NEW YORK STATE OF OPPORTUNITY | Office of General Services | Department of Environmental Conservation

GREENING NEW YORK STATE

Fourth Progress Report on State Green Procurement and Agency Sustainability

Fiscal Year 2014-15

The Jacob K. Javits Center in New York City earned a NYS Environmental Excellence Award in 2015 for sustainable renovations and installation of a 7-acre green roof, reducing energy use by a 26 percent

Message from the Commissioners

Through the leadership of Governor Andrew M. Cuomo, New York has experienced steady progress toward the adoption of sustainable practices and operations by State government. New York's Green Procurement and Agency Sustainability program is an ambitious effort led by our two agencies, the Department of Environmental Conservation (DEC) and the Office of General Services (OGS), working together to implement Executive Order No. 4 (EO 4), which was continued by Governor Cuomo in January 2011. This Fourth Progress Report documents the achievements that have been attained thanks to the work of dedicated staff in agencies and authorities across the State.

One landmark accomplishment is the issuance of a new centralized contract for "Recycling and Trash Removal Services" in October 2015. For the first time, a State contract has provisions for the recycling and composting of various materials, including commingled, single-stream and organic wastes, as well as training and tracking. Another is the new "Environmentally Preferable Cleaning Products, Programs, Equipment and Supplies" contract issued in March 2015. This fully green multi-state contract includes 12 lots covering general purpose cleaners, cleaning supplies, floor maintenance chemicals and disinfectants and sanitizers. A third is the Aggregate Buy of desktop and laptop computers through OGS's Microcomputer and Related Systems contracts between March 2014 and November 2015, which saved the State $139.6 million off of the State contract price, all for the purchase of devices that meet the highest standards in the nation for environmental quality.

As these examples show, State procurement can have an enormous and lasting impact on our environment and quality of life, and, in many cases, save taxpayers' money. New York State purchases approximately $8 billion in products and services annually, and this kind of purchasing power can help drive the development of markets for green products.

The State's operations are similarly expansive, and considerable strides have been made to incorporate sustainability and environmentally conscious choices into our activities. This year's Progress Report features two agencies whose efforts earned them a New York State Environmental Excellence Award from Governor Cuomo in 2015. The Jacob K. Javits Center completed a five-year renovation project in 2015 that included a comprehensive sustainable transformation and installation of a nearly 7-acre green roof, all of which resulted in a 26% reduction in energy use. The Office of Parks, Recreation, and Historic Preservation established an in-house solar installation team and has completed eight solar panel projects at parks throughout the State, ranging in size from 350 to 57,130 kilowatt-hours.

These successes are made possible by the dedicated work of Sustainability Coordinators designated by agencies and authorities across the State, who tirelessly advocate for the adoption of sustainable practices within their organizations, and tailor projects to fit their agency's unique mission. They also keep track of the information necessary to produce this Progress Report. We are committed to supporting their efforts and building upon their achievements in order to bring a greener, more sustainable, and more efficient government to the People of the State of New York.

RoAnn M. Destito,
Commissioner,
Office of General Services

Basil Seggos,
Acting Commissioner,
Department of Environmental Conservation

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Executive Summary

The vision of a vibrant, innovative and sustainable economy underlies Executive Order No. 4 (EO 4), which establishes a State Green Procurement and Sustainability Program, and Executive Order No. 18 (EO 18), which restricts the purchase of bottled water by the State. In 2011, Governor Andrew M. Cuomo continued both orders.

EO 4 directs the approximately 74 State agencies, authorities and other entities covered by the Order ("agencies" or "entities") to incorporate sustainability into all aspects of their operations. To accomplish this, agencies are required to implement a Sustainability and Environmental Stewardship Program and assign an employee to serve as Sustainability and Green Procurement Coordinator ("Sustainability Coordinator" or "Coordinator"). EO 4 also created an Interagency Committee on Sustainability and Green Procurement ("Interagency Committee" or "Committee") co-chaired by the Commissioners of the Office of General Services (OGS) and the Department of Environmental Conservation (DEC), and charged it with several tasks, including preparation of this report.

By reducing copy paper use, New York saved $28 million in fiscal years 2011-12 through 2014-15 and will continue to save a minimum of $6.5 million per year.

EO 18 directs executive agencies to eliminate the purchase of bottled water. Agency reporting under EO 18 has been combined with reporting under EO 4. Both are summarized in this report.

Progress Toward a Green New York

The past seven years, from FY 2008-09 (08-09) to 2014-15 (14-15), have seen steady progress toward a greener New York. A record number of agencies, 62, or 84% of all covered entities, filed reports in FY 14-15, up 16-20 percentage points from the three previous reporting years. While this is good news, it also caused a modest increase in paper use and waste as described below. The overall trends are still downward.

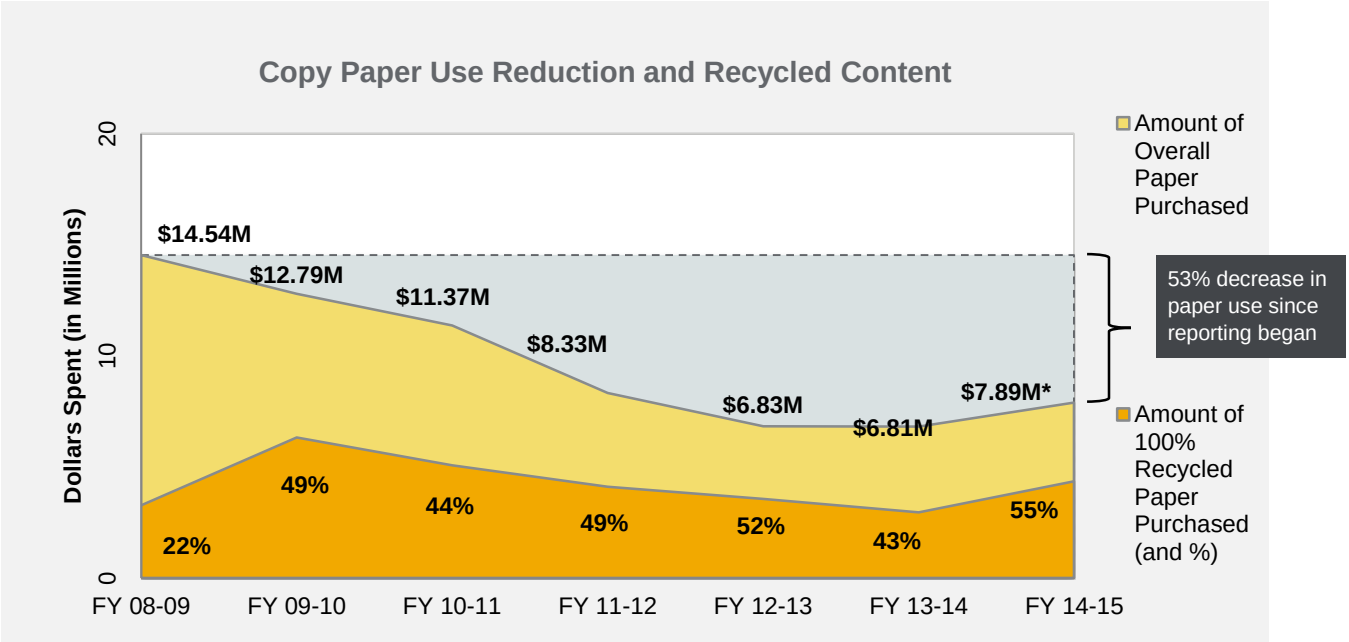
Sustainability is a process, and the most successful agencies enjoy the executive support, personnel infrastructure, financing mechanisms and practices needed to continually review their operations, measure progress, embrace innovation, and overcome challenges. Leaders on sustainability include the Office of Parks, Recreation and Historic Preservation (Parks), the Jacob K. Javits Center (Javits Center), the City University of New York (CUNY), and the Metropolitan Transportation Authority (MTA). OGS, DEC and the other members of the Interagency Committee support the sustainability work of agencies by compiling this report, offering trainings, adopting green specifications, issuing green contracts, and sharing a weekly Green Bulletin with Sustainability Coordinators.

Reducing and Recycling Waste

EO 4 and EO 18 have significantly impacted how State agencies generate and handle waste. Agencies have significantly reduced paper use, decreased waste generation, increased recycling rates, and purchased 100% post-consumer recycled content copy paper at high levels. The executive agencies covered by EO 18 have virtually eliminated the purchase of bottled water.

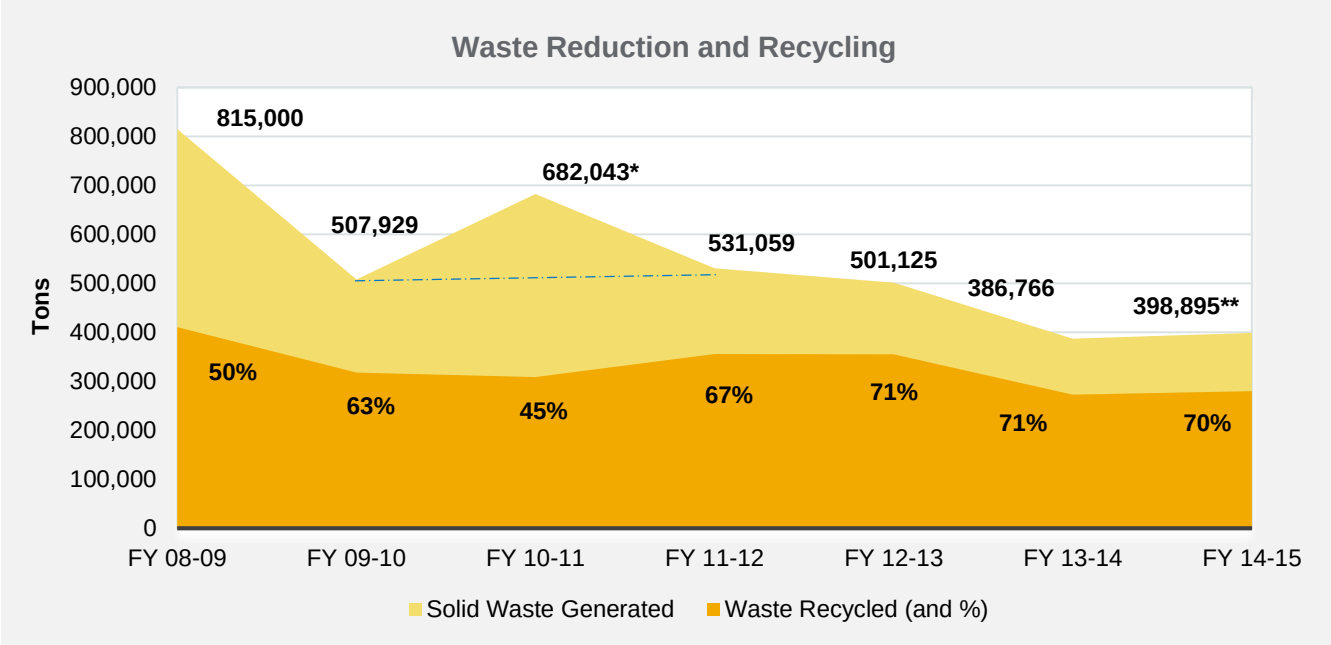
EO 4 charges the Interagency Committee with establishing explicit goals to achieve reasonable reductions in the amount of solid waste generated and paper consumed annually by State agencies. The Committee established goals for each agency to reduce office waste generated per full-time employee (FTE) by 10% per year and to reduce copy paper use per FTE by 10% per year, with FY 09-10 as the baseline.

The majority of agencies adopted paper use reduction practices starting in FY 08-09. A shift to double-sided printing and electronic transactions resulted in a 53% decrease in paper use through FY 14-15, a highly encouraging trend that saved $15.6 million in FYs 2011-12 (11-12) through 14-15 and a total of $33.2 million since FY 08-09.



*The modest increase in paper purchased in FY 14-15 is primarily due to a 20 percentage point increase in agencies reporting compared to previous years.

The aggregate quantity of solid waste generated across all agencies decreased 51% over the past seven reporting years, from 815,000 tons in FY 08-09 to 398,895 tons in FY 14-15, a robust and encouraging trend. In FYs 2012-13 (12-13) through 14-15, agencies reported recycling rates of 70%, which represents a 20 percentage point increase from FY 08-09 and well surpasses the statewide recycling goal of 50% established pursuant to the Solid Waste Management Act of 1988. Of the 398,895 tons of waste generated in FY 14-15, 280,172 tons were recycled or composted.



*The large increase in waste generated and associated drop in recycling in FY 10-11 is primarily due to one large generator reporting 200,000 tons more waste as compared to the following or previous year. **The slight increase in waste generated in FY 14-15 is primarily due to a 20 percentage point increase in agencies reporting compared to previous years.

The executive agencies covered by EO 18 have virtually eliminated the purchase of bottled water. Eleven agencies continue to use bottled water under special circumstances, such as for soldiers on active duty. 77% of authorities and other reporting entities not covered by EO 4 restricted bottled water use to special circumstances.

Reducing the Environmental Impacts of Operations

Overall, agency reports document the widespread adoption of green practices that are helping to reduce energy use, employee travel, waste, water use and the use of toxic chemicals. By FY 14-15:

- 100% of reporting agencies used motion detectors to reduce unnecessary lighting, 97% installed energy efficient equipment and appliances, and 92% adjusted thermostats to conserve energy.
- 97% implemented policies to reduce the number of vehicle miles driven by employees during the work day, and 80% encouraged carpooling and mass transit use to reduce commuting miles driven by employees.
- 89% use electronic means to share documents with the public all or most of the time, and 79% use electronic means to receive documents from the public all or most of the time.
- 81% use low-flow fixtures to conserve water use all or a majority of the time.
- 79% of agencies responsible for cleaning at their facilities used green cleaning products all or most of the time. 69% follow practices to reduce the overall amount of cleaning product used, and 66% reduced the number of different kinds of cleaning products used.
- 73% operated some sort of materials reuse program.

Saving Money and Buying Green

Overall, New York's experience has shown that sustainable practices do not cost more and can even save money, especially with respect to energy and waste reduction.

On average for FY 09-10 through FY 14-15, 38% of agencies reported saving money through energy reduction, 37% saved money by eliminating the purchase of bottled water, and 33% saved money through waste reduction and reuse. Most reported either a reduction or no change in costs due to the implementation of projects across EO 4's other areas of focus: 52% for water and natural resource conservation, 51% for non-chemical pest control or integrated pest management (IPM), 51% for recycling and composting, 49% for green cleaning, and 41% for green procurement. Significantly fewer agencies (from 2% to 13% depending on the activity) experienced increases in costs. More than one-third did not have estimates for changes in costs due to their activities.

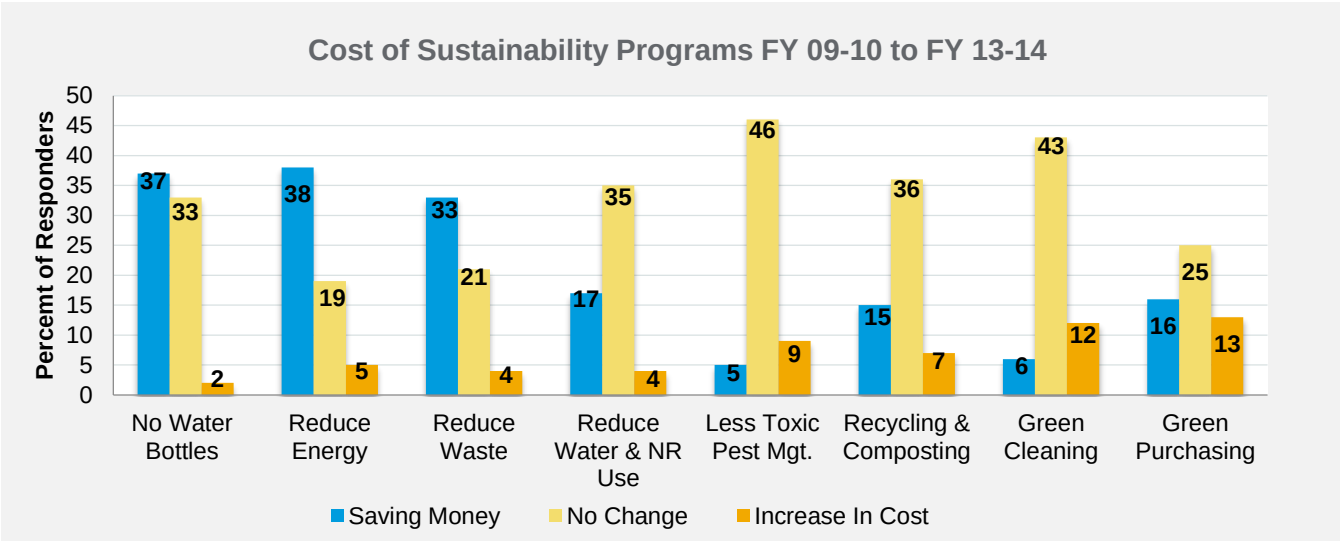
On average, more than two-thirds (68%) of agencies bought at least some 100% recycled copy paper in FYs 12-13 through 14-15, and more than half (55%) of dollars spent on copy paper in FY 14-15 went to purchase 100% post-consumer recycled content, processed chlorine-free (PCF) copy paper. This represents a significant increase from the 22% of dollars spent on such paper in FY 08-09.

The purchase of 100% post-consumer recycled content copy paper is now more than one-half (55%) of all copy paper purchased, evidence of successful culture change supported by the power of state contracting.

On average, two-thirds (63%) of dollars spent on janitorial paper in FY 14-15 went to purchase 100% recycled content paper, a significant increase from the 34% of dollars spent on such paper in FY 08-09. These encouraging trends (for both copy and janitorial paper) indicate widespread culture change and illustrate the power of State contracting, as they were facilitated by statewide contracts for 100% recycled paper by OGS in the summer of 2008.

Tracking green purchases other than paper remains challenging. Combining agency reports with the total spent on 30% or more post-consumer recycled content copy paper, 100% recycled janitorial paper, re-refined oil, green computers, environmentally preferable cleaning products, green floor coverings, and solar electric systems, overall green purchasing by State entities amounted to $93 million in FY 14-15.

This figure includes the aggregate purchase of computers that meet the highest standard in the nation for environmental quality, including the avoidance of toxic chemicals. During the entire aggregate buy period between March 2014 and November 2015, approximately $133.3 million in computers were purchased, saving $139.6 million off of the State contract price.



EO 4 requires the Interagency Committee to annually select a minimum of three priority categories of commodities, services and technologies, and at least 12 priority commodities, services and technologies within each category for which to develop green specifications. To date, the Committee has finalized 40 green specifications covering a broad and diverse array of 81 products and services, including computers, cleaning products, fluorescent lamps, pest management, and single-use food containers. Many of these specifications are among the most protective in the country.

In 2015, OGS issued an impressive number of green contracts to support the purchase of EO 4-compliant goods and services. The contract for *"Recycling and Trash Removal Services"* offers recycling on State contract for the first time. It includes provisions for training, educational outreach and waste composition analysis, and offers 11 different recycling options, including the composting of organics. Offerings on the new multi-state contract for "*Environmentally Preferable Cleaning Products, Programs, Equipment and Supplies*" are fully green and in compliance with New York State law and EO 4 requirements. Twelve categories of products are covered, including general purpose cleaners, cleaning supplies (including a full range of microfiber products), floor maintenance chemicals and even disinfectants.

More than 87% of reporting agencies consulted the green procurement specifications when making purchases in FY 14-15, but most did not report purchases of green products other than recycled paper. As New York's green procurement program continues to mature, with more green contracts issued and better tracking systems put into place, reporting on green purchasing should become more robust.

Challenges and Success Stories

Reports from the field in FY 14-15 highlighted challenges as well as some important success stories.

Former challenges being met include:

- **Tracking of solid waste.** The past seven years of measuring waste has resulted in the creation of tools and changes of processes that have made it easier for agencies to track their performance. The new *"Recycling Services and Trash Removal"* contract will further enhance this trend since it includes both training and tracking services.

- **Increasing the purchase of 100% post-consumer recycled content copy paper.** Purchases have continued to increase, despite initial concerns about price and performance. Statewide contracts for 100% recycled copy and janitorial paper by OGS Procurement Services continue to support this trend, and data for the last six years shows that 100% recycled copy paper is, on average, less expensive than other papers.

- **Promoting adoption of green cleaning practices.** Green cleaning continues to be widely practiced despite initial concerns about price and performance. The new *"Environmentally Preferable Cleaning Products"* contract, as well as robust green offerings by preferred sources, are making it easy for agencies to identify and purchase high-performing, fully green cleaning products at a competitive price.

- **Barriers to green purchasing.** Actions taken by OGS to issue new green contracts, identify green products on existing contracts (such as *"Floor Coverings and Lamps"*), and give prominent exposure to green purchasing at the annual Purchasing Forum continue to help agencies identify and purchase green products at a competitive price.

Issues that are the focus of current improvement efforts include:

- **Tracking green purchasing.** Most financial accounting systems currently used by agencies do not track green purchasing data. Barriers include a lack of standard definitions and a coding system for green products. The EO 4 Subcommittee on Green Procurement is exploring options that would allow for the tracking of green purchasing in OGS' new e-catalog and the Statewide Financial System.

- **Renewable energy.** 32% of agencies purchase or generate, on average, 26% of their total electricity use from renewables. A series of ambitious initiatives launched by Governor Cuomo in 2015, including the goal of sourcing 50% of New York's electricity from carbon-free renewables by 2030, generation of renewable energy at all 64 SUNY campuses by 2020, and creation of a centralized contract for solar power purchase agreements (PPAs), will increase that number significantly in future years.

> *Ambitious initiatives launched by Governor Cuomo in 2015 promise to increase the use of renewable energy and accelerate the adoption of ZEVs significantly in future years.*

- **Cleaning the Fleet.** The average fuel efficiency of agency light duty fleets was 22.5 miles per gallon in FY 14-15, slightly lower than the average fuel efficiency of the U.S. light duty fleet. In the past two years, Governor Cuomo initiated a number of programs to accelerate the use of zero emission vehicles (ZEVs), including their purchase by State fleets. This action should significantly improve efficiency.

- **Staff, funding and high-profile senior management support.** The most successful agency sustainability programs have a full-time Sustainability Coordinator, a multi-disciplinary team, enthusiastic executive level support, effective methods for tracking progress, and a reliable source of funding. Leaders such as the MTA, CUNY, the Javits Center, and Parks provide strong models for others to follow. The EO 4 reporting process itself is a powerful tool for measuring performance and gaining executive support.

- **Capturing the savings associated with sustainable practices.** Many agencies find it hard to track the savings associated with greening operations and to capture those savings for further improvements. CUNY has an innovative financing system that allows campuses to use efficiency savings on further improvements. They have also established a revolving Sustainable Investment Fund.

- **Leased spaces.** Agencies located in leased spaces can find it difficult to ensure that EO 4 requirements are being followed, especially at properties not managed by OGS. Sharing space with other tenants can also make tracking waste difficult. This year, the EO 4 Interagency Committee will explore how to provide more effective training to agencies housed in leased space.

- **Donating surplus property for reuse outside government.** Agencies continue to report the need for a more streamlined process for donation of old furniture and equipment to local governments or not-for-profit organizations. A number of SUNY campuses and NYPA are pioneers in reuse activities.

- **Staff training and culture change.** The need for training remains an obstacle to the adoption of green practices. The new *"Environmentally Preferable Cleaning Products"* contract should help by requiring vendors to provide training. OGS offered a webinar on use of the new recycling contract that drew more than 200 participants in January 2015, and DEC continues to offer waste audit training twice a year.

New and Noteworthy Initiatives in FY 14-15

Waste Reduction

- The *Department of Civil Service* continues to expand the use of online applications to decrease paper use and lower costs. Large candidate exams and scores are exclusively available online.

Recycling

- The *Niagara Frontier Transportation Authority* conducted a comprehensive waste audit and launched a recycling campaign, resulting in a 41% reduction in waste disposed per FTE and cost savings.
- By popular demand, the *Javits Center* has begun creating show-specific recycling plans for customers. A breakdown of energy consumption and recycling rates is provided after the event.

Reducing Pesticide Use

First developed at Bethpage, *Parks'* model practices for IPM on turf grass have reduced pesticide use at golf courses across the state and led to the use of less toxic, more effective products with lower costs.

- *Parks* adopted a sophisticated model for the use of IPM on golf courses that has significantly reduced the use of pesticides, water and fertilizer, as well as lowering costs.
- The *Javits Center* used feral, neutered cats to eliminate the need for rodent extermination services.

Green Cleaning

- *SUNY Plattsburgh* switched to a less toxic product for stripping floors that requires less product for the same job, saving money.

Energy Efficiency

- The *Javits Center* completed a major renovation resulting in a 26% reduction in energy use.
- *CUNY John Jay College of Criminal Justice* saved $1.3 million through energy efficiency projects compared to baseline in FY 14-15, leading all of CUNY's 26 campuses.

Renewable Energy

- *Parks* continued to train in-house staff to install solar panels at one-third to half the cost of installation by an outside contractor. Eight solar projects have been completed and four are in the design stage.

> *Parks' use of in-house resources to install on-site solar offers an exciting new model that other agencies may wish to adopt.*

Sustainable Transportation

- The *Development Authority of the North Country* installed telematics in their vehicles to identify and eliminate unnecessary idling and uncover other opportunities to reduce fuel usage.
- *SUNY Downstate* used energy efficient vans to shuttle employees to and from subway stations, solving the "last mile" problem of getting commuters to their destination.

Water Conservation and Reuse

- *MTA* collected and used rainwater for car and bus washing at a number of facilities. During the washing process, water is drained into a filtration system, and 80% is reclaimed and reused.

Green Stormwater Infrastructure

- *The Javits Center* installed a new green roof that collects 70% of the building's storm water runoff. Sedum on the roof is locally grown and requires little water use, and bee hives were added to improve plant quality.
- A number of *SUNY* campuses installed cutting-edge green infrastructure projects, many of which were funded through the Environmental Facility Corporation's Green Infrastructure Grant Program.

Education and Training

- *SUNY Cornell and Buffalo* launched sustainability dashboards that display energy and resource use in real time at various campus locations in order to promote awareness among students and staff.

Green Procurement

- NYPA developed sustainability criteria for procurement that will allow the agency to benchmark and track sustainability performance across their supply chain.

Restricting the Use of Bottled Water

- Most *SUNY* campuses have installed water bottle filling stations and continue to add more. *SUNY Oneonta* has installed 18 stations and avoided the use of 388,286 disposable water bottles.
- *SUNY Empire's* event planner found that providing pitchers of water and cups costs less money and wastes less. With cups and tap water, people take only what they need.

Achieving the Promise of Sustainability

Sheep being used to control invasive species at Rockefeller State Park in Sleepy Hollow, NY. *Parks* is increasing their use of sheep and goats as an alternative to herbicides to eliminate invasive plants and reduce mowing.

A sustainable economy is healthy, vibrant, innovative, resilient and diverse. Together, New Yorkers are working toward a time when energy is used efficiently and generated from clean, renewable sources; when our buildings, transportation systems, and vehicles are energy efficient and use green materials; when our products, services, and technology are designed to reduce waste, minimize the use of toxic chemicals and make reuse and recycling easy; and our businesses have the tools they need to compete in a global marketplace and meet the increasing demand for clean energy and green technology.

EO 4, available at http://www.ogs.ny.gov/EO/4/Default.asp, directs the approximately 74 State agencies, authorities, offices, commissions, boards and public benefit corporations ("agencies" or "affected entities") currently covered by the Order to incorporate sustainability into all aspects of their operations. EO 18, available at http://ogs.ny.gov/EO/18/, requires executive agencies to "eliminate the expenditure of State funds for the purchase of bottled water." To accomplish these goals, agencies are required to develop and implement a Sustainability and Environmental Stewardship Program, implement effective waste reduction and recycling strategies (including eliminating the use of bottled water), and assign an employee to serve as Sustainability and Green Procurement Coordinator. These coordinators serve the crucial function of incorporating sustainability into the day-to-day operations of their agency.

Both Orders require the Commissioners of OGS and DEC, in consultation with members of the Interagency Committee on Sustainability and Environmental Stewardship which they chair, to report regularly on progress. EO 18 authorizes combined reporting for the two Orders, and one form has been used for agency reports since FY 09-10.

Reporting has remained robust since the first year of reporting in FY 08-09, when 69 EO 4 reports were filed by the agencies, authorities and other entities covered by the Order at that time. Since the beginning, some agencies have worked together to file joint reports. In FY 09-10, 74 entities submitted reports for both EO 4 and EO 18, while 66 submitted reports in FY 10-11.

In 2011, Governor Cuomo initiated a consolidation effort among State agencies and authorities in order to improve government efficiency and performance. Taking into account joint reporting, approximately 74 reporting entities are now covered by the Order. In FY 11-12, 56 entities (66% of all covered entities) reported, followed by 58 in FY 12-13 (68%) and 54 in FY 13-14 (64%). For the FY 14-15 report, the Reporting Subcommittee made a concerted effort to reach out to agencies. Those efforts paid off, and 62 entities, or 84% of all covered entities, filed reports, an increase of 20 percentage points from the year before. This summary compiles those individual reports and uses more recent information when necessary to provide a complete picture of progress.

EO 4 INTERAGENCY COMMITTEE

CHAIRS:

- *OGS* and *DEC*

MEMBERS:

- *Division of Budget (DOB)*
- *Dormitory Authority of the State of New York (DASNY)*
- *Empire State Development (ESD)*
- *Environmental Facilities Corporation (EFC)*
- *Department of Health (DOH)*
- *NYS Energy Research and Development Authority (NYSERDA)*
- *Power Authority of the State of New York (NYPA)*
- *Department of Transportation (DOT)*

The Benefits of Sustainability

Making New York State government operations and procurement more sustainable has the potential to significantly reduce pollution and waste while saving taxpayer dollars. New York is comparable to a Fortune 500 company and as such, has a considerable environmental footprint and remarkable purchasing power. Currently, New York State government:

- Operates more than 16,000 facilities (225 million square feet) with an estimated annual utility bill of $600 million.
- Generates close to 400,000 tons of solid waste, more than a quarter of which is office waste.
- Operates more than 24,000 vehicles.
- Spends approximately $8 billion per year on the purchase of commodities, services and technology.

NYS government spends $8 billion per year on the purchase of commodities, services and technology.

Some of the key benefits of greening State government include:

Waste Prevention. Reducing or eliminating waste reduces agency costs, as well as the pollution, water use, greenhouse gas emissions, energy and labor costs associated with raw material harvesting, resource extraction, transportation and manufacturing, and the end-of-life management of wastes. Each ton of office paper use avoided reduces greenhouse gas emissions by more than 8 metric tons of CO_2 Equivalent (MTCO2E). Reusing or remanufacturing a product conserves the energy, labor and materials embedded in the product.

Recycling. Diverting materials for recycling and purchasing products with recycled content avoids the environmental impacts associated with raw material harvesting and the disposal of waste. Each ton of paper recycled saves enough energy to power the average American home for six months and reduces greenhouse gas emissions by 1 MTCO2E. Recycling also creates jobs. According to the Institute for Local Self-Reliance, every 10,000 tons of waste kept out of the landfill can create 10 recycling jobs or 75 material reuse jobs.

Reducing Toxic Chemical Use. Reducing or eliminating toxics use, for example by reducing the use of pesticides or using green cleaning products, creates a healthier work environment for State employees, visitors and facility residents, resulting in better health, fewer sick days and higher productivity. It also reduces releases to the environment, the exposure of manufacturing workers, and the cost of managing toxic materials during use, transportation and disposal, including the significant cost of cleaning up contaminated sites. Products made without toxins are also easier and safer to recycle.

Conserving energy. Using less energy reduces the pollution, water use, greenhouse gases and costs associated with energy generation. Using clean, renewable sources of energy such as wind and solar, avoids the pollution and greenhouse gas emissions associate with fossil fuels.

Conserving Water and Natural Resources. Conserving water and practicing sustainable resource management protects water quality, wildlife habitat and ecosystems. It also avoids the energy use and costs associated with the treatment and delivery of potable water.

Holistic Thinking and Multiple Benefits. When project teams consider a wide range of opportunities and potential impacts, they are better able to achieve multiple benefits. For example, an energy efficiency project that embraces the additional goal of improving indoor air quality avoids a potential pitfall and increases project benefits. Lean efforts to streamline licensing projects can reduce paper use and help government respond more quickly.

Sustainability projects reduce pollution and waste, save taxpayer money, and foster collaboration, innovation, and the realization of multiple benefits. They also support a wide range of New York State goals and initiatives.

Reducing Silos and Fostering Innovation. EO 4 has increased communication across agencies and allowed for the sharing of best practices and results. In turn, successful agency programs are serving as role models for local governments and the private sector. Green procurement specifications provide a clear market signal that drives innovation and helps build a more diverse, resilient and stable economy.

Here are a few New York State initiatives directly supported by the work occurring under EO 4:

- *The Environmental Protection Fund* – this year the Governor championed an unprecedented $300 million investment in this crucial fund for clean water, waste reduction, pollution prevention and conservation.
- *The 2015 NYS Energy Plan and Reforming the Energy Vision* – ambitious action to meet clean energy goals, such as 50% of electricity from renewables by 2030.
- *Clean Energy Fund* – a 10-year, $5 billion commitment to energy efficiency and renewable energy
- *Executive Order No. 88* – improving energy efficiency in State buildings
- *NY-Sun Initiative and Incentive Program* – increasing solar capacity and efficiency of the grid
- *K-Solar* – helping public schools lower their energy costs through clean, local power
- *ChargeNY* and the *Multi-State Zero-Emission Vehicles* (*ZEV*) *MOU* and *Action Plan* – accelerating market adoption of electric vehicles and charging infrastructure
- *Clean Fleets NY* – accelerating the use of ZEVs in State fleets
- *Regional Greenhouse Gas Initiative* – reducing carbon emissions
- *Green Jobs - Green NY* -- access to energy efficiency and training for green-collar careers

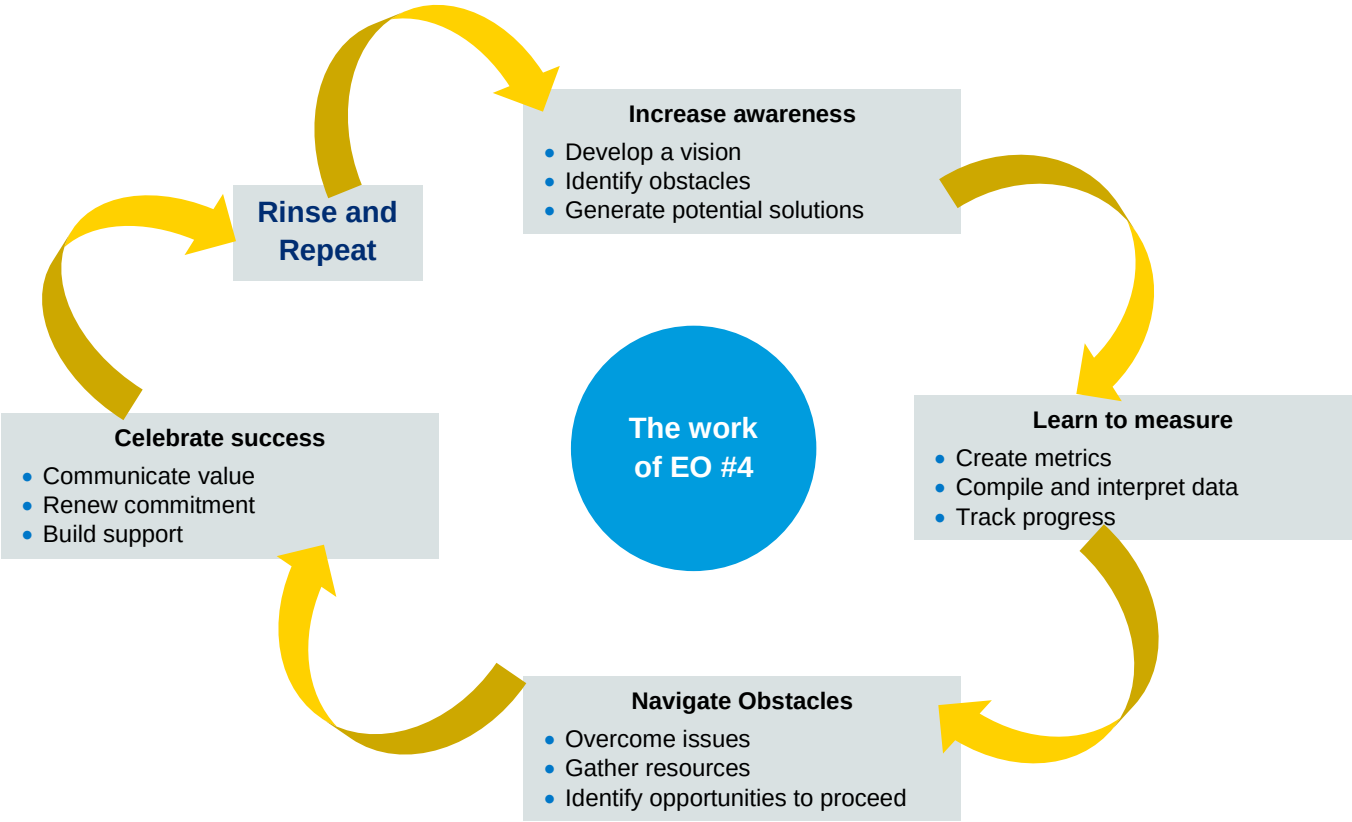
- *Governor's Office of Storm Recovery*, *NY Rising* and the *Community Risk and Resiliency Act* – reconstructing impacted communities
- *New York's Beyond Waste* sustainable materials management plan – goal of reducing waste disposed from 4.1 to 0.6 pounds per person per day by 2030
- *New York's Green Cleaning Program (Chapter 584 of the Laws of 2005)* – requires elementary and secondary schools to use environmentally preferable cleaning products
- *Taste NY* – increasing the market for food and beverages produced in New York State
- *Green Building Construction Act* – State building construction to comply with green standards
- *The Pollinator Task Force* – addressing pollinator population loss in New York State

> *Sustainability is the simultaneous pursuit of environmental quality, economic prosperity and social well-being for present and future generations. It includes environmental justice and concern for the health of natural ecosystems and maintaining biodiversity.*

Operating Green

EO 4 requires that Sustainability and Environmental Stewardship Programs include projects, programs and policies designed to reduce the adverse public health and environmental impacts of an agency's activities and operations. Agencies are given wide latitude to design programs that work best in the context of their unique missions. Areas of focus include: reduction, reuse, recycling and composting of solid waste; reduction or elimination of the use and generation of toxic substances; enhanced energy efficiency and use of renewable energy sources; conservation of water and other natural resources; and maximization of the use of green products, services and technology.

An overarching theme of sustainability work is "continuous improvement." As the chart below illustrates, that means continuing to innovate and search for solutions that elegantly address challenges without creating new problems.



The EO 4 reporting structure helps agencies assess their progress and share results. Sharing obstacles allows for collaborative problem solving, while sharing successes inspires further innovation. Some perennial challenges may require new policies or culture change, and may take years to yield a solution. The key is to be vigilant, persistent, and process-oriented in order to maintain traction and momentum. A drop in performance one year can be a springboard for renewal and greater achievement the next.

The sections below present performance metrics and cost information for each focus area of agency sustainability activity. They summarize the challenges experienced by agencies, share how some have navigated those challenges to achieve even greater success, and highlight noteworthy new initiatives begun, underway or completed in the reporting period. Each achievement rests on years of effort and brings us closer to the vision of operating green.

Leading the Green Team: People, Planning and Money

New York enjoys the services of a wide range of government agencies. Facilities include owned and leased office space; hospitals, group homes, prisons and laboratories; forests, campgrounds, parks, golf courses and fish hatcheries; highways, railroads and canals; power plants and armories; and colleges and universities. The core mission and daily activities of each agency shape their sustainability priorities and the degree of effort required for implementation.

Findings

Of the 62 agencies reporting in FY 14-15, 51 had a designated Sustainability Coordinator, a notable increase from 46 reported in FY 13-14. Coordinators serve the crucial function of integrating sustainability into the day-to-day operations of their own distinctive agency.

Of the 62 entities reporting in FY 14-15, 23 are working on or have finalized a formal sustainability plan. NYPA is currently developing an updated Sustainability Plan; the Department of Motor Vehicles (DMV) expects to finalize their Sustainability Plan in early 2016.

The most successful agencies enjoy executive support, a full-time Sustainability Coordinator, a multi-disciplinary team, and dedicated financing for projects.

Savings and Costs

Overall, New York's experience has shown that sustainable practices do not cost more and that many save money. Since FY 09-10, a significant number of agencies have reported saving money by reducing energy use, eliminating the purchase of bottled water, and reducing waste. A majority reported a reduction or no change in costs associated with conserving water and natural resources, reducing pesticide use, and recycling and composting. Only a small number have reported an increase in cost associated with any given sustainability activity.

Challenges and Success Stories

Many agencies have found it challenging to track the costs and savings associated with green initiatives. More than a third of reporting agencies have consistently said that they are unable to estimate whether their sustainability activities had reduced or increased costs.

Experience has shown that the most successful agency sustainability programs have a full-time Sustainability Coordinator, a multi-disciplinary team, enthusiastic executive level support, meaningful metrics, an effective method for tracking progress, and a reliable source of funding. Notably, they embrace the EO 4 reporting process as a powerful tool for measuring performance and gaining executive support. The City University of New York (CUNY) has one of the strongest sustainability programs among State entities, containing each of those key elements:

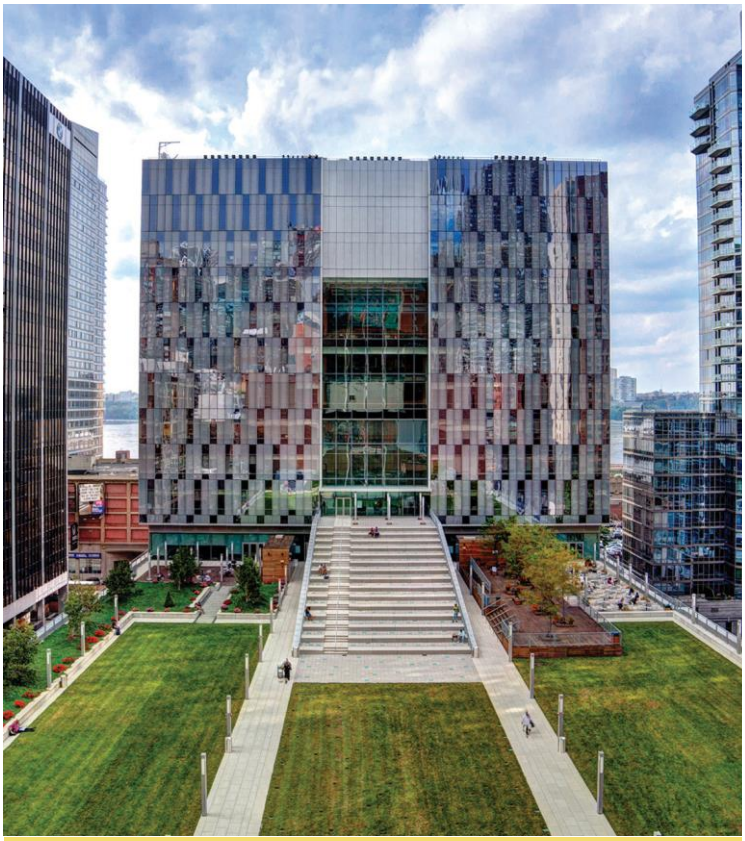
- In 2007, CUNY adopted the goal of reducing greenhouse gas emissions 30% by 2017, and *Sustainable CUNY* was launched.
- Each of CUNY's 19 campuses has its own *Sustainability Council*, made up of students, faculty and staff and chaired by an individual appointed by the President for each campus.
- Each Council has its own 10-year *Sustainability Plan* with seven key pillars of focus: energy, water, transportation, waste and recycling, procurement, dining services, and outreach and education.
- Over 820 targets, policies and best practices have been identified to meet *Sustainable CUNY* goals.
- A full-time Director of Sustainability and core team at CUNY's Central Office provides guidance to campuses, shares examples of good practices, and advances CUNY-wide objectives.
- Since 2012, CUNY has distributed energy budgets to their 13 senior colleges and held them to that allocation. When savings are realized through efficiency measures, campuses are able to reallocate funds to further efficiency efforts or other campus priorities in future years.

- *CUNY Conserves* is helping colleges improve their energy use data.
- In 2013, CUNY established a $1 million *Sustainable Investment Fund* that loans money to campuses for energy efficiency projects. In two years, the Fund has been partially replenished, and will be loaning out $400,000 in FY 15-16.

CUNY's multi-layered program shows that solid infrastructure and high level support gives project leaders the momentum they need to move forward, confident that resources will be made available and a tone has been set for successful buy-in across the organization. It also shows the power of creating an incentive for agencies to invest in reductions in order to realize savings. Such incentives do not require additional investment so much as the restructuring of saving and cost flows so that agencies can benefit directly from the improvements they make.

Below are descriptions of five more agencies with strong, multi-faceted sustainability programs:

- The *Metropolitan Transportation Authority* (MTA), has a central Sustainability Department that coordinates implementation of their sustainability plan. Each MTA agency, including Metro-North, the Long Island Railroad and Bridges and Tunnels, has its own sustainability team that briefs executive staff on a quarterly basis.
- The *Jacob K. Javits Center* (Javits Center) adopted a high level Sustainability Plan two years ago. In FY 14-15, it completed a five-year renovation project that included funding for a comprehensive sustainable transformation, for which it received a New York State Environmental Excellence Award from Governor Cuomo in 2015.
- The *Office of Parks, Recreation and Historic Preservation's* (Parks) Sustainability Plan serves as a proactive green handbook for staff and managers. A central Office of Sustainability manages the fleet and supports initiatives throughout the parks. They also received a NYS Environmental Excellence Award in 2015 for their work to advance sustainability and the installation of solar systems across the state.
- The *Port Authority of New York and New Jersey's* (Port Authority) Sustainability Policy covers air quality improvements, coastal ecosystem conservation, and energy and waste programs. The Port's Commerce Department oversees an Environmental Management System to align operations in all port facilities with environmental goals.



CUNY is a State leader on sustainability and John Jay College of Criminal Justice leads CUNY campuses in energy savings.

- Under their Sustainability Plan, *the Development Authority of the North Country* performs random waste audit and sustainability training, tracks trends in chemical-use reduction, and documents sustainable practices used in capital projects. Items tracked for EO 4 are discussed in quarterly manager's meetings.

New and Noteworthy Initiatives in FY 14-15

- The *Niagara Frontier Transportation Authority* (NFTA) has embraced continuous improvement in their sustainability efforts and are updating their performance evaluation process to reflect that focus.
- The *Development Authority of the North Country* adopted a standard operating procedure for gathering data under EO 4 that includes an annual survey of staff to help answer narrative questions.
- *Westchester County Healthcare Corporation* (Westchester Healthcare) is currently in the process of formalizing a sustainability plan drafted by their Green Committee.
- *DEC* established a regional sustainability team and initiated regular meetings with their green team and key executive staff. This has streamlined troubleshooting and eased project implementation.

Waste and Paper Use Reduction Goals

New York's *Beyond Waste* sustainable materials management plan, adopted in 2010, establishes a 20-year goal of reducing the average amount of waste New Yorkers dispose of from 4.1 to 0.6 pound per person per day. The plan marks a shift from focusing on "end-of-the-pipe" waste management to looking "upstream" at how materials that would otherwise become waste can be avoided or better utilized as part of an efficient, vibrant economy. EO 4 is specifically discussed in the plan as a valuable step forward in integrating waste prevention, and recycling into State operations.

Waste Reduction Goal

Given the importance of prevention, the EO 4 Interagency Committee established a waste reduction goal of reducing total office waste generated by 10% per full-time employee equivalent (FTE) per year, starting with the baseline year of FY 09-10. Office waste includes paper, plastics, metal and glass generated by office facilities. Total waste generated is the sum of materials that are recycled, as well as materials sent to disposal. The purpose of estimating waste generation per FTE is to enable agencies to compare their performance from one year to the next by avoiding the variation associated with changing staffing levels.

The goal was applied to office waste only because the Interagency Committee determined that a single metric for measuring reductions in other types of waste would be not be comparable over time. Agencies whose primary purpose is transportation or construction generate very large quantities of bulk metals and construction and demolition debris regardless of the size of their staff. Agencies that manage waste generated by the public, such as Parks, SUNY and CUNY, also experience variation unrelated to staff size. For these reasons, the goal should be viewed as a meaningful way for agencies to measure their own performance, but not as way to compare performance across agencies.

While the waste reduction goal of 10% per FTE per year applies to office facilities and office waste only, data on all materials generated–recycled and disposed–is still collected, but waste generated by the public and wastes unrelated to staffing levels, such as construction and demolition (C&D) debris, scrap metal, and laboratory wastes, is reported separately wherever possible. The Interagency Committee encourages agencies to develop meaningful waste reduction goals for wastes specific to their own operations and to report on progress made toward reaching those goals in future EO 4 reports.

Paper Use Reduction Goal

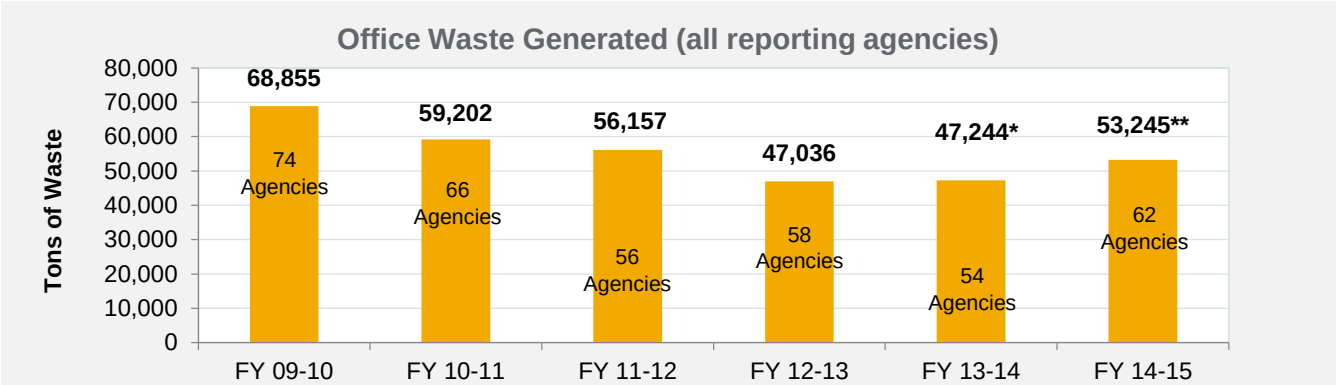
The goal established for paper use reduction is a 10% reduction in copy paper purchased per FTE per year by weight, starting with the baseline year of FY 09-10. In addition, the Committee asks agencies to report the quantities of all janitorial paper purchased, and to identify steps taken to reduce the use of janitorial paper, such as paper towel use. As with waste reduction, the paper use goal provides a meaningful way for agencies to assess their progress in reducing paper use over time. Comparisons between agencies is discouraged, given the large variation in paper use across agencies based on mission.

Waste Reduction and Reuse

Agencies report that the EO 4 reporting process encourages them to take a more detailed look at the waste they generate and to develop more effective waste management practices. Overall waste generation data continued to indicate a favorable downward trend, and executive agencies have virtually eliminated the purchase of bottled water.

Findings

In FY 14-15, generation of solid waste across 62 agencies reporting totaled 398,895 tons, a slight increase of 2% (or 9,385 tons) from the previous reporting period when 52 agencies reported generating 389,510* tons of waste. Since FY 08-09, the total amount of solid waste generated has decreased 51%, from a total of 815,000 tons generated by 53 reporting agencies in FY 08-09 (see chart on page ii of this report).



*This number represents a slight increase in the estimate of office waste and overall waste generated for FY 13-14, based on the inclusion of data from one large agency whose office waste data was inadvertently left out of their report for that year. **The modest increase in office waste generated for FY 14-15 is likely due to a significant increase in the number of agencies reporting compared to the previous three years.

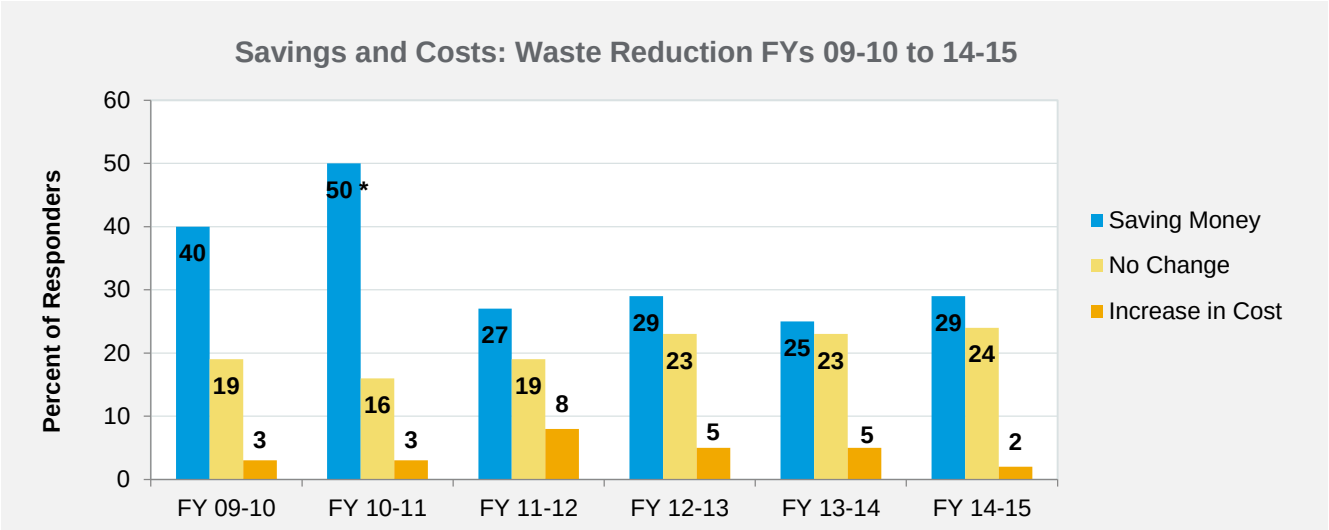
The amount of office waste generated increased 13% (or 6,001 tons) in FY 14-15 to 53,245 tons, as compared with 47,244* tons reported in FY 13-14. This increase is most likely due to the significant increase in agencies reporting compared to the previous three years. Office waste represented 13% of the total amount of waste generated in FY 14-15, an increase of one percentage point as compared with 12% in FY 13-14. Overall, office waste generation has decreased 23% since FY 09-10.

Through techniques such as double-sided printing and the use of electronic documents and other technology, agencies have significantly reduced the overall amount of copy paper used. In FY 14-15, 56 agencies reported purchasing 248,552 boxes or $7,889,141 worth of copy paper, a 53% decrease in dollars spent compared to FY 08-09, when 47 agencies reported purchasing $14,537,991 of copy paper. This reduction adds up to $28.3 million in savings in FYs 11-12 through 14-15, and approximately $6.6 million in savings per year going forward. A relatively modest increase (14%) in quantity purchased in FY 14-15 compared to FY 13-14, when 46 agencies reported purchasing 217,812 boxes or $6,813,652 worth of copy paper, is most likely due to the 16-20 percentage point increase in agencies reporting compared to the previous three years, and should not be indicative of an upward trend. Overall, the data documents a solid and highly encouraging trend of significant paper use reduction over seven reporting years (see chart on page ii of this report).

In FY 14-15, a majority of agencies reported use of the following waste reduction strategies:

- 82% use two-sided printing all (13%) or most (69%) of the time.
- 89% use electronic means to provide documents to the public all (13%) or most (76%) of the time.
- 79% use electronic means to receive documents or information from the public all (8%) or most (71%) of the time.
- 70% use Microsoft Sharepoint, Team Rooms or other electronic means to share documents among employees all (10%) or most (60%) of the time.
- 73% have some form of reuse program.

In addition, the use of printing controls by agencies has steadily increased, especially at State universities. In FY 14-15, 34% of agencies reported using controls, such as employee ID cards, to track printing and limit excessive paper use all (6%), most (8%), or some (20%) of the time.



*Fluctuations in the percentage of agencies reporting savings are due to changes in the ability of agencies to track savings from year to year. There is steady reporting of savings compared to increases in cost.

Savings and Costs

On average over the past six years, a significant number of agencies (33%) reported saving money through waste reduction. More than half have reported either a reduction or no change in costs. Only a very small number have reported an increase in costs. More than 40% said they did not know.

Challenges and Success Stories

In general, the past seven years of paying attention to measuring waste has resulted in the creation of tools and changes in processes that have made it easier for agencies to track their performance. The new "*Recycling Services and Trash Removal"* contract should help support those efforts because it includes both training and waste tracking services.

Even so, difficulties remain. Some agencies still cannot effectively distinguish between office and non-office waste. A related issue is the difficulty some agencies have, such as Parks, SUNY, and CUNY, regarding how to distinguish between clients, employees, and office versus non-office personnel. As Tax and Finance noted, "the survey asks for FTE, but it does not reflect our true number of employees. We have a large temp staff (over 500) and many Office of Information Technology Services employees (over 500) that share our offices, produce waste and use resources."

The most important thing for agencies to do is to pick one methodology for estimating office waste and number of FTEs and to stick with it. As long as a consistent approach is adopted, the waste and paper use reduction goals will provide a meaningful metric for agencies to measure their progress over time.

Yearly reporting can also be, in and of itself, an issue. When an agency experiences a significant relocation or a purge of paper documents, their reporting for one or a number of years may be skewed. The key approach in these kinds of cases is to describe the reason for the disparity. For example, the Department of Taxation and Finance (Tax and Finance) reported in FY 14-15 that they were continuing a massive purge of paper records, which increased the amount of office waste generated per FTE. Once concluded, waste generation should drop dramatically.

Location in leased space can also cause difficulties. Agency reports continue to indicate confusion over who is responsible for filling out which aspect of the EO 4 report when one agency is housed in a building owned by another agency. For example, the NYS Division of Homeland Security and Emergency Services (Homeland Security) stated that "our Agency is managed by OGS which is why a lot of the questions were not answered completely. I am unsure of the temperature in the building for the different seasons as well as the cleaning supplies that are used." EFC noted that "as an OGS tenant, costs for waste and recycling services are not within our direct control."

The Interagency Committee will clarify the EO 4 reporting form for FY 15-16 regarding which questions should be answered by whom. Agencies housed in OGS leased buildings with a "3Rs" program are not required to answer the waste questions, nor are agencies who do not perform or contract for the performance of pest management or cleaning required to respond to the pesticide use or cleaning questions. Other issues, such as set temperatures, would be good to inquire about.

Leases entered into by OGS contain a standard provision indicating that the landlord and occupying agency will work together to select green cleaning products and implement effective source-separation and recycling programs. For example, the Office of Children and Family Services has worked closely with OGS to ensure that green products are included in all new leases under the janitorial section.

An even more difficult situation is faced by agencies housed in buildings owned by a party outside State government. Ideally, agencies in leased space should speak with their landlord at the beginning of the lease term or the beginning of a reporting period regarding EO 4 reporting requirements and enlist their assistance. Still, some agencies continue to report that changing lease language can be difficult and time consuming. It can also be challenging to enforce green requirements once they are in place. Obstacles include a lack of control over operations and sharing space with other tenants, which makes tracking the waste of just one tenant difficult.

All this said, a detailed waste audit remains the best way to obtain data on the nature and quantity of wastes generated by an agency. Every year, agencies report positive experiences with such audits. In FY 14-15, two agencies undertook waste audits:

- *NFTA* conducted a comprehensive audit of their recycling program to identify deficiencies and opportunities for improvement. This audit led to launch of an employee education campaign focused on how single stream recycling works. The result was a 41% reduction in overall waste disposed per employee. Due to the audit, they were also able to combine their waste disposal and recycling contracts and realize a positive cost offset due to increased recycling.
- The *Development Authority of the North Country* reports that the weighing of recyclables and compost has provided them with better metrics for identifying trends moving forward and enabled them to identify plastic film as a recycling commodity which is now included in their program.

A Waste Audit Guidebook and webinar are available on OGS' EO 4 webpage to help agencies perform waste audits: http://www.ogs.state.ny.us/EO/4/Docs/WasteAudit2008.pdf and http://www.ogs.state.ny.us/EO/4/Default.asp. In addition, DEC continues to perform waste audits twice a year at its Albany headquarters and staff from other agencies are welcome to participate as a training exercise. DEC will also provide technical assistance to individual agencies upon request.

A final area of challenge is the reuse of surplus property. Agencies continue to report the need for a more comprehensive and easier to use process for allowing re-use between agencies and donation to outside entities. According to these agencies, the State procurement law requirements governing the disposition of surplus equipment, intended to guard against unwarranted loss of State assets, are so complex and time consuming to satisfy that it is much easier to simply discard items instead of finding a legally acceptable way to donate equipment such as old desks, chairs, file cabinets and or even binders. Streamlining the local distribution process would make it easier to donate to county, town or not-for-profit agencies.

New and Noteworthy Initiatives in FY 14-15

Among the waste reduction strategies introduced in FY 14-15, there is a trend toward increased use of electronic communication and documentation and a greater focus on employee engagement and education initiatives.

- *Civil Service* continues to expand the use of online reporting and software applications to decrease paper use and lower printing costs. Exam candidates file online applications much more frequently than paper. For large candidate exams, applications and scores are exclusively available online.
- *The Development Authority of the North Country* now emails paycheck stubs instead of printing them. Bank statements are also being received electronically.
- *NYSERDA* has significantly reduced the amount of paper literature they bring to outreach events. Staff bring a laptop and review information online with members of the public.
- *SUNY Stony Brook* and *Oneonta* reduced paper use by utilizing software management tools.

Agencies continue to successfully promote reuse practices at their facilities There are different opportunities at each agency, and strategies vary accordingly.

- *SUNY New Paltz* revamped their move-out day, entitled "Reuse2Reduce," increasing the total volume of material diverted from the waste stream by 150%, from 2.4 tons in 2014 to 6 tons in 2015.
- *NYPA* established a "Take It or Leave It" station at the Clark Energy Center to encourage reuse of office supplies. Such stations will be introduced at other facilities in the near future.
- *NYPA* also launched a summer campaign entitled "Refuse Single Use," which challenged employees to use only reusable items for one week.
- *SUNY Environmental Science and Forestry* (ESF) initiated a "Save a Plate Program" for catered events of up to 40 people. Organizers borrow reusable plates and utensils from the dining service.
- *Parks* upcycled picnic table boards for use as snow plows on delicate surfaces.

SUNY New Paltz increased the amount of waste diverted from landfills 150% by encouraging students to reuse products on move-out day.

Recycling and Composting

Reports for FY 14-15 continue to document a robust and encouraging trend of high recycling rates by State agencies, which are helping to reach the State's aggressive 2030 waste reduction and recycling goal. Composting has become an increasingly important component of recycling. Diverting excess food and food scraps from disposal has many potential benefits, including the support of food insecure populations. Diverting food scraps and other organic waste to composting or anaerobic digestion reduces methane generation in landfills and sequesters significant amounts of elemental carbon, all while producing a beneficial soil amendment that contributes to healthy soil and reduces the need for energy-intensive fertilizers and pesticides.

Total Waste Generated and Percent Recycled

	Total Tons of Waste Generated	Tons of Waste Recycled	Percent Recycled
FY 2008-09	815,000	410,500	50%
FY 2009-10	507,929	318,181	63%
FY 2010-11	682,043	308,566	45%*
FY 2011-12	531,059	355,865	67%
FY 2012-13	501,125	355,226	71%
FY 2013-14	389,510*	273,712	70%
FY 2014-15	398,895	280,172	70%

*The large drop in the recycling rate in FY 10-11 is primarily from one large generator reporting a much higher amount of waste disposal. The increase in reported waste generated for FY 13-14 is due to the inclusion of data on office waste for one large agency that was mistakenly left out of the report that year.

Findings

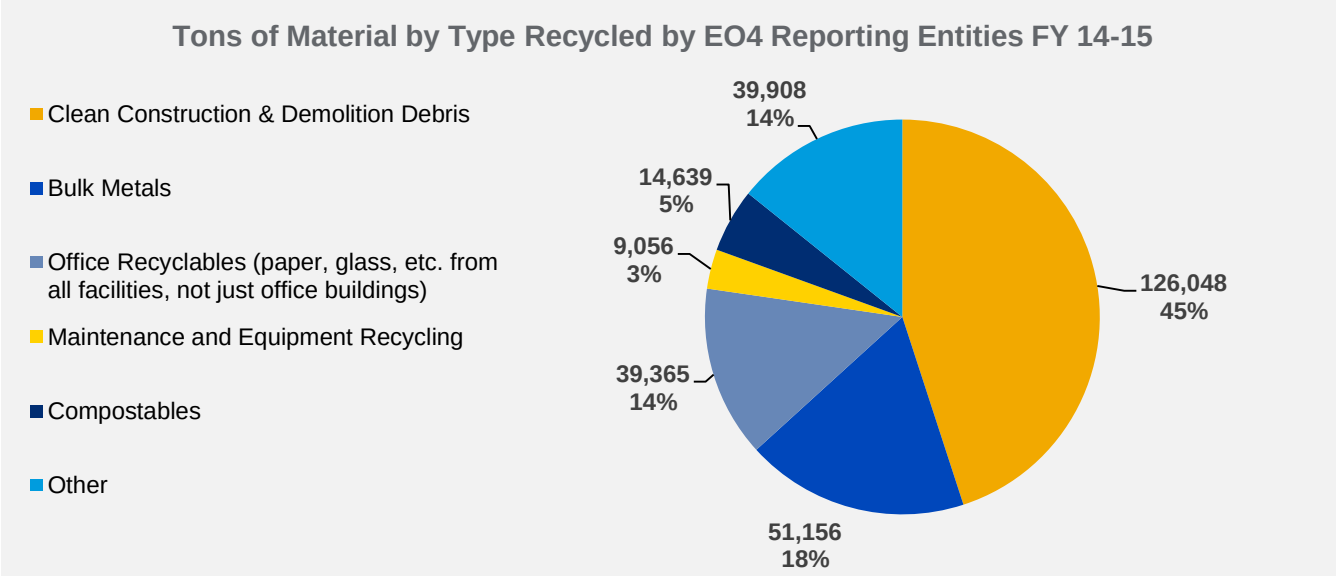
In the last three consecutive reporting years, nearly 71% of the solid waste generated by State agencies was recycled or composted, compared to 50% in FY 08-09.

Numerous communities in the State have moved to single-stream collection, an emerging trend in recycling that commingles all recyclables (including paper, glass, plastic and metal) in one container. This approach has proven to be an effective way to control costs and improve participation. In FY 14-15:

- 37% of agencies reporting had single-stream recycling at all their facilities.
- 76% had single-stream recycling at a minimum of one facility.

This represents a significant increase from FY 09-10, when only 53% of agencies reporting had access to single-stream recycling at any of their facilities. Overall recycling tonnages and the use of single stream continues to trend upward.

The pie chart below provides a breakdown of the total quantity of materials recycled by agencies, on average, in FY 14-15. Because waste types are split out by weight, “office recyclables” (paper, bottles and cans) amount to significantly less than non-office recyclables, which weigh more. Construction and demolition (C&D) material includes concrete, asphalt, brick and clean wood that come from building construction, renovation and demolition, as well as highway construction and maintenance.



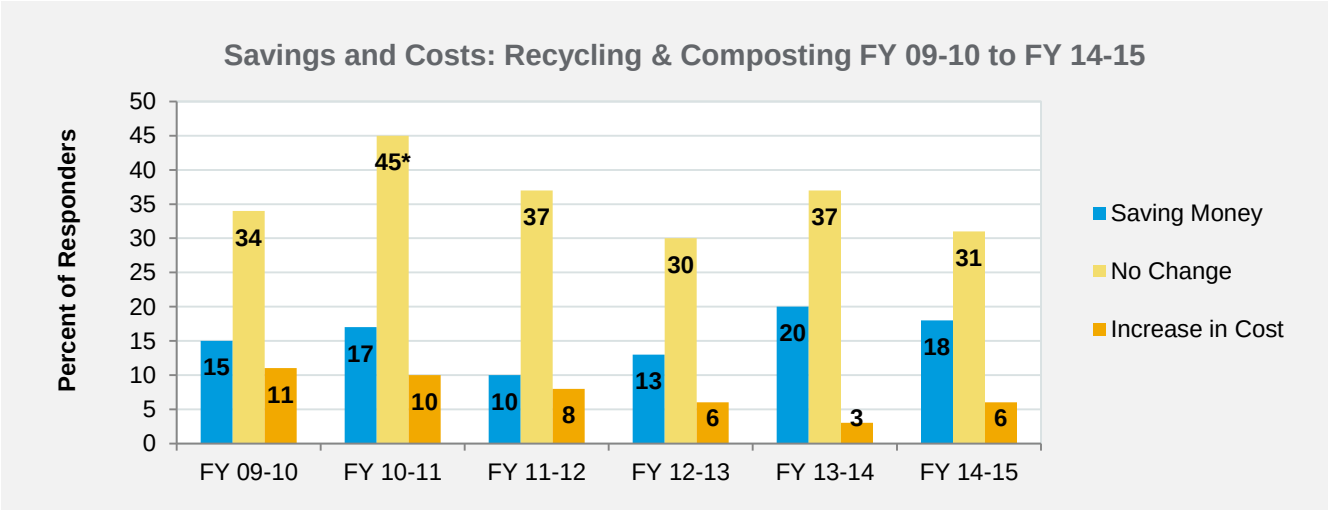
In FY 14-15, the number of agencies that reported composting rose slightly to 15 from 13 in the previous two reporting years. The amount of materials composted varied considerably, with over 25,000 tons composted in FY 12-13 and less than 15,000 tons composted the two succeeding years. *SUNY* and the *Department of Corrections and Community Supervision* (DOCCS) accounted for 82% of all the organics composted by agencies.

Eight agencies reported composting food scraps during FYs 12-13 through 14-15. They collected over 7,000 tons of food scraps for composting each year, the vast majority of which, about 6,000 tons, was collected by DOCCS. Educational institutions are leading the charge on increasing the composting of food scraps, with SUNY collecting nearly 900 tons for composting in FY 14-15, which is well over the 600 tons reported in each of the last two years. Many colleges have found a way to either compost on site or send their compostables to a local facility.

Several agencies reported an interest in diverting their food scraps to composting. However, for some agencies, sending scraps to a composting facility may increase waste management costs.

Savings and Costs

On average over the last six years, a significant plurality of agencies (51%) reported a reduction (15%) or no change (36%) in costs as a result of recycling efforts. A much smaller number (7%) reported an increase in costs. More than 40% reported that they did not know. The agencies reporting savings had more comprehensive waste reduction, reuse, recycling and composting programs.



* Fluctuations in the percentage of agencies reporting no change in costs are due to changes in the ability of agencies to track savings from year to year. There is steady reporting of savings or no change in costs compared to increases in cost.

New and Noteworthy Initiatives in FY 14-15

- At the *Javits Center*, more customers are asking for the creation of show-specific recycling plans. A breakdown of energy consumption and recycling rates is provided after the event.
- *Javits* also began placing small recycling bins at the desks of office employees. Trash can only be thrown away at the larger recycling and waste stations located in central areas.
- *Westchester Healthcare* partnered with the county's environmental department to collect food waste from the medical center and compost it using trained teams from ARC. The compost is utilized by the Food Bank of Westchester in their community gardens.
- *SUNY Binghamton* negotiated new recycling rebates with third-party vendors that fluctuate with market values, allowing for greater revenue as commodity prices increase.

- *EFC* increased their recycling rate through an enhanced education program and a voluntary (take home) composting program.
- *NYPA* installed a new 3-bin system (containers/paper/trash), which is increasing recycling participation. The program will be expanded in FY 15-16.
- *DEC* hosted a half-day textile recycling collection event for the public in partnership with Ulster County and the Town of New Paltz. Nearly one ton of textiles were recovered for reuse.

Westchester Healthcare diverted food waste to compost used on community gardens in partnership with the local ARC and Food Bank.

Reducing Toxic Chemical Use

Agencies continued their efforts to reduce toxic chemical use in FY 14-15. Safer pest management and green cleaning continued to be practiced by most agencies, with new efforts made to test out non-toxic approaches and phase out the use of commonly used toxins, such as quatricides.

Pest Management

A majority of agencies continue to use integrated pest management (IPM) to prevent indoor pests. IPM is a set of practices that minimize pesticide use and focus on prevention through monitoring, good sanitation and structural and biological controls, with least-toxic pesticide use as a last resort. OGS has been a leader on the use of IPM in public buildings for the past 25 years.

Parks is implementing model practices for IPM on turf grass at golf courses across the State. The model was first developed at Bethpage.

Findings

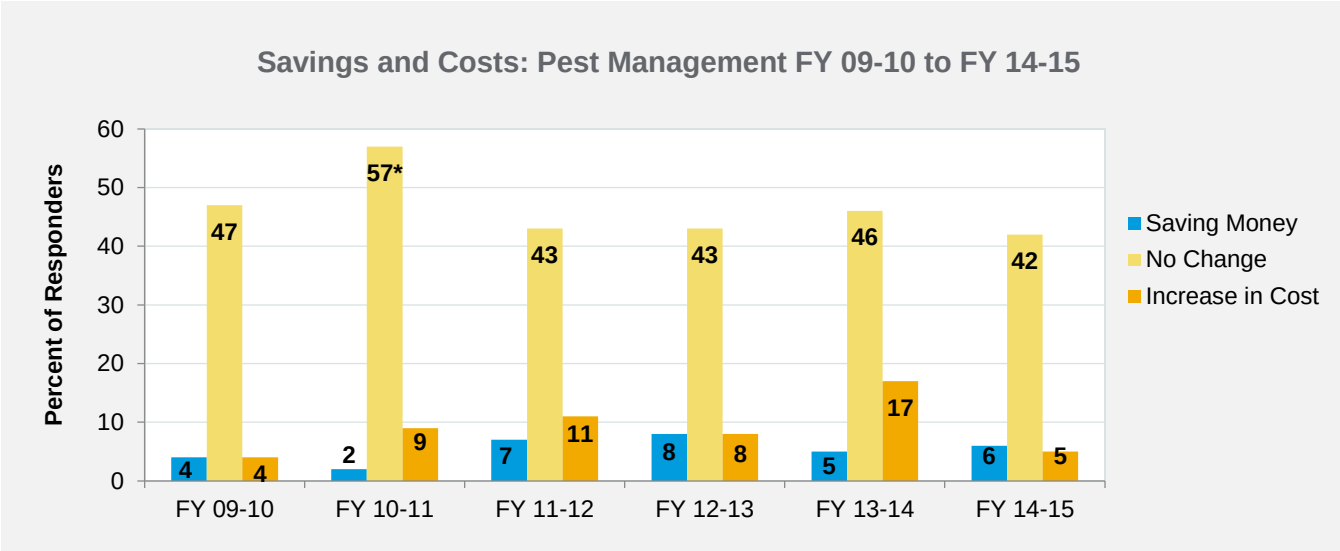
In FY 14-15:

- 64% of agencies responsible (either directly or through contractors) for indoor pest management at their facilities reported using IPM all (43%) or a majority (21%) of the time.

Agencies have been slower to adopt green exterior pest management practices. In FY 14-15:

- 50% of agencies responsible for turf and ornamental pest management at their facilities reported using non-chemical means of pest control all (29%) or a majority (21%) of the time.

This represents an increase in agencies who always avoid chemical use on turf and ornamentals (from 22% in FY 13-14), but a decrease in the number who avoid chemical use a majority of the time (from 48% in FY 13-14). On a more encouraging note, the number of agencies who rely solely on chemicals for pest control decreased from 17% to only 4% over the same period. This year, as part of implementation of the Governor's Pollinator Task Force Report, the Interagency Committee will educate agencies about the strong connection between reducing outdoor pesticide use and the protection of pollinators, add questions on pollinator protection to the EO 4 reporting form, and use the strong model provided by leading agencies to educate and inspire wider reliance on non-chemical pest control.



* Fluctuations in the percentage of agencies reporting no change in costs are due to changes in the ability of agencies to track savings from year to year. There is steady reporting of no change in costs compared to increases in cost.

Savings and Costs

On average over the past six years, a significant plurality of agencies (53%) reported a reduction or no change in costs as a result of practicing IPM or non-chemical means of pest control. In contrast, much smaller percentage (10%) report an increase in costs. Over one-third said they did not know.

Challenges and Success Stories

Despite widespread and enthusiastic adoption of IPM for indoor pest management and non-chemical means of pest management for turf and ornamental plantings over the past six years, a small number of agencies (four in FY 14-15) continue to receive reports from some of their facilities that less toxic or non-toxic means of pest control can be more expensive and less effective. These reports are in stark contrast to other agencies that report the exclusive and successful use of such products, such as OGS and The Battery Park Parks Conservancy.

- *Parks* continues lead on the use of organic alternatives and IPM. Golf courses in parks across the State have adopted a progressive model for the use of IPM on turf grass that was first developed in collaboration with the New York State IPM program and Cornell University at the world famous Bethpage State Park Golf Facility in 2009. The program has reduced the overall number of pesticide applications as well as the size of treated areas, and also led to the use of less toxic products that Parks reports have higher efficacy and lower costs. Surveys of golfers indicate a high level of satisfaction with course conditioning. Parks has also increased their use of goats instead of herbicide to eliminate poison ivy and reduce mowing.

- *DOT* hired a nationally renowned vegetation management researcher to conduct systematic studies of the cost and effectiveness of two “natural” herbicides. Unfortunately, at least one alternative was found to be more costly and expensive. Testing for the other will be complete in FY 15-16. DOT also investigated the feasibility of using grazing animals to control weeds and invasive species on roadsides. Unfortunately, no safe locations could be found.

New and Noteworthy Initiatives in FY 14-15

- *MTA’s New York City Transit Department* began a refuse room pilot, under which refuse rooms were periodically power washed and metal door sweeps were installed to keep rodents out.

- The *Javits Center* introduced four feral cats to reduce rodents on the loading docks, eliminating the need for exterminator services in those areas.

Green Cleaning

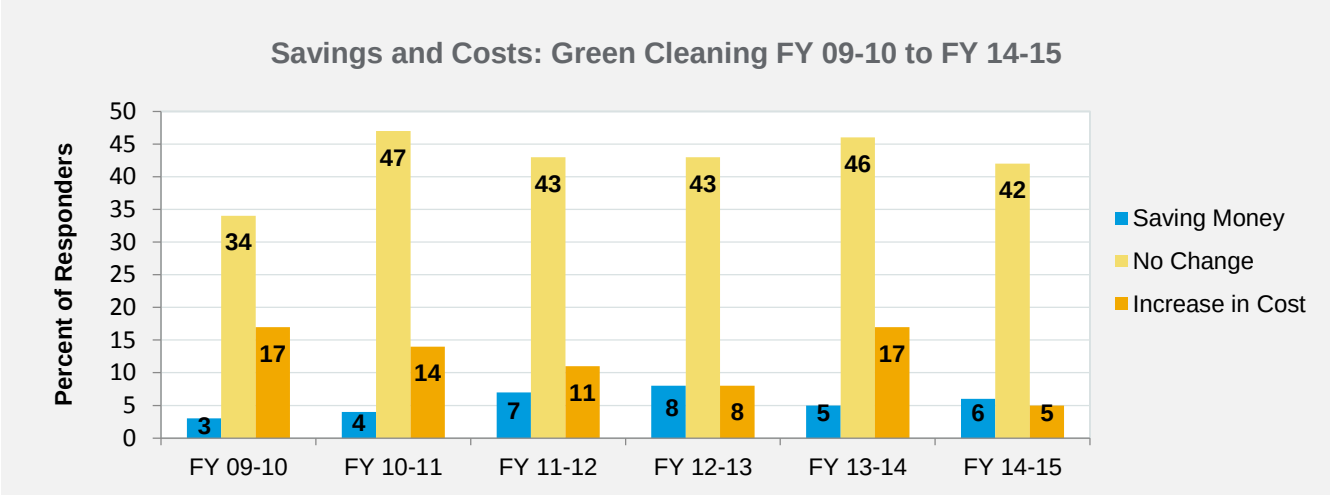
The adoption of green cleaning practices is one of New York State's biggest success stories. The State's Green Cleaning Program, run by OGS, helps agencies and schools adopt green practices by maintaining a list of State-approved green cleaning products and offering online training and a cost calculator, among other services (see https://greencleaning.ny.gov).

Findings

In FY 14-15:

- 79% of agencies responsible for cleaning operations at their facilities (either directly or through contractors) reported the use of green cleaning products from the OGS List of Approved Products all (32%) or a majority (47%) of the time. Only 5% reported that they never use products from the list.
- 61% use fragrance-free products and 73% use concentrated products all or a majority of the time.
- 69% went above and beyond the use of green cleaners by adopting practices, such as the use of walk-off mats and microfiber mops and cloths, which reduce the overall amount of chemicals used.
- 66% reported that they had reduced the number of different kinds of cleaning products used.

These numbers are roughly comparable to previous years, and indicate strong continuing adoption of green cleaning practices by facilities across the State. Reductions in the amount and different kinds of cleaning products used can be attributed to the adoption of greener practices, such as the installation of walk-off mats, as well as the use of standardized dispensing systems for concentrates and general purpose cleaners for multiple applications, such as glass, bath and toilet. Concentrated products also reduce the costs and impacts of packaging and transportation.



* Fluctuations in the percentage of agencies reporting no change in costs are due to changes in the ability of agencies to track savings from year to year. There is steady reporting of no change in costs compared to increases in cost.

Savings and Costs

Over the past six years, the percentage of agencies reporting a reduction or no change in costs as a result of adopting green cleaning practices held steady at just around 50%. The number of agencies reporting an increase in cost dropped in FY 2014-15 to an all-time low of 5%.

Challenges and Success Stories

Despite widespread and enthusiastic adoption of green cleaning practices and products by most agencies over the past six years, a small number of agencies (four in both FY 13-14 and 14-15) continue to receive reports from some of their facilities that green cleaning products cost more, are less effective and take more labor to use. This contrasts sharply with the more than 65% of agencies that report reducing the amount and number of different kinds of cleaning products used. Agencies reporting the successful adoption of green cleaning practices have been able to choose effective products, provide hands-on staff training, and adopt efficient systems for dispensing product.

- *SUNY Buffalo* and other agencies have reduced costs through the use of ionized water.
- *SUNY Stonybrook* decreased costs even when switching to a more expensive sanitizer because the dispensing system for the product allowed the University to better distribute and control its use.
- The use of green cleaning products and equipment is commonplace at CUNY, where a constant effort is made to identify, rate and approve new and innovative products.

SUNY Stonybrook decreased costs and avoided the use of quatricide by switching to a less toxic sanitizer and more efficient dispensing system.

Only one negative comment was made about the performance of green floor products in FY14-15, a reflection of the vastly improved performance of green floor finishes and strippers. The new multi-state *Environmentally Preferable Cleaning Products, Programs, Equipment and Supplies* centralized contract issued in 2015 (and discussed further under “Buying Green” below) should go far toward addressing any lingering concerns about the performance and price of green by offering a wide range of products and services at competitive prices, including green floor finishes and strippers, training, communication and tracking.

The new contract should also make it much easier to find surface disinfectants and sanitizers that represent a lesser impact to public health and the environment, while ensuring high performance and a low price. As part of developing the new contract, the multi-state team researched and compiled criteria for surface disinfectants and sanitizers that avoid chemicals known to cause asthma, cancer and skin sensitization, including chlorine bleach, hydrogen chloride, phenols and quaternary ammonium chloride compounds. The only exception is for food-contact surface sanitizers, which may contain peroxyacetic acid, an asthmagen.

New and Noteworthy Initiatives in FY 14-15

- *SUNY Fredonia* continued to avoid the use of bleach and ammonia, and *SUNY Stony Brook* continued to abandon the use of Quatricide PV-15 for sanitizing floors.
- *SUNY Plattsburgh* switched to a less toxic product for stripping floors, that requires less product for the same job, saving money.
- Keeping good company with a number of *SUNY* and *CUNY* campuses who reported similar initiatives in recent years, *CUNY Queensborough* began microscaling their experiments to reduce the volume of hazardous chemicals used and waste generated.

Energy Efficiency

Commercial buildings account for 19% of energy consumed in the United States. According to the U.S. Environmental Protection Agency's Energy Star Program, the average commercial building wastes 30% of the energy it consumes. To save energy, money and reduce environmental impact, New York State has embraced energy efficiency as a key component of operating in a sustainable manner. Under EO 4, agencies report on a variety of information related to energy use in their buildings and operations.

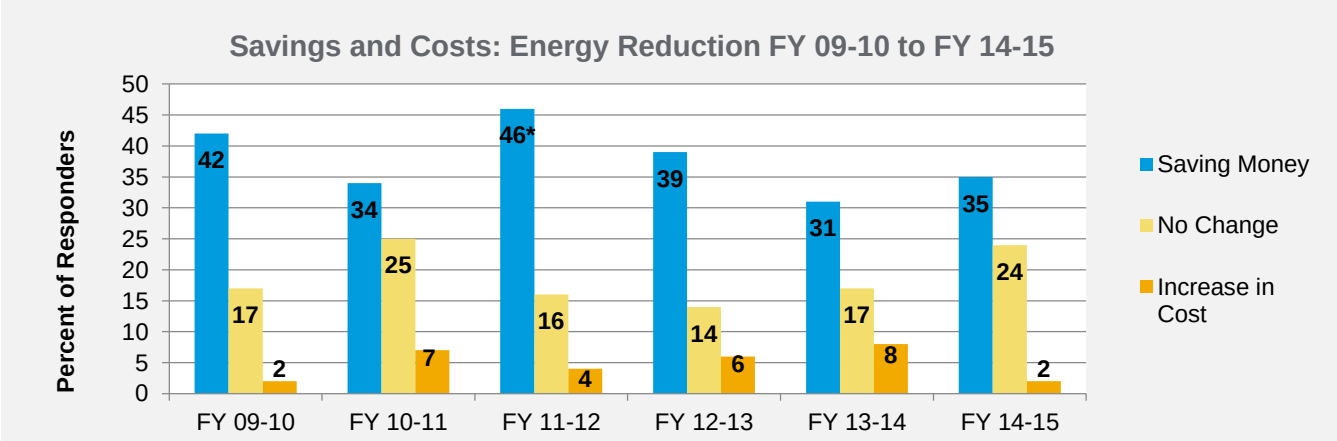
Findings

Agencies reported that on average, in FY 14-15:

- 97% installed ENERGY STAR® equipment and/or appliances**.**
- 100% used motion detectors to reduce unnecessary lighting, an increase of five percentage points from the last report.
- 92% adjusted thermostats to conserve energy during unoccupied and occupied hours, a decrease of 7 percentage points from the last report.

Savings and Costs

By following these low-cost or no-cost practices, along with turning out lights and adjusting building temperatures when no one is around, agencies can reduce energy use by as much as 10% per year. This potential for cost savings is reflected in agency reports over the years. On average since EO 4 reporting began, a significant number of agencies (38%) have reported saving money by reducing energy use. In comparison, only a small number of agencies (5%) reported an increase in costs.



* Fluctuations in the percentage of agencies reporting savings are due to changes in the ability of agencies to track savings from year to year. There is steady reporting of savings compared to increases in cost.

Challenges and Success Stories

Energy efficiency is typically the easiest "sell" as there are usually cost savings after implementations occur. Upfront costs are by far the largest obstacle.

- *Parks* noted that the up-front cost of LED lighting and other energy efficient technology is often higher than inefficient alternatives.

A related challenge is how to bridge the gap between building owners and lessees. When those two parties are both State entities, there should be a seamless way of connecting investment to savings as it all is "State money." Finally, continuing to strengthen the language and goals that relate to reducing greenhouse gas emissions will make efficiency projects more valuable to agencies and push the needle to increase renewable energy installations as well, making New York State more diverse and distributed in production.

New and Noteworthy Initiatives in FY 14-15

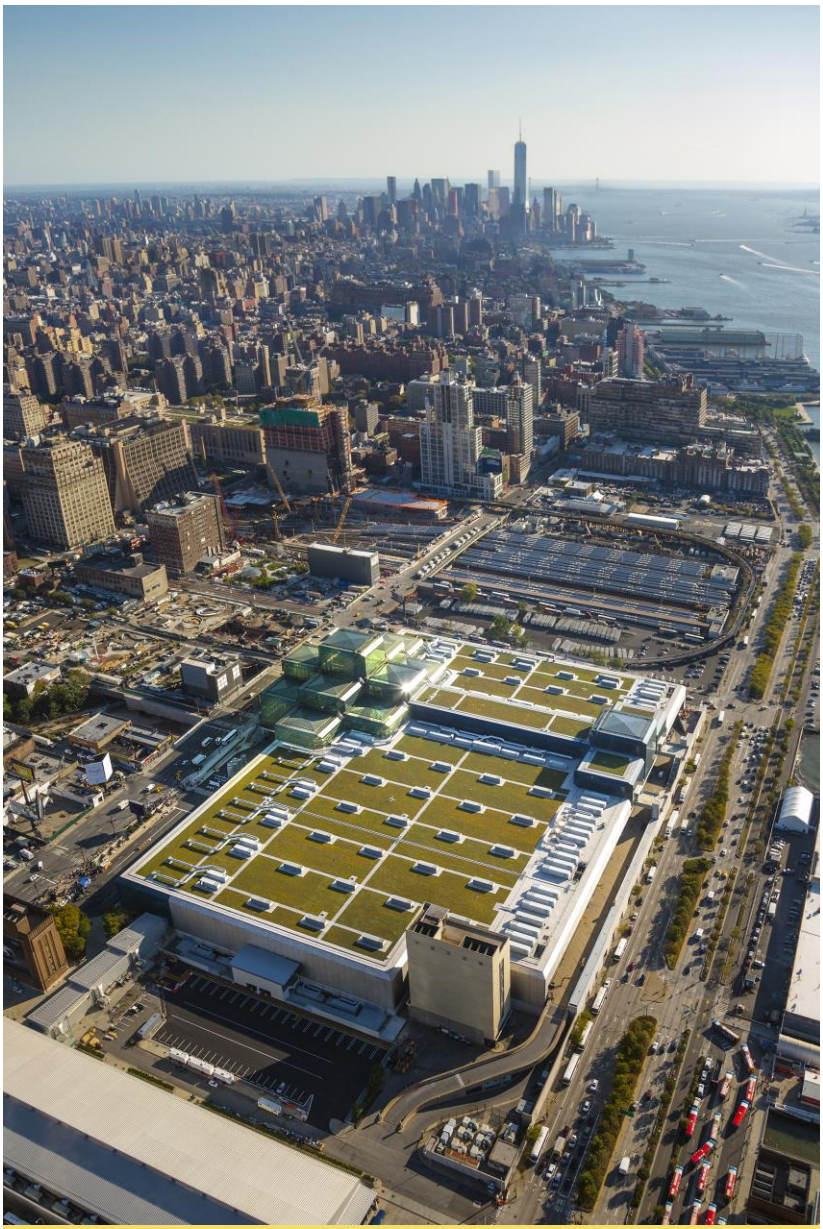
- The *Javits Center* completed a major renovation in FY 14-15 resulting in a 26% reduction in energy use. Measures include installation of a nearly seven acre green roof, energy efficient glass and variable frequency drives and air volume boxes for the HVAC system which allow for more precise temperature control. Building engineers were re-trained.

- *CUNY John Jay College of Criminal Justice* adopted an intensive program of data gathering, analysis and optimization that has lowered annual electrical use by 4.2 million kWh. Energy costs dropped $900,000 from $6.9 million in FY 13-14 to $6 million in FY 15-16 and are on track to go well below that number in FY 16-17.

- *NYSERDA* conducted a FlexTech study for its headquarters to identify reduction opportunities. They continue to purchase virtual machines (VMs) for computing, which have a fully functioning operating system but do not store data. VMs cost less and use much less electricity.

- *NYS Bridge Authority* expanded its program to retrofit streetlight heads with LED lights.

- *SUNY New Paltz* reduced energy use through active management of summer air conditioning scheduling, winter thermostat setback, and an exterior LED lighting program funded by Central Hudson's Commercial Lighting Program.



The Javits Center's new green roof reduces energy use and collects 70% of the building's storm water runoff.

- *Workers' Compensation Board* replaced a large number of single-unit printers, faxes and scanners with fewer multi-functional units, saving energy.

- *NYS Office of Mental Health* has an aggressive energy conservation program which they combined with lighting retrofits, taking full advantage of energy grant and rebate opportunities.

Related Directives

- **Executive Order No. 88**, "Directing State Agencies and Authorities to Improve the Energy Efficiency of State Buildings," issued by Governor Cuomo in 2012, requires the collection of energy-use intensity (EUI) information at State-owned and managed buildings over 20,000 sq. ft. The goal is to reduce EUI by 20% by 2020 relative to a baseline of FY 10-11. Using practices such as sub-metering, agencies are monitoring energy use in specific areas and tracking progress.

Renewable Energy

In the past two years, Governor Cuomo has taken aggressive action to foster more widespread use of renewable energy (see summary of related directives below). In keeping with his leadership, agencies are increasing their use of renewable energy, either through on-site installations or the purchase of renewable energy credits (RECs).

Findings

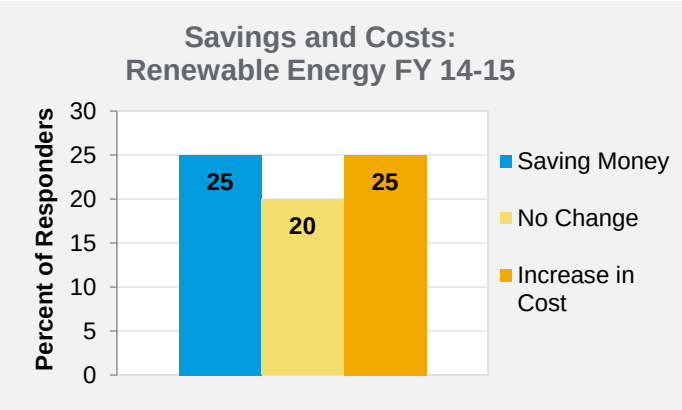
In FY 14-15:

- 20 agencies (32% of agencies reporting) either purchased RECs or generated renewable energy on-site.
- Three agencies and one facility obtained a substantial amount of their electricity through renewable sources: *DASNY* (100%), *NYSERDA* (100%), *NYPA* (86%) and *SUNY Cortland* (100%).
- On average for all agencies using renewable energy, the percentage of total electricity use from renewable sources was 26%.

Savings and Costs

In FY 14-15, a significant number of agencies (25%) reported a reduction in costs associated with their use of renewable energy. An additional 20% reported no change in cost, while 25% reported an increase in costs. A quarter (25%) said they did not know.

In general, it appears that those agencies experiencing increased costs were relying more on the purchase of RECs, while those reporting savings were relying more on on-site renewable energy generation, such as solar or biomass.



Challenges and Success Stories

A number of agencies reported that the cost of RECs is higher than conventional electricity sources. On-site installations, while they can save money in the long run, have up-front capital costs and can take a long time to yield a return on investment (ROI). Agencies experiencing savings have found creative ways to address these challenges:

- *Parks* has trained more than 20 in-house staff to install solar panels in parks across the State at one-third to half the cost of installation by an outside contractor.
- *CUNY* central purchases 20% of the electrical power for its 13 senior colleges from renewable sources through a multi-year contract issued by NYPA.
- *SUNY Cobleskill* installed a small solar array with help from NYPA and NYSERDA that has been cost-effective.
- *SUNY Cortland* implemented a power purchase agreement for an on-site solar project.

Power purchase agreements (PPAs) can be a powerful tool for agencies to finance solar and other renewable energy projects with an extended ROI. OGS is currently working on a centralized contract for the installation of solar panels and equipment, and the purchase of solar generated electricity through a PPA between a solar developer and an agency. The contract will provide a clear path forward for agencies to use PPAs and include a “model” PPA agencies can modify to meet their own project needs. One facility, SUNY Cortland, recommended that the aggregate purchase of RECs might also help to lower costs.

New and Noteworthy Initiatives in FY 2014-15

- *SUNY Cornell* completed a 10-acre solar farm through a PPA that generates approximately 2.5 million kWh of electricity annually.
- *SUNY Buffalo* generates approximately 950,000 kWh of electricity through their on-site solar array.
- *Parks* has completed eight solar panel projects at parks throughout the state, ranging in size from 350 to 57,130 kWh. Four additional projects are in the design stage.
- *The Olympic Regional Development Authority* has committed to installing solar power at the Belleayre, Gore and Whiteface Ski Centers through the use of PPAs.

SUNY Buffalo generates approximately 950,000 kWh of electricity through their campus solar array.

- SUNY ESF's new Gateway Center has a combined heating and power generator fueled by biomass.

Related Directives

Governor Cuomo issued a far-reaching set of initiatives in 2014 and 2015 to significantly increase the use of renewable energy in New York State:

- ***The 2015 New York State Energy Plan*** is a comprehensive strategy to build a clean, resilient, and affordable energy system for all New Yorkers. It includes some of the nation's most ambitious clean energy targets, all of which must be met by 2030: a 40% reduction in greenhouse gas emissions from 1990 levels; sourcing 50% of electricity from carbon-free renewables; and energy efficiency gains of 600 trillion Btu, equal to a 23% reduction in energy use by buildings compared to 2012. These targets put the State on a path to achieve the long-term goal of decreasing carbon emissions 80% by 2050.
- ***Reforming the Energy Vision*** is a comprehensive set of initiatives launched by Governor Cuomo to achieve the targets established in the 2015 Energy Plan. Components include reshaping the State's energy efficiency, clean energy and energy innovation programs, groundbreaking regulatory reform, and leading by example through public investment in energy efficiency and renewable energy.
- ***The Clean Energy Fund*** is a 10-year, $5 billion funding commitment to support Governor Cuomo's Reforming the Energy Vision and the State's Energy Plan.
- ***Renewable Energy at SUNY Campuses and State Facilities.*** In December 2015, Governor Cuomo announced that SUNY will install renewable energy, including solar and other technologies, at all of its 64 campuses by 2020. In addition, New York will invest in clean, renewable power across all of its public buildings and facilities.

- ***The NY-Sun Initiative,*** launched by Governor Cuomo in 2014, is a $1 billion investment to significantly expand deployment of solar across the State while transforming New York's solar market into a self-sustaining industry. It includes the ***NY-Sun Incentive Program***, training for installers and public officials, standardized permitting, customer aggregation, consumer education, and systems development.

- ***K-Solar*** is a landmark program funded by NY-Sun to help public school districts throughout the State lower their energy costs with clean, local power. More than 40 school districts have registered to participate in the program, and the first project has been announced at the Institute for Special Education in the Bronx, where solar panel arrays are being installed under a PPA with SolarCity.

Sustainable Transportation

Findings

In FY 14-15, agencies reported that:

- 97% used webinars or videoconferencing to reduce employee travel, an increase of 3 percentage points since the last reporting period.

- 92% have implemented carpooling and fleet management practices, an increase of 5 percentage points since the last reporting period.

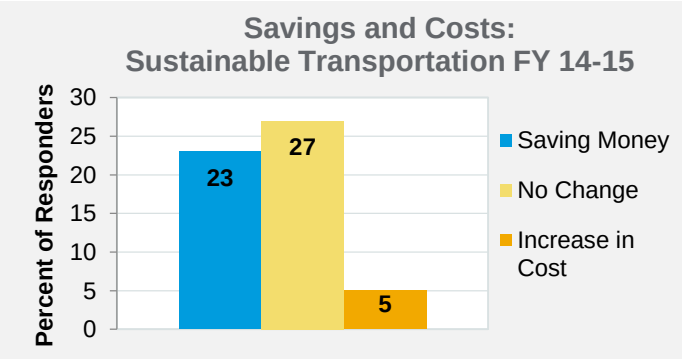
- The average fuel efficiency of agency light duty fleets (including sedans, SUVs, trucks and vans) was 22.5 miles per gallon, a slight decrease from the last reporting period. The average fuel efficiency of the U.S. light duty fleet was 23.4 mpg in 2013.

- The majority of respondents promote and support policies to reduce employee commuter miles, such as carpooling (80%), the use of public transportation (80%) and a compressed pay period (51%).

In addition to agency level initiatives to reduce commuter miles, the State broadly encourages the use of public transportation by employees through the NYS Ride program, which lowers the cost of commuting by allowing employees to purchase public transportation fares using pre-tax dollars.

Savings and Costs

Half of all agencies reporting experienced either a reduction in costs (23%) or no change in costs (27%) due to their efforts to green transportation practices. Only 5% experienced an increase in costs. Close to half (45%) said they did not know.



Challenges and Success Stories

Multiple agencies stated that a major obstacle to utilizing more fuel efficient vehicles was the higher cost premium. A few agencies stated that the lack of public transportation options in rural areas made it difficult for them to promote the use of it by employees. In addition, some work schedules do not align with public transit options, or with the vagaries in timing in public transit options.

In order to address the cost premium of fuel efficient vehicles, DEC and OGS have begun work on an aggregate purchase of plug-in hybrid electric vehicles for State agencies, authorities, and local governments through the New York State Vehicle Marketplace that will take place in summer 2016. The aggregate purchase will lead to a significant increase in the amount of zero emission vehicles (ZEVs) in the State's fleet.

New and Noteworthy Initiatives in FY 2014-15

NYPA is lowering carbon emissions by deploying more plug-in hybrid and fully electric vehicles in their fleet.

- *NYPA* undertook a “right-sizing” process to ensure use of the most fuel efficient vehicle capable of carrying out a job. They also continued to replace gasoline-powered vehicles with hybrid, plug-in hybrid and electric vehicles.
- *CUNY Hunter* reduced the number of vehicles in its fleet by retiring less fuel efficient models and optimizing their use of the rest of the fleet.
- *Development Authority of the North Country* installed telematics in their vehicles to identify and eliminate unnecessary idling and uncover other opportunities to reduce fuel usage.
- *Westchester County Healthcare Corporation* adopted a policy to allocate the most fuel efficient vehicles to the departments that travel most.
- *DEC* purchased its first plug-in hybrid vehicle and continues to purchase traditional hybrids to replace gasoline powered vehicles.
- *NFTA* installed a compressed natural gas (CNG) fueling station and purchases CNG buses, which produce 80% less carbon monoxide and significantly less particulate matter and other pollutants. They also installed charging stations for electric vehicles at all their airports.
- *NYSERDA* implemented an electric vehicle charging policy for employees and visitors and joined the U.S. Department of Energy’s Workplace Charging Challenge. In addition, they worked with their waste hauler to reduce the amount of pickups needed per week, decreasing emissions.
- *Roosevelt Island Operating Corporation* provides a $35 per month stipend to employees to encourage use of public transportation.
- *CDTA* allows employees to use their public transit system free of charge.
- *SUNY Downstate* uses energy efficient vans to shuttle employees to and from subway stations, solving the “last mile” problem of getting commuters from their public transportation stop to their destination, thereby making public transportation more appealing and convenient.

Related Directives

In addition to EO 4 requirements, Governor has issued a number of important initiatives to increase the adoption rate of plug-in electric vehicles:

- Under the ***ChargeNY*** initiative launched in 2013, NYPA and NYSERDA are collaborating to help create a statewide network of 3,000 charging stations to support the nearly 40,000 electric vehicles expected on the road in New York by 2018. Nearly 500 stations have been installed to date.
- In 2013, New York signed the ***Multi-State Zero-Emission Vehicles Memorandum of Understanding***, setting an ambitious goal to have 3.3 million ZEVs on the roads of participating states by 2025. Under the ***ZEV Action Plan*** to implement the MOU, New York is developing model local regulations for charging stations, reducing regulatory obstacles and providing incentives for ZEV use.
- In 2015, New York joined the ***International ZEV Alliance*** and is now working with partners from across the globe, including Germany and Japan, to expand the electric vehicle market and set ambitious goals for EV adoption, including phasing out the sale of fossil fuel vehicles by 2050.

Also in 2015, Governor Cuomo launched the ***Clean Fleets NY*** initiative to accelerate the use of ZEVs in State fleets. Under this pilot, 50% of the light duty, administrative use sedan purchases by *NYPA*, *NYSERDA*, and *DEC* in FY 15-16 will be ZEVs; other agencies are encouraged to participate. Among other activities, the Clean Fleets team held the first annual Clean Fleets Forum, where fleet managers were invited to test drive available ZEV models.

Conserving Water and Natural Resources

Conservation, Efficiency and Reuse of Water

Potable water is a critical resource that takes energy and money to treat and deliver to users. Performing a comprehensive audit of water use and fixing leaks is an important step agencies can take to save energy and water use. Another is to install plumbing fixtures with high water efficiency and performance ratings. EO 4 green specifications are available for low-flow toilets, composting toilets, and showerheads, and a range of additional fixtures, such as sink faucets, urinals and weather-based irrigation controllers, are certified by USEPA's WaterSense® program. Composting toilets have the added benefit of providing facilities where wastewater treatment is not available.

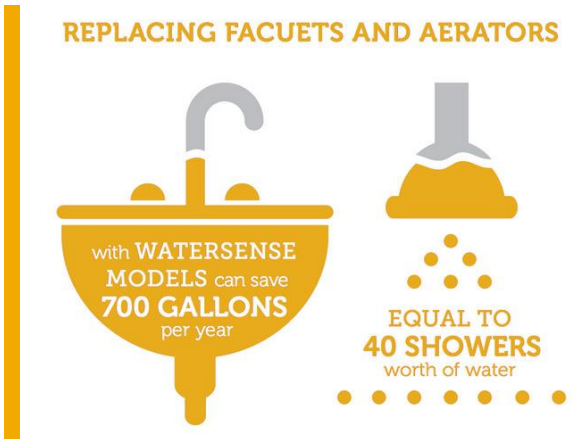
Findings

Low-flow fixtures are used in many OGS buildings and State parks, and by many agencies across the State. Of all reporting agencies in FY 14-15:

- 81% use low-flow plumbing fixtures some, a majority, or all of the time.

Graywater and rainwater collection conserve energy by replacing potable, treated drinking water for uses such as landscaping, toilet flushing, cooling towers, and washing vehicles.

- 19% of reporting agencies use graywater collection some, a majority, or all of the time.
- 37% use non-potable water some, a majority, or all of the time.



Savings and Costs

As described in more detail below, agencies generally realize savings or experience no increase in cost when implementing water conservation measures.

Challenges and Success Stories

One of the key challenges to pursuing water conservation is that the generally low cost of water across New York State does not encourage conservation. In other regions of the country, where water costs are higher, the financial benefits of conservation are clear. New York City has moved to address this disincentive by providing a 25% discount on water bills for buildings that reuse water. This may be one reason why *SUNY Downstate* reported that the cost of water conservation measures were offset by reductions in water use.

Aging infrastructure and a lack of metering is also a concern. If usage is not tracked, it is hard to identify leaks and opportunities to save. These challenges can be addressed by performing a comprehensive audit and including infrastructure upgrades and metering in any facility upgrades.

MTA's Mother Clara Hale bus depot in Harlem uses rainwater for all vehicle washing, and 80% of the wash water is reclaimed for use again.

Other problems can arise when new technologies do not perform as advertised. One facility reported that low-flow toilets did not drain well, resulting in increased repair costs. Another facility reported odor problems. Looking for products that meet EO 4 specifications or WaterSense® can help because both require products to meet a high standard of proven performance. A number of agencies, including *NYPA* and *CUNY*, continued to install ultra-low flush urinals without problems.

New and Noteworthy Initiatives in FY 14-15

- *MTA* adopted an innovative program to collect rainwater for car and bus washing. The Mother Clara Hale bus depot in Harlem is a good example. Rooftop drains fill a 55-gallon tank. Rainwater is used for all vehicle washing, except the final rinse, which is potable. During the washing process, water is drained into a filtration system, and 80% is reclaimed and reused for washing. Plans for all future bus depots include these methods.
- *CUNY Lehman College* has almost completed a project to install water meters and back-flow prevention on all campus buildings, which will allow the College to monitor water usage.
- *CUNY City College* installed 840 low flow toilets and 15 waterless urinals, funded by a grant from the City's Department of Environmental Protection.
- *CUNY School of Law* uses recycled water in its HVAC cooling system.

- *Tax and Finance* incorporated a request for landlords to install cost saving water fixtures in their lease agreements.
- *MTA* successfully saved time and money by purchasing water efficient fixtures in bulk and placing them in storage so they are available for immediate installation when workload allows.
- *SUNY Paltz* installed a 1,000-gallon rainwater cistern at LeFevre Hall, and plans to install a 12,500-gallon cistern for flushing toilets and urinals in the Wooster Building.
- *The Javits Center* installed catch basins to collect HVAC condensation on their green roof. This gray water is then used as a source of water for birds.
- *OGS* uses water from the Hudson River for irrigation and the fountains on the Empire State Plaza.

Green Storm Water Infrastructure

Green infrastructure uses natural and manmade systems to facilitate storm water infiltration, uptake by plants, and eventual evapotranspiration. New York State's wilderness areas, parks and other State-owned lands includes large areas of green infrastructure such as forests, floodplains and wetlands. Smaller structures include rain gardens, street trees, permeable pavement, green roofs, and rainwater collection systems. All can be found on a variety of State properties.

Findings

Of all reporting agencies in FY 14-15:

- 49% use sustainable storm water management some, a majority, or all of the time.

Savings and Costs

As described in more detail below, agencies generally realize savings or experience no increase in cost when implementing green infrastructure projects.

New and Noteworthy Initiatives in FY 14-15

- *The Javits Center's* new green roof collects 70% of the building's storm water runoff.
- *NFTA* installed green roofs on some of its bus shelters.
- *Westchester County Healthcare Corporation* installed a rain garden, replaced concrete curbs with stone trenches that collect water, and installed plantings that increase percolation into the soil.
- As part of an upgrade to their academic quads, *CUNY's College of Staten Island* improved site drainage by installing gutters, leaders, and a storm water retention system. Next, the College plans to connect the retention tanks to the campus sprinkler system.
- *SUNY* campuses installed a number of cutting-edge green infrastructure projects, many of which were funded through the EFC's Green Infrastructure Grant Program. They included porous pavement and bioswales to mitigate storm water at *Purchase;* close to $1 million in projects at *Oneonta*; ponds and plantings to promote natural wetland growth at *Geneseo*; pervious pavement, bioswales, native plantings and a partial green roof at *Cortland*; and installation of a permaculture garden at *Oswego*.

Sustainable Landscaping

Nearly one-third of our nation's water use is for outdoor landscaping according to the U.S. Environmental Protection Agency. Sustainable landscape design and maintenance enhances the beauty of a property while conserving water, energy and soil. It is in balance with the local climate and requires minimal resource inputs, including fertilizer and pesticides. It can also support pollinators, which have experienced an alarming drop in population in recent years.

Findings

Three agencies responsible for large landscaped areas, *DOCCs*, *OGS* and *Ag and Markets*, practice sustainable landscaping all or a majority of the time. In FY 14-15:

- 60% of reporting agencies practiced sustainable landscaping at least some of the time.
- 44% employed xeriscaping (designing plantings to reduce or eliminate the need for supplemental irrigation) at least some of the time.

Savings and Costs

As described in more detail below, agencies generally realize savings or experience no increase in cost when implementing sustainable landscape practices.

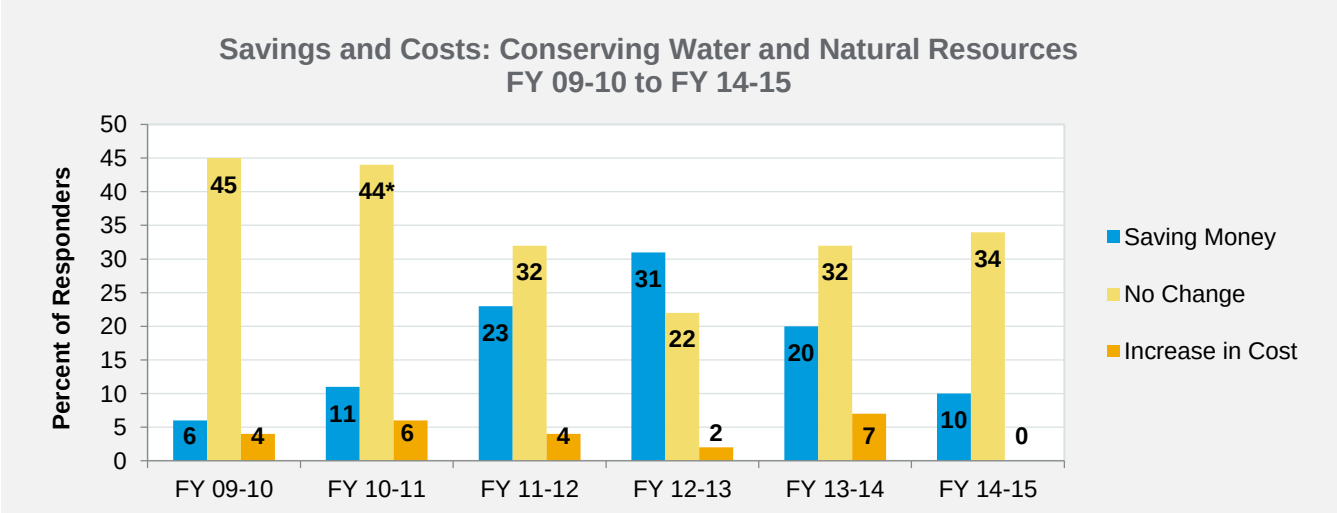
Challenges and Success Stories

A majority of agencies report continued use of sustainable practices, including designing for local conditions, reduced mowing, choosing native plants that thrive in the local environment and support pollinators, reducing irrigation or using "climate-smart" controls, leaving grass clippings in place, and using compost, mulch or landscape fabric to reduce the need for watering. One obstacle is a longstanding cultural preference for mowed lawns, which take increased inputs of energy and water to maintain. Parks is working to reduce areas of mown lawn with good success, and the overall aesthetic of landscaping is shifting to more naturalistic plantings, led by such high-profile public spaces as the New York Botanical Garden's new native garden and the High Line in New York.

New and Noteworthy Initiatives in FY 14-15

- *Parks* is partnering with Cornell to improve turf management practices at State golf courses. Fertilizer application rates and irrigation rates have been decreased at many courses, reducing the risk of nutrient contamination, leaching and runoff and resulting in cost savings.
- *MTA* includes native species in the design of new projects, such as station plazas and green roofs.
- The sedum on the *Javits Center's* green roof is locally grown and requires minimal irrigation, which is provided by a drip system more efficient than regular sprinklers. Bee hives improve plant quality.

Savings and Costs



* Fluctuations in the percentage of agencies reporting savings or no change in costs are due to changes in the ability of agencies to track savings from year to year. There is steady reporting of savings or no change in costs compared to increases in cost.

On average over the past six years, a significant plurality of agencies (52%) reported a reduction (17%) or no change (35%) in costs as a result of implementing water and natural resource conservation measures. In contrast, a much smaller number (4%) reported an increase in costs. Over a third said they did not know.

Education and Training

For any agency to meet sustainability goals, all staff must be aware of those goals and the tools needed to achieve them. Staff and other stakeholders, such as facility users, students and residents, must be familiar with and comfortable participating in sustainable practices, such as recycling or green cleaning.

Findings

Improved education and training is the strategy cited most frequently by Sustainability Coordinators as a potential solution to numerous challenges, especially those that involve changing behavior. For example, *SUNY Canton* states that "a well-done employee training program is key to an effective green cleaning program."

Generally speaking, if a sustainable action is embedded in an automatic system (for example, the powering down of all computers at 6 p.m.), implementation is easy. Where an activity requires staff or patron participation, there will be a continuous need for messaging, training and the restating of goals over time.

Most agencies share sustainability information with staff through simple, low- or no-cost ways that rely on existing resources, such as posting information on internal websites, convening workgroups or green teams, emailing a Green Bulletin to all staff, and holding events on Earth Day, America Recycles Day or Green Your Commute Day. For agencies in leased facilities, tenant newsletters may be passed along to staff with notices about recycling updates and green cleaning. The goal of these activities is not just educate about sustainability. They also shine a light on the best practices and achievements that help us learn about and build on each other's work.

For example, last year two agencies, the *Javits Center* and *Parks*, were awarded a New York State Environmental Excellence award by Governor Cuomo. This year, the Committee sent information out to all Sustainability Coordinators, encouraging them to assess their projects for submission for the award. Participation in the program not only benefits the winning agency, it helps promote sustainability to wider audience.

Challenges and Success Stories

As more than one agency noted, it can be difficult to raise awareness and change behavior. Creating educational pieces and implementing plans to change behavior is time consuming and staff intensive. Habits and perceptions can be hard to overcome, for example the use by some legal departments of single-sided copies, or the entrenched association of fragrances with "clean." Too often, new procedures or new tools are introduced only once, at the start of a program, and training is not repeated. In addition, many agencies have diverse staff or clients in need of training and reminders, and outreach must be tailored to engage several different audience types.

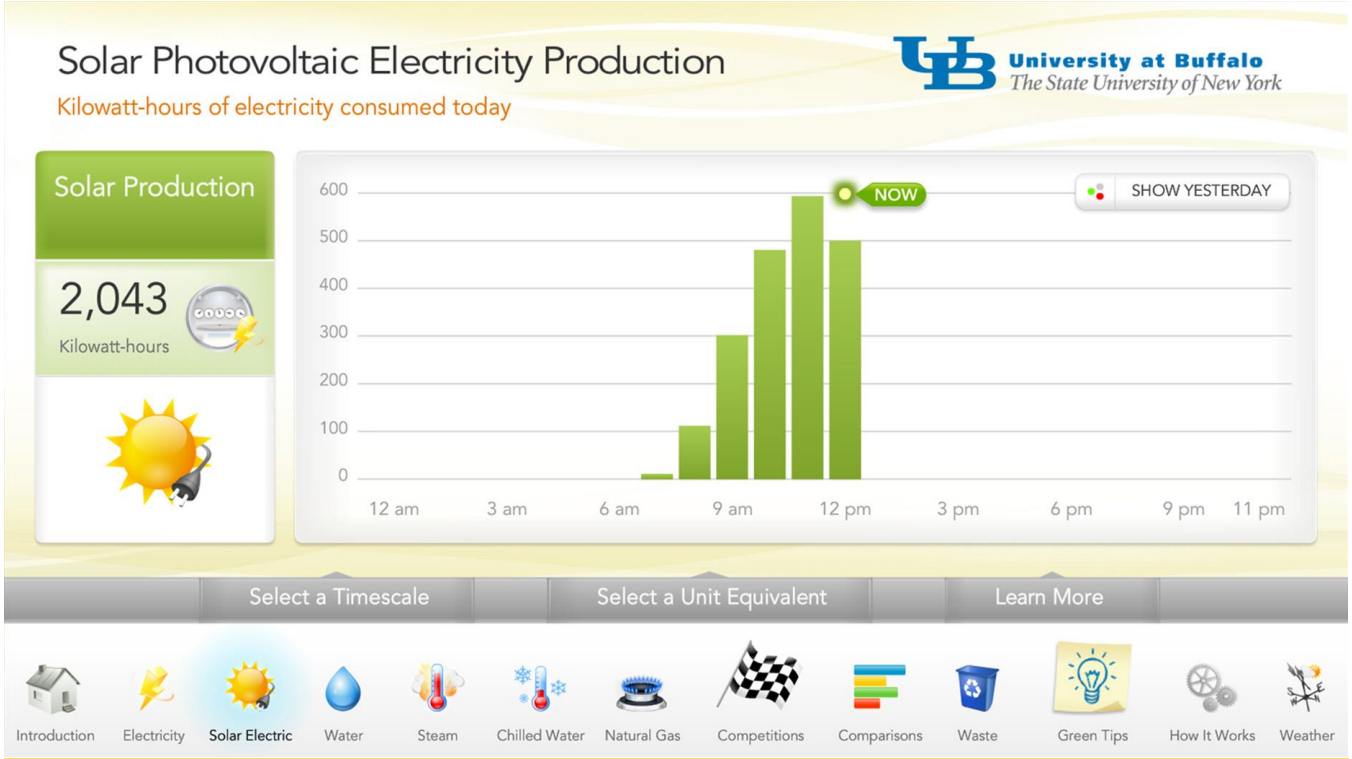
To support agency efforts, the EO 4 Interagency Committee has provided education on procurement and waste and recycling to State agencies. In the past year, Committee staff provided training and outreach to agency sustainability coordinators and purchasing agents through presentations and tabling at the OGS Purchasing Forum, as well as through responses to individual agency requests for information. This past year's purchasing forum was a great success, with many more conversations and a clear leap in the number of environmentally preferable products and services represented at the trade show portion of the event.

The Committee has also worked with OGS to publicize particular green contracts (such as new the Recycling and Trash Removal contract). A webinar on the use that contract drew more than 200 participants in January 2016. The new *Environmentally Preferable Cleaning Product* contract includes requirements for contractors to perform an initial site assessment, assist with the development and implementation of a green cleaning program, and provide substantial training on the use of products and equipment.

This contract is important because one area where training appears to be needed is green cleaning. NYSERDA noted that better training is needed for maintenance staff and subcontractors so they understand the benefits of reducing toxic chemicals and the effectiveness of alternatives. DASNY stated that it can be challenging to convince opinion leaders that the scents used in cleaning products and oil diffusers are often toxic and certainly not necessary. The key appears to be hands-on training, as the online trainings offered on OGS' green cleaning website are not well utilized. DEC is working with the Pollution Prevention Institute at Rochester Institute of Technology and the Toxics Use Reduction Institute in Massachusetts to provide workshops on green cleaning and the new contract in 2016.

New and Noteworthy Initiatives in FY 2014-15

- *SUNY Delhi's* campus dining services provided and launched a video on recycling in the dining halls to heighten campus awareness.
- *SUNY Oneonta* created a recycling-specific Twitter account and is undertaking a data collection tracking system that will display as part of a campus GIS recycling map.
- *SUNY Cornell* and *Buffalo* both launched sustainability dashboards that display energy and resource use in real time for various campus buildings in an effort to promote awareness and engagement among students, faculty and staff.



SUNY Buffalo is helping students reduce energy by giving them real-time information on building energy use.

Buying Green

New York State is a national leader in green purchasing. Also known as environmentally preferable purchasing (EPP), it involves the selection of goods and services that positively impact or have less harmful impacts on public health and the environment compared to traditional products. Buying green products supports all of EO 4's environmental priorities regarding waste, toxics, energy, water and natural resources.

The new sustainable landscaping specification will help protect pollinators by reducing pesticide use and creating more native habitat on State lands.

Through the volume of its procurement, government can harness the energy of the market to produce products that perform better and cost less. As supply increases, prices should decrease, and high-performance green products and services will become more affordable for all consumers.

In general, the Interagency Committee anticipates that green products for which specifications are approved under EO 4 will be competitively priced compared to their conventional counterparts. Many green products, such as traffic safety equipment made from recycled plastic, glass beads in reflective paint made from recycled glass, and remanufactured toner cartridges, are consistently less expensive than conventional products. Many others, including 100% recycled content janitorial paper, green computers, green cleaning products, and soy-based ink, are consistently comparable in price to conventional products. Fuel-efficient vehicles and appliances may be more expensive up front but result in lower life cycle costs over time due to energy savings.

> *Green products generally perform well and are competitively priced compared to their conventional counterparts.*

Green products also generally perform well compared to conventional products. After six years of experience under EO 4, only a handful of agencies (four in FY 14-15) reported that green cleaning products were not as effective as conventional cleaners, while 79% of agencies reported using green cleaners all or a majority of the time. This result corresponds to the State Education Department's 2010 survey of schools, which found that green cleaning products "cost the same or less," work as effectively, and last longer (because they are concentrated and have more accurate dispensing systems) than their traditional counterparts (see https://greencleaning.ny.gov/Docs/GCSurveyFinalReport072707Revised030910.pdf).

The price of some green products, such as various types of recycled content copy paper or re-refined oil, while generally competitive, may still be higher than conventional products in response to fluctuations in market demand or regional supply. Under current OGS statewide contracts for "truckload" and "less than truckload" lots of recycled copy paper, the price of 100% post-consumer recycled content paper is very competitive and consistent with the pricing for 30% post-consumer recycled paper. In recent years, State contract pricing for copy paper sold in quantities of "less than truckload" lots has generally set the price for 100% post-consumer recycled content paper only slightly higher than the price for 30% post-consumer recycled content paper. The OGS "miscellaneous office supplies" statewide contract gives agencies a very wide range of choices of brands, amount of recycled content and paper type, and vendor catalogs make it easy to compare prices and product specifications. Agencies willing to shop around should have no difficulty finding cost-effective recycled content paper.

In the case of re-refined oil, the vast majority (81%) of State contracts for such oil are awarded on low bid, while 19% (due to regional differences in price) are awarded within the State's 10% price preference for recycled content products. New York was the first state to buy re-refined motor oil in 1990, and helped build the market. The oil consistently meets all performance standards, with few reported problems over 25 years. In 1990, Safety Kleen re-refined approximately 30 million gallons of oil in Canada. It now re-refines 140 million gallons in the U.S. alone.

Purchasing Recycled Paper

Paper is an essential commodity purchased in large quantities by the State. Paper manufacturing uses significant amounts of energy and natural resources and is a major source of pollution and greenhouse gas emissions. To reduce these impacts, EO 4 requires the purchase of copy paper and the printing of agency publications on paper made from 100% post-consumer recycled content, and copy and janitorial paper that is processed chlorine free. The term "processed chlorine free" (PCF) refers to recycled paper in which the recycled content and any virgin material is unbleached or bleached without the use of chlorine or chlorine derivatives. Post-consumer material has completed its life as a consumer item and will be disposed of as solid waste if not recovered. The higher the post-consumer content, the more materials were diverted from the waste stream. The intent of OGS is to award janitorial paper contracts requiring 100% post-consumer content. However, where this is not practicable, OGS aims for 100% recycled, or total recovered fiber, with a lesser amount of post-consumer fiber content. The tables below present data on the amount of copy and janitorial paper purchased in the past three fiscal years, broken out by percentage of recycled content.

55% of copy paper purchased in FY 14-15 was 100% post-consumer recycled content, processed chlorine-free.

Key Copy Paper Findings

- By far the greatest amount, and more than one-half (55%) of dollars spent on copy paper in FY 14-15 ($4.3 million) went to purchase 100% post-consumer recycled content, processed chlorine-free paper. This represents a 33 percentage point increase from the 22% (or $3.3 million) spent on such paper in FY 08-09.
- 64% of agencies in FY 14-15 reported buying at least some 100% post-consumer recycled content, processed chlorine-free copy paper, and only 29% of agencies reported buying less than 30% recycled content copy paper.
- Approximately one-third of agencies (29%) continued to purchase paper with less than 30% recycled content in FY 14-15. However, those purchases accounted for only 10% of total copy paper purchased, down from 21% of the total in FY 9-10.
- A review of paper purchasing data for this FY 14-15 report yielded a data error by one large agency in FY 13-14 that resulted in under-reporting of the amount spent on less than 30% recycled content copy paper in that year. The quantity purchased did not change. The data marked with an asterisk (*) reflects accurate data corrected from the FY 13-14 report.

Copy Paper Purchases by Amount of Recycled Content							
	Agencies Reporting Purchases	FY	% of Agencies Reporting Purchases	Total Boxes Purchased	Total Dollars Spent	Average Price per box	% of Expenditures
100% Recycled Chlorine-free	54	09-10	77%	159,857	$6,320,148	$39.5	49%
	36	12-13	75%	111,289	$3,558,738	$32	52%
	30	13-14	65%	99,945	$2,948,224	$29	43%*
	36	14-15	64%	140,792	$4,354,301	$31	55%
30%-99% Recycled	43	09-10	61%	110,028	$3,803,229	$34.5	30%
	26	12-13	54%	84,783	$2,579,189	$30	38%
	30	13-14	65%	77,577	$2,382,439	$31	40%
	32	14-15	57%	83,527	$2,739,832	$33	35%*
<30% Recycled	21	09-10	30%	81,407	$2,665,794	$33	21%
	18	12-13	37%	18,091	$690,368	$38	10%
	15	13-14	33%	40,290	$1,482,989*	$37	22%*
	16	14-15	29%	24,233	$795,008	$33	10%
Total Agencies Reporting	**70**	**09-10**	**N/A**	**351,292**	**$12,789,171**		**100%**
	48	**12-13**		**214,163**	**$6,828,295**		**100%**
	46	**13-14**		**217,812**	**$6,813,652***		**100%**
	56	**14-15**		**248,552**	**$7,889,141**		**100%**

- In an important development, deeper analysis of paper purchasing data revealed that 100% post-consumer recycled content copy paper is not more expensive. On the contrary, on average over the past six reporting years, it cost slightly less, at $34 per box, than 30-99% post-consumer recycled content copy paper, at $34.50 per box, and was significantly less expensive than copy paper with less than 30% post-consumer recycled content, at $36 per box.

Key Janitorial Paper Findings

- 63% of dollars spent on janitorial paper in FY 14-15 (or $3.6 million) went to purchase 100% recycled content, processed chlorine-free paper. This amount represents a 29 percentage point increase from the 34% (or $1.2 million) spent on such paper in FY 2008-09.
- Only five agencies continued to purchase unrecycled janitorial paper in FY 14-15. Such purchases accounted for only 13% of all janitorial paper purchases.
- Due to the difficulties associated with measuring janitorial paper purchases, the number of agencies reporting such purchases, of any kind, is consistently lower than that reporting for copy paper.

	Agencies Reporting Purchases	FY	Percent of Agencies Reporting Purchases	Total Cases of Janitorial Paper Purchased	Total Dollars Spent on Janitorial Paper	Percent of Expenditures by Recycled Content
100% Recycled Chlorine-free	28	09-10	88%	236,139	$7,138,622	75%
	18	12-13	45%	188,046	$3,728,247	57%
	15	13-14	50%	178,652	$3,433,252	64%
	20	14-15	51%	183,775	$3,622,217	63%
1%-99% Recycled	22	09-10	69%	71,029	$1,699,169	18%
	13	12-13	33%	66,556	$1,893,061	29%
	10	13-14	33%	33,088	$1,167,095	22%
	16	14-15	41%	45,275	$1,394,914	24%
Unrecycled Janitorial Paper	9	09-10	28%	90,982	$727,420	8%
	4	12-13	10%	28,553	$905,181	14%
	6	13-14	20%	31,541	$752,227	14%
	5	14-15	13%	28,719	$781,307	13%
Total/ Overall	**32**	**09-10**	**N/A**	**398,150**	**$9,565,211**	**100%**
	40	**12-13**		**283,155**	**$6,526,489**	**100%**
	30	**13-14**		**243,281**	**$5,352,574**	**100%**
	39	**14-15**		**257,769**	**$5,798,438**	**100%**

Other Paper Purchases

The EO 4 report form contained an open-ended item requesting information on other types of papers purchased, including quantities and dollar amounts. Twenty-nine entities reported purchasing other types of paper in FY 14-15. Agencies reported purchasing colored paper, card stock, and bond paper. Other reported purchases included graph paper, plotter paper, forms, map paper, and rolls of engineering paper. Several agencies reported dollar amounts for these purchases; however, some didn't know or indicated that it was difficult to provide detailed information.

Green Specifications and Centralized Procurements

Green Specifications

In April 2015, five green specifications were approved by the Interagency Committee: Mulch, Pavement Sealer, Reusable Bags, Showerheads, and Solar Thermal Systems, for a total of 40 specifications currently approved for use in State procurement. These specifications fall under four broad categories—Electronics/Appliances, Transportation, Office and Building Operations and Food Service and cover a total of 81 different commodity, service, or technology products. For example, the Desktop and Laptop Computer specification cover three types of devices: desktop, notebook (including laptops) and tablets. Summaries are provided in the table below.

Green specifications for four additional types of products (listed below) were tentatively approved by the Interagency Committee in 2015 and posted for public comment. Final approval is expected in April 2016.

- Amended Printing
- Model Packaging Language
- Sustainable Landscaping
- Wheel Weights

Work is currently underway on a number of new specifications, including hotels and lodging, restaurants, disinfectants and sanitizers, cleaning supplies, toner cartridges, lighting and furniture. A complete list of all approved and tentatively approved specifications is available on the OGS EO 4 website.

Green Specifications Finalized in 2015
Mulch
The use of mulch is encouraged where appropriate. The use of on-site sources is required to the maximum extent practicable; when not available or acceptable, use of local, unadulterated sources is required. Off-site mulches that contain invasive species, plant parts or seeds should be avoided. Any wood or other organic material from off-site sources should be chipped to a size of 1 inch or less in order to kill invasive insect larvae. Agencies are strongly encouraged to: • use wood fiber or straw mulch • mulch and seed disturbed areas as quickly as possible • use organic mulches in horticultural applications • use renewable or recycled materials • consult with landscape architects when choosing specific materials
Pavement Sealer
Alternative-based sealers which do not contain coal tar are required. The goal is to reduce the amount of polycyclic aromatic hydrocarbons (PAHs) that are applied in pavement sealants to asphalt surfaces in New York. Occupational exposure to complex mixtures containing PAHs produced during coal gasification, coke production, coal-tar distillation, paving and roofing increases the risk of cancer in humans.
Reusable Bags
Bags must: • last for at least 125 uses • carry at least 15 liters of material • be washable and recyclable • contain no heavy metals in toxic amounts • contain as much recycled material as possible • be labeled with manufacturing, care and use information Also includes standards for handle construction, end of life recycling, printing and packaging.
Solar Thermal Systems
Certification of ambient air collectors and other major parts is required; collectors must have a warranty. The use of lead in soldered connections is restricted, and vendors must meet standards for installation, the transmissivity of glazed glass, insulation and design life expectancy. The performance of feasibility studies, routine inspection and cleaning, the use of copper or steel piping, provision of signage and the purchase of local or regional products is encouraged.
Showerheads
Certification by WaterSense® is required, as well as: • maximum flow of two gallons per minute • construction for impact • use of vandal resistant materials • compliance with ADA requirements

Centralized Green Procurements

OGS Procurement Services is the State's centralized procurement office, responsible for providing low-cost, efficient, and user-friendly procurement options to its customers, which include agencies, local governments, schools and other authorized users. The office manages over 1,500 contracts for commodities, services and technology including many contracts containing environmentally friendly products and services. Procurement Services is dedicated to helping customers meet their green procurement goals by providing environmentally preferable purchasing contracts which are driven by EO 4, EO 88 and the New York State Green Cleaning Law, among other directives. Examples of environmentally preferable procurements either issued or developed by Procurement Services in FY14-15 include the following.

Microcomputer and Related Systems

OGS has achieved both savings and environmental benefits by purchasing computers that exceed the requirements of the EO 4 specification for *Desktop and Laptop* Computers through its *Microcomputer and Related Systems* contracts (Group 75350, multiple awards) and Aggregate Buy program. The devices purchased through this program meet the highest standards in the nation for environmental quality, the Electronic Product Environmental Assessment Tool (EPEAT) Gold requirements plus an additional seven optional criteria covering the avoidance of toxic chemicals and use of recycled materials. During the 2014-2015 Aggregate Buy (covering the period between March 2014 and November 2015), approximately $133.3 million dollars of computers meeting these requirements were purchased, saving $139.6 million off of the State contract price. Environmental benefits include reductions in energy use, toxic chemical use, and the generation of solid waste.

> *NYS saved $139.6 million through the aggregate purchase of green computers between March 2014 and November 2015.*

Recycling and Trash Removal Services

During FY14-15, OGS developed and released a procurement for Recycling and Trash Removal Services, which offers contract users a centralized contract for meeting the recycling and composting requirements contained in the EO 4 specification for *Solid Waste Recycling and Management Services*. The procurement was awarded in December of 2015 and includes eleven lots for the recycling of materials including single stream materials, comingled materials, metal food containers, glass, plastics, cardboard, mixed paper, white office paper, shredded paper, scrap metal and construction and demolition materials, and also two lots for composting – one for green waste and one for organics. The contract contains requirements for reporting so that contract users can track the amount of materials being recycled and disposed and includes recycling revenue for some of the recycling lots.

Recycled Copy Paper, Envelopes and Opaque Rolls

OGS continues to offer post-consumer (PC) recycled content, processed chlorine free (PCF) copy paper, envelopes and opaque rolls through the following centralized contracts issued in 2012 and 2013:

- *Recycled Copy Paper* (Group 50211, Award 22478) (100% and 30% PC, PCF)
- *Recycled Copy Paper, Truckload Lots* (Group 50213, Award 22446) (100% PC, PCF)
- *Recycled Opaque Rolls* (Group 50208, Award 22551) (30% PC, PCF)
- *Envelopes, Wove, Kraft* (Group 50030, Award 22508) (30% PC, PCF)

These contracts provide users with the opportunity to purchase paper with recycled content that meets the EO 4 specification for *Printing*. Reported sales for these contracts was approximately $5.4 million in 2014.

Green Cleaning

In March 2015, OGS awarded a procurement for *Environmentally Preferable Cleaning Products, Programs, Equipment and Supplies*. This new contract includes 12 lots covering general purpose cleaning, floor maintenance, disinfectants and sanitizers, vacuum cleaners, hand soaps, de-icing, compostable bags, entryway mats, and a full range of microfiber products. Offerings on the contract meet the requirements of New York's Green Cleaning Law

for schools and the EO 4 specifications for *Industrial and Institutional Cleaning Products, Hand Cleaners, Electric Hand Dryers and Vacuum Cleaners*. Provisions for training, tracking purchases and record keeping are also included, many at no extra charge. Sales of green products through this award are approximately $1 million annually.

Floor Coverings and Related Services

In September 2014, OGS issued a contract for *Floor Coverings and Related Services*. This contract is a piggyback with the National Joint Powers Alliance and includes provisions for both carpet materials and services including installation and recycling. By using this contract, authorized users can purchase new carpet that meets the EO 4 specification for *Carpet and Carpet Tile*, recycle their old carpet, and establish a pattern of purchasing that protects human health and the environment while keeping carpet out of landfills.

The new multi-state cleaning contract is fully green and offers a wide range of products to meet agency and school green cleaning needs.

In an effort to make the purchase of green products easier, an EO4 Product Guide was created to assist contract users. The guide allows users to identify products on contract that meet the specification, and is supplemented with product identification at the line item level on some price lists. It also allows for the tracking of sales. Sales of carpet and carpet tile that meet the EO 4 specification are approximately $1.2 million on an annualized basis, or about 53% of carpet sales off the contract.

Oil Lubricating, High Detergent (Re-refined Motor Oil)

OGS continues to offer re-refined motor oil under the *Oil, Lubricating, High Detergent* contract (Group 05700, Award 22300), which was issued in 2011. This contract provides users with the opportunity to purchase re-refined motor oil that meets the requirements of the EO 4 specification for *Lubricating Oil, High Detergent* which mandates that lubricating oil meet or exceed a minimum percentage of post-consumer material content by weight of 55%. Approximately $1 million of sales take place each year through this contract for a total of $5 million dollars since inception of the contract.

Hydraulic Oil, High Detergent, Returnable Drums (Re-refined Hydraulic Oil)

In addition to re-refined motor oil, OGS also offers re-refined hydraulic oil under the *Hydraulic Oil, High Detergent, Returnable Drums* contract (Group 05701, Award 22260) issued in 2011. This contract provides users with the opportunity to purchase re-refined hydraulic oil that meets the requirements of the EO 4 specification for *Hydraulic Oil, High Detergent* which mandates that such oil meets or exceeds a minimum percentage of post-consumer material content by weight of 55%. Approximately $300,000 dollars of sales take place each year through this contract for a total of $1 million since inception of the contract.

Electric Lamps

In the spring of 2015, OGS developed a piggyback contract through the National Association of State Procurement Official's Value Point *Facilities MRO* contract (1862) for *Lamps, Ballasts and Lighting Equipment*. Included in this contract are "Hot List," increased discount pricing for frequently purchased items. The list includes items that meet the EO 4 specification for *Compact Fluorescent Lighting* and additional environmentally preferable lighting products. Similar to the *Floor Coverings* contract, the new *Lamps* contract also includes a guide to assist users in identifying products that meet the EO 4 specification.

Photovoltaic Systems

Since 2009, solar-powered systems have been offered through the OGS contract for *Photovoltaic Systems* (Group 05302, Award 21806), which is a statewide piggyback off the U.S. General Services Administration's contract GS-07F-0108J. In 2015, sales of solar products were approximately $1.5 million, and future sales are expected to increase as State agencies increase their use of this technology.

Buying Green, Savings and Costs

Findings

Parks saves money by purchasing panels off OGS' *Photovoltaic Systems* contract and installing them with in-house staff.

A significant majority (87%) of agencies reporting in FY 14-15 said they had consulted EO 4 green procurement specifications and lists, a result roughly in line with percentages reported in the last three years.

Most, however, did not report a dollar value for purchases of green products other than a value for the purchase of recycled paper. When asked to provide "an estimate of the overall amount spent by your agency on the purchase of products and services (other than paper) meeting the EO 4 specifications," only 13% of entities who reported using the specifications and lists also reported a dollar amount for purchases. Most entities left the item blank.

The greatest reported expenditures were made by *SUNY*, *Parks* and *DASNY*, which reported spending $970,364, $163,710 and $109,140 respectively. Reported expenditures for green purchases among the remaining entities ranged from $2,786 to $15,695 with a total of $1,222,923 reported for all agencies.

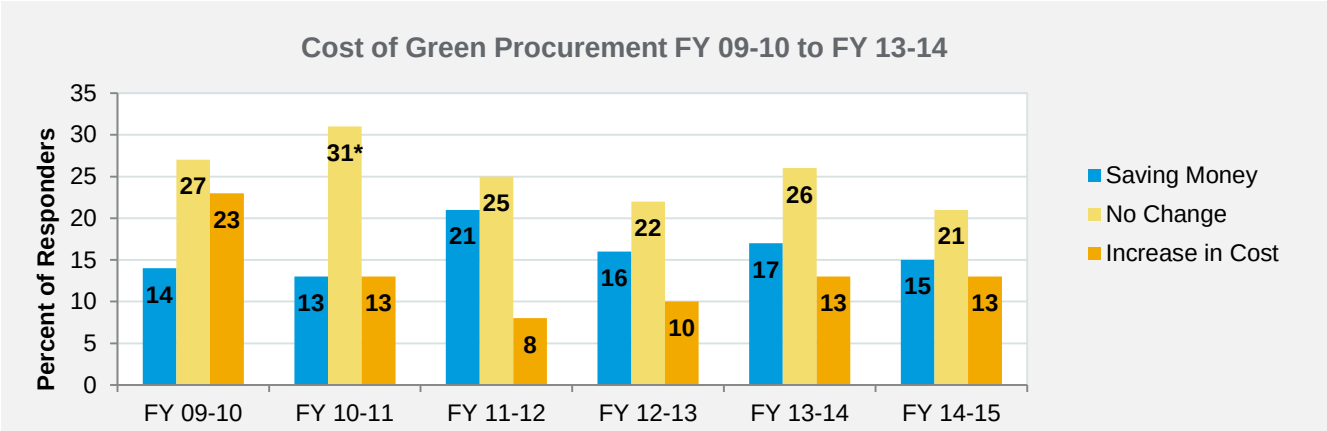
Combined with the overall totals spent on copy paper with 30% or more post-consumer recycled content and janitorial paper with 100% recycled content ($7,094,133), re-refined oil ($1,300,000), the aggregate purchase of green computers ($76,000,000), environmentally preferable cleaning products ($1,000,000), green floor coverings ($1,200,000), solar PV systems ($1,500,000), overall green purchasing by State entities amounted to $92,939,273 in FY 14-15.

Savings and Costs

In FY 14-15, 36% of agencies reported either a reduction (15%) or no change (21%) in costs as a result of buying green, while a smaller percentage (13%) reported an increase. Over half (51%) said they did not know.

Several agencies, including *DOT*, reported a cost savings when purchasing green cleaning products through preferred sources, meeting three State goals – low cost purchasing, environmental protection, and the support of preferred sources (which include industries for the blind and the disabled) in one procurement. A number of gave specific examples of cost savings:

- *MTA* reported savings through the purchase of energy efficient LED lighting and air conditioning units.
- *Parks* reported that the installation of occupancy sensors and solar lighting tubes have resulted in decreased electricity costs in renovated facilities.



* Fluctuations in the percentage of agencies reporting savings or no change in costs are due to changes in the ability of agencies to track savings from year to year. There is steady reporting of savings or no change in costs compared to increases in cost.

Challenges and Success Stories

As agencies have become more comfortable with the goals and benefits of green procurement, the focus of the Interagency Committee has shifted somewhat from developing green specifications—"defining green"—to making it easier for agencies to purchase green products and services. The issuance of wholly green contracts based on green specifications developed under EO 4, such as *Microcomputer and Related Systems*, *Recycled Copy Paper*, *Environmentally Preferable Cleaning Products*, *Photovoltaic Systems* and *Re-refined Motor and Hydraulic Oil*, are a crucial step forward. Also promising and important are the creation of tools for agencies to identify green products available on conventional contracts, such as the EO 4 Product Guides developed for *Floor Coverings and Lamps*.

Additional developments include the integration of green purchasing into the State Procurement Guidelines, and the invitation to vendors of recycled and remanufactured commodities to promote their offerings at the annual State Procurement Forum. Challenges that remain include the development of tools for agencies to identify green offerings available through the new State e-catalog system, and the adoption of more effective methods for agencies to track their green purchases.

Finding Green Products that Work Well at an Affordable Price

The majority of statewide contracts are not exclusively green, and it can be time consuming for purchasers to navigate offerings, avoid "greenwashing" and identify green products that work effectively. As consumer demand has grown, the market has responded with "green" claims that can be misleading or provide too little information to allow meaningful comparison. Many agencies continue to express the need to for easy ways to identify and purchase green products.

- *NYPA* has been developing sustainability criteria that will be integrated into the procurement process and allow the agency to actively benchmark and track sustainability performance across their supply chain. The goal is to mitigate supply chain risk and increase the sustainability efforts of vendors.

Tracking Green Procurement

Agencies continue to struggle with monitoring and reporting on green procurement. Few agencies have a system for tracking green purchases, and the Statewide Financial System (SFS) does not currently track them. Barriers include a lack of standard definitions and a coding system for green products. The issuance of wholly green contracts like *Environmentally Preferable Cleaning Products* offer a good opportunity to address those challenges, at least in part. Over time, building the capability of the SFS and the new e-catalog to track green purchasing will help with the development of uniform coding and data definitions, which, in turn, will support more consistent methods of reporting across the State.

Agencies with successful tracking systems can inform the development of a successful statewide system.

- *The Development Authority of the North Country* installed purchasing software in FY 10-11 that allows staff to assign an ID field to green purchases, and is much less labor intensive.

Purchases by Contractors

Agencies that contract out for janitorial and other services must work cooperatively with those contractors to achieve green procurement. In FY 14-15, the *Javits Center* noted that the use of green cleaning products was not included in the contracts awarded to vendors for cleaning services, making off-contract requests for the use of green cleaners more expensive.

A similar challenge exists in construction-related procurement. DASNY, which manages construction projects on behalf of other agencies, advocates taking a proactive stance in helping its customer agencies comply with EO 4, "[W]e should be providing easy avenues for [our customer agencies] to be greener in their choices up front, and resources to ease their reporting."

Recycled Paper

The continued robust purchase of 100% post-consumer recycled content paper by agencies in FY 14-15 provides solid evidence of successful culture change, supported by the power of State contracting. The issuance of statewide contracts for 100% post-consumer recycled content copy paper and 100% janitorial paper in the summer of 2008 has kept prices low for the past six reporting years, as documented by new data showing that on average, agencies paid less ($34 per box) for 100% recycled copy paper than for 30-99% recycled paper ($34.5 per box) or under 30% recycled paper ($36 per box) in FYs 09-10 through 14-15. The number of reported problems regarding the performance of 100% recycled copy paper has also dropped to a handful (four in FY 14-15). One was for a specialty use – vector paper used by Civil Service for examinations. Agencies should be aware that greenwashing (deliberately misleading labelling) still exists with recycled paper products, and exercise caution accordingly.

Restricting the Use of Bottled Water

Background

EO 18 applies to "executive agencies," defined as "any department, agency, division, commission, bureau, or other entity of the State over which the Governor has executive power." Following an outreach effort by OGS in 2009, which included the broader universe of public authorities and public benefit corporations covered by EO4, 66 State entities designated an EO 18 coordinator. Of these, 59 submitted EO 18 plans, under which 29 stated that they had already eliminated the purchase of bottled water and 22 requested exemptions to continue purchasing under certain circumstances. The primary reasons cited were the need for additional time to install filtration systems, maintaining emergency supplies, and locations and circumstances where tap water was not potable or unavailable. EO 18 allows such exemptions.

Executive agencies have virtually eliminated the purchase of bottled water, and 77% of authorities not covered by EO 18 have also restricted its use to special circumstances.

Findings

Agency reports for FY 14-15 continue to indicate excellent compliance with the directives of EO 18. Indeed, compliance continues to improve. All executive agencies required to comply with EO 18 report that they are in compliance. In addition, 23 entities not subject to EO 18 nevertheless adopted the goal of eliminating bottled water use and reported compliance, up from 15 the year before.

Eleven executive agencies covered by EO 18 and nine entities not covered by EO 18 (but nonetheless in compliance) said they still required exemptions allowing the purchase of bottled water in one or more locations. Entities with large centralized offices served by reliable municipal water supplies generally reported no need for exemptions. The main need for exemptions arose for entities with staff working in remote locations, where a potable source of tap water is unavailable.

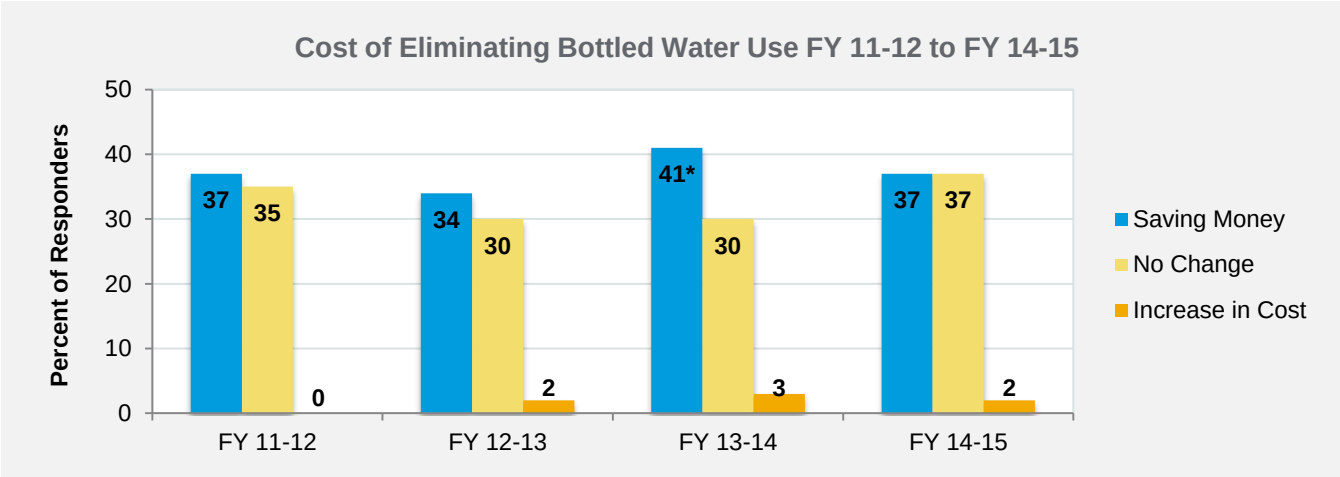
In short, the report for FY 14-15 continues to document that the executive agencies covered by EO 18 have virtually eliminated the purchase of bottled water. No agencies are purchasing bottled water without a special exemption, and only 11 continue to use bottled water under special circumstances. In addition, 77% of authorities not required to eliminate bottled water use have restricted its use to special circumstances.

Savings and Costs

In FY 14-15, 37% of agencies and authorities reporting said they reduced costs by eliminating bottled water use, 37% experienced no change in costs, and only one agency reported an increase in costs. The remainder (24%) said they did not know. Although EO 18 reporting does not quantify cost savings, entities are asked to report the amount they have spent on bottled water purchases over the past year.

- The *Division of Military and Naval Affairs* provides an average of five bottles per day to each soldier on active duty. The dollar amount of exempt uses is not to exceed $30,000 per year.
- *NYPA* spent $26,370 on exempt uses in FY 14-15.

A number of CUNY campuses note that water bottle refilling stations do have upfront costs: the station itself costs around $1,000, and filters are about $143 each. *CUNY York*, however, found that transitioning from the purchase of large cooler bottles to water filtration systems has reduced costs. They were able to reduce the cost of filtration systems by 50% by purchasing from a preferred source.



* Fluctuations in the percentage of agencies reporting savings or no change in costs are due to changes in the ability of agencies to track savings from year to year. There is steady reporting of savings or no change in costs compared to increases in cost.

Challenges and Success Stories

Seven entities (down from 11 in FY 09-10) said that potable water was unavailable at certain facilities. Many of these are sites operated by DOT or are remote facilities operated by authorities in the North Country, DEC and Parks. In a number of these instances, the agency has determined that it is not cost effective to upgrade, but in a number, upgrades continue to be implemented. For example:

- DEC has only two facilities left with non-potable wells. One is slated to be replaced by the installation of municipal water, and the agency is working on a new system to replace the other.

Two entities, DOT and Thruway, are purchasing bottled water for residents who have alleged road salt contamination of their drinking water wells.

Seven entities continue to purchase bottled water for emergency use. Six indicated they needed to continue purchasing water to meet the special needs of employees, clients or the public. Examples include water for detained youths during transport over long distances, soldiers on active duty, transit employees working in remote locations, and patients:

- The *Division of Military and Naval Affairs* provides bottled water to soldiers on active duty.
- *Homeland Security* stocks bottled water at the Emergency Operation Center.
- *CDTA* provides cold bottled water to maintenance crew on days when the temperature exceeds 90 °F.

Despite these challenges, a number of entities are taking action to reduce bottled water use:

- *NYPA* continues to replace water coolers with on-demand filtered water service stations in remote work locations. In FY 14-15, stations were installed at the Niagara Power Plant.
- As part of the design of *SUNY Oswego's* health care center, better water stations will be installed to eliminate the need to provide bottled water to patients.

Only seven entities not covered by EO 18 continue to purchase bottled water for uses not allowed under the Order. For example, the *Central New York Regional Transportation Authority* purchases five gallon bottles of water for water coolers at two locations, but it has installed tap water filters at a third location and is looking into doing the same at the other locations.

There are still some instances of convenience usage, especially for meetings or conferences. As *CUNY Hunter College* notes, "convenience and paradigm shifting" are important as we work to eliminate bottled water purchasing. *DASNY* observes that changing meeting and conference culture is important, because the high profile use of bottled water undermines the mission and message of EO 18. The most innovative initiatives are working to change this culture and reduce the amount of bottled water purchased by caterers or sold by State vendors to students and other clients. Successes include:

> *SUNY Empire's event planner has found that providing pitchers of water and cups costs less than providing bottled water, and that people waste less.*

- Most *SUNY* campuses have installed water bottle filling stations and continue to add more. *SUNY Oneonta* has installed 18 stations and avoided the use of 388,286 disposable water bottles.
- *SUNY Albany's* food vendor, *University Auxiliary Services* installed an "H2O Zone" in the Campus Center that offers free tap water and seltzer and eliminated the practice of providing customers with bottled water whenever they used their dining hall card to swipe for a meal.
- *SUNY Empire's* event planner found that providing pitchers of water and cups costs less money and wastes less. With bottled water people take a sip, put the bottle down, and take another sip from a new one, or they take bottles home. With cups and tap water, people take only what they need.
- Most *CUNY* campuses have installed water bottle filling stations and are using signage and educational videos to encourage their use instead of the purchase of bottled water. Stations are constantly being added. *CUNY Bronx* installed Elkay water fountains across campus in FY 14-15.
- The *Joint Commission on Public Ethics* does not provide bottled water for meetings. Board members and staff that opt to use bottled water do so at their own expense. The *Roosevelt Island Operating Corporation* does not provide bottled water at the 10 Board meetings they hold per year. They have at received some negative comments.

SUNY Oneonta promotes the use of reusable water bottles through awareness campaigns and bottle filling stations.

- *OGS* switched from providing bottled water at its annual Procurement Forum to giving over 1,000 participants reusable bottles and offering tap water refilling stations.
- The *Javits Center* is exploring installation of a filtration system that provides hot, sparkling and cold water and eliminating bottled water from meetings.

Conclusion

The agency reports compiled and summarized for FY 14-15 demonstrate continued and encouraging progress toward the adoption of sustainable practices and purchasing by New York State government. Through the leadership of Governor Cuomo, agencies continue to reduce paper use and waste, recycling has reached new highs, non-chemical control of pests for turf and ornamentals has jumped, green cleaning remains strong, and OGS has issued important new green contracts. Model agencies have led efforts to install on-site renewable energy, capture rainwater and reduce toxic chemical use. Although challenges remain, progress to date has established a solid promise of continuing innovation and success.

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