9	N/A	N/A	N/A	N/A	N/A	N/A

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New York State Division of Military and Naval Affairs (continued)									
Ogdensburg Armory	33,963	2,235,005.5	65.8	N/A	N/A	N/A	N/A	N/A	N/A
Olean Armory	48,097	1,934,198.6	40.2	N/A	N/A	N/A	N/A	N/A	N/A
Orangeburg Armory	28,321	2,028,072.1	71.6	N/A	N/A	N/A	N/A	N/A	N/A
Peekskill Armory	81,534	4,468,735.1	54.8	N/A	N/A	N/A	N/A	N/A	N/A
Queensbury Armory	49,363	7,044,438.3	142.7	N/A	N/A	N/A	N/A	N/A	N/A
Rochester Patriot Way Armory	131,436	13,710,338.0	104.3	N/A	N/A	N/A	N/A	N/A	N/A
Rochester Patriot Way Army Aviation Support Facility	94,982	15,420,900.9	162.4	N/A	N/A	N/A	N/A	N/A	N/A
Ronkonkoma Armory and Army Aviation Support Facility	78,694	11,831,643.9	150.4	N/A	N/A	N/A	N/A	N/A	N/A
Saranac Lake Armory	22,862	1,257,675.8	55.0	N/A	N/A	N/A	N/A	N/A	N/A
Saratoga Springs Museum	37,707	3,936,819.8	104.4	N/A	N/A	N/A	N/A	N/A	N/A
Staten Island Armory	61,600	6,133,426.6	99.6	N/A	N/A	N/A	N/A	N/A	N/A
Staten Island Combined Support Maintenance Shop	27,633	6,526,046.7	236.2	N/A	N/A	N/A	N/A	N/A	N/A
Troy Glenmore Road Armory and Facility Maintenance Shop	80,218	9,502,579.2	118.5	N/A	N/A	N/A	N/A	N/A	N/A
Troy South Lake Avenue Armory	21,316	1,933,831.1	90.7	N/A	N/A	N/A	N/A	N/A	N/A
Utica Armory	106,387	12,131,197.4	114.0	N/A	N/A	N/A	N/A	N/A	N/A
Whitestone Armory	39,515	2,125,198.9	53.8	N/A	N/A	N/A	N/A	N/A	N/A
Yonkers Armory	23,762	2,470,918.9	104.0	N/A	N/A	N/A	N/A	N/A	N/A
New York State Division of State Police									
Carthage	20,000	3,916,445.6	195.8	N/A	N/A	N/A	N/A	N/A	N/A
Troop A HQ	43,073	9,566,884.4	222.1	N/A	N/A	N/A	N/A	N/A	N/A
Troop B HQ	39,000	8,500,425.0	218.0	N/A	N/A	N/A	N/A	N/A	N/A
Troop C HQ	43,610	6,495,562.4	148.9	N/A	N/A	N/A	N/A	N/A	N/A
Troop D HQ	50,000	8,972,916.6	179.5	N/A	N/A	N/A	N/A	N/A	N/A
Troop E HQ	46,150	7,764,207.3	168.2	N/A	N/A	N/A	N/A	N/A	N/A
Troop F HQ	45,832	8,362,762.3	182.5	N/A	N/A	N/A	N/A	N/A	N/A
Troop K HQ	55,000	9,372,954.6	170.4	N/A	N/A	N/A	N/A	N/A	N/A
New York State Energy Research and Development Authority									
Albany Office	66,000	11,553,447.0	175.1	66,000	11,092,941.7	168.1	0.0%	-4.0%	-4.0%
New York State Insurance Fund									
Albany 1 Office	58,831	11,808,523.2	200.7	58,831	11,379,202.6	193.4	0.0%	-3.6%	-3.6%
Albany 15 Office	38,221	6,574,147.8	172.0	38,221	6,775,180.8	177.3	0.0%	3.1%	3.1%
Buffalo Office	49,059	5,766,185.8	117.5	49,059	6,557,655.8	133.7	0.0%	13.7%	13.7%
Hempstead Office	48,245	6,298,235.6	130.5	48,245	3,430,954.8	71.1	0.0%	-45.5%	-45.5%
NYC Office	316,087	63,533,000.0	201.0	316,087	63,055,943.6	199.5	0.0%	-0.8%	-0.8%
Syracuse Office	58,644	20,156,215.7	343.7	58,644	20,092,645.6	342.6	0.0%	-0.3%	-0.3%

Agency/Facility Name	Baseline Year			Year 1			% Change in Square Footage	% Change in kBtu	% Change in EUI
	Gross Floor Area (S.F.)	Adjusted Source kBtu	Adjusted Source EUI	Gross Floor Area (S.F.)	Adjusted Source kBtu	Adjusted Source EUI			
New York State Office for People with Developmental Disabilities									
Bernard Fineson DDSO	286,892	26,550,654.8	92.5	N/A	N/A	N/A	N/A	N/A	N/A
Brooklyn DDSO	524,989	115,713,719.5	220.4	N/A	N/A	N/A	N/A	N/A	N/A
Broome DDSO	402,151	141,861,244.6	352.8	N/A	N/A	N/A	N/A	N/A	N/A
Capital District DDSO	424,900	142,277,699.7	334.8	N/A	N/A	N/A	N/A	N/A	N/A
Finger Lakes DDSO/Monroe	301,268	125,559,901.5	416.8	N/A	N/A	N/A	N/A	N/A	N/A
Finger Lakes DDSO/Newark	269,389	43,242,812.0	160.5	N/A	N/A	N/A	N/A	N/A	N/A
Hudson Valley DDSO	225,739	34,915,066.0	154.7	N/A	N/A	N/A	N/A	N/A	N/A
Metro DDSO	169,870	35,288,929.4	207.7	N/A	N/A	N/A	N/A	N/A	N/A
Staten Island DDSO & Institute for Basic Research	714,211	371,720,815.9	520.5	N/A	N/A	N/A	N/A	N/A	N/A
Sunmount DDSO	544,498	132,351,680.8	243.1	N/A	N/A	N/A	N/A	N/A	N/A
Taconic DDSO	615,125	177,124,083.9	287.9	N/A	N/A	N/A	N/A	N/A	N/A
Valley Ridge/Broome DDSO	57,548	21,416,252.4	372.1	N/A	N/A	N/A	N/A	N/A	N/A
Western DDSO	1,034,839	139,648,982.5	134.9	N/A	N/A	N/A	N/A	N/A	N/A
New York State Office of Alcoholism and Substance Abuse Services									
Kingsboro ATC	110,000	38,876,830.6	353.4	N/A	N/A	N/A	N/A	N/A	N/A
New York State Office of Children and Family Services									
Allen Residential Center	62,601	7,865,165.5	125.6	N/A	N/A	N/A	N/A	N/A	N/A
Annsville Residential Center	31,870	4,131,128.2	129.6	N/A	N/A	N/A	N/A	N/A	N/A
Brookwood Secure Center	108,355	33,206,950.7	306.5	N/A	N/A	N/A	N/A	N/A	N/A
Ella McQueen Reception Center	54,532	15,420,967.0	282.8	N/A	N/A	N/A	N/A	N/A	N/A
Finger Lakes Residential Center	110,000	39,039,504.4	354.9	N/A	N/A	N/A	N/A	N/A	N/A
Goshen Secure Center	81,512	19,119,161.8	234.6	N/A	N/A	N/A	N/A	N/A	N/A
Highland Residential Center	173,547	25,004,957.5	144.1	N/A	N/A	N/A	N/A	N/A	N/A
Industry School	229,809	39,508,454.1	171.9	N/A	N/A	N/A	N/A	N/A	N/A
Industry Secure Center	68,487	16,911,080.1	246.9	N/A	N/A	N/A	N/A	N/A	N/A
Lansing Residential Center	55,639	16,018,533.3	287.9	N/A	N/A	N/A	N/A	N/A	N/A
MacCormick Secure Center	51,824	15,189,333.5	293.1	N/A	N/A	N/A	N/A	N/A	N/A
Middletown Residential Center	25,795	7,398,416.8	286.8	N/A	N/A	N/A	N/A	N/A	N/A
Taberg Residential Center	20,078	3,938,397.7	196.2	N/A	N/A	N/A	N/A	N/A	N/A
New York State Office of General Services									
Albany–110 State Office Building	470,000	101,720,499.9	216.4	470,000	99,041,501.7	210.7	0.0%	-2.6%	-2.6%
Albany–44 Holland Avenue	286,399	70,908,670.2	247.6	286,399	72,455,762.4	253.0	0.0%	2.2%	2.2%
Albany–50 Wolf Road	390,760	68,660,510.0	175.7	390,760	71,587,137.0	183.2	0.0%	4.3%	4.3%
Albany–625 Broadway	469,109	76,348,785.6	162.8	469,109	77,989,798.3	166.3	0.0%	2.1%	2.1%
Albany–Empire State Plaza	11,852,234	2,940,795,530.7	248.1	11,852,234	3,002,961,835.1	253.4	0.0%	2.1%	2.1%
Albany–Hampton Plaza	102,095	17,024,251.3	166.7	102,095	16,828,645.0	164.8	0.0%	-1.1%	-1.1%

Agency/Facility Name	Baseline Year			Year 1			% Change in Square Footage	% Change in kBtu	% Change in EUI
	Gross Floor Area (S.F.)	Adjusted Source kBtu	Adjusted Source EUI	Gross Floor Area (S.F.)	Adjusted Source kBtu	Adjusted Source EUI			
New York State Office of General Services (continued)									
Albany–Harriman Campus	2,696,893	769,545,612.5	283.7	2,696,893	761,333,101.6	274.0	0.0%	-1.1%	-3.4%
Albany–Ten Eyck Building	341,992	161,399,944.8	471.9	341,992	170,626,490.0	498.9	0.0%	5.7%	5.7%
Binghamton State Office Building	277,281	64,684,302.6	232.1	277,281	65,155,551.6	226.3	0.0%	0.7%	-2.5%
Brooklyn–Shirley A. Chisholm State Office Building	337,311	35,462,697.8	105.1	337,311	39,416,829.8	116.9	0.0%	11.2%	11.2%
Buffalo–Senator Walter J. Mahoney State Office Building	88,574	10,723,869.5	121.1	88,574	9,394,151.4	106.1	0.0%	-12.4%	-12.4%
Harlem–Adam Clayton Powell, Jr. State Office Building	386,069	87,195,263.8	224.2	386,069	88,560,830.1	221.1	0.0%	1.6%	-1.4%
Hauppauge–Perry B. Duryea State Office Building	417,784	51,615,670.0	123.5	417,784	62,000,482.7	148.4	0.0%	20.1%	20.1%
Hawthorne–Hudson Valley Transportation Management Center	108,634	45,213,251.6	414.6	108,634	45,455,519.2	410.1	0.0%	0.5%	-1.1%
Hornell–Henderson-Smith State Office Building	71,363	8,838,800.8	123.9	71,363	8,797,133.3	123.3	0.0%	-0.5%	-0.5%
Oneonta–Homer Folks Facility	29,301	6,212,823.2	212.0	29,301	6,246,272.6	213.2	0.0%	0.5%	0.5%
Poughkeepsie–Eleanor Roosevelt State Office Building	88,035	14,279,307.5	162.2	88,035	14,099,652.1	160.2	0.0%	-1.3%	-1.3%
Schenectady–328 State Street	116,566	13,368,147.7	114.7	116,566	14,354,241.4	123.1	0.0%	7.4%	7.4%
Syracuse–Senator John J. Hughes State Office Building	203,418	23,179,707.6	114.0	203,418	23,743,160.0	116.7	0.0%	2.4%	2.4%
Utica State Office Building	259,807	44,561,276.2	171.5	259,807	40,764,209.8	156.9	0.0%	-8.5%	-8.5%
Watertown–Dulles State Office Building	237,797	32,431,868.9	136.4	237,797	32,060,141.6	134.8	0.0%	-1.1%	-1.1%
New York State Office of Mental Health									
Binghamton PC	617,023	103,175,767.3	167.2	617,023	92,264,146.6	149.5	0.0%	-10.6%	-10.6%
Bronx PC	1,097,283	262,806,195.8	239.5	1,097,283	227,953,296.2	207.7	0.0%	-13.3%	-13.3%
Brooklyn PC	123,610	32,067,060.9	259.4	123,610	25,661,047.2	207.6	0.0%	-20.0%	-20.0%
Buffalo PC	589,063	125,937,485.5	213.8	589,063	123,363,815.3	209.4	0.0%	-2.0%	-2.0%
Capital District PC	446,470	66,483,082.3	148.9	446,470	40,965,856.1	91.8	0.0%	-38.4%	-38.4%
Central NY PC	503,411	115,273,733.0	229.0	503,411	53,637,805.7	106.5	0.0%	-53.5%	-53.5%
Creedmoor PC	1,620,843	312,130,807.9	192.6	1,535,575	271,460,095.5	176.8	-5.3%	-13.0%	-8.2%
Elmira PC	194,471	51,133,113.1	262.9	194,471	44,753,347.2	230.1	0.0%	-12.5%	-12.5%
Hudson River PC	270,002	42,015,320.9	155.6	270,002	32,748,725.6	121.3	0.0%	-22.1%	-22.0%
Hutchings PC	451,763	98,458,315.0	217.9	451,763	87,088,901.1	192.8	0.0%	-11.5%	-11.5%
Kingsboro PC	638,850	119,121,619.4	186.4	638,850	109,464,191.6	171.3	0.0%	-8.1%	-8.1%
Manhattan PC	1,973,208	449,606,470.3	227.8	1,973,208	433,919,539.2	219.9	0.0%	-3.5%	-3.5%
Mid-Hudson PC	235,069	52,309,044.3	222.5	235,069	49,300,485.1	209.7	0.0%	-5.8%	-5.7%
Middletown PC	198,851	36,251,986.2	182.3	119,628	39,307,306.0	328.6	-39.8%	8.4%	80.2%
Mohawk Valley PC	423,352	106,870,657.4	252.4	423,352.00	103,618,946.7	244.8	0.0%	-3.0%	-3.0%
NYSPI	558,134	260,882,393.5	467.4	558,134	246,886,047.1	442.3	0.0%	-5.4%	-5.4%
Pilgrim PC	1,721,487	386,243,939.2	224.4	1,721,487	386,639,505.8	224.6	0.0%	0.1%	0.1%
Queens Children's PC	210,312	66,475,450.3	316.1	210,312	62,367,734.0	296.5	0.0%	-6.2%	-6.2%

Agency/Facility Name	Baseline Year			Year 1			% Change in Square Footage	% Change in kBtu	% Change in EUI
	Gross Floor Area (S.F.)	Adjusted Source kBtu	Adjusted Source EUI	Gross Floor Area (S.F.)	Adjusted Source kBtu	Adjusted Source EUI			
New York State Office of Mental Health (continued)									
Rochester PC	688,027	157,850,284.7	229.4	688,027	136,226,118.1	198.0	0.0%	-13.7%	-13.7%
Rockland PC	1,559,120	405,032,972.2	259.8	1,559,120	387,165,714.6	248.3	0.0%	-4.4%	-4.4%
Rockland Cook Chill PC	59,067	55,372,954.6	937.5	59,067	57,316,033.2	970.4	0.0%	3.5%	3.5%
Sagamore PC	149,000	36,268,302.3	243.4	149,000	33,496,292.4	224.8	0.0%	-7.6%	-7.6%
South Beach PC	537,809	125,627,977.6	233.6	537,809.00	120,639,695.8	224.3	0.0%	-4.0%	-4.0%
St. Lawrence PC	447,988	166,431,784.5	371.5	447,988.00	163,847,983.7	365.7	0.0%	-1.6%	-1.5%
Western NY PC	108,841	20,911,451.3	192.1	108,841	19,008,064.0	174.6	0.0%	-9.1%	-9.1%
New York State Office of Parks, Recreation and Historic Perservation									
Bayard Cutting Mansion	23,385	1,941,011.5	83.0	N/A	N/A	N/A	N/A	N/A	N/A
Bear Mountain Garage	28,535	2,728,677.4	95.6	N/A	N/A	N/A	N/A	N/A	N/A
Fields Mansion/Caumsett	33,030	(26,322.2)	(0.8)	N/A	N/A	N/A	N/A	N/A	N/A
Lincoln Bathhouse, SSSP	104,146	8,134,443.6	78.1	N/A	N/A	N/A	N/A	N/A	N/A
Office/Connetquot	22,324	1,684,081.7	75.4	N/A	N/A	N/A	N/A	N/A	N/A
RCSP Activities Building	45,100	18,914,255.5	419.4	N/A	N/A	N/A	N/A	N/A	N/A
Storehouse/Signshop	30,527	473,352.5	15.5	N/A	N/A	N/A	N/A	N/A	N/A
New York State Thruway Authority and Canal Corporation									
Administrative HQ	121,000	54,446,764.8	450.0	N/A	N/A	N/A	N/A	N/A	N/A
Albany Division HQ. and Maintenance Garage	36,700	10,176,486.6	277.3	N/A	N/A	N/A	N/A	N/A	N/A
Buffalo Division HQ and Maintenance Garage	58,769	15,896,732.5	270.5	N/A	N/A	N/A	N/A	N/A	N/A
Henzel Powers	34,700	11,914,566.4	343.4	N/A	N/A	N/A	N/A	N/A	N/A
Lysander Canal Maintenance Facility	38,680	10,236,585.5	264.6	N/A	N/A	N/A	N/A	N/A	N/A
Newburgh Complex Vehicle Storage	103,614	10,242,303.0	98.9	N/A	N/A	N/A	N/A	N/A	N/A
Newquip (Brookside Farm) and Maintenance Garage	24,640	4,290,187.5	174.1	N/A	N/A	N/A	N/A	N/A	N/A
Nyack Division HQ and Maintenance Garage	46,300	11,156,587.8	241.0	N/A	N/A	N/A	N/A	N/A	N/A
Pittsford Canal Shop	20,865	2,088,533.7	100.1	N/A	N/A	N/A	N/A	N/A	N/A
Syracuse Division HQ and Maintenance Garage	79,892	17,066,609.7	213.6	N/A	N/A	N/A	N/A	N/A	N/A
Niagara Frontier Transportation Authority									
BNIA Maintenance Bldg.	32,500	3,094,526.7	95.2	N/A	N/A	N/A	N/A	N/A	N/A
Buffalo-Niagara International Airport	449,984	274,778,564.2	610.6	N/A	N/A	N/A	N/A	N/A	N/A
Cold Spring Bus Garage	204,412	57,279,712.4	280.2	N/A	N/A	N/A	N/A	N/A	N/A
Facility Maintenance Department	25,543	2,765,865.1	108.3	N/A	N/A	N/A	N/A	N/A	N/A
Frontier Bus Garage	142,356	64,196,459.9	451.0	N/A	N/A	N/A	N/A	N/A	N/A
Gisel Wolford Garage	114,466	29,286,075.4	255.8	N/A	N/A	N/A	N/A	N/A	N/A
Metropolitan Transportation Center	103,119	39,536,228.7	383.4	N/A	N/A	N/A	N/A	N/A	N/A
Niagara Falls International Airport	69,430	18,817,765.2	271.0	N/A	N/A	N/A	N/A	N/A	N/A

Agency/Facility Name	Baseline Year			Year 1			% Change in Square Footage	% Change in kBtu	% Change in EUI
	Gross Floor Area (S.F.)	Adjusted Source kBtu	Adjusted Source EUI	Gross Floor Area (S.F.)	Adjusted Source kBtu	Adjusted Source EUI			
State University of New York									
Alfred Ceramics	421,191	131,161,902.4	311.4	440,791	118,794,360.6	269.5	4.7%	-9.4%	-13.5%
Alfred Tech	1,625,937	279,778,494.8	172.1	1,652,060	267,072,561.1	161.7	1.6%	-4.5%	-6.1%
Binghamton	5,291,777	1,090,847,259.3	206.1	5,701,065	1,067,869,458.3	187.3	7.7%	-2.1%	-9.1%
Brockport	2,753,971	490,915,944.4	178.3	2,892,944	455,552,804.8	157.5	5.0%	-7.2%	-11.7%
Brooklyn HSC	2,352,037	934,193,232.6	397.2	2,352,037	930,284,454.9	395.5	0.0%	-0.4%	-0.4%
Buffalo State	2,860,495	692,205,519.2	242.0	3,082,495	643,634,834.4	208.8	7.8%	-7.0%	-13.7%
Canton	968,915	182,367,162.6	188.2	1,086,308	191,940,532.3	176.7	12.1%	5.2%	-6.1%
Cobleskill	1,215,656	232,758,908.5	191.5	1,253,362	222,189,485.6	177.3	3.1%	-4.5%	-7.4%
Cornell	5,799,529	1,487,792,054.9	256.5	6,106,998	1,527,955,063.9	250.2	5.3%	2.7%	-2.5%
Cortland	2,436,498	490,933,130.9	201.5	2,436,498	431,523,584.0	177.1	0.0%	-12.1%	-12.1%
Delhi	1,040,663	192,267,616.8	184.8	1,051,863	177,765,300.1	169.0	1.1%	-7.5%	-8.5%
Empire State	405,701	53,549,111.5	132.0	417,048	54,407,793.4	130.5	2.8%	1.6%	-1.2%
Farmingdale	1,554,807	271,559,843.5	174.7	1,631,718	270,841,214.2	166.0	4.9%	-0.3%	-5.0%
Forestry	1,019,596	204,758,953.7	200.8	1,027,378	213,152,706.5	207.5	0.8%	4.1%	3.3%
Fredonia	2,090,580	411,988,402.9	197.1	2,091,030	375,073,009.3	179.4	0.0%	-9.0%	-9.0%
Geneseo	2,341,397	421,115,124.3	179.9	2,341,397	381,591,648.2	163.0	0.0%	-9.4%	-9.4%
Geneva AES	648,968	176,236,331.3	271.6	650,506	169,832,985.3	261.1	0.2%	-3.6%	-3.9%
Maritime	934,508	169,404,763.0	181.3	939,308	148,847,162.5	158.5	0.5%	-12.1%	-12.6%
Morrisville	1,712,118	263,977,154.3	154.2	1,712,118	290,742,357.0	169.8	0.0%	10.1%	10.1%
New Paltz	2,112,108	402,150,738.7	190.4	2,112,108	399,656,202.3	189.2	0.0%	-0.6%	-0.6%
Old Westbury	1,300,171	221,935,141.0	170.7	1,439,038	197,915,004.5	137.5	10.7%	-10.8%	-19.4%
Oneonta	2,321,896	462,255,441.5	199.1	2,332,856	488,231,358.2	209.3	0.5%	5.6%	5.1%
Optometry	298,000	65,702,774.9	220.5	298,000	62,716,314.7	210.5	0.0%	-4.5%	-4.5%
Oswego	3,450,693	687,718,042.5	199.3	3,450,693	657,499,327.0	190.5	0.0%	-4.4%	-4.4%
Plattsburgh	2,094,414	576,129,405.2	275.1	2,094,414	516,386,924.6	246.6	0.0%	-10.4%	-10.4%
Potsdam	2,217,433	462,589,706.5	208.6	2,217,433	446,458,037.1	201.3	0.0%	-3.5%	-3.5%
Purchase	2,437,818	516,481,536.5	211.9	2,437,818	476,320,899.0	195.4	0.0%	-7.8%	-7.8%
Stony Brook University	10,802,279	2,855,439,100.2	264.3	10,788,754	2,841,753,478.3	263.4	-0.1%	-0.5%	-0.4%
Syracuse HSC	2,981,085	1,221,617,750.8	409.8	3,015,412	1,232,222,833.0	408.6	1.2%	0.9%	-0.3%
System Administration	401,436	78,418,076.5	195.3	371,607	82,035,359.7	220.8	-7.4%	4.6%	13.0%
University at Albany	6,146,342	1,317,036,140.1	214.3	6,303,047	1,274,427,828.9	202.2	2.5%	-3.2%	-5.6%
University of Buffalo	10,386,059	2,972,009,150.5	286.2	10,789,610	2,798,184,074.9	259.3	3.9%	-5.8%	-9.4%
Utica/Rome	754,081	121,311,389.8	160.9	842,401	121,798,998.7	144.6	11.7%	0.4%	-10.1%

C. Target-Setting Methodology

Calculating source Energy Use Intensity targets for the Agencies covered under EO 88 was a six-part process:

1. Set Statewide Contingency

The Executive Order sets a 20 percent savings target for the State. In order to ensure that the State achieves this goal, the BuildSmart NY team deemed it appropriate to build contingency into each State Agency's individual target. Projects can be delayed or cancelled, budgets can be unpredictable, and engineering estimates of energy savings can be incorrect, all of which can lead to lower savings than expected. Therefore, the team added a 10 percent contingency on top of the Governor's stated 20 percent goal, meaning that Agencies' targets were created using 22 percent as a starting point.

2. Establish Agency Baseline EUIs

The Executive Order sets the State fiscal year 2010-2011 as the Baseline Year for measuring energy savings. The vast majority of Agencies reported their energy use for the Baseline Year and corresponding total gross square footage for all buildings with floor areas larger than 20,000 square feet to the BuildSmart NY team. Because weather conditions fluctuate from year to year, the team deemed it appropriate to "normalize" the Baseline Year data for weather, thereby taking out any weather variation that occurred in the Baseline Year and creating a cleaner set of data to utilize. This weather normalization was conducted using data from both the U.S. Environmental Protection Agency (EPA) and the National Oceanic and Atmospheric Administration. Data reported from subsequent years will also be weather-normalized in order to make a fair comparison when computing energy savings and progress toward the Executive Order goal.

3. Calculate Agency Expected EUIs

In order to accurately depict energy performance in the Baseline Year, the BuildSmart NY team calculated an "expected" source EUI for each State Agency. For each building in the BuildSmart portfolio, the team assigned an EPA Portfolio Manager category (e.g., college/university, office, prison/incarceration, warehouse, etc.), each of which has a corresponding U.S. median source EUI reference value. Utilizing the reported square footage of each building during the Baseline Year, the team computed a weighted average of the Portfolio Manager reference values for each Agency. This created an "expected" source EUI for each Agency – in other words, the source EUI that each Agency would be expected to have, given its collection of building types and their relative sizes, and assuming average energy performance.

4. Compare Baseline EUIs to Expected EUIs

The BuildSmart NY team compared each State Agency's weather-adjusted Baseline source EUI with its expected source EUI, and then used these comparisons to adjust the starting point of 22 percent upwards or downwards, depending on performance. If an Agency's Baseline EUI was higher (i.e., worse) than its expected EUI, then its individual target would be adjusted up from 22 percent. If an Agency's Baseline EUI was lower (i.e., better) than its expected EUI, then its individual target would be adjusted down from 22 percent. The State Agencies were ranked in order of the percentage comparison of Baseline EUI to expected EUI and broken into quartiles based on performance. Each quartile's savings target was then adjusted upward or downward from the starting point of 22 percent, depending on level and direction of quartile performance.

A few Agencies, however, were not placed into quartiles based on performance. These Agencies break into two groups. First, the BuildSmart NY team currently lacks Baseline Year data for four Agencies: the Olympic Regional Development Authority, the Convention Center Operating Corporation, the Department of Agriculture and Markets, and the Roosevelt Island Operating Corporation. These Agencies were deemed subject to EO 88 toward the end of 2013, and have therefore been given an extension on reporting their Baseline data. Second, Portfolio Manager categories were deemed incompatible with the facilities of the Metropolitan Transportation Authority and the Niagara Frontier Transportation Authority; the team concluded that using such categories for these Agencies would result in inaccurate benchmarking. In place of calculating quartile placement for these six Agencies, the team assigned them initial targets of 22 percent, further subject to the adjustment for portfolio risk.

5. Adjust for Portfolio Risk

The BuildSmart NY portfolio is not equally balanced between the few dozen State Agencies that comprise it; just six Agencies account for more than 90 percent of the State's square footage and energy consumption, with just one (the State University of New York) accounting for more than 40 percent alone. Thus, if any of the smaller Agencies achieved savings above their stated targets, it would have a small impact on the State's overall goal. Conversely, if any of the largest Agencies failed to reach 20 percent savings, it would become very difficult for the State to achieve the Executive Order's objective. Due to this imbalance, the BuildSmart NY team felt it appropriate and necessary to adjust targets to account for this portfolio risk. The State Agencies were divided into quartiles, this time by size, as measured by weather-normalized Baseline kBtu. Each quartile's savings target was then adjusted upward or downward from its previous target (those based on the comparison of Baseline EUI to expected EUI), depending on whether larger or smaller than the median.

6. Set Annual Targets Based on EO 88 and Guidelines Requirements

In addition to setting targets for the duration of the program, the Executive Order requires that the targets for each Agency be divided into annual increments; the aim is to forecast year-to-year paths to the full target and enable adjustments along the way. In order to do so, the BuildSmart NY team mapped out when the various Executive Order and Guidelines requirements will occur between now and April 1, 2020, and quantified the magnitude of these activities. For example, since audits of all targeted facilities need to be completed by the end of 2015, and because implementation of cost-effective projects stemming from those audits needs to be completed within two years from that time, many of the core BuildSmart NY retrofits and replacements are projected to be completed by the end of 2017. Similar assumptions were made about program elements such as submetering, retrocommissioning, and operations and maintenance activities. These calculations resulted in the distribution of expected EUI improvements over the six remaining Years indicated in the third table below.

However, because six Agencies – SUNY, DOCCS, CUNY, MTA, OGS, and OMH – consume more than 90 percent of State facilities' energy, the team deemed it necessary to perform further analysis when determining those Agencies' annual targets. the team looked at a variety of factors when doing so, including energy management programs already underway, the varying building stock of the Agencies, auditing plans, operations and maintenance plans, the varying potential for on-site generation, and the feedback of the Agencies themselves. These Agencies' revised distributions of EUI improvements are also included in the third table below.

Comparisons of Baseline and Expected EUIs

Agency	Baseline Source EUI	Expected Source EUI	% Better/Worse than Expected	Initial 2020 Target Reduction
Quartile 1				
State University of New York	236.5	265.6	11.0%	20.5%
Adirondack Park Agency	143.6	148.1	3.0%	20.5%
New York State Division of Military and Naval Affairs	88.5	90.4	2.2%	20.5%
City University of New York	272.7	262.6	-3.8%	20.5%
New York State Department of Environmental Conservation	151.3	144.6	-4.6%	20.5%
Quartile 2				
New York State Office of General Services	255.3	240.3	-6.2%	21.5%
New York State Department of Transportation	148.4	134.0	-10.7%	21.5%
Dormitory Authority of the State of New York	169.4	148.1	-14.4%	21.5%
New York State Energy Research and Development Authority	175.1	148.1	-18.2%	21.5%
New York State Division of State Police	183.7	154.0	-19.3%	21.5%
Metropolitan Transportation Authority	391.6	N/A**	N/A**	22.0%
New York Convention Center Operating Corporation	N/A*	N/A*	N/A*	22.0%
New York State Department of Agriculture and Markets	N/A*	N/A*	N/A*	22.0%
New York State Olympic Regional Development Authority	N/A*	N/A*	N/A*	22.0%
Niagara Frontier Transportation Authority	428.9	N/A**	N/A**	22.0%
Roosevelt Island Operating Corporation of the State of New York	N/A*	N/A*	N/A*	22.0%
Quartile 3				
New York State Office of Parks, Recreation and Historic Preservation	117.9	95.8	-23.1%	22.5%
New York State Office of Children and Family Services	226.0	176.7	-27.9%	22.5%
New York State Office of Mental Health	232.7	180.1	-29.2%	22.5%
New York State Insurance Fund	200.6	148.1	-35.4%	22.5%
New York State Department of Health	392.4	283.8	-38.2%	22.5%
Quartile 4				
New York State Department of Corrections and Community Supervision	242.0	169.8	-42.5%	23.5%
New York State Office for People with Developmental Disabilities	270.6	182.7	-48.1%	23.5%
New York State Office of Alcoholism and Substance Abuse Services	353.4	182.7	-93.4%	23.5%
New York State Thruway Authority and Canal Corporation	261.0	132.2	-97.4%	23.5%
New York Power Authority	287.4	142.7	-101.4%	23.5%

*Data Unavailable
**Different Methodology Used

Portfolio Risk Adjustments

Agency	Initial Target Reduction	Baseline MMBtu	Portfolio Risk Adjustment	2020 Target Reduction
Quartile 1				
State University of New York	20.5%	20,144,635	1.5%	22.0%
New York State Department of Corrections & Community Supervision	23.5%	9,220,513	1.5%	25.0%
City University of New York	20.5%	5,359,009	1.5%	22.0%
New York State Office of General Services	21.5%	4,663,582	1.5%	23.0%
Metropolitan Transportation Authority	22.0%	4,164,779	1.5%	23.5%
New York State Office of Mental Health	22.5%	3,588,263	1.5%	24.0%
Quartile 2				
New York State Office for People with Developmental Disabilities	23.5%	1,507,672	0.5%	24.0%
New York State Department of Health	22.5%	589,551	0.5%	23.0%
Niagara Frontier Transportation Authority	22.0%	489,755	0.5%	22.5%
New York State Division of Military & Naval Affairs	20.5%	356,834	0.5%	21.0%
New York State Office of Children & Family Services	22.5%	242,752	0.5%	23.0%
New York Convention Center Operating Corporation	22.0%	N/A*	N/A*	22.0%
New York State Department of Agriculture & Markets	22.0%	N/A*	N/A*	22.0%
New York State Olympic Regional Development Authority	22.0%	N/A*	N/A*	22.0%
Roosevelt Island Operating Corporation of the State of New York	22.0%	N/A*	N/A*	22.0%
Quartile 3				
New York Power Authority	23.5%	154,138	-0.5%	23.0%
New York State Thruway Authority & Canal Coporation	23.5%	147,515	-0.5%	23.0%
New York State Insurance Fund	22.5%	114,136	-0.5%	22.0%
New York State Department of Transportation	21.5%	95,443	-0.5%	21.0%
New York State Division of State Police	21.5%	62,952	-0.5%	21.0%
Quartile 4				
New York State Department of Environmental Conservation	20.5%	44,507	-1.5%	19.0%
New York State Office of Alcoholism & Substance Abuse Services	23.5%	38,877	-1.5%	22.0%
Dormitory Authority of the State of New York	21.5%	37,786	-1.5%	20.0%
New York State Office of Parks, Recreation & Historic Preservation	22.5%	33,850	-1.5%	21.0%
New York State Energy Research & Development Authority	21.5%	11,553	-1.5%	20.0%
Adirondack Park Agency	20.5%	3,159	-1.5%	19.0%

*Data Unavailable

Annual EUI Reduction Targets

Agency	Year 4 Target	Year 5 Target	Year 6 Target	Year 7 Target	Year 8 Target	Year 9 Target	2020 Target Reduction
City University of New York	3.3%	3.3%	4.4%	4.4%	3.3%	3.3%	**22.0%**
Metropolitan Transportation Authority	2.4%	4.2%	4.2%	4.2%	4.2%	4.2%	**23.5%**
New York State Department of Corrections & Community Supervision	2.5%	5.0%	6.3%	5.0%	3.1%	3.1%	**25.0%**
New York State Office of General Services	3.5%	3.5%	4.6%	5.8%	2.9%	2.9%	**23.0%**
New York State Office of Mental Health	3.6%	3.6%	4.8%	6.0%	3.0%	3.0%	**24.0%**
State University of New York	2.2%	4.4%	5.5%	4.4%	2.8%	2.8%	**22.0%**
Adirondack Park Agency	1.9%	3.8%	4.8%	3.8%	2.4%	2.4%	**19.0%**
Dormitory Authority of the State of New York	2.0%	4.0%	5.0%	4.0%	2.5%	2.5%	**20.0%**
New York Convention Center Operating Corporation	2.2%	4.4%	5.5%	4.4%	2.8%	2.8%	**22.0%**
New York Power Authority	2.3%	4.6%	5.8%	4.6%	2.9%	2.9%	**23.0%**
New York State Department of Agriculture & Markets	2.2%	4.4%	5.5%	4.4%	2.8%	2.8%	**22.0%**
New York State Department of Environmental Conservation	1.9%	3.8%	4.8%	3.8%	2.4%	2.4%	**19.0%**
New York State Department of Health	2.3%	4.6%	5.8%	4.6%	2.9%	2.9%	**23.0%**
New York State Department of Transportation	2.1%	4.2%	5.3%	4.2%	2.6%	2.6%	**21.0%**
New York State Division of Military & Naval Affairs	2.1%	4.2%	5.3%	4.2%	2.6%	2.6%	**21.0%**
New York State Division of State Police	2.1%	4.2%	5.3%	4.2%	2.6%	2.6%	**21.0%**
New York State Energy Research & Development Authority	2.0%	4.0%	5.0%	4.0%	2.5%	2.5%	**20.0%**
New York State Insurance Fund	2.2%	4.4%	5.5%	4.4%	2.8%	2.8%	**22.0%**
New York State Office for People with Developmental Disabilities	2.4%	4.8%	6.0%	4.8%	3.0%	3.0%	**24.0%**
New York State Office of Alcoholism & Substance Abuse Services	2.2%	4.4%	5.5%	4.4%	2.8%	2.8%	**22.0%**
New York State Office of Children & Family Services	2.3%	4.6%	5.8%	4.6%	2.9%	2.9%	**23.0%**
New York State Office of Parks, Recreation & Historic Preservation	2.1%	4.2%	5.3%	4.2%	2.6%	2.6%	**21.0%**
New York State Olympic Regional Development Authority	2.2%	4.4%	5.5%	4.4%	2.8%	2.8%	**22.0%**
New York State Thruway Authority & Canal Corporation	2.3%	4.6%	5.8%	4.6%	2.9%	2.9%	**23.0%**
Niagara Frontier Transportation Authority	2.3%	4.5%	5.6%	4.5%	2.8%	2.8%	**22.5%**
Roosevelt Island Operating Corporation of the State of New York	2.2%	4.4%	5.5%	4.4%	2.8%	2.8%	**22.0%**
State Totals	2.6%	4.3%	5.3%	4.7%	3.0%	3.0%	23.0%

D. Other Calculation Methodologies

Fuel Usage to kBtu – All Agency-reported raw fuel consumption was converted to kBtu as a common unit of energy using ENERGY STAR Portfolio Manager's Thermal Energy Conversions Technical Reference, July 2013.

Site to Source – Site kBtu usage, calculated using the "Fuel to kBtu conversion" approach, was converted to source kBtu using factors derived from ENERGY STAR Performance Ratings Methodology for Incorporating Source Energy Use, March 2011.

Greenhouse Gas (GHG) avoidance – GHG avoidance related to electricity reduction was calculated by multiplying the reductions in electricity consumption by New York State-specific GHG emission factors derived from the United States Energy Information Administration, Form EIA-860, "Annual Electric Generator Report" U.S. Energy Information Administration, Form EIA-861, "Annual Electric Power Industry Report," the U.S. Energy Information Administration, Form EIA-923, "Power Plant Operations Report," and predecessor forms. GHG emission factors for other fuels were derived from the U.S. Energy Information Administration, Form EIA-1605, "Long Form for Voluntary Reporting of Greenhouse Gases."

Cost estimates – Costs associated with energy consumption and savings were estimated in certain cases when actual data was not available. Estimates were based on cost per unit consumed rates derived from Agency reporting.

Weather Normalization – A weather normalization methodology was developed by Optimal Energy, along with a spreadsheet tool that was used to weather normalize Agency-reported data. Information from the National Oceanic and Atmospheric Administration (NOAA) and the Environmental Protection Agency (EPA) was used in designing the weather normalization model.

E. References

1. *ENERGY STAR Performance Ratings Methodology for Incorporating Source Energy Use*. U.S. Environmental Protection Agency, March 2011.
2. Hunt, D. 2007. *Energy Savings Expert Team (ESET) Benefits Assessment*. Presentation to the Federal Energy Management Program, May 2007. Pacific Northwest National Laboratory, Richland, Washington.
3. *Submetering of Building Energy and Water Usage: Analysis and Recommendations of the Subcommittee on Building Technology Research and Development*. National Science and Technology Council Committee on Technology, 2011.
4. *A Retrocommissioning Guide for Building Owners*. Portland Energy Conservation, Inc. and U.S. Environmental Protection Agency, 2007. http://www.peci.org/sites/default/files/epaguide_0.pdf

F. Glossary of Terms

Affected State Entities: All State Entities and departments over which the Governor has Executive Authority, and all public-benefit corporations, public authorities, and commissions, for which the Governor appoints the Chair, the Chief Executive, or the majority of Board Members, except for the Port Authority of New York and New Jersey. Affected State Entities must comply with the requirements set forth in Executive Order 88.

American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE): A building technology trade society focused on building systems, energy efficiency, indoor air quality, refrigeration, and sustainability.

Annual Savings Targets: Energy efficiency goals to be reached at the end of a given year.

Baseline Year (Baseline): State fiscal year 2010-11.

Benchmarking: The process of capturing a building's current energy performance and comparing it with its baseline energy performance or the energy performance of similar buildings. Benchmarking is used to compare a building's energy performance over time, and assess performance among similar buildings.

British thermal unit (Btu): The quantity of heat required to raise the temperature of one pound of liquid water by one degree Fahrenheit at the temperature at which water has its greatest density. All forms of energy used in buildings (electricity, natural gas, heating oil, steam) can be translated into Btu. One kBtu is equal to one thousand Btu, and one MMBtu is equal to one million Btu.

Central Management and Implementation Team (CMIT): The New York Power Authority's team that administers Executive Order 88, established as per the Executive Order. In this Report, the CMIT is also referred to as the BuildSmart NY team.

Continuous Commissioning: Monitoring and tuning buildings and their systems on a proactive, ongoing basis, ideally with the use of energy information system tools.

Covered Buildings: All buildings required to comply with EO 88 requirements. Covered buildings consist of all buildings with a floor area greater than 20,000 gross square feet that are owned or managed by Affected State Entities.

Cumulative Savings Targets: Energy efficiency goals to be reached at the end of the program in April 2020.

Energy Audit: An engineering study that quantifies how energy is used in a building and identifies opportunities to improve the building's energy efficiency and reduce utility expenses.

Energy Use Intensity (EUI): The amount of energy (electricity and natural gas and all other heating fuel sources) consumed per square foot of corresponding gross building area.

Energy Savings Performance Contracts (ESPCs): Long-term contracts (typically 5–15 years) between building owners and energy service companies (ESCOs) aimed at saving energy.

Energy Service Companies (ESCOs): Companies that provide the identification, evaluation, recommendation, design, and construction of energy efficiency measures, including design-build contracts that guarantee energy savings or performance.

Executive Committee: A key BuildSmart NY governance body chaired by the NYPA President and CEO and consisting of key personnel from the Governor's Office and direct reports to State Agency heads that provides general oversight, addresses risks and emerging issues, and advises on implementation strategy.

Executive Sponsors: Agency personnel who report directly to their Agency heads and who are responsible for compliance with EO 88.

Gross Square Foot: The sum of all areas on all floors of a building included within the outside faces of its exterior walls, including all vertical penetration areas for circulation and shaft areas that connect one floor to another.

Guidelines: A document created by the BuildSmart NY team that outlines the requirements established in the Executive Order, details roles and responsibilities for the State's participants, and sets policies and protocols for EO 88 implementation.

Leadership in Energy and Environmental Design (LEED): A green building rating system that is trademarked and administered by the United States Green Building Council.

Master-Metered Campus: A group of buildings served by the same utility meter, generally utilizing a central cooling and heating plant.

NYEnergyManager: NYPA's online platform that will serve as a virtual hub for continuous monitoring, analysis, forecasting, and management of facility energy supply, consumption, and costs, as well as BuildSmart NY's central data repository.

Responsible Leads: Agency personnel who serve as day-to-day contacts for EO 88 and are the central points of contact to the BuildSmart NY team.

Smart Analytics: A core BuildSmart NY strategy that focuses on the installment of smart meters and the adoption of advanced energy information systems and analytics tools.

Smart Government: A core BuildSmart NY strategy that aims to incorporate energy efficiency into the State Capital Budget Program, delineate roles and responsibilities among overlapping service providers, and provide resources that fill crucial gaps in the energy service landscape.

Smart Infrastructure: A core BuildSmart NY strategy aimed at transforming State facilities by implementing energy-saving capital projects and leveraging the marketplace.

Smart Operations: A core BuildSmart NY strategy with the goal of creating a Statewide organizational culture around operations and maintenance in Agency facilities.

Source EUI: An energy metric that takes into account the "upstream" energy consumed during the generation, transmission, and distribution of electricity, as well as the energy losses from storage, distribution, and delivery of natural gas. Source energy represented on a per square foot basis.

Source Energy: The total amount of fuel consumed in the generation and use of energy consumed at a building, incorporating generation, transmission, and storage losses.

Submetered Building: A building in a master-metered campus that has had metering installed so that the energy use within that particular building can be determined. EO 88 requires that buildings with areas larger than 100,000 square feet on master-metered campuses be submetered for all fuels and other energy sources by December 31, 2016.

Realization Rate: A comparison of observed or measured information to original estimated savings.

Retrocommissioning (RCx): The process of assessing, analyzing, and adjusting the operational parameters of systems in an existing building to optimize the system's performance and satisfy current operational needs.

Variable Frequency Drive: Automated speed control for electric motors like fans, pumps, and centrifugal chillers for precise control and energy savings.

Weather Normalization: A process that adjusts energy consumption to what would have been utilized under normal weather conditions.

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