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

GREENING NEW YORK STATE

Third Progress Report on State Green Procurement and Agency Sustainability

Fiscal Years 2012-13 and 2013-14

The New York State Capitol's grounds are managed without the use of chemical pesticides.

Message from the Commissioners

Under the leadership of Governor Andrew M. Cuomo, New York has established an ambitious State Green Procurement and Agency Sustainability program. Our two agencies, the Office of General Services (OGS) and the Department of Environmental Conservation (DEC), work together to spearhead implementation of Executive Order No. 4 (EO 4), which was continued by Governor Cuomo in January 2011. Thanks to the work of dedicated staff in both of our agencies, and all the other agencies and authorities participating in this effort, continued progress and significant achievements have been accomplished since FY 11-12, as set forth in this report.

Our experience has demonstrated that greening the way New York operates can significantly enhance our environment and quality of life, while saving taxpayers money by increasing efficiency and reducing waste. It can also enhance the State's economy by driving the development of strong markets for green products, some of which are sold by companies here in New York.

New York State is comparable to a Fortune 500 business and as such, has remarkable purchasing power. The State purchases approximately $8 billion worth of products and services annually. The collaborative effort between OGS Procurement Services and DEC staff over the past two years to develop and promote fully green centralized contracts and highlight the green choices available in other centralized contracts has been one of the highlights since the last Progress Report. The benefits of this collaboration are best exemplified by the October 2014 request for proposals for "Recycling and Trash Removal Services." For the first time, a state contract will have provisions for the recycling and composting of various materials, including commingled, single-stream and organic wastes, as well as training and tracking. In addition, OGS and DEC staff played an important role in a new multi-state contract for green cleaning products that is detailed in this report.

The State's operations are similarly expansive, covering approximately 16,000 facilities, from laboratories to prisons, as well as 17,000 vehicles and thousands of miles of highways. Substantial strides have been made to incorporate sustainability and environmentally conscious choices into these operations. For example, the Capitol grounds are managed entirely without the use of chemical pesticides. OGS was an early leader in non-chemical means of pest control for ornamental plants and turf, and, as this Progress Report documents, 70% of State agencies have followed suit. Similarly, this Progress Report documents continued excellent compliance with closely related Executive Order No. 18, which directs State agencies to eliminate the purchase of bottled water.

These success stories are made possible by Governor Cuomo's leadership, the strong partnership between our two agencies, the help of our interagency team of green leaders, and the front-line work of the Sustainability Coordinators designated by agencies and authorities across the State. With much more that can be done, we remain committed to expanding our efforts so that government can deliver a greener, cleaner environment as well as cost savings to the People of New York.

RoAnn M. Destito, Commissioner, Office of General Services

Joseph Martens, 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.

By reducing copy paper use, New York saved $27.4 million in Fiscal Years 2008-09 through 2013-14 and will continue to save a minimum of $8 million per year.

EO 4 directed the approximately 85 state agencies, authorities and other entities covered by the Order ("agencies" or "affected entities") to incorporate sustainability into all aspects of their operations. To accomplish this, affected entities 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 Environmental Stewardship ("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 the development of green specifications and lists of green products available on state contracts, as well as preparation of this annual report.

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

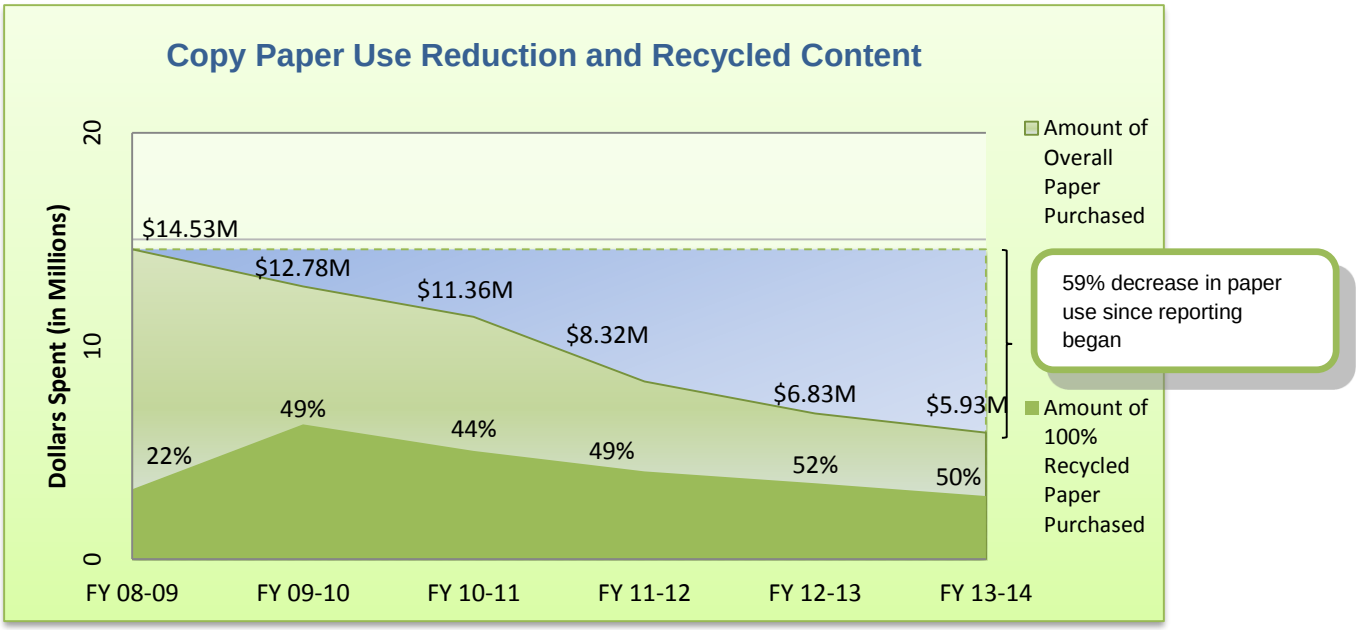
The past six years, from FY 2008-09 to 2013-14, have seen steady progress toward a greener New York. Sustainability is a process, and the most successful agencies have adopted the executive support, personnel infrastructure, financing mechanisms and practices needed to continually review their operations, measure progress, embrace innovation, and overcome challenges. The Metropolitan Transportation Authority (MTA) is a leader on sustainability. Its Sustainability Department coordinates implementation of MTA's internal sustainability plan and works with external stakeholders on larger transit sustainability policies. Each MTA agency, including Metro-North, the Long Island Railroad and Bridges and Tunnels, has its own sustainability team. Metro North's Sustainability and Energy Committee includes employees from every department and in 2012 began quarterly briefings to executive staff. Other leaders include the Office of Parks, Recreation and Historic Preservation (Parks), the State University of New York (SUNY), the City University of New York (CUNY) and the Power Authority of the State of New York (NYPA).

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 had significant impacts on how state agencies generate and handle waste. Paper use has been significantly reduced, waste generation has dropped overall, recycling rates increased to new highs in recent years, the purchase of 100% post-consumer recycled content copy paper has been maintained at high levels, and executive agencies 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 reported adopting paper use reduction practices starting in FY 08-09. A shift to double-sided printing and electronic transactions resulted in a 59% decrease in paper use through FY 13-14, a highly encouraging trend that saved $27.4 million in FYs 08-09 through 13-14 and will continue to save the State a minimum of $8 million per year.

The aggregate quantity of solid waste generated across all agencies decreased 53% over the past six reporting years, from 815,000 tons in FY 08-09 to 386,766 tons in FY 13-14, a robust and encouraging trend. In both FY 12-13 and 13-14, agencies reported recycling rates of 71%, which represents a 21 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 386,766 tons of waste generated in FY 13-14, 273,712 tons were recycled or composted.

The executive agencies covered by EO 18 have virtually eliminated the purchase of bottled water. Only six agencies continue to use bottled water under special circumstances, such as for transit employees working in remote locations. In addition, 83% of authorities and other reporting entities not covered by EO 4 restricted bottled water use to special circumstances.

*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.

Reducing the Environmental Impacts of Operations

A vast majority of agencies are avoiding the use of chemicals to manage indoor and outdoor pests, using green practices to clean their facilities, installing energy-efficient equipment and appliances to reduce energy use, and following practices to green their fleet and reduce employee travel. As of FY 13-14:

- 70% of agencies responsible for turf and ornamental plant management used non-chemical means of pest control all or most of the time. This represents a significant jump, from 43% in FY 09-10, achieved by steady increases over the past five years.
- 83% of agencies responsible for indoor pest management at their facilities used Integrated Pest Management (IPM) practices all or most of the time.
- 89% of agencies responsible for cleaning at their facilities used green cleaning products all or most of the time. Sixty-nine percent follow practices to reduce the overall amount of cleaning product used, and 73% reduced the number of different kinds of cleaning products used.

- 99% implemented practices to reduce energy use, and 38% purchased renewable energy credits or generated on-site renewable energy.
- 87% implemented policies to reduce the number of vehicle miles driven by employees during the work day, and a majority have encouraged carpooling and mass transit use to reduce commuting miles driven by employees.

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 FYs 09-10 through 13-14, 38% of agencies reported saving money through energy reduction, 37% saved money by eliminating the purchase of bottled water, and 34% saved money through waste reduction and reuse. Most reported a reduction or no change in costs due to the implementation of projects across EO 4's other areas of focus: 53% for water and natural resource conservation, 53% for non-chemical pest control or IPM, 52% for recycling and composting, 48% for green cleaning, and 42% for green procurement. A few agencies experienced increases in costs, and more than one-third did not know whether their activities had reduced or increased costs.

70% of agencies responsible for turf and ornamental pest management use non-chemical means of pest control all or most of the time.

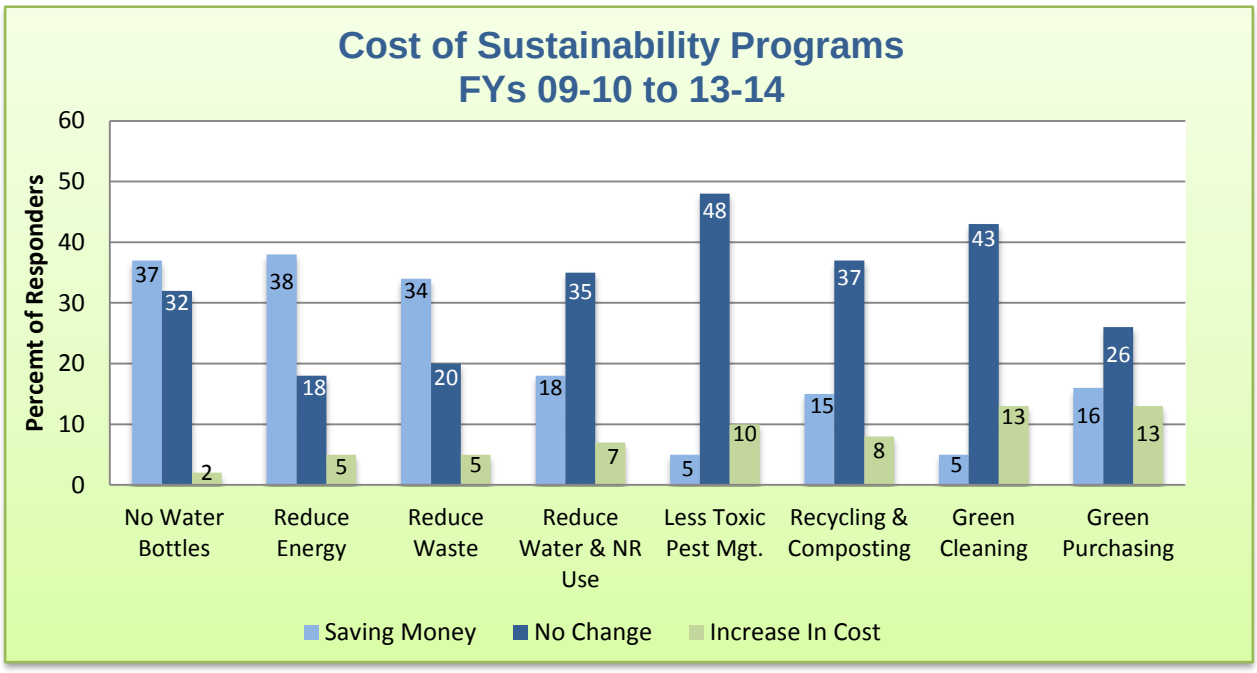
On average, close to three-quarters of agencies bought at least some 100% recycled copy paper in FYs 12-13 through 13-14, and fully half (50%) of dollars spent on copy paper in FY 13-14 went to purchase 100% post-consumer recycled content, processed chlorine-free copy paper. This represents a 28 percentage point increase from the 22% of dollars spent on such paper in FY 08-09.

On average, two-thirds (64%) of dollars spent on janitorial paper in FY 13-14 went to purchase 100% recycled content, processed chlorine-free paper, a 30 percentage point 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, and green computers, overall green purchasing by state entities amounted to $113.2 million in FY 12-13 and $11.2 million in 13-14. The figure for FY 12-13 includes $100.8 million spent on the aggregate purchase of EPEAT Gold "Plus 7" computers, which saved the State $94 million off the centralized contract price.

EO 4 requires the Interagency Committee to annually select a minimum of 3 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 35 green specifications covering a broad and diverse array of 76 products and services, including computers, cleaning products, fluorescent lamps, pest management, single-use food containers, pavement marking paint and treated road salt. Many of these specifications are among the most protective in the country.



An impressive number of green contracts, allowing for the purchase of EO 4-compliant goods and services, were developed by OGS, working collaboratively with DEC and other agencies, in 2014 . “Recycling and Trash Removal Services” will offer such services on state contracts for the first time. The contract will include provisions for training, educational outreach and waste composition analysis, and 11 lots for recycling, including the composting of organics. “Environmentally Preferable Cleaning Products, Programs, Equipment and Supplies” is a fully green multi-state contract in compliance with New York State law and EO 4 requirements for green cleaning. Its 12 lots cover general purpose cleaners, cleaning supplies (including a full range of microfiber products), floor maintenance chemicals and even disinfectants and sanitizers. Both contracts will be in place by May 2015.

More than 90% of reporting agencies consulted the green procurement specifications when making purchases in FY 13-14, 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 tracking systems put into place, reporting on green purchasing should become more robust.

Challenges and Opportunities

Reports from the field in FYs 12-13 and 13-14 highlighted some important successes as well as continuing challenges. As in the first reporting year, most are shared across agencies, and the implementation of new projects continues to be challenging.

Former challenges being met include:

- *Tracking of solid waste.* The ability of agencies to quantify, recycle and manage solid waste has significantly improved, in part due to training and support offered by the Interagency Committee's Training Subcommittee and DEC. Issuance of the new "Recycling and Trash Removal" contract by OGS Procurement Services will further enhance this trend.
- *Purchase of 100% post-consumer recycled content copy paper.* The purchase of such paper has continued to increase, despite initial concerns about price and performance. The maintenance of statewide contracts for 100% recycled copy and janitorial paper by OGS Procurement Services continues to support this trend.
- *Adoption of green cleaning practices*. Agencies continue to report widespread adoption of green cleaning practices, despite initial concerns about price and performance. Issuance of the new green cleaning contract by OGS Procurement Services will further enhance the ability of agencies to identify and purchase high-performing, fully green cleaning products at a competitive price.
- *Barriers to green purchasing.* OGS Procurement Services, with the help of the EO 4 Green Procurement and Training Subcommittees, has taken action to offer green products at competitive prices on fully green centralized contracts, identify green products on existing contracts, and give prominent exposure to green purchasing at the OGS annual Purchasing Forum. These actions have resulted in significant progress toward addressing barriers to green purchasing, which include a lingering perception of increased costs and the time it can take agencies to identify truly green products that work effectively.

The purchase of 100% post-consumer recycled content copy paper has continued to increase, and is now fully one-half (50%) of all copy paper purchased.

Continuing opportunities for improvement include:

- *Tracking green purchasing.* Most financial accounting systems currently used by agencies do not track green purchasing data. The EO 4 Subcommittee on Green Procurement is exploring options that would allow for the tracking of green purchasing in such systems, including the new Statewide Financial System. A number of agencies, including CUNY, Ag and Markets, SUNY and the Development Authority of the North Country, are experimenting with tracking systems that may serve as good models for other agencies. CUNY's new uniform procurement system, CUNYFirst, will include the ability to track green purchasing.
- *Leased spaces*. Agencies located in leased spaces can find it difficult to ensure that EO 4 requirements are being followed. This is especially true for properties not managed by OGS, where agencies have not yet been able to update their leases, but it can also be difficult to enforce green requirements that are in place. Challenges include lack of control over operations and sharing space with other tenants, which, for example, makes tracking waste generation for just one tenant difficult. OGS continues to support agencies by negotiating with landlords and updating leases and contracts to include EO 4 requirements, and a number of agencies, including the Office of Children and Family Services and the Office of Temporary and Disability Assistance, have worked successfully with OGS to ensure that all new leases contain requirements that cleaning supplies meet green standards.

- *Capturing the savings associated with sustainable practices.* Allowing a campus, facility or agency to retain the savings realized through sustainability efforts is a perfect incentive for them to continue such efforts. It also provides a steady source of funding. Many agencies find it hard to track the costs and savings associated with greening operations, and to capture savings for additional improvements. CUNY has adopted an innovative financing system that allows CUNY campuses to track and retain the savings realized through energy conservation for investment in further improvements, a powerful model.

Since 2012, CUNY campuses have been allowed to retain surplus funds realized through energy conservation, which has redoubled their efforts to save energy.

- *Donating surplus equipment for reuse outside government*. Agencies continue to request assistance with the disposition of surplus equipment. The surplus property program operated by OGS is available to provide guidance on local disposition and other disposal options.
- *High-profile senior management support*. Executive support continues to be a crucial element of success for sustainability programs. Especially as the state workforce has changed, strong support from upper level management can facilitate behavioral change and help everyone understand that green practices and efficiency are important to the business of state government. The Interagency Committee, Sustainability Coordinators and the EO 4 reporting process continue to encourage agency executives to endorse, support and promote sustainability activities.
- *Staff training and culture change*. Ongoing training remains important for the adoption of green practices and purchasing. Sustainability is a process that requires long-term, continuous commitment to increasing awareness, enhancing measurement, improving troubleshooting, identifying opportunities and celebrating success. The successful effort by OGS Procurement Services and the EO 4 Training Subcommittee to integrate green purchasing into the "New York State Procurement Guidelines" is an important milestone in the mainstreaming of green procurement, and the inclusion of training in the new recycling and green cleaning contracts will also help. Another good suggestion is for those agencies with successful programs to offer training to agencies that request assistance. This type of exchange is the mission of the Training and Sustainability Subcommittees, and agencies with successes to share are encouraged to submit content for the weekly Green Bulletin.

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

Overall, agency reports for FYs 12-13 and 13-14 documented the widespread adoption of green practices and continued progress toward even more sustainable operations and purchasing. Paper use continued to decrease, recycling rates reached new highs, and important new green statewide contracts were developed that will make recycling and the purchase of green products more convenient and affordable. While certain challenges remain, there are many successes to build on and things to be proud of. New York State is growing and changing for a greener future.

Achieving the Promise of Sustainability

A sustainable economy is vibrant, innovative and healthy. New York State government seeks to build such an economy and serve as a role model for other states, local governments and the private sector. 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 integrate the use of green materials; and our technology, products and services are designed to reduce waste, minimize the use of toxic chemicals and make reuse and recycling easy. All this while giving our businesses the tools they need to compete in a global marketplace that demands clean energy and green technologies. In short, we are building a future in which decisions are based on long-term productivity, prosperity, health and joy.

True and lasting sustainability is only achieved when you are inclusive and take a comprehensive view of the problem placed in front of you, including a broad range of potential benefits and potential downsides for a diverse range of stakeholders.

A triple-bottom-line "lens" can greatly inform every endeavor.

EO 4, available at http://www.ogs.ny.gov/EO/4/Default.aspv, directs the approximately 85 state agencies, authorities, offices, commissions, boards and public benefit corporations currently covered by the Order ("agencies" or "affected entities") 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 facilities across the State.

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 of approximately 100 entities covered by EO 4 submitted reports. In FY 09-10, 74 entities submitted joint reports for EO 4 and EO 18, while 66 submitted reports in FY 10-11. In 2011, there was a substantial consolidation among state agencies and authorities to improve government efficiency and performance. Of the approximately 85 entities now covered by the Order, 56 reported in FY 11-12 (66%), 58 in 12-13 (68%) and 54 in 13-14 (64%). This report compiles these individual reports and uses more recent information when necessary in order to provide a complete picture of progress.

The Benefits of Sustainability

One of the strongest benefits of EO 4 is that the work of Sustainability Coordinators inherently supports a wide range of other state initiatives and goals. Our greatest successes have come through the recognition that EO 4's goals and reporting requirements help to achieve the goals of our own agency, or other state goals. 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 531,059 tons of solid waste, 56,157 of which is reported as office waste
- Operates more than 17,000 vehicles
- Spends approximately $8 billion per year on the purchase of commodities, services and technology

EO 4 and the sustainability planning called for within the Order have become a vehicle for achievement of many state initiatives. Sustainability is a core principle and, therefore, cannot only be a lens to judge projects by, but a driving force to maximize achievement in each and every project. It can also help to identify the potential dangers in projects so pitfalls may be avoided. These dangers are usually related to long-term financial detriments (investing in cheap goods or quick solutions) or toxic burdens. The maximal benefits are reaped when a project moves toward stewardship beyond short-term fiscal considerations, ensuring lasting improvements in occupant health and comfort, and seeing good press from transparency and access.

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

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

- EO 88 (reducing energy use and improving operations and maintenance)
- Governor's Office of Storm Recovery, NY Rising and the Community Risk and Resiliency Act (reconstructing impacted communities)
- Renewable Portfolio Standard (increasing renewable electricity use by retail customers)
- NY Sun Initiative (increasing solar power capacity and the efficiency of the electric grid)
- Charge-NY (accelerating market adoption of electric vehicles and developing charging infrastructure)
- Taste-NY (increasing the market for local and New York State food)
- Green Cleaning Law for schools (reducing toxic chemical use and improving indoor air quality)
- Green Jobs/Green NY (providing access to energy assessments, installation services, low interest financing, and training for various green-collar careers)
- Regional Greenhouse Gas Initiative (decreasing carbon emissions and increasing energy efficiency through a cap and investment strategy)

In addition to these specific programs, there are other ways that EO 4 work generally benefits New York State. EO 4 is an excellent driver of efficiency and increased collaboration between agencies,

EO 4 Interagency Committee

Chairs: *OGS & 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 & Development Authority (NYSERDA)

Power Authority of the State of New York (NYPA)

Department of Transportation (DOT)

and of reduced waste, less toxic products, and an innovative, robust and diverse business environment.

EO 4 encourages system-wide efficiencies, which is certainly supportive of New York State budgeting goals. Using less energy and producing less waste reduces agency costs, as well as the pollution, water use, greenhouse gas emissions and costs associated with raw material harvesting, resource extraction, energy generation, transportation and manufacturing, and the end-of-life management of wastes. The highest efficiencies are achieved by breaking down silos between programs and agencies. EO 4 has increased transparency and communication among agencies and allowed for the sharing of best practices and results. Agency collaboration has helped the state drive down operating expenses, especially in relation to energy use and waste generation.

EO 4 drives agencies to measure and reduce their material use and waste, thereby becoming more efficient. Waste reduction, reuse, recycling and sustainable resource management support a healthy, vibrant economy by reducing costs and ensuring abundant supplies of materials, as well as clean air, clean water and good jobs. Reduction of paper use, explicitly called for in the Order, is a wonderful example of a triple-bottom-line benefit that enhances environmental, social and financial well-being. Data gathered over the past five years documents $27.4 million in savings from paper use reduction in FYs 09-10 through 13-14. These reductions will continue to save the State more than $8 million per year. At the same time, each ton of office paper use avoided reduces greenhouse gas emissions by more than 8 metric tons of CO_2 Equivalent ($MTCO_2E$). One $MTCO_2E$ is equivalent to 110 gallons of gasoline.

Recycling avoids the costs and environmental impacts associated with disposal while creating jobs. According to the Institute for Local Self-Reliance, one job is created for every 10,000 tons of solid waste that goes to a landfill. That same amount of waste – kept out of the landfill – can create 10 recycling jobs or 75 materials reuse jobs.

EO 4's goals are a catalyst for innovation within state government and in the businesses of the State and region, helping our society to be more resilient and better compete in a global economy. Support for robust local markets keeps investments and talent in-state, while maintaining a stable and diverse economy that is harder to disrupt. Using clean, renewable sources of energy and related technologies that rely on them, like traffic message boards powered by solar panels, avoids the pollution and greenhouse gas emissions associated with fossil fuels and removes the cost of dealing with those pollutants from taxpayers. Resiliency, a focus of state planning post-Sandy and

Irene, includes building for a long and dynamic future. The sustainability planning supported by EO 4 is helping the state identify opportunities for green infrastructure, transportation and other broad system approaches as well.

Finally, EO 4 drives state government to adopt preventive strategies that support the health and well-being of all of our residents. Governor Cuomo recently issued his annual Healthy Schools proclamation, which notes that children are more susceptible to environmental pollution than adults. The green cleaning requirements of EO 4 reduce exposures to toxic chemicals and result in healthier indoor environments. A key focus of green procurement is reducing the use of toxic chemicals, many of which are proven cancer-causing ingredients. Greener products and manufacturing reduces pollution and avoids the cost of managing toxic materials during manufacture, transportation and disposal, including the significant cost of cleaning up contaminated sites. Products made without toxics are also easier and safer to recycle.

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.

Leading the Green Team: People and Planning

In addition to owned and leased office space, state government operates a remarkably diverse range of public facilities, including highways, railroads, canals, power plants, armories, colleges and universities, laboratories, hospitals, prisons, group homes, fish hatcheries, golf courses, campgrounds and parks. The core mission and daily activities of each agency shape their sustainability priorities and the degree of effort required for implementation. EO 4 affords flexibility, while focusing efforts on key areas.

Metro-North's Sustainability and Energy Committee began quarterly meetings to brief executive staff in 2012.

Agency sustainability programs illustrate the enthusiasm, depth of commitment and breadth of activity undertaken by employees across the State to go green. In FY 12-13, 84% of all agencies reporting, and in FY 13-14, 87% of all agencies reporting had a designated Sustainability Coordinator. Coordinators serve the crucial function of incorporating sustainability into the day-to-day operations of a diverse range of state facilities, including hospitals, transit systems and parks.

A significant number of agencies, 45% in FY 12-13 and 42% in 13-14, have adopted a formal sustainability plan. A number of agencies continued their impressive efforts to implement comprehensive sustainability programs, while others reported on new noteworthy initiatives:

- *MTA Headquarters'* Sustainability Department coordinates implementation of MTA's internal sustainability plan and works with external stakeholders on larger transit sustainability policies. Each MTA agency, including Metro-North, the Long Island Railroad and Bridges and Tunnels, has its own sustainability team. Metro-North's Sustainability and Energy Committee includes employees from virtually every department and in 2012 began quarterly briefings to executive staff.
- *Parks* is in the process of creating a new Sustainability Plan that will serve more as a proactive green handbook for staff and managers rather than a strictly goal-oriented document. They have placed a strong emphasis on energy use and renewable energy and will have completed six solar installations by the end of FY 14-15.
- *The Development Authority of the North Country* continues to update its Sustainability Plan. The most recent version includes new initiatives, such as random waste audits, sustainability training, trending of chemical-use reduction, and improved documentation of sustainable practices used in capital projects. In FY 13-14, they initiated quarterly trending discussions of items tracked for EO 4 at manager's meetings.

- *The Port Authority of New York and New Jersey—New York Marine Terminals* has a Sustainability Policy that covers Air Quality Improvements, Coastal Ecosystem Conservation, and Energy and Waste programs. The Port Commerce Department oversees an Environmental Management System to align operations in all port facilities with environmental goals.
- *NYPA* is mainstreaming its Sustainability Plan, first released in 2010, into the company's new, comprehensive 2014-2017 Strategic Plan.
- Each of *CUNY's* 19 campuses has its own ten-year plan, with goals in seven key areas: energy, water, transportation, waste and recycling, procurement, dining services and outreach and education. Each has a Sustainability Council comprising administrative staff, faculty and students and chaired by a senior staff member, typically the campus' Vice President of Finance and Administration. CUNY welcomes compiling the EO 4 report as "a useful and informative exercise" that "has an impact on shaping future sustainability activity and prompts improved tracking of progress."
- *SUNY Geneseo* created the President's Commission on Sustainability in 2012, consisting of 22 members from across the campus community with six sub-committees, including climate, operations, academics, engagement, food service, finance and a "hands-on" teaching lab for alternative energy and sustainability.

Waste and Paper Use Reduction Goals

Preventing the generation of solid waste has been recognized by the State as the strategy with the greatest overall environmental and social benefits, but its potential remains largely untapped. In December 2010, New York adopted a new solid waste management plan, *Beyond Waste: A Sustainable Materials Management Strategy.* The plan marks an important shift, from focusing on "end-of-the-pipe" waste management techniques to looking "upstream" and more comprehensively at how materials that would otherwise become waste can be more sustainably managed through the State's economy. The plan establishes a 20-year goal of reducing the average amount of waste that New Yorkers dispose of from 4.1 to 0.6 pound per person per day. EO 4 is specifically discussed in the plan as a valuable step forward in integrating waste prevention, recycling and sustainability 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. Total waste generated is the sum of materials that are recycled, as well as materials that are 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 does not apply to non-office waste because the Interagency Committee determined that it was not advisable to devise a single one-size-fits-all metric for measuring reductions in other types of waste that would be comparable over time and across agencies. For example, 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 public visitors to state facilities, such as Parks, are unable to distinguish between wastes generated by employees and the public.

In the first year of EO 4 reporting, making a clear distinction between office and non-office facilities, wastes and employees, as well as finding a universally accepted metric for estimating FTEs, proved challenging. As a result, the levels of waste generated per FTE reported by agencies varied from less than a pound to more than 100,000 pounds and could not be used to establish a meaningful baseline.

In response to this challenge, the Reporting Subcommittee fine-tuned the reporting form and provided clearer guidance on how to report office and non-office waste. It also adopted a more uniform standard for determining FTEs—each agency's "authorized fill level" as set by the Division of Budget. Due to these measures, the agency reports for FY 09-10 established a meaningful baseline for assessing each agency's progress in reducing waste over time. While an additional purpose of the metric is to enable comparison among agencies, intractable challenges, such as the difficulty of accurately estimating office and non-office employees, warrant caution. Given the limitations of the data, the most meaningful comparisons will be among agencies with similar functions and similar percentages of office and non-office activities and staff.

Going forward, the waste reduction goal of 10% per FTE per year will continue to apply to office facilities and office waste only, including paper, plastics, metal and glass. Data on all materials generated–recycled and disposed–will still be 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, will be reported separately. While the waste generation goal applies only to state office facilities, 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 08-09. 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. Due to the difficulties encountered with estimating FTEs in FY 08-09, paper purchases per FTE were not calculated for that year. Due to wide variation in mission and function, paper consumption varies substantially across agencies, both in absolute terms and on a "pounds per employee" basis. While the reports for FY 09-10 establish a meaningful baseline for assessing each agency's progress in reducing paper use over time, a very large standard deviation persists across agencies in the amount of paper purchased per employee, making comparisons between agencies with markedly different functions and staff activities less than meaningful.

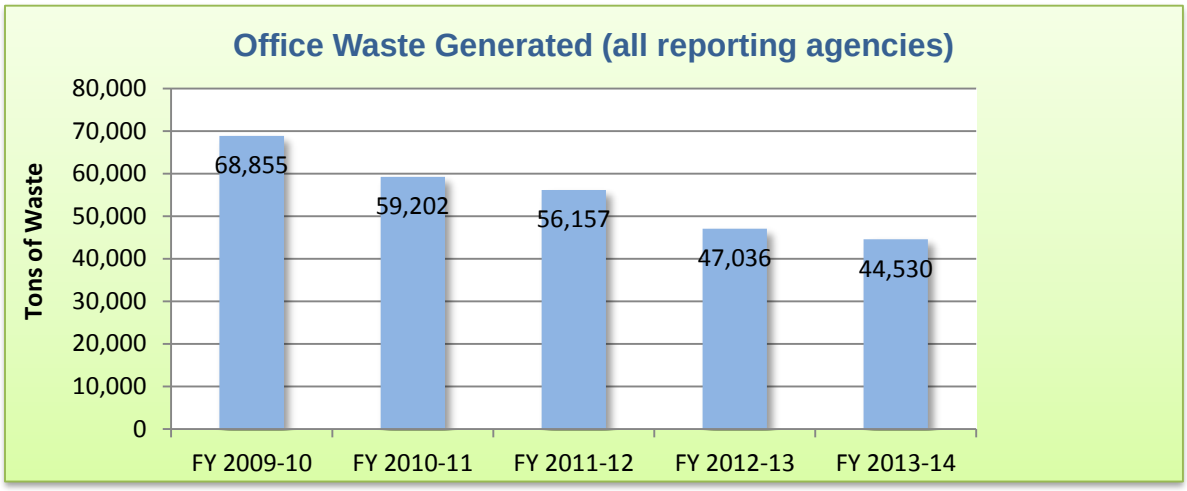
Waste Reduction and Reuse

EO 4 and EO 18 continue to support agency actions to evaluate the waste they generate and to reduce and recycle more. Overall waste generation data continued to indicate a favorable downward trend, and executive agencies have virtually eliminated the purchase of bottled water.

Overall in FY 12-13, 48 agencies reported generating 501,125 tons of solid waste. In FY 13-14, 52 agencies reported generating 386,766 tons of solid waste. The latter number represents a 27%

drop from the 531,059 tons of waste generated by 37 reporting agencies in FY 11-12 and a 53% drop from the 815,000 tons of waste generated by 53 reporting agencies in FY 08-09 (see chart on page iii of this report).

Office waste represented 9% of the total waste generated in FY 12-13, or 47,036 tons, and 11% in FY 13-14, or 44,530 tons. The latter number represents a 35% drop from the 68,855 tons of office waste generated in FY 09-10. Office waste has consistently remained between 9% and 11% of total waste generated over the past five reporting years.



In FY 2013-14, 46 agencies reported purchasing 217,812 boxes, or $5,933,453 worth of copy paper, a decrease of 13% over the previous year and a full 59% decrease from FY 08-09, when approximately 47 agencies reported purchasing $14,537,991. This data documents a solid and highly encouraging trend of significant paper use reduction over six reporting years (see chart on page ii of this report).

Agencies have indicated that EO 4's reporting requirements are encouraging them to take a hard look at the waste they generate. Many agencies have initiated a variety of reduction measures.

- *The Developmental Authority of the North Country* attributes their 4% reduction in waste generation to better tracking. Previously they relied heavily on estimations of weight, but then they purchased scales, and the majority of materials are now weighed, providing more accurate numbers.

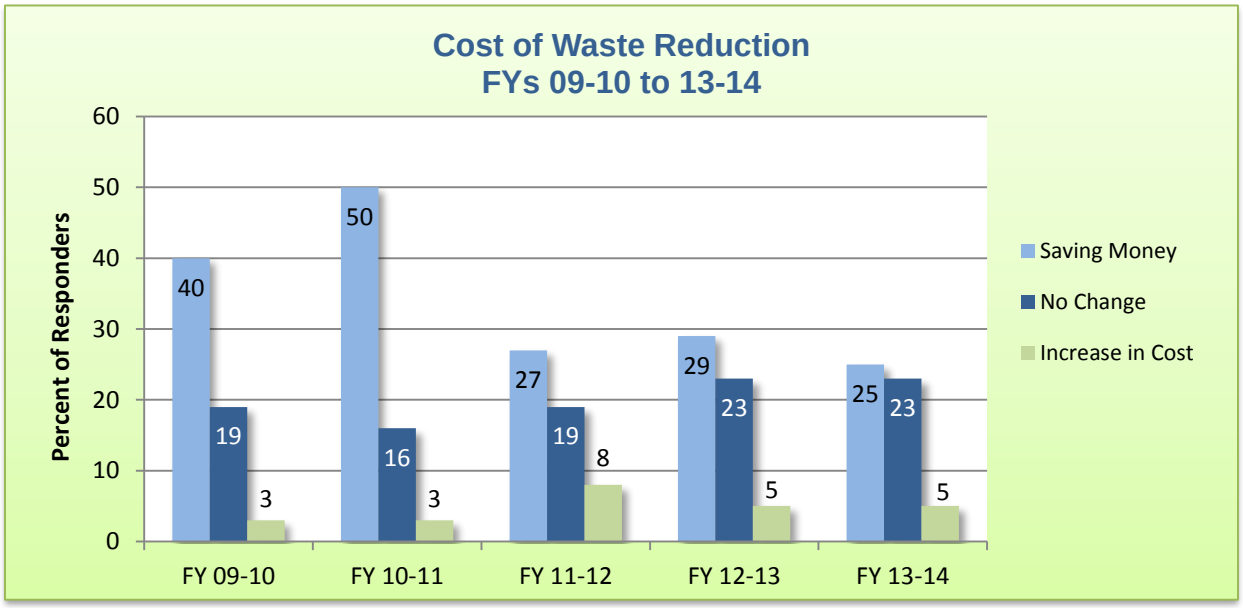
In FY 13-14, a majority of agencies reported use of the following waste reduction strategies:

- *84% use two-sided printing all (18%) or most (66%) of the time.* For example, at ESD, the default settings for all printers in Albany and most of the rest of the organization have been changed to double-sided printing.
- *91% use electronic means to provide documents to the public all (18%) or most (73%) of the time.* For example, the CUNY College of Technology has expanded the capacity to scan-to-e-mail and scan-to-USB, reducing the amount of photocopying by students.
- 73% use electronic means to receive documents or information from the public all (7%) or most (66%) of the time.
- 79% use Lotus Notes, Team Rooms or other electronic means to share documents among employees all (11%) or most (68%) of the time.

Reuse is also growing. Eighty-two percent (82%) of agencies reporting in FY 13-14 have some type of reuse program, a slight increase from FY 11-12. Outstanding examples of reduction and reuse include:

- *DEC* performs waste audits twice a year at their Albany headquarters. These inform and help to measure waste reduction. They also serve as a training opportunity for other agencies.
- *OGS* has established a Reuse Center in the Corning Tower of the Empire State Plaza, which has been successful in reducing new office supplies purchased, as well as the disposal of materials. OGS would like to expand the program to include a virtual reuse center for the entire Plaza.
- *CUNY* has implemented a variety of measures to minimize paper waste, including duplex printing, digitizing forms, sharing class materials electronically, and capping free-printing quotas, and is working with New York State to allow the use of e-signatures and computerized auditing. Brooklyn College introduced duplex printing in student labs, adjusted the print quota fee structure to favor duplex printing, and initiated a large-scale program to replace costly inkjet printers with more cost-effective duplexing low-end lasers. Manhattan Community College is attempting to switch all exams to double-sided paper.
- *The Office of Children and Family Services* has implemented an office supply reuse program which involves program areas turning in unused supplies such as toner, pens, 3-ring binders, notebooks and other office supplies. The items are inventoried and submitted to OCFS procurement division for distribution. A new inventory tracking program allows staff to better track their supplies.

On average over the past five years, a significant number of agencies (34%) reported saving money through waste reduction. In comparison, only a small number of agencies (5%), reported an increase in costs. Over a third said they did not know.



Recycling and Composting

In both FY 12-13 and 13-14, 71% of the solid waste generated by state agencies was recycled or composted, compared to 50% in FY 08-09. Once again, this rate exceeded the statewide recycling goal of 50% established pursuant to the Solid Waste Management Act of 1988. This data documents a robust and encouraging trend of high recycling rates by state agencies.

Total Waste Generated and Percent Recycled

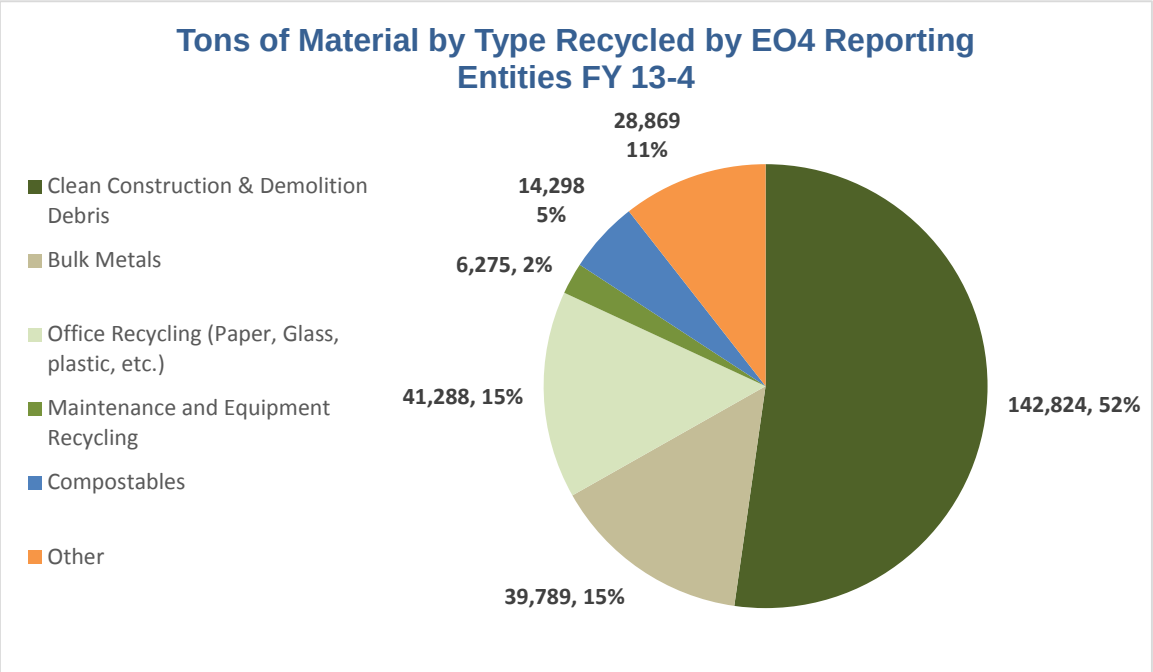
	Total Tons of Waste Generated	Tons of Waste Recycled	Percent Recycled
FY 2008-09	815,000	410,500	50%
FY 2009-10	507,929	318181	63%
FY 2010-11	682,043	308,566	45%*
FY 2011-12	531,059	355,865	67%
FY 2012-13	501,125	355,226	71%
FY 2013-14	386,766	273,712	71%
*The large drop in the recycling rate in FY 10-11 is primarily from one large generator reporting a much higher amount of waste disposal.			

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 13-14, 34% of agencies reporting had single-stream recycling at all their facilities, and 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.

The pie chart below provides a breakdown of the total quantity of materials recycled by agencies, on average, in FY 13-14. Office recyclables amount to 7%, while non-office recyclables are 93%. Construction and demolition (C&D) material represents approximately 52% of all materials recycled. C&D materials include concrete, asphalt, brick and clean wood that come from building construction, renovation and demolition, as well as highway construction and maintenance. The largest C&D recycler that reported data is the MTA.

For FYs 09-10 through 11-12, we evaluated office recycling data from the 19 agencies that have consistently reported office waste generation, recycling and number of employees for those fiscal years. For FY 12-13 and 13-14, we evaluated office recycling data for all agencies that reported office waste generation, recycling and number of employees, regardless of whether they reported all this information previously. This information is summarized in the table below. The recycling rate shows a decrease from around 50% for the first three reporting years to about 38% for the last two reporting years. As the number of agencies reporting complete office waste generation increases, these later recycling rates appear to be a more realistic agency office recycling rate.



Composting reduces the amount of waste that needs to be disposed by converting it into a useful soil amendment. It also helps avoid methane generation in landfills, creates healthy soils, sequesters significant amounts of elemental carbon and can reduce the need for energy-intensive fertilizers and pesticides.

Thirteen agencies reported composting at least one year during FYs 12-13 and 13-14, down from 19 in previous 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 following year. Four agencies collected approximately 90% of the wood and yard trimmings that were composted: Parks, CUNY; SUNY; and the Department of Corrections and Community Supervision (DOCCS).

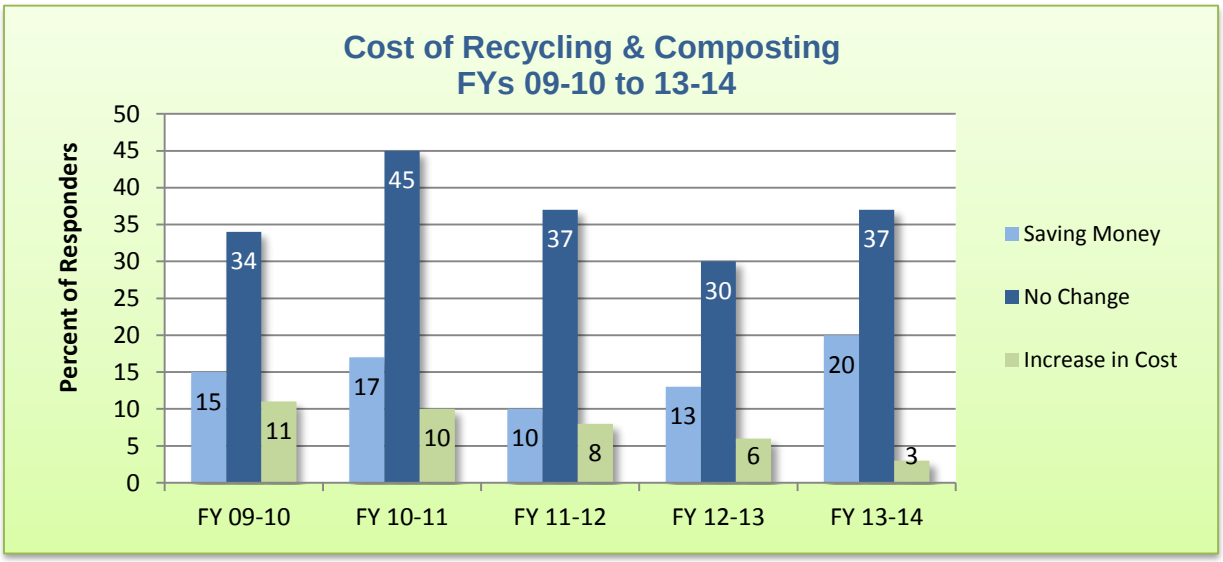
Eight agencies reported composting food scraps during FYs 12-13 through 13-14. They collected over 7,000 tons of food scraps for composting each year, the vast majority of which, about 6,000 tons, was collected by DOCCS. Educational institutions are leading the charge on increasing the composting of food scraps, with SUNY collecting over 600 tons for composting in each of the last two years and CUNY collecting about the same in FY 13-14. 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.

Office Waste Generated and Percent Recycled

	Total Tons of Office Waste Generated	Total Tons of Office Waste Recycled	Percent of Office Waste Recycled	Pounds of Office Waste Generated per Employee	Number of Agencies Reporting a Reduction in Office Waste
FY 2009-10	4,246	2,072	49%	357	9
FY 2010-11	5,122	2,983	58%	452	8
FY 2011-12	3,650	1,851	51%	323	10
FY 2012-13	39,896	15,039	38%	553	30
FY 2013-14	41,551	15,490	37%	495	27
To be included in this table for FYs 09-10 through 11-12, agencies must have consistently reported the amount of office waste disposed and recycled, as well as their number of employees, for all three reporting years. For FYs 12-13 and 13-14, all agencies that reported such data are included, regardless of whether they reported it in previous years.					

On average over the last five years, a significant plurality of agencies (52%) reported a reduction (15%) or no change (37%) in costs as a result of recycling efforts. A much smaller number (8%) 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.



EFC's increased recycling rate was attributed to improved single-stream recycling participation through education and a voluntary (take home) composting program.

- *The Development Authority of the North Country* recently introduced a plastic bag and plastic film recycling initiative.
- *OGS* reports that diversion of food scraps is being completed at all Empire State Plaza cafeterias "behind the house." This is to ensure compliance and non-contamination. OGS Food Services is working with Capital Region facilities and other OGS facilities to expand the program.
- *Tax and Finance* undertook a purge of historic and obsolete records in FY 13-14, increasing the amount of waste generated per FTE. The purge will continue into 2015, so waste per FTE will stay the same or even increase over the next few years. After that, the amount of waste generated per FTE should drop dramatically. All paper being purged, including folders, is being recycled using a confidential destruction contract that is producing revenue donated to the State Education Department.

Reducing Toxic Chemical Use

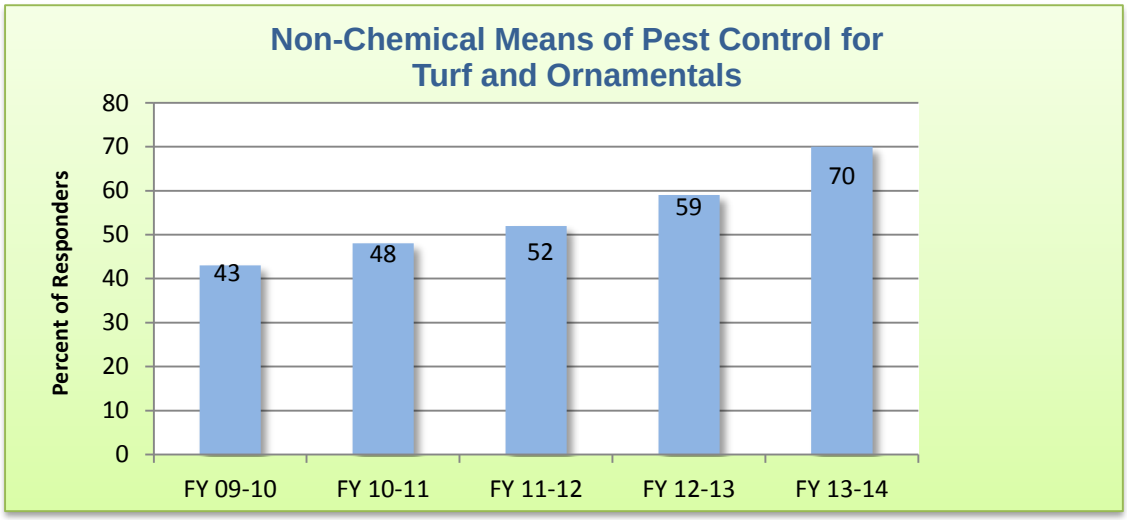
Agencies undertook many successful and creative efforts to reduce toxic chemical use in FYs 12-13 and 13-14. Safer pest management and green cleaning continued to be practiced by most agencies, and a number of college laboratories undertook measures to reduce and even eliminate the use of toxic chemicals.

Pest Management

A significant majority of agencies continues to use Integrated Pest Management (IPM) to prevent indoor pests. IPM is a set of practices that minimizes pesticide use and focuses 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. In FY 13-14:

- 83% of agencies responsible (either directly or through contractors) for indoor pest management at their facilities reported using IPM all (61%) or a majority (22%) of the time.

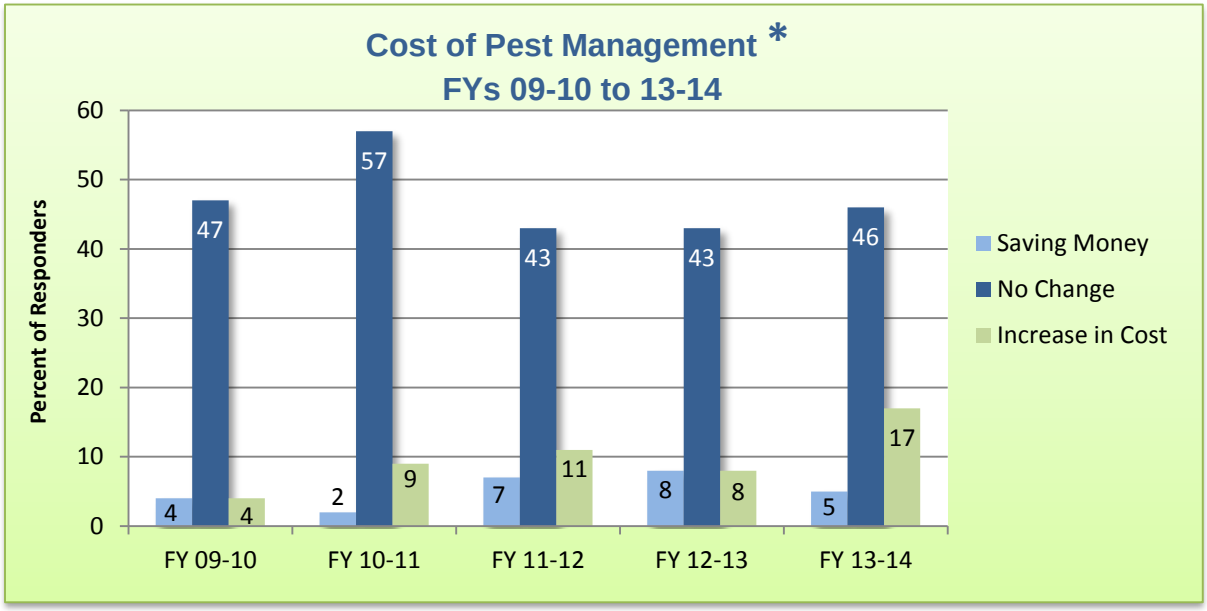
Agencies have been slower to adopt green exterior pest management practices, but steady and impressive progress has been made over the past five years.



- 70% of agencies responsible for turf and ornamental pest management at their facilities reported using non-chemical means of pest control all (22%) or a majority (48%) of the time. This represents a steady increase from 43% in FY 09-10.

This data is encouraging as it indicates a major cultural shift toward reducing toxic chemical use. The strong models provided by OGS, which uses no chemicals to maintain the turf and vegetation at the Empire State Plaza, as well as other agencies such as the Battery Park City Parks Conservancy and SUNY New Paltz, have successfully inspired other agencies.

On average over the last five 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, a much smaller percentage (10%) report an increase in costs. Over one-third said they did not know.



***FYS 11-12 THROUGH 13-14 INCLUDES RESPONSES FOR GREEN CLEANING.**

Below are highlights of new initiatives implemented in FYs 12-13 and 13-14:

- *Parks, MTA*, the *Office of Mental Health*, the *Battery Park City Parks Conservancy, Helen Hayes Hospital* and many *CUNY* and *SUNY* campuses continue to focus on best practices for preventing pests, including sealing gaps, installing rodent-proof trash bins, providing daily service for all trash receptacles, maintaining cleaner facilities, providing signage for patrons, and running awareness campaigns.
- *The MTA's Metro-North* includes clear and concise IPM requirements in all of its pest management contracts, with guidance from a consultant entomologist. MTA's *NYCT Department of Subways* continues to implement a pilot program at 27 subway stations under the direction of Dr. Robert Corrigan (NYC Department of Health) that targets the placement of bait stations in refuse rooms, where pests congregate. Similarly, *Queens College* and *Parks* are using traps instead of toxic rodenticides.
- *CUNY Hunter College* increased the number of inspections performed by their exterminator, leading to increased use of IPM and less use of toxic chemicals.
- At *Parks*, nearly every region is using organic alternatives for pest management. In Genesee, vinegar solutions are used for a number of applications, poison ivy is removed manually, and wasp and bee nests are removed by mechanical means, or patrons are moved to different sites to avoid nests.

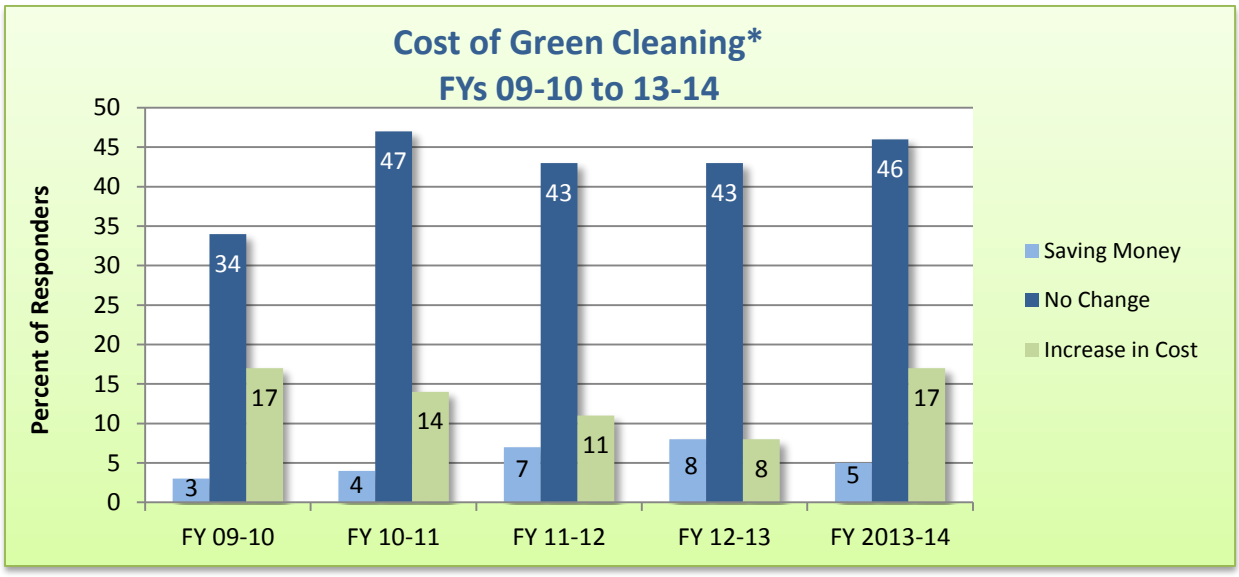
- *SUNY New Paltz* and *Old Westbury* use no toxic chemicals on their grounds.
- At *SUNY Brockport*, several acres of land are no longer being mowed or maintained, and natural pesticide use has increased. *Environmental Science and Forestry* created additional no-mow zones and have established a policy for approving any products used to treat the grounds. *Empire State* replaced invasive plants with native plants, uses "the right plant in the right place," and times fertilizer applications to minimize weeds and keep turf healthy, all of which reduce the need for herbicides and pesticides

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). In FY 13-14:

- 89% 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 (38%) or a majority (51%) of the time. Only 1-2% reported that they never use products from the list.
- 75% use fragrance-free products and 88% 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, that reduce the overall amount of cleaning product used.
- 73% reported that they had reduced the number of different kinds of cleaning products used.

Reductions in the amount and different kinds of cleaning products used are significant and can be attributed to the adoption of greener practices, the use of concentrated products, standardized dispensing systems, and general purpose cleaners for multiple applications, such as glass, bath and toilet. Standardized dilution and dispensing systems accurately meter water use and avoid the need to mix individual batches, saving time while resulting in less consumption, waste, and spills. Concentrated products also reduce the costs and impacts of packaging and transportation.



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***FYS 11-12 THROUGH 13-14 INCLUDES RESPONSES FOR PEST MANAGEMENT.**

Over the past five 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 above 50%. The number of agencies reporting an increase in cost ranged between 11% and 17%

Below are highlights of new initiatives implemented in FYs 12-13 and 13-14:

- *The Office of Mental Health, SUNY Plattsburgh, Canton,* and *Stony Brook* continued their use of ionized water cleaning systems, adopted in FYs 10-12. Other agencies, including *SUNY Binghamton* and *SUNY Buffalo,* adopted ionized water systems in FYs 2012-14 and reported a decrease in cost.
- *CUNY* trained the custodial supervisors of all 20 CUNY colleges in the proper selection, use and application of green cleaning products and related equipment in 2012-13.
- *SUNY Stony Brook* continued to eliminate the use of Quatricide PV-15 to sanitize floors. *SUNY Fredonia* has eliminated the use of ammonia and bleach.
- *CUNY Queens College* purchased a booster auto scrubber, which uses water and no chemicals.

A number of SUNY campuses are eliminating the use of quatricides, ammonia and bleach.

Miscellaneous Toxics Use Reduction Strategies

Many college laboratories have taken measures to reduce their use of toxic lab chemicals:

- *CUNY's* teaching and research laboratories are cutting the use of reagents and sharing surplus chemicals among on-site labs.
- *SUNY Delhi* is changing over several science lab testing methods to micro-testing to reduce chemical use.
- *SUNY Geneseo* has also implemented a chemical-share program.
- *New York City College of Technology* is training their staff on the use of a chem-tracker to manage chemical inventories in their laboratories.
- *Queens College* has eliminated the use of ethidium bromide in certain procedures and is substituting ethanol for formaldehyde and formalin to preserve specimens.
- *SUNY Albany's* teaching labs have switched to less toxic chemicals in their experiments, and all chemical purchases are approved by Environmental Health and Safety staff.

Energy Efficiency, Renewable Energy and Transportation

Energy efficiency and renewable energy resources are critical to sustainability. Under EO 4, agencies report on a variety of information related to energy use in their buildings and operations.

Energy Efficiency

Agencies reported that on average, in FYs 12-13 and 13-14:

- *99% installed Energy Star equipment and/or appliances*, an increase of 18 percentage points from the second progress report.
- *95% used motion detectors* to reduce unnecessary lighting.
- *99% adjusted thermostats* to reduce energy use for heating and cooling.

Notable examples of energy efficiency in state buildings include:

- In what may serve as a model for agencies to reap the economic benefits of their energy use reductions, the *New York State Division of Budget* gave *CUNY's* 13 senior colleges control of their energy budgets in 2012, permitting them to retain any surplus funds realized through energy conservation and efficiency efforts. These changes redoubled CUNY's effort to save energy and prompted the creation of "Sustainable CUNY Conserves" a campaign to promote energy conscious behavior among engineering, operations, maintenance and management staff.
- *SUNY* instituted various methods to save energy across its campuses, including unplugging all refrigerators in its apartment-style living quarters when not in use (Geneseo); replacing traditional hot water heaters with demand type water heaters (School of Optometry); and re-engineering two pumps in the Mechanical Services Department, saving $20,000 per year in energy costs (Purchase).
- *The Office of Mental Health* employed a variety of techniques to reduce energy use, including carefully managing service contracts to check for inefficiencies and providing staff with training about the importance of proper operation and maintenance of equipment. They also use building commissioning, an intensive quality assurance process, to ensure that new buildings operate as intended and staff are prepared to operate and maintain its systems and equipment.
- *The Bridge Authority* has begun to retrofit all of its street lights with LEDs to reduce energy costs. The first facility realized more than a 16% reduction in electricity consumption.
- *OGS* replaced an aging, 40-year-old, steam turbine in Empire State Plaza. The new turbine is 18% more energy efficient.
- *The Port Authority* installed a smart metering system at Stewart International Airport that shows usage in real time so that facility managers can detect energy use anomalies as they happen and work to reduce any unnecessary increases.
- *ESD* and other agencies now require employees to shut down their computers when not in use.

Since 2012, CUNY campuses have been allowed to retain surplus funds realized through energy conservation, which has redoubled their efforts to save energy.

RENEWABLE ENERGY

While renewable energy remains a small part of state government's energy portfolio, agencies are increasing renewable energy use, and many agency leaders have embraced innovative methods to install on-site renewable energy. Agencies reported that, on average, in FYs 12-13 and 13-14:

- 38% of agencies purchased renewable energy credits or generated on-site renewable energy. On average, those agencies reported that 33% of their total electricity use came from renewable energy sources, an increase of 11 percentage points from the second progress report.

Notable examples of innovative renewable energy projects include:

- At *Parks,* 21 in-house staff have been trained to install solar panels and designated as NYSERDA 'solar contractors' since 2012. These staff have completed solar projects at six parks at one-third to half the cost of installation by an outside contractor, with six more currently underway or planned.
- *DEC* has implemented a number of renewable energy demonstration projects to promote emerging technologies. These include advanced solar electric, solar thermal hot water, geothermal heating, biomass heating and a wind turbine.
- *CUNY School of Law* uses 100% Green-e Energy certified wind power, and, overall, CUNY purchases 20% of its electrical power from renewable resources for its 13 senior colleges.

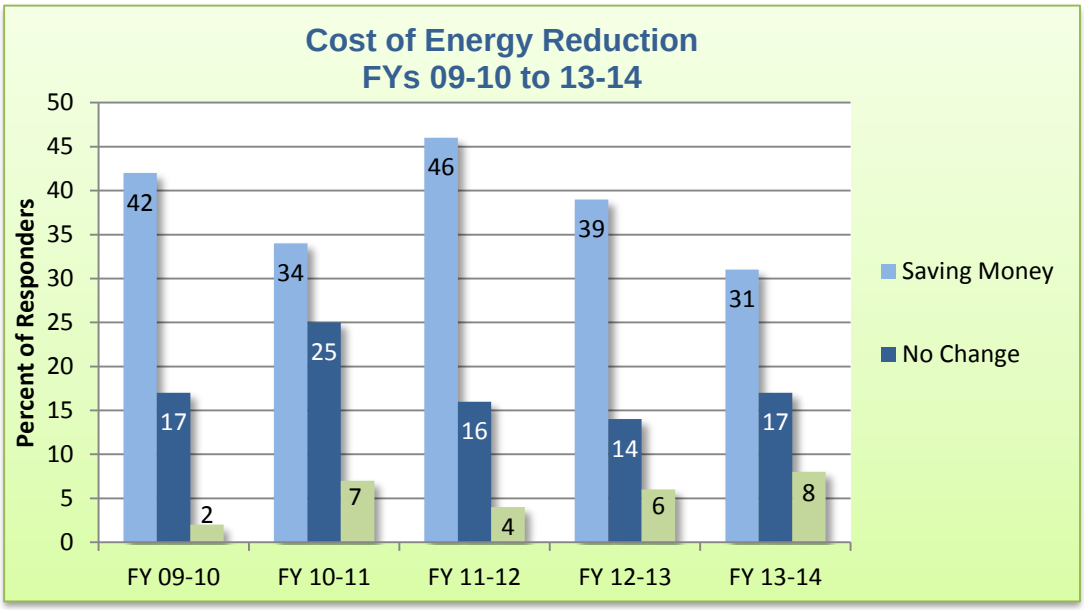
SUSTAINABLE TRANSPORTATION

Agencies reported that, on average, in FYs 12-13 and 13-14:

- 94% used webinars or videoconferencing to reduce employee travel.
- 87% have implemented carpooling and fleet management practices.
- The average fuel efficiency of their light duty fleet was 23 miles per gallon. This is comparable to the average fuel efficiency of the U.S. light duty fleet, which was 23.3 mpg in 2012.
- The majority of respondents promote and support policies to reduce employee commuter miles, such as carpooling (82%), the use of public transportation (84%) and a compressed pay period (51%).

Notable sustainable transportation accomplishments include:

- *NYSERDA* purchased a Chevy Volt, which offers the fuel savings of an electric car along with the unlimited range of a gas engine. In addition, by modifying its vehicle sign-out procedure to collect round-trip mileage, the number of passengers and their destination, NYSERDA is better able to pair the appropriate technology to the trip length (plug-in hybrid for shorter trips so that the battery is being used instead of gasoline). When awarding vehicles, they prioritize those with more passengers over those without carpoolers and use destination information to match carpoolers together.
- *SUNY Polytechnic Institute's* Utica Campus instituted ZipCar, a car-sharing program, while *SUNY Morrisville* has implemented an Electric Vehicle Charging Program.
- *NYPA* purchased additional B20 biodiesel to earn more Alternative Fueled Vehicle Credits and then purchased hybrid vehicles using the credits.
- *DEC* purchased several hybrid vehicles to replace gasoline-powered vehicles, which has reduced fuel expenditures.
- To promote the use of electric vehicles (EV) by employees and patrons, *Parks* is installing EV charging stations at several parks. In addition, new fleet cars purchased or leased must meet EO 4 green specifications. Low-mileage cars have been replaced with models that achieve 30 mpg or more.
- Many *CUNY* schools offer student discounts for Citi Bike memberships and further encourage students, faculty, and staff to bike to campus by providing bike racks and advertising them as secure places to leave their bikes.



Costs and Savings

On average over the past five years, a significant number of agencies (38%) reported saving money by reducing energy use. In comparison, only a small number of agencies (5%), reported an increase in costs. In addition, in FY 13-14:

- 17% of agencies reported saving money from renewable energy generation or renewable energy credit purchases.
- 28% experienced savings from the implementation of energy-efficient transportation strategies.

Related Directives

In addition to the EO 4 requirements for energy and transportation, Governor Cuomo has issued related directives that will increase the energy efficiency of state facilities and the adoption rate of plug-in electric vehicles.

Executive Order 88

In 2012, Governor Cuomo issued Executive Order No. 88, "Directing State Agencies and Authorities to Improve the Energy Efficiency of State Buildings," which builds upon the success of EO 4 in the areas of energy efficiency and renewable energy. It requires collection of energy-use intensity (EUI) information specific to state-owned and managed buildings. Using practices such as sub-metering, state entities reporting for both EOs are now more knowledgeable and better positioned to monitor energy use within certain areas of their buildings and make the adjustments necessary to become more energy efficient.

EO 88 aims to reduce EUI in covered buildings by 20% by April 1, 2020, relative to a baseline of FY 2010-2011. NYPA coordinates this effort. Visit www.buildsmart.ny.gov/about/state-agencies-reporting-for-eo-88/ for more details about EO88 and Build Smart NY.

ChargeNY

Under Governor Cuomo's ChargeNY initiative, *NYPA, NYSERDA and DEC* are collaborating to help create a statewide network of up to 3,000 electric vehicle charging stations and to put up to 40,000 plug-in electric vehicles on the road by 2018. In 2013, New York also joined a coalition of states in signing the Multi-State Zero-Emission Vehicles (ZEV) Memorandum of Understanding, which sets an ambitious goal to have 3.3 million ZEVs on the roads of participating states by 2025. For more information on ChargeNY visit http://www.nyserda.ny.gov/All-Programs/Programs/ChargeNY.

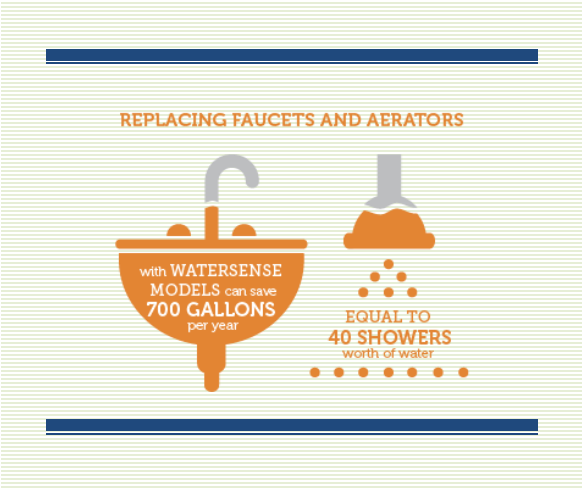
Conserving Water and Natural Resources

Conservation, Efficiency and Reuse of Water

The simplest way to save water and energy is to use plumbing fixtures with the greatest water efficiency and performance. EO 4 green specifications are available for low-flow toilets, composting toilets, and showerheads. In addition, state agencies can purchase bathroom sink faucets, urinals, weather-based irrigation controllers and pre-rinse spray valves certified by WaterSense® to meet USEPA's specifications for water efficiency.

The majority of responding agencies use some water conservation practices.

- 89% use low-flow plumbing fixtures some or all of the time.
- More than 20% use graywater collection some or all of the time.
- About half use non-potable water some or all of the time.



Low-flow fixtures are now used throughout many state parks, in office buildings at the Division of Military and Naval Affairs, NYSERDA and NYPA, at DOH hospitals and in OMH residential units.

- *CUNY and SUNY* are saving millions of gallons of water each year th rough the use of low and ultra-low flow fixtures at their campuses.
- *NYPA* is using low-flow fixtures, has installed instantaneous hot water tank heaters in restrooms, and minimized water consumption in their on-site café, which is designated as a three-star Green Restaurant.

Waterless and composting toilets save water. More importantly, they provide visitors to state parks and campgrounds with bathroom facilities in places where water and wastewater treatment systems are not available.

Rainwater collection or harvesting conserves water and energy by replacing potable, treated drinking water for uses such as landscaping, toilet flushing, cooling towers, and aquatic habitats, and for washing trucks, train cars and other vehicles.

- *Parks* has set a goal to reduce the use of public water for landscape management and operations by 50% by 2020 by using rainwater collection strategies in every region of the state.
- *DEC, MTA, SUNY, CUNY* and other agencies have also adopted rainwater harvesting. For example, the Wooster Science Building at SUNY New Paltz includes a 12,500-gallon cistern used to flush toilets and urinals in the building.
- *Battery Park City Authority and the Battery Park City Parks Conservancy* have installed or are planning to install graywater and blackwater collection systems. In these systems, non-potable water (untreated rainwater or treated wastewater) is reused for flushing toilets and other non-potable uses.

A comprehensive approach to auditing water usage and fixing leaks can help agencies reduce costs and maintain infrastructure on site.

- *The Port Authority* recently conducted comprehensive water audits at the Marine Terminal and Stewart International Airport. Other agencies that have conducted comprehensive leak detection and repair programs include SUNY Albany, OMH and NYPA.

Other methods of water conservation and efficiency employed at state facilities include air-cooling technology for chillers and refrigeration equipment, reclamation and recycling of vehicle washwater and reduced use of water features such as fountains.

Green Stormwater Infrastructure

Green roofs have been installed at DEC's Five Rivers Environmental Education Center, SUNY Upstate's Cancer Center and more than a dozen other state facilities.

Green infrastructure manages wet weather by maintaining and restoring natural hydrology to infiltrate and evapotranspire stormwater. Many DEC-owned forests, campgrounds and State Parks include large-scale green infrastructure such as forests, floodplains and wetlands. Smaller scale green infrastructure practices include permeable pavement, bioretention and rain gardens, green roofs, stormwater street trees, riparian buffers and wetlands, and rainwater harvesting and reuse. All of these types of green infrastructure can be found at a variety of state properties.

Approximately 60% of reporting agencies use sustainable stormwater practices. Parks, DEC and Stewart Airport are among the agencies which use permeable pavement to manage stormwater in parking areas, trails for walking and biking, and roadways. Rain gardens have been installed in state parks, at state offices and at college campuses, including SUNY ESF and SUNY New Paltz. In addition to more than 10 existing green roofs at other state agencies, green roofs have been installed at DEC's Five Rivers Environmental Education Center and several SUNY campuses, including SUNY Albany's Liberty Terrace building and the Upstate Medical Center Cancer Center.

Sustainable Landscaping

Nearly one-third of our nation's water use is for outdoor landscaping according to the U.S. Environmental Protection Agency. Sustainable landscaping is landscaping that is in balance with the local climate and requires minimal resource inputs, such as fertilizer, pesticides, and water. Three agencies responsible for large landscaped areas, DOCCs, OGS and Ag and Markets, practice sustainable landscaping all or a majority of the time. On average in FYs 12-13 and 13-14:

- 60% of reporting agencies employed xeriscaping (designing plantings so as to avoid the need for supplemental irrigation).
- 65% used organic fertilizers.
- 44% composted on site.

Notable sustainable landscaping accomplishments include:

- *SUNY Stonybrook* earned a national honor as a Groundwater Guardian Green Site by the Groundwater Foundation for its groundwater-friendly practices, including selecting plants adapted to the region's climate and tracking water use for irrigation.
- *Parks* implemented many different water and natural resource conservation projects at several locations. Controlling invasive species throughout the Park system is an important area of focus. While reductions in lawn mowing have raised concerns from the public, Parks is working to educate both staff and the

SUNY Stonybrook has been honored as a Groundwater Guardian Green Site for its selection of groundwater-friendly plants and irrigation practices.

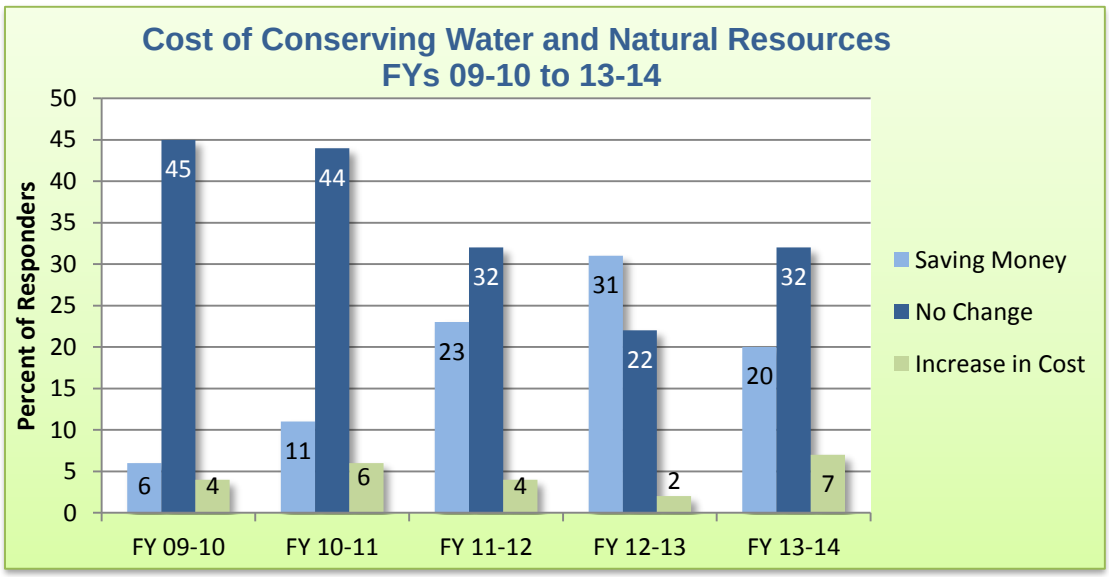
public on sustainable landscaping efforts and the benefits of the changes being made.

- *Empire State College, SUNY Fredonia* and other locations have recently adopted efforts to plant perennials and reduce annual plantings.
- *SUNY Geneseo and SUNY Oneonta* recently eliminated lawn irrigation.
- *Queens College* installed "climate-smart" systems with rain sensors and timers.
- *The Port Authority* continues to use sustainable guidelines for new buildings, renovations and reconstruction.

Other agencies report continued use of sustainable practices, including designing for local conditions, choosing native plants that thrive in the local environment and provide habitat and food for local 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.

Costs

On average over the past five years, a significant plurality of agencies (53%) reported a reduction (18%) or no change (35%) in costs as a result of implementing water and natural resource conservation measures. In contrast, a much smaller number (7%) reported an increase in costs. Over a third said they did not know. The number of agencies reporting a reduction in costs over this period increased markedly, from 6% in FY 09-10 to 20% in 13-14.



While water is a critical resource, charges from utilities are often quite low. The exception is New York City, which now provides a 25% discount on water bills for buildings that reuse water. Lack of metering can also create a barrier for identifying water usage and potential savings in specific locations. Facility upgrades should consider energy and sewer costs, infrastructure upgrades, stormwater management and the addition of metering.

Education and Training

To achieve EO 4's goals, 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. There are two major paths for education and training. The first is between EO 4 Interagency Committee members and state agency sustainability coordinators and purchasing staff. The second is between state agency sustainability coordinators and all staff in their agencies.

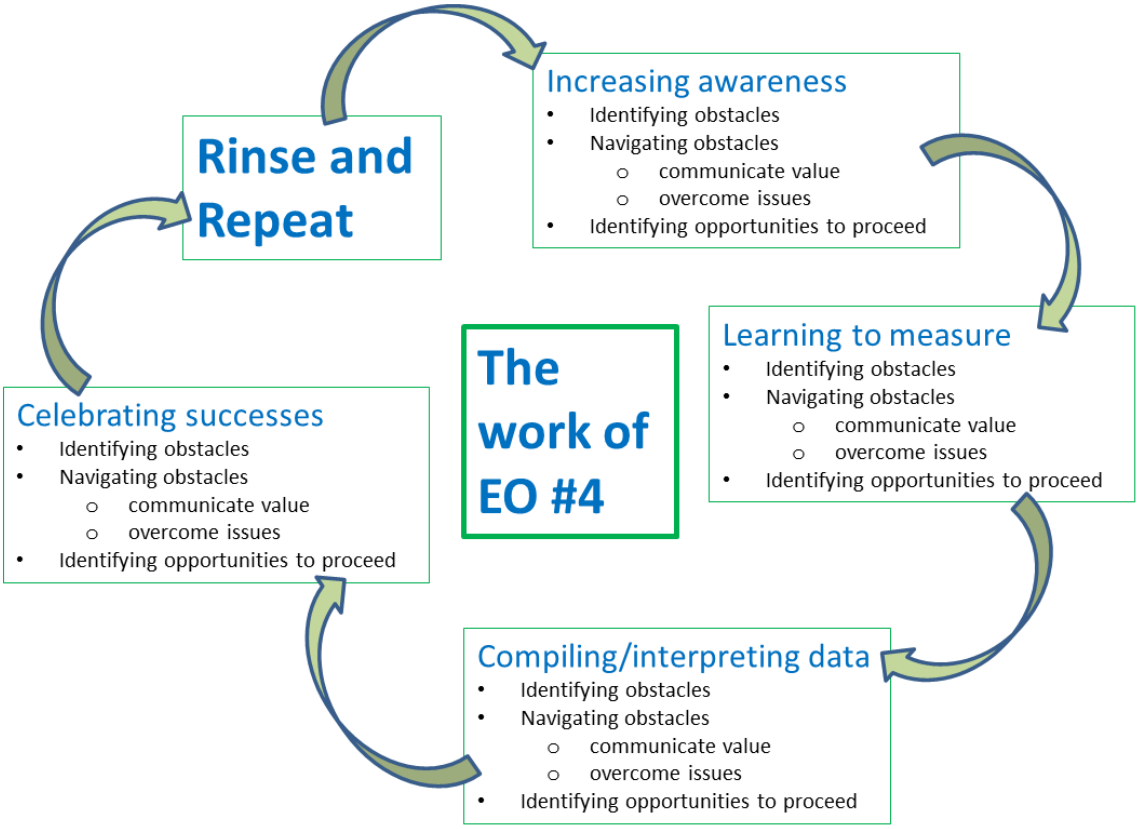
The EO 4 Interagency Committee achieved a major success in our goal of reaching state agency purchasing staff. EO 4 staff worked with the New York State Procurement Council to include green purchasing in the latest version of the "New York State Procurement Guidelines," effective May 2014. The Procurement Guidelines provide purchasing staff and vendors with the primary reference for all the rules for procurement of goods and services by state agencies. Green purchasing has been added as a best management practice. Sustainability goals and requirements, including the purchasing of recycled and remanufactured products, are now defined and explained throughout the guidelines.

EO 4 Interagency Committee staff provided training and outreach to agency sustainability coordinators and purchasing agents through presentations at the OGS Purchasing Forum, as well as through responses to individual agency requests for information. A workshop was held in June 2013 for sustainability coordinators to share information regarding sustainability challenges and successes.

For any agency to meet sustainability goals, all staff must be aware of those goals and the tools needed to achieve them. 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 (sometimes called "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.

Challenges and Opportunities for Green Operations

The sustainability reports submitted by agencies under EO 4 document many successes and achievements, as well as challenges. As agencies undertake the hard work of changing their day-to-day operations, systems, and even culture, significant challenges are to be expected. Some challenges have been met and addressed, while others continue to make the work at hand more difficult. Some persistent obstacles will require innovative solutions not yet tried.



The waste reduction, sustainability actions, and green purchasing called for by EO 4 are not end goals so much as they are a process. Agencies are challenged to make improvements over their previous year's performance, and the cycle of improvements is expected to continue. Each time we attempt a solution, we gain knowledge about whether the attempt is fully successful or not. Some obstacles may seem – and indeed are – perennial, but New York State's experience over the past six years demonstrates that taking a patient, persistent, and process-oriented approach maintains momentum in the right direction.

Below are examples from agency reports that help illustrate the power of thinking and planning sustainably. Highlighted in some of these examples are the challenges, with some indication of how these challenges were navigated for even greater success, or ideas for ways in which we could overcome or remove these obstacles. It is important to note that in many cases, success is often just the newest layer of achievement and revelation, built upon previous years' work and growth in understanding and implementation under EO 4.

Measuring Waste Reduction and Recycling

In general, the several years of attention paid to measuring waste have resulted in the creation of tools, a change in processes, and, most recently, an incredibly powerful change to statewide contracting: the new "Recycling Services and Trash Removal" contract will offer recycling services on a state contract for the first time, and will offer both training and waste tracking services, both of which are needed to achieve higher recycling rates. This huge improvement in measuring and

managing waste represents a new level of success in integrating the goals of EO 4 into state purchasing.

Even so, difficulties remain. Some agencies still cannot effectively distinguish between office and non-office waste. Another area of difficulty is in sub-lease situations or construction processes, when one agency performs the work within a building or building project owned by another agency.

That said, a detailed waste audit remains the best way to obtain data on the nature and quantity of wastes generated by an agency. The *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 will provide technical assistance to individual agencies upon request.

Sustainability is a process, and the most successful agencies have adopted the executive support, personnel infrastructure, financing mechanisms and practices needed to continually review their operations, measure progress, embrace innovation, and overcome challenges.

Niagara Frontier Transportation Authority:

"During a solid/hazardous waste audit in the summer of 2013, we noted that a few of our facilities were disposing of spent aerosol cans as hazardous waste. We began to explore the options of depressurizing the cans so that they could eventually be recycled as scrap metal. We anticipate that this effort will generate additional revenue versus the cost associated with hazardous waste disposal."

This waste audit was called for under EO 4, and the resulting information led to a solution that increased safety, reduced disposal costs and created value.

CUNY Lehman College:

. . . "has launched the CUNY Records Retention project, to clear out long-term storage areas, resulting in a 100% increase in quantities of white paper shredded/recycled in 2013-14 (as compared to 2012-13)." *DASNY* engaged in a similar contract for about six months, employing "preferred source" providers of this service.

Although this change in document retention did not reduce waste, it created a waste management opportunity. In shredding the paper and recycling it, CUNY Lehman supported New York State's recycling goal and benefited from selling the shredded paper as a commodity. This and similar efforts to reduce storage, save money and achieve efficiencies in document retention provide opportunities for recycling and free staff from time-consuming paper filing and retrieval.

Leased Space

Agencies located in leased spaces in privately owned buildings can find it difficult to ensure that EO 4 requirements are being followed, such as the use of green cleaners, recycling and the tracking of waste. This is especially true for properties not managed by OGS, where agencies have not yet been able to update their leases to reflect EO 4 requirements, but it can also be difficult for agencies to enforce green contractual requirements when they are in place. Challenges include

lack of control over operations, including contracts for waste disposal, and sharing space with other tenants, which makes tracking for just one tenant difficult.

Greening operations in leased space will continue to prove challenging, but as lease contracts are renewed and improved, implementing sustainable practices should become easier and reporting more accurate.

Environmental Facilities Corporation:

> "As a sub-leasee, savings are not provided."

This is one of the largest remaining challenges overall for EO 4, especially related to building-wide endeavors such as waste reduction, energy use, and green cleaning. Work should be undertaken to define split incentive lines to encourage improvements. One resource that touches on split incentive solutions for energy improvement is located at http://urbangreencouncil.org/content/projects/energy-aligned-clause and may be informative for other discussions. At the very least, leases should mention the goals of EO 4 during lease renewal periods and discuss how they can track waste and energy and influence future improvements.

Donation for Reuse

A number of agencies, including DASNY, SUNY, CUNY, and the State Police, cite state procurement law requirements governing the disposition of surplus equipment, intended to guard against unwarranted loss of state assets, as a significant impediment to keeping used equipment out of recycling bins or the landfill. According to these agencies, the rules 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 to local non-profit organizations or public schools. OGS operates the surplus property program and there is a provision in it for local disposition. While OGS has taken measures to make the current system operate more smoothly, agencies continue to report significant barriers to re-use.

SUNY Polytechnic Institute Utica:

> "The state property control system limits transfer of surplus equipment to only other SUNYs. Allowing distribution to other state, county, town or non-for-profit agencies would save money and speed up the process."

In addition, developing an efficient and clear statewide system for establishing a "no-value" designation would help agencies donate usable goods. The current system, which requires posting on e-Bay, is often too time consuming to pursue.

Tracking and Leveraging Savings

One of the most impressive successes that can be attributed in part to EO 4 is CUNY's new system for capturing the savings from energy projects.

CUNY:

> "In addition, in June 2012, the New York State Division of Budget handed CUNY's 13 senior colleges control of their energy budget, permitting them to retain any surplus funds found through energy conservation and efficiency efforts."

CUNY campuses can now apply those savings toward their own objectives on campus. This can potentially serve as a model for other agencies who own their own buildings, and eventually for all buildings with tenants or sub-leases. The state would create an incentive for campuses, facilities and agencies to save money by conserving energy and, in turn, invest in more reductions to realize further savings, thereby providing a steady source of funding. Energy efficiency (EE) work reduces volatility in operations budgets and moves agencies toward wiser operational spending overall. Properly planned EE projects improve comfort and air quality and employ local energy service companies, consultants and contractors, all supporting local businesses. This initiative would not require additional investment. Rather, it requires the restructuring of operational cost flows so that the agency making the improvements benefits directly from them.

EXECUTIVE SUPPORT

Executive support continues to be a crucial element of success for Sustainability Programs. Especially as the state workforce has changed, strong support from upper level management can facilitate behavioral change and help everyone throughout the organization understand that green practices and efficiency are important to the business of state government.

DEC Commissioner Martens, for example, rides his bike to work on "Green Your Commute Day," which goes further to win additional participants and change mind set than any letter from his office would. In addition, having the leadership of an agency share successes and acknowledge staff who worked to achieve them is priceless and takes little to no investment of money.

Leadership is not just on the shoulders of individual agency leaders. New York State has significant goals, and those goals will always be easier to achieve if there are mandates, contracts or resources with which to work toward them.

NYSERDA:

> "Telecommuting was officially approved as a policy for those hired before June 1, 2014. Telecommuting is allowed one day per week. Approximately 700 miles per week are not driven as a result of the policy; 1,057 minutes are not spent on the road commuting."

Telecommuting is a difficult discussion for many agencies due to the management/union culture. However, having a working example to build upon can facilitate those conversations. These examples can be used to identify difficulties, as well as what works and what does not work.

DEC:

> "No current mandate to purchase renewable energy hampers buying efforts."

This points to ongoing work under EO 4 and other laws and executive orders. Sustainability work is easier to accomplish when there is not only a mandate, but a cost-effective vendor or provider of the required product or service.

SUNY Upstate:

> "Primary transportation energy is employee commuting. Cultural resistance to carpooling/ public transportation. Implemented ZipCar program. New shuttle program between the Downtown and Community Campuses."

Fleet management is an important component of sustainable operations. If we could open state entity fleet management to more diverse options, such as ZipCar or Capital CarShare in Albany, we could reduce state-owned fleets, support local business, and reduce overhead. Exploring other options such as more aggressive support of public transportation or rewarding and acknowledging those who bike or walk would also go a long way.

Training and Culture Change

Another large challenge continues to be the education and engagement of staff in sustainable action. It is also the one strategy cited most frequently by Coordinators as a potential solution to numerous challenges, especially those that involve changing behavior.

For example, a few agencies continue to report that green cleaning products are less effective than their conventional counterparts, that they must be used more frequently, and they take more labor to use. This contrasts with the majority of successful implementations of green cleaning. The key to this difference appears to be hands-on staff training and effective systems for dispensing product.

One agency noted that creating educational pieces and implementing plans to change behavior is time consuming and staff intensive. In this same vein, many agencies have a diversity of patrons in need of training, education, and reminders, and engaging outreach must be tailored for several audience types. In the SUNY system, student culture is the largest obstacle, even while students are the most active green advocates on campus. As one report notes, "[i]ndependent living does not have a mechanism or incentive to reduce long showers." Education of dorm residents was also cited as important to the success of switching over to low-flow water fixtures.

Generally speaking, if a sustainable action is embedded in an established 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. Too often, new procedures or new tools are introduced only once, at the start of a program, and training is not repeated.

SUNY Canton:

> "A well-done employee training program is key to an effective green cleaning program."

Training can engage staff and help them apply this shift in mind set not only to their work processes, but to their own lives. Providing employees with triple-bottom-line training would help them understand their role in balancing the well-being of staff and building occupants, the budget, and stewardship of our resources.

Another valuable suggestion is for agencies with successful programs and the ability to conduct training sessions to make presentations to agencies that request assistance. This type of

exchange is the mission of the Training and Sustainability subcommittees, and agencies with tips and stories to share are encouraged to submit content for the weekly *Green Bulletin*.

There is hope, even in the realm of mind-shift. Many Coordinators reported an encouraging trend that, despite initial resistance, the majority of users have become accustomed to change over time. As one Coordinator expressed, “We have found that perseverance and patience eventually outlast the complaints,” or “As with any type of change, the biggest obstacle to overcome was changing the mindset of employees, but it didn’t take very long for people to adapt.”

SUMMARY

As illustrated in the examples above and the in-depth reporting of many entities over the last six years, there are many successes to build on and things to be proud of. New York State is growing and changing for a greener future. The process has revealed several focus points for us if we are to continue our high levels of performance:

- Facilitation of shared benefits and shared information in lease situations.
- An increase in executive support to definitively move toward goal achievement.
- Greater interagency support and state-wide staff trainings to support the mind-shift that sustains this valuable work.

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.

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.

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

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 also generally perform well compared to conventional products. After six years of experience under EO 4, only a handful of agencies (four in 2013-14) complained that green cleaning products were not as effective as conventional cleaners, while 89% of agencies reported using green cleaners all or a majority of the time. This 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 any type 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. Virgin copy paper is not available on either the "truckload" or "less than truckload" contract; however, agencies may

purchase it from the OGS “miscellaneous office supplies” contract. That contract gives agencies a very wide range of choices of brands, amount of recycled content and paper type. The 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 State was the first state to buy re-refined motor oil in 1990. We are now in the 25th year of purchasing it, and we purchase around 175,000 gallons, or a million dollars’ worth per year. It consistently meets all performance standards, and there have been very few complaints in all that time. New York has thus helped to build the market. 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. State contracts include car oils, truck oils and hydraulic oils in quarts, 55-gallon drums and bulk delivery.

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 fiscal years 2012-13 and 2013-14, broken out by percentage of recycled content.

Key Copy Paper Findings

- Through techniques such as double-sided printing and using electronic documents and other technology, agencies have significantly reduced the overall amount of copy paper that they use. In FY 13-14, 46 agencies reported purchasing 217,812 boxes or $5,933,453 worth of copy paper, a decrease of 13% from FY 12-13 and a full 59% decrease from FY 08-09, when 47 agencies reported purchasing $14,537,991. This represents approximately $16 million in savings over the two fiscal years 12-13 and 13-14 and at least $8 million in savings per year going forward.
- By far the greatest amount, and fully one-half (50%) of dollars spent on copy paper in FY 13-14 (or just over $2.9 million), went to purchase 100% post-consumer recycled content, processed chlorine-free paper. This represents a 28 percentage-point increase from the 22% (or $3.3 million) spent on such paper in FY 08-09.
- 75% of agencies in FY 12-13 and 71% 13-14 reported buying at least some 100% post-consumer recycled content, processed chlorine-free copy paper, an increase of five and one percentage points, respectively, from FY 11-12.

Copy Paper Purchases by Amount of Recycled Content

	Number of Agencies Reporting	FY	Agencies Reporting Purchases	Percent of Agencies Reporting Purchases	Total Boxes of Copy Paper Purchased	Total Dollars Spent on Copy Paper	Percent of Expenditures by Recycled Content
100% Recycled Chlorine-free	69	09-10	54	78%	159,857	$6,320,148	49%
	48	12-13	36	75%	111,289	$3,558,738	52%
	42	13-14	30	71%	99,945	$2,948,224	50%
30%-90% Recycled	70	09-10	43	61%	110,028	$3,803,229	30%
	45	12-13	26	58%	84,783	$2,579,189	38%
	40	13-14	30	75%	77,577	$2,382,439	40%
<30% Recycled	69	09-10	16	23%	42,567	$1,379,908	11%
	43	12-13	18	42%	18,091	$690,368	10%
	34	13-14	15	44%	40,290	$602,790	10%
Virgin Copy Paper	70	09-10	21	30%	38,840	$1,285,886	10%
Total/ Overall	**70**	**09-10**	**N/A**	**N/A**	**351,292**	**$12,789,171**	**100%**
	58	**12-13**			**214,163**	**$6,828,295**	**100%**
	52	**13-14**			**217,812**	**$5,933,453**	**100%**

- Approximately one-third of agencies (30%) continued to purchase some virgin copy paper in FYs 09-10 and 10-11. However, those purchases accounted for only 10% of total copy paper purchased. Starting in FY 11-12, virgin paper purchases were combined with purchases of paper with less than 30% post-consumer recycled content.

Key Janitorial Paper Findings

- 64% of dollars spent on janitorial paper in FY 2013-14 (or $3.4 million) went to purchase 100% recycled content, processed chlorine-free paper. This represents a 30 percentage-point increase from the 34% (or $1.2 million) spent on such paper in FY 2008-09.

Janitorial Paper Purchases by Amount of Recycled Content

	Number of Agencies Reporting	FY	Agencies Reporting Purchases	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	32	09-10	28	88%	236,139	$7,138,622	75%
	40	12-13	18	45%	188,046	$3,728,247	57%
	30	13-14	15	50%	178,652	$3,433,252	64%
1%-99% Recycled	32	09-10	22	69%	71,029	$1,699,169	18%
	39	12-13	13	33%	66,556	$1,893,061	29%
	26	13-14	10	38%	33,088	$1,167,095	22%
Virgin Janitorial Paper	32	09-10	9	28%	90,982	$727,420	8%
	37	12-13	4	11%	28,553	$905,181	14%
	26	13-14	6	23%	31,541	$752,227	14%
Total/ Overall	**32**	**09-10**	**N/A**	**N/A**	**398,150**	**$9,565,211**	**100%**
	58	**12-13**			**283,155**	**$6,526,489**	**100%**
	45	**13-14**			**243,281**	**$5,352,574**	**100%**

- Only four agencies continued to purchase virgin janitorial paper in FYs 12-13 and 13-14. In both fiscal years, such purchases accounted for only 14% 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 reporting for copy paper.

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 12-13, and 30 reported such purchases in FY 13-14. Entities reported purchasing colored paper, card stock, and bond paper. Others reported purchases included photo paper, steno pads, forms, map paper, and large rolls of paper for use in print shops. Several entities 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 2014, seven green specifications were approved by the Interagency Committee: Composting Toilets, Electric Hand Dryers, Motion-Sensitive Light Switches, Photovoltaic Solar Systems, Toilets, Carpet and Carpet Tile, and Acoustical Ceilings. This makes 35 green specifications currently approved for use for state procurement. These 35 green specifications fall under four broad categories—Electronics/Appliances, Transportation, Office and Building Operations, and Food Service—and cover a total of 76 different commodity, service, or technology types. For example, the computer specifications cover three types of personal computers: desktop, notebook (including laptops), and tablet. Summaries are provided below.

Green specifications for five additional types of products (listed below) have been tentatively approved by the Interagency Committee and, after a public comment period, are pending final approval.

- Reusable Bags
- Solar Thermal Panels
- Showerheads
- Mulch
- Pavement Sealer

A complete list and copies of the specifications themselves are available at: http://ogs.ny.gov/EO/4/ApprovedSpecs.asp

Work is currently underway on a number of new specifications, including wheel weights, sustainable landscaping, and office furniture. Work on several final and pending specifications has been informed by a policy statement adopted by the Interagency Committee in December 2010 regarding the consideration of chemicals in the development of green specifications. The primary purpose of the statement is to identify chemicals to be aware of in green procurement in order to support specification development and inform the market. A copy of the statement is available at www.ogs.ny.gov/EO/4/docs/chemFINAL.pdf.

Centralized Green Procurements

Governor Cuomo has committed his administration to implementing enterprise-wide changes that will use modern business practices, lower costs and increase efficiencies throughout state operations. New York State Procurement at OGS is part of that transformation.

New York State is comparable to a Fortune 500 business and as such, has remarkable purchasing power. OGS Procurement Services works to harness this power using innovative, strategic methods to give our customers timely, cost-effective ways to buy the goods and services they need. Procurement Services is the State's central procurement office, responsible for establishing and managing contracts for goods and services needed by government entities across the State, including agencies, local governments, and other authorized users, such as schools. Its objective is to provide efficient, user-friendly procurement vehicles that save money and meet the needs of its customers.

Green Specifications Finalized in 2014

Acoustical Ceiling Tiles and Panels (7 types)

Low VOC and post-consumer recycled content are required when available.

Specific requirements are established for various types:

- Wet pressed mineral fiber - 75% pre-consumer recycled content
- Fiberglass – formaldehyde-free
- Wood or agri-based - rapidly renewable or FSC certified

Non-wet formed perlite must be specified for high-moisture areas.

Carpet and Carpet Tile

Must be certified to meet the NSF/ANSI 140 Sustainability Assessment for carpet at the platinum level and CRI's "Green Label Plus" program.

Fiber and facing must be PVC free, and adhesive shall emit zero VOCs if possible.

The use of carpet tile, durable pile, backing without PVC or styrene butadiene, and recycled, recyclable and renewable content is encouraged.

Agencies and contractors are encouraged to secure take-back agreements from the manufacturer and look at available trade-in, reuse, donation and recycling options.

Innovative packaging that is lightweight or includes recycled content or otherwise reduces waste is encouraged.

Composting Toilets

The replacement of seasonal portable toilets with composting toilets is encouraged.

Key performance standards are required.

The use of recycled and recyclable content, energy efficient or renewable energy, composting on-site, explanatory signage, and local or regional products is encouraged.

Toilets (2 types)

Ability to effectively flush solid and liquid waste using 1.28 gallons per flush or less is required.

Replacement or retrofitting of all standard toilets with toilets, flushometers or dual-flush devices that use 1.28 gallons per flush is encouraged. WaterSense® toilets for residential use and the use of graywater and local products are encouraged.

Photovoltaic (PV) Systems

A 25-year, 80% minimum rated power performance guarantee is required, and minimum performance standards and efficiency ratings are required.

Higher efficiency units, routine inspections, performance monitoring equipment and the use of local products are encouraged.

Motion-Sensitive Wall Light Switches

A maximum shut off time of 30 minutes, manual "off" operation, short term "on" override, and no ability for full-time "on" override are required.

Minimum performance standards are required.

A maximum shut off time of 20 minutes, no "on" during adequate daylight, the replacement of existing toggle wall switches, the education of occupants and the use of local products are encouraged.

Electric Hand Dryers

The replacement of conventional electric hand dryers and paper towel dispensers with efficient electric hand dryers is encouraged.

Minimum performance standards, listing in the Green Spec® Product Guide, hands-free operation and a sound level of no more than 80 decibels are required.

Dryers with unheated air, that use 75% less energy than conventional electric hand dryers, and use local products are encouraged.

Part of the ongoing initiative is an approach called Strategic Sourcing. This is a procurement process that uses a structured, market-based approach to gather data, conduct quantitative analysis and apply expert qualitative judgments to secure the best value in purchasing.

Each sourcing project is unique, and while the primary goal is to achieve cost savings, a total cost of ownership (TCO) methodology is applied that looks at costs over the term of ownership, in addition to initial purchase amounts.

Far from being mutually exclusive, Strategic Sourcing and Green Purchasing are more accurately considered complementary. Often the State's buying power can move the market and force suppliers to make green products available at competitive cost. Moreover, the TCO methodology takes into consideration certain "green" factors, such as energy efficiency and waste avoidance, that can prove both cost effective and environmentally friendly. Procurement Services is dedicated to helping customers meet their green procurement goals by providing green purchasing contracts.

NYS saved $94 million through the aggregate purchase of green computers in Fiscal Year 2012-13.

For example, OGS has achieved impressive savings and environmental benefits by purchasing computers through its strategic sourcing program that meet the highest standards in the nation for environmental quality, Electronic Product Environmental Assessment Tool (EPEAT) Gold "Plus 7." In FY 12-13, the aggregate purchase of green computers saved approximately $94 million over the State contract price. Estimated environmental benefits include reductions in energy use, toxic chemical use, and the generation of solid waste.

New York State and OGS Procurement Services are committed to issuing EO 4-compliant, environmentally preferable centralized contracts. Some recent examples include:

Recycling and Trash Removal Services

In October 2014, OGS issued a Request for Proposals for "Recycling and Trash Removal Services," which will allow contract users to meet the requirements of the EO 4 specification for "Solid Waste Recycling and Management Services." The RFP included 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, as well as two lots for the composting of green waste and organics. Provisions for training, educational outreach and waste composition analysis are also included, which may be used by contract users to better understand their waste streams and to train employees about the recycling programs available. Evaluation of the RFP is currently underway, with the contract expected to be in place in spring 2015.

Green Cleaning

In November 2014, a multi-state cooperative bid solicitation, including New York, Massachusetts, Connecticut, New Hampshire, Rhode Island and Vermont, was issued for

“Environmentally Preferable Cleaning Products, Programs, Equipment and Supplies.” The solicitation’s 12 lots cover 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. The new contract, which was issued on March 15, 2015, is in compliance with New York’s green cleaning law for schools and EO 4’s specifications for industrial and institutional cleaning products, hand cleaners, vacuum cleaners, electric hand dryers, janitorial paper and road salt. Provisions for training, tracking purchases and record keeping are also included, many at no extra charge.

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

Development of the solicitation involved an in-depth evaluation of Green Seal, UL Ecologo, and EPA’s Design for the Environment (DfE) program against the 60-plus attributes included in EPA’s draft *Guidelines for Product Environmental Performance Standards and Ecolabels*. The evaluation found that while DfE has significantly improved its process since 2009 by, for example, adopting on-site audit requirements, it still falls short in a number of key areas. These include actively seeking participation from diverse interests; establishing clear standards that all products must meet; accepting products before an on-site audit has been performed; and long time frames for achieving conformity with new standards. Given DfE’s progress, the solicitation accepts DfE for some specialty cleaner categories, where Green Seal and UL Ecologo product offerings are less robust, and the multi-state team is in the process of drafting a set of recommendations that, if met, will lead to acceptance of DfE in all product categories.

Hard dollar cost savings is one of the main advantages of collaborative purchasing. The six participating states have leveraged their consolidated volume to achieve savings. A high number of bids—36—was received on the solicitation, with good coverage in New York and aggressive discounts. These savings, and the convenience of purchasing off the state contract, should go a long way toward giving agencies the help they need to identify, purchase and use green cleaning products.

Floor Coverings and Related Services

In September 2014, OGS issued a contract for Floor Coverings and Related Services. The contract is a piggyback with the National Joint Powers Alliance and includes provisions for both carpet materials and services, such as installation and recycling. By using this contract, authorized users can recycle their existing carpet, purchase new carpet that meets the EO 4 specification for “Carpet and Carpet Tile,” and can establish a pattern of purchasing that is both environmentally sustainable and prevents used carpeting materials from being disposed of in landfills.

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

OGS continues to offer re-refined motor oil under a contract 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 requires State entities to purchase lubricating oil that meets or exceeds a minimum percentage of post-consumer material content by weight of 55%. Since the inception of the award in 2011, approximately $4 million dollars in sales of re-refined motor oil have taken place through this contract.

The list of Environmentally Preferable contracts can be found here: HTTP://WWW.OGS.NY.GOV/PURCHASE/SPG/PDFDOCS/ENERGYRECYCLED.PDF.

Buying Green, Savings and Costs

BUYING GREEN

Over 90% of agencies reporting in FY 13-14 said that they had consulted the green procurement specifications and lists. This is essentially the same reporting as FY 2011-12.

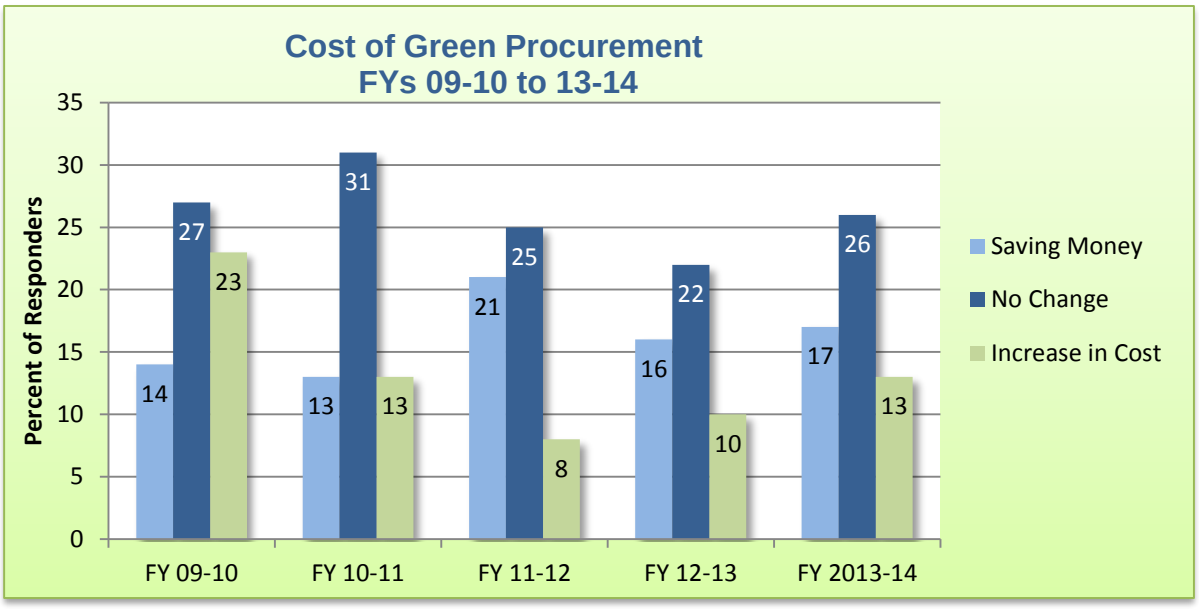
Although agencies consult the specifications and lists, most did not report purchases of green products other than recycled paper in FYs 12-13 through 13-14. When asked to provide "an estimate of the overall amount spent by your agency on the purchase of products and services (other than paper) meeting the EO 4 specifications," only 17 out of 45 entities reported a dollar amount greater than zero. Most agencies left the item blank.

The greatest reported expenditures were made by SUNY and CUNY, which reported spending $1.12 and $1 million on green products, respectively, in FY 12-13 and $672,000 and $480,000 on green products, respectively, in FY 13-14.

Expenditures for green purchases among the remaining entities reporting on the question ranged from $100 to $133,081 for a total of $1.3 million in FY 12-13 and $1.4 million in FY 13-14. Combined with the overall totals spent on copy paper with 30% or more post-consumer recycled content and janitorial paper with 100% recycled content ($9.9 million in FY 12-13 and $8.8 million in FY 13-14), the overall spend on re-refined oil ($1.2 million in both FY 12-13 and 13-14), and the aggregate purchase of green computers ($100.8 million in FY 12-13 only), overall green purchasing by state entities amounted to $113.2 million in FY 12-13 and $11.2 million in FY 13-14.

SAVINGS AND COSTS

Overall, data regarding the cost of green procurement is encouraging. On average over the past five years, a plurality of agencies (42%) reported a reduction (16%) or no change (26%) in costs as a result of implementing green procurement practices. A smaller number (13%) reported an increase, while more than 40% did not know.



A few agencies gave specific examples of cost savings:

- *The Javits Center* has implemented a "Go Paperless" program in administrative areas.
- *SUNY and CUNY* are transitioning to electric hand dryers instead of paper towels and from small-roll toilet paper dispensers to jumbo-roll dispensers, saving labor and paper. CUNY Maritime noted that a $30,000 investment in hand dryers resulted in $30,000 in savings.
- *JCOPE* and other agencies reported that double-sided printing continues to reduce paper purchasing costs.
- *Parks* reported that the purchase and use of more efficient green technologies and products have cut costs in some areas.

Challenges and Opportunities for Green Procurement

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 off statewide contracts – “buying green.” The issuance of a number of new, wholly green contracts based on green specifications developed under EO 4 promises to transform state purchasing – making it easier and cheaper for agencies to buy green. In two additional heartening developments, green purchasing has been fully integrated into the state Procurement Guidelines, and recycled and remanufactured commodities have been given an official role as part of the annual State Procurement Forum. Challenges that remain include the development of tools for agencies to better identify green offerings available on existing contracts, and the adoption of an effective system for tracking green purchases.

Tracking Green Procurement

Agencies continue to struggle with monitoring and reporting on green procurement. This widespread under-reporting can be attributed to a number of causes. One is the fledgling nature

of the State's green procurement program. FY 09-10 was the first year in which green specifications were available for agencies to consult and use. While OGS Procurement Services has made great strides in issuing green statewide contracts or offering green alternatives, the majority of statewide contracts are not exclusively green. In addition, and probably most importantly, few agencies have a system for tracking green purchases.

Taxation and Finance:

> "Tax has to manually sort through procurement transaction reports and purchase orders for greening its procurement practices."

ESD:

> "Our finance office personnel do not have a separate system for tracking green procurement."

DASNY:

> "Some companies don't label green products well."

The new Statewide Financial System (SFS) is not currently set up to track the purchase of green products. Barriers include a lack of standard definitions and a coding system for green products. The issuance of new, wholly green contracts like green cleaning may offer a good opportunity to address those challenges, at least in part. Over time, building the capability of SFS 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 that can inform the development of a successful statewide system include:

- *CUNY*, where many colleges have adopted formal systems for tracking green purchasing, including copy and janitorial paper, green computers and green cleaning products. The entire CUNY system is currently in the process of rolling out a new uniform procurement system, CUNYFirst, which will enhance the ability to track green purchasing.
- *Ag and Markets* and *CUNY Law School* are both relying on a system offered by the vendor Staples to identify green products and track green purchases.
- *SUNY Albany* can track recycled product purchases from several online vendors, either by running its own reports or having the vendors supply reports. SUNY Buffalo and SUNY Plattsburgh are also relying on large vendors to supply reports.
- *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.

Measuring janitorial paper purchases poses special challenges. Unlike copy paper, which is sold in a few standard sizes, janitorial paper comes in many forms (folded sheets, large and small rolls). What constitutes a "case" and how much each type weighs can vary substantially. Furthermore, many small agencies are in leased space and must work with their landlords to report (see discussion below). Until these obstacles are addressed, the amount of janitorial paper purchases reported may not provide a complete or comprehensive picture. Instituting a method to track janitorial paper purchases under the new green cleaning contract could help to address this problem.

Purchases by Contractors

Agencies that contract out for janitorial and other services must work cooperatively with those contractors to achieve green procurement. For example, leases entered into by OGS contain a provision indicating that the landlord and occupying agency will work together to select green cleaning products and implement effective source-separation and recycling programs. Ideally, agencies in leased space should speak with their landlord representative regarding the EO 4 reporting requirements at the beginning of the lease term or the beginning of a reporting period and enlist the landlord's assistance in complying with reporting requirements. 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, and the Office of Temporary and Disability Assistance has similarly ensured that all new leases or renewals contain requirements that cleaning supplies meet green standards.

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."

Finding Green Products that Work Well at an Affordable price

Resistance to green procurement is often based upon a lingering perception that buying green costs more and perceived or actual product performance issues. In the last six years, however, the initial price of certain green products has gone down while performance has gone up. Agency reports provide a promising picture of this trend.

As noted above, a significant plurality of agencies (44% in FY 13-14) continue to report a reduction or no increase in costs associated with green purchasing, as compared to an equally steady 10-13% who report an increase. Unfortunately, a stubbornly high number (44% in FY 13-14) continue to report an inability to know. This uncertainty, which is understandable given the current lack of established systems to track green expenditures, is probably contributing to lingering questions about cost.

In addition, it can be time consuming for purchasers to navigate the market, 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 create easy ways for agency purchasers to identify and purchase green products.

Again, one of the best ways to address both these problems is to offer more green products on state contract, which will help considerably with the identification of what is "green" and help agencies save money at the same time.

Recycled Paper

The continued robust purchase of 100% post-consumer recycled content paper by agencies in FYs 12-13 and 13-14 provides solid evidence of successful culture change. While the number of complaints about the performance of 100% recycled copy paper has dropped to a handful (five

in FY 12-13 and two in FY 13-14), concerns do remain, especially for older copy and fax machines.

While the price of recycled copy paper can still fluctuate somewhat, only a small number of agencies reported paying more for such paper in FYs 12-13 and 13-14 (five and two, respectively). The biggest problem noted in FY 13-14 was with smaller agencies and a preferred source who erroneously marketed 30% post-consumer recycled content paper as EO 4 compliant.

EFC:

> "One vendor markets 30% recycled content paper as EO 4 compliant. The 30% recycled content paper is about half the cost of the 100% recycled content paper that is available in small lots. Could OGS aggregate paper purchases to provide EO 4 recycled copy paper to smaller agencies at less cost?"

Health:

> "The preferred source does not have 100% recycled content paper."

Cleaning Products

Acceptance of green cleaning products has followed a similar pattern. Despite widespread and enthusiastic adoption of green cleaning practices and products by most agencies over the past six years, a handful of agencies (four in FY 13-14) continue to report that green cleaning products are less effective and take more labor to use. This contrasts sharply with the more than 70% of agencies that report reducing the amount and number of different kinds of cleaning products used. As mentioned previously, the key to this difference appears to be hands-on staff training combined with effective systems for dispensing product.

A second widely reported complaint that has diminished in recent years was the difficulty of finding green floor finishes and strippers that work well in high-traffic areas. The performance of green finishes and strippers has greatly improved, and several agencies, including the Insurance Department, NYSERDA and the Higher Education Services Corporation, report that current offerings on the OGS List of Approved Products are both effective and green. The new green cleaning contract effective in 2015 should go far towards addressing any lingering concerns by offering a wide range of products at competitive prices, including green floor finishes and strippers, as well as training, communication and tracking programs.

Disinfectants and Sanitizers

In past years, several agencies have noted that one of their biggest challenges is the need to use registered disinfectants which are not covered by the Green Seal or EcoLogo standards adopted by OGS and the Interagency Committee for green cleaners. As part of developing the new green cleaning contract, the multi-state team, in consultation with the Massachusetts Toxics Reduction Task Force and the Responsible Purchasing Network, researched and compiled criteria for surface disinfectants and sanitizers that represent a lesser impact to public health and the environment, while ensuring efficacy and high performance. Notably, the products offered on the contract will be devoid of chemicals known to cause asthma, cancer and

skin sensitization, except for food-contact surface sanitizers, which may contain peroxyacetic acid, an asthmagen.

All vendors that offer disinfectants and sanitizers will be required to provide training in keeping with OGS' green cleaning guidelines that promotes pre-cleaning with a non-disinfecting green cleaner and limited, targeted use of disinfectants and sanitizers. Prohibited ingredients include chlorine bleach, hydrogen chloride, phenols and quaternary ammonium chloride compounds. Hydrogen peroxide, citric acid, lactic acid, and caprylic acid are allowed. The new contract should make it much easier to find effective, "green" disinfectants and sanitizers, limit toxic chemical exposures, and reduce costs.

Low-flow Fixtures

While two complaints about the price and performance of low-flow fixtures were received in FY 09-10, green specifications for toilets and composting toilets finalized by the Interagency Committee in 2010 have helped agencies purchase low-flow fixtures, and no complaints were reported in the past three reporting years (FYs 10-11 through 13-14). While it is true that the initial replacement or installation of any fixture requires a capital investment, low-flow fixtures are not generally more expensive. An online comparison of faucets from one manufacturer indicates that the lowest priced available faucet is WaterSense® certified. For toilets, there is a wide range of options in all price ranges that have typical flow efficiency and meet low-flow and WaterSense® standards. WaterSense® products must meet performance criteria as well.

Socio-Economic Policy goals of State Procurement

State procurement serves several policy goals. These include providing increased employment opportunities for associations of individuals who are blind, mentally ill, disabled, incarcerated, or have veteran status (referred to collectively as "Preferred Sources") and encouraging participation in procurement by certified minority- and women-owned businesses (MWBEs). While it can be challenging to achieve multiple policy goals at once, we are working to better align procurement practices with the State's critical socio-economic and environmental goals.

NYSERDA:

> "Challenges exist because of competing priorities with MWBE and EO 4."

The biggest "wins" in this area can be achieved by encouraging preferred sources and MWBEs to develop and offer product lines that meet EO 4 specifications. Currently, many commodities meeting EO 4 specifications are offered through the Preferred Source Program. For example, a number of Preferred Sources offer products listed on the OGS Green Cleaning webpage.

To help increase these offerings, clarity is key. EO 4 specifications must clearly define the attributes of the products and services agencies should purchase, and product offerings should be supported with clear and accurate marketing information so that sound decisions can be made regarding form, function and utility. Discretionary spending thresholds can also help.

Restricting the Use of Bottled Water

Background

EO 18 applies to “executive agencies,” which it defines as, “any department, agency, division, commission, bureau, or other entity of the State over which the Governor has executive power.” A broader universe of state entities is subject to EO 4, which applies to agencies as well as public authorities and public benefit corporations, a majority of whose members are appointed by the Governor. In conducting initial outreach to executive agencies, OGS also reached out to the authorities and public benefit corporations subject to EO 4.

Following an outreach effort by OGS in 2009, 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 suitable fixtures or filtration systems, maintaining bottled water supplies in keeping with emergency plans, and the limited use of bottled water in locations and circumstances where tap water is unavailable (such as for toll booth staff, bus operators on unusually hot days, and clients in transit). EO 18 allows such exemptions.

The Office of Mental Health is discouraging the purchase of bottled water for outdoor events, walking programs and patient functions, and promoting the use of water pitchers and coolers instead.

Findings

Agency reports for FYs 12-13 and 13-14 continue to indicate excellent compliance with the directives of EO 18. For both years, all executive agencies required to comply with EO 18 reported they were in compliance. In addition, 15 entities not subject to EO 18 nevertheless adopted the goal of eliminating bottled water use and reported compliance. In FY 13-14, only 12 entities (down from 22 in the initial plans) said they still required exemptions allowing the purchase of bottled water in one or more locations. Six of these were executive agencies, and six were entities not covered by EO 18. 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 or non-office settings, or clients in health care or other non-office settings.

Specifically, only three entities (down from 11 in FY 09-10) said that suitable tap water was unavailable in some locations. Many of these are remote backcountry sites operated by DEC and Parks. In a number of these instances, infrastructure upgrades are pending, while in others, the agency has determined that it is not cost effective to upgrade. Four entities cited a need to continue purchasing bottled water for emergency planning purposes, and 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.

In short, the reports for FYs 12-13 and 13-14 continue 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 six agencies continue to use bottled water under special circumstances. In addition, 83% of authorities not required to eliminate bottled water use have restricted its use to special circumstances.

Notable Projects

Notable projects undertaken in FYs 12-13 and 13-14 are summarized below. It is heartening to see that the repair and installation of water fountains is continuing across the State in compliance with the EO 4 green specification for drinking fountains, which requires the installation of faucets or other features that provide at least 10 inches of clearance to allow for the filling of water bottles and pitchers.

- Most *CUNY schools* have installed water bottle filling stations and are using signage and educational videos to encourage their use. Schools without filling stations are being encouraged to request funds for such projects. *CUNY Hunter College* installed 26 new hydration stations in FY 13-14, eliminating an estimated 677,000 16-ounce plastic bottles from the waste stream.
- Many *SUNY campuses* have replaced standard water fountains with water bottle filling stations.
- *NYPA* has installed multiple on-demand filtered water service stations in a number of remote facilities without reliable sources of potable water, including Clark Energy Center and the Blenheim-Gilboa Power Project. These will continue as budget and potable water service connections allow.
- The *Office of Children and Family Services* continues to repair broken and out-of-service water fountains at all their sites, and to install bottle-refilling spigots.
- The *Central New York Regional Transportation Authority* is using tap water filter machines at its Syracuse facility and is looking into installing the same at other locations.
- *Financial Services* has set up filtered tap water systems in all their pantries.

> *71% of agencies and authorities reported a decrease or no change in costs as a result of eliminating water bottle use, and only one reported an increase in costs."*

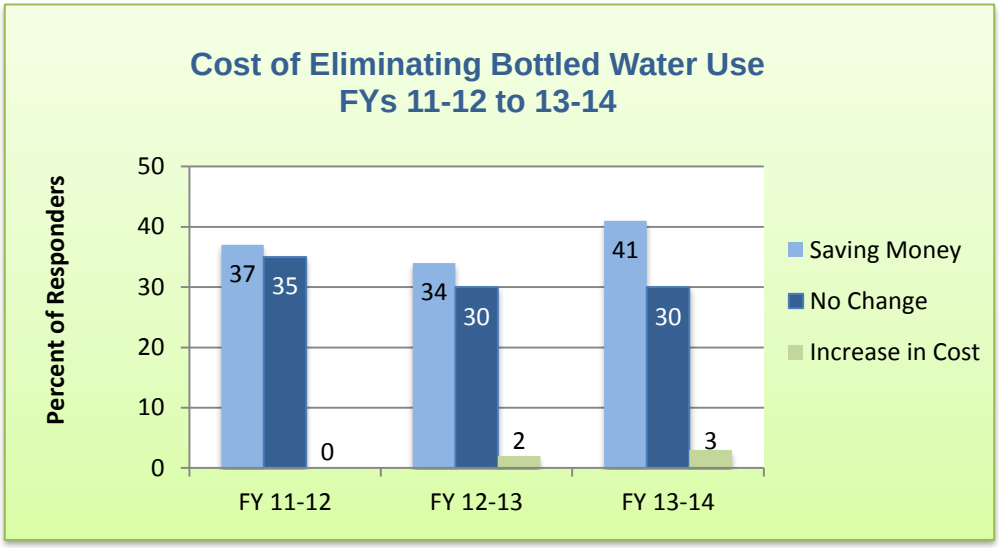
Savings and Costs

In FY 13-14, 41% of agencies and authorities reporting said they reduced costs by eliminating bottled water use, while 30% said they saw no change in costs, and only one agency reported an increase in costs. The remainder, 27%, said they did not know. While EO 18 reporting does not quantify cost savings, entities do report the amount they have spent on bottled water purchases over the past year. Some of this data is illuminating and indicates the magnitude of savings being realized across the state:

- *The Office of Mental Health* reports that some facilities still purchase bottled water for outdoor events, walking programs and patient functions. Even these purchases are being discouraged, with the use of

water pitchers and coolers promoted instead. The few facilities still purchasing bottled water for these types of uses spend $50 to $200 annually.

- *The New York State Council on the Arts*, a small agency which had not reported in recent years, discovered through the EO 18 reporting process that they had spent $2,900 on bottled water purchases in FY 13-14. As a result, they are discontinuing their account with their water vendor.
- *SUNY Buffalo* spent $26,273 on the purchase of bottled water in FY 12-13. In FY 13-14, Buffalo reported that they are replacing standard drinking fountains with water bottle filling stations and encouraging the elimination of bottled water purchases.
- *CUNY Medgar Evers College* spent $10,000 on bottled water purchases as they do not have adequate water fountains to support staff. They are currently installing water fountains and plan to have an adequate number in place to eliminate water bottle purchases by 2016.
- *CUNY Hunter College* spends $5,600 on bottled water annually.



Challenges and Opportunities

While the officially condoned purchase of bottled water by executive agencies has been virtually eliminated and most authorities and other entities are following suit, several agencies noted that the purchase of bottled water for individual events, such as high-level meetings and conferences, can still occur. One agency suggests that to combat this, a prohibition against bottled water purchasing should be written into event planning bid solicitation and contracts. SUNY Stonybrook found that communicating a department's potential savings from the elimination of bottled water use was integral to success.

For some entities, an obstacle has been convincing employees, faculty, staff or students that tap water is safe to drink, especially when filtered. As the culture change documented in agency reports continues, the use of tap water, filling stations and reusable bottles should become the norm.

EO 18 empowers the Director of State Operations to make a determination that full compliance has been achieved. Agency reports indicate that most of them have eliminated bottled water use, with significant environmental benefits in cost savings to the state. To maintain these benefits, OGS recommends that avoidance of unnecessary bottled water use be incorporated into agency sustainability programs under EO 4, and that questions on bottled water use continue to be included in the sustainability reports filed by agencies each year.

Conclusion

The agency reports compiled and summarized for FYs 12-13 and 13-14 demonstrate continued and encouraging progress toward achieving the goals of EO 4 and EO 18. 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, OGS Procurement Services has issued important new green contracts, and agency leaders on sustainability have embraced innovative ways to install on-site renewable energy, capture rainwater and reduce toxic chemical use. While certain challenges remain, progress to date has established a solid promise of continuing success.