



Smithsonian Institution

Strategic Sustainability Performance Plan

Office of Facilities Engineering and Operations

06/30/2015

Point of contact: Thomas Serra

E-mail: SerraT@si.edu

Tel. 202-633-0087

Table of Contents

Cover Page

Policy Statement

Executive Summary

Size & Scope of Agency Operation – Table 1: Agency Size & Scope

Agency Progress toward (Prior) Sustainability Goals in E.O. 13514 and E.O. 13423

Goal 1: Greenhouse Gas (GHG) Reduction

Agency Progress toward Scope 1 & 2 GHG Goal

Agency Progress toward Scope 3 GHG Goal

Goal 2: Sustainable Buildings

Agency Progress toward Facility Energy Intensity Reduction Goal

Agency Progress toward Total Buildings Meeting the Guiding Principles

Goal 3: Fleet Management

Agency Progress toward Fleet Petroleum Use Reduction Goal

Agency Progress toward Fleet Alternative Fuel Consumption Goal

Goal 4: Water Use Efficiency & Management

Agency Progress toward Potable Water Intensity Reduction Goal

Goal 5: Pollution Prevention & Waste Reduction

Agency Progress toward Pollution Prevention & Waste Reduction

Goal 6: Sustainable Acquisition

Agency Progress toward Sustainable Acquisition Goal

Goal 7: Electronic Stewardship & Data Centers

Agency Progress toward EPEAT, Power Management and End of Life Goals

Goal 8: Renewable Energy

Agency Renewable Energy Percentage of Total Electricity Usage

Goal 9: Climate Change Resilience

Agency Climate Change Resilience

Goal 10: Energy Performance Contracts

Agency Progress in Meeting President's Performance Contracting Challenge (PPCC) Goal

Agency Strategies to Meet Goals of E.O. 13693

Goal 1: Greenhouse Gas (GHG) Reduction

Goal 2: Sustainable Buildings

Building Energy Conservation, Efficiency, and Management

Building Efficiency Performance, and Management

Goal 3: Clean & Renewable Energy

Agency Clean Energy Share of Total Electric and Thermal Energy Goal

Agency Renewable Energy Share of Total Electricity Consumption Goal

Goal 4: Water Use Efficiency & Management

Potable Water Consumption Intensity Reduction Goal

ILA Water Consumption Reduction Goal

Goal 5: Fleet Management

Agency Progress toward Fleet Per-Mile Greenhouse Gas Emissions Goal

Goal 6: Sustainable Acquisition

Sustainable Acquisition Goal - Biobased

Goal 7: Pollution Prevention & Waste Reduction

Agency Progress toward Pollution Prevention & Waste Reduction

Goal 8: Energy Performance Contracts

Agency Progress on Energy Performance Contracting

Goal 9: Electronic Stewardship

Agency Progress on Electronic Stewardship

Goal 10: Climate Change Resilience

Appendices

POLICY STATEMENT

Founded in 1846, the Smithsonian Institution is the world's largest museum and research complex, containing 19 museums and galleries, numerous research centers and supporting facilities, and the National Zoological Park. We are active in over 80 countries around the world, with permanent locations in eight states plus Washington, D.C. and Panama.

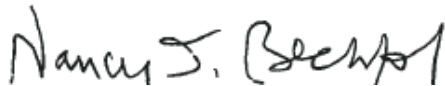
James Smithson established the Smithsonian Institution as "an Establishment for the increase and diffusion of knowledge..." with a sweeping public mission for learning and teaching. The Smithsonian has been, and must be, sustainable for generations to come.

As a trust instrumentality of the United States¹, the Smithsonian is committed to the goals which Executive Order 13693 set for federal agencies, and is focused on making improvements in environmental, energy, and economic performance. Some employees and programs, and a portion of the Smithsonian budget, are non-Federal. Although Executive Order guidance refers to Federal activities, non-Federal activities are integral to our sustainability planning and performance. Therefore we include them in this plan. For example in Table 1: Agency Size and Scope, Total number of employees includes both Federal and Trust positions. As stated in the current Smithsonian Strategic Plan, one of the four grand challenges we have undertaken is "Understanding and Sustaining a Biodiverse Planet." The goals established by the Executive Order complement this grand challenge and underscore our mission and values.

The Smithsonian is the steward of the nation's treasures in perpetuity, and is much more than a collection of facilities. Through scientific research, education, and access to the visiting public, the Smithsonian is uniquely positioned to study, test, implement and educate the world on actions that will lead us into a sustainable future.

In response to the Executive Order, the Smithsonian is meeting goals to decrease potable water use per square foot, decrease fleet petroleum use, reduce direct and indirect greenhouse gas emissions, and increase use of renewable energy. Deployment of energy efficient electric, hybrid, and bio-fuel vehicles is reducing petroleum use. A growing recycling program diverts increasing quantities of solid waste from landfill disposal, and cuts Smithsonian greenhouse gas emissions. Fulfilling goals for energy and sustainability performance of the buildings is a particular challenge. Demands on the buildings, some of which are historic, include maintaining environments suitable for conservation of 137 million collection objects, caring for more than 2,000 live animals, accommodating 30 million visitors each year, and hosting hundreds of special events. While continuing to meet these demands, the Smithsonian has attained 3rd party sustainability certifications for building construction and revitalization projects, operation and maintenance practices, and restaurants.

The Strategic Sustainability Performance Plan reports sustainability successes and challenges of the past year. It describes the Smithsonian today. More importantly, it identifies the sustainability strategies we will pursue in the year ahead, how we will measure progress, and the milestones we intend to reach. It is a map the Smithsonian can follow towards a sustainable future. For more information on sustainability-related programs, please visit our website at: www.si.edu.



Nancy J. Bechtol, Chief Sustainability Officer

June 30, 2015

Date

¹ Recognized as a tax-exempt organization under Section 501(c)(3) of the Internal Revenue Code

EXECUTIVE SUMMARY

VISION

As a trust instrumentality of the United States¹, the Smithsonian is committed to the goals which Executive Order 13693 set for federal agencies, and is focused on making improvements in environmental, energy, and economic performance. As stated in the current Smithsonian Strategic Plan, one of the four grand challenges we have undertaken is “Understanding and Sustaining a Biodiverse Planet.” The goals established by the Executive Order complement this grand challenge and underscore our mission and values.

This 2015 Smithsonian Institution Strategic Sustainability Performance Plan reports sustainability successes and challenges of the past year. It describes the Smithsonian today. More importantly, it identifies the sustainability strategies we will pursue in the year ahead, how we will measure progress, and the milestones we intend to reach. It is a map the Smithsonian can follow towards a sustainable future.

LEADERSHIP

Nancy J. Bechtol, Director, Office of Facilities Engineering and Operations, is designated Smithsonian Institution Chief Sustainability Officer for implementation of Executive Order 13693.

The Smithsonian Executive Committee on Sustainability, appointed by the Secretary, provides leadership, accountability, and inspiration.

The Energy Management Branch supports the Chief Sustainability Officer, coordinates and participates in Smithsonian-wide implementation of Executive Order 13693. Sustainability leaders in many other Smithsonian units are responsible for progress and planning.

Currently, and into the foreseeable future, sustainability work at the Smithsonian is performed as collateral duty by on-board staff.

PERFORMANCE REVIEW

Goal 1: Greenhouse Gas (GHG) Reduction

Evaluation of progress is based on annual emissions expressed in metric tons of carbon dioxide equivalent (MTCO_{2e}). The Smithsonian utilizes the Federal Energy Management Program Energy and GHG Reporting Tool to generate the annual inventory of GHG emissions. Fluorinated gas inventory accuracy had been enhanced since transition to an internet-based refrigerant tracking and accounting system. To determine emissions associated with employee commuting, the Smithsonian conducted a Scope 3 Commuter Survey using the General Services Administration (GSA) Carbon Footprint Tool. The Smithsonian relies on the GSA Travel Management Information Service to report GHG emissions associated with employee business travel.

¹ Recognized as a tax-exempt organization under Section 501(c)(3) of the Internal Revenue Code

- In FY 2014 the Smithsonian achieved a 18.2% reduction in Scope 1&2 GHG emissions compared to the FY 2008 baseline and is on track to meet the 32% reduction target established for FY 2020.
- In FY 2014 the Smithsonian achieved a 10.6% reduction in Scope 3 GHG emissions compared to the FY 2008 baseline, and is on track to meet the 11% reduction target established for FY 2020.

Smithsonian GHG emission reductions are attributable to decreased use of purchased electricity and steam in the buildings, increased purchasing of green power, decreased use of petroleum in the vehicles and equipment, and recycling, which diverts solid waste from landfill disposal.

Priorities for the year ahead include reducing on-site use of fossil fuel, reducing use of grid-supplied electricity, and employing operations and maintenance best practices.

Goal 2: Sustainable Buildings



Smithsonian Environmental Research Center - Mathias Laboratory Building, LEED Platinum certified in FY 2015

Evaluation of progress is based on energy intensity expressed in British thermal units per gross square foot, and buildings conforming to the Federal Guiding Principles for High Performance and Sustainable Buildings (Guiding Principles).

- FY 2014 energy intensity of Smithsonian goal-subject buildings was 11.8% below the FY 2003 baseline, but fell short of the 27% Federal goal for the year.
- The Smithsonian has not determined that any of its buildings conform to the Guiding Principles, but continues to pursue and achieve LEED® green building certifications.

Energy management accomplishments in FY 2014 includes development and implementation of a variety of conservation measures. One team reached contract award and began implementing \$9.6M in contractor-financed lighting, water, cooling and heating improvements, and an on-site renewable energy system, for facilities in Suitland and Edgewater, Maryland. Another team developed \$16.2M in contractor-financed lighting, water, cooling and heating improvements, HVAC control upgrades, and an on-site renewable energy system, for facilities in Washington, DC and Front Royal, Virginia.

Sustainable design and LEED certified project criteria are hallmarks of Smithsonian Institution's Office of Facility Engineering and Operation policy. While there were no LEED certifications in FY2014 the Smithsonian is actively working on more than a dozen LEED certified projects.

Smithsonian restaurants are serving sustainability in the form of Green Restaurant Association certifications. Smithsonian is working aggressively to maximize waste diversion and recycling content and has implemented strategies to optimize collection cycles and assure compost meets the minimum acceptable criteria set by regional haulers. Consequently, these measures have improved the quality of reported data and reduced Scope 3 GHG emission.

The Smithsonian increased its effort to integrate sustainable practices in into existing building operations and maintenance. A new working group is performing assessments, revising policies and documenting fulfillment of LEED Building Operations and Maintenance rating system requirements. Smithsonian Institution, Office of Facility Management and Reliability has established a training target of two LEED prerequisites per annum in preparation for additional LEED EB applications..

In December 2014 the Smithsonian hosted the Image Permanence Institute for a two day session promoting typical environmental control of schemes titled, Sustainable Preservation Practices Workshop III. Participants received practical information on mechanical system functions, energy-saving strategies, and guidelines for managing changes in environmental settings without reducing preservation quality. Priority actions in the next 12 months include incorporating green building specifications and applying sustainable operations and maintenance practices.

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Goal 3: Fleet Management

Evaluation of progress is based on metrics including petroleum use, alternative fuel use, and counts of conventional and alternate fuel vehicles. The Smithsonian participates in General Services Administration Federal Automotive Statistical Tool (FAST) reporting.

- On the metric of petroleum use in vehicles, the Smithsonian achieved a 73.5% reduction in FY 2014, compared to the FY 2005 baseline. This surpassed the Federal 20% reduction goal for the year and already exceeds the Federal 30% goal for FY 2020.
- 16.6% alternative fuel was down from __??__

FY 2014 use of telematics for work in fleet management sustainability was discontinued at the end of the contract term. Telematics linked with the fleet management information system enabling faster response to vehicle problems, more analysis of performance including fuel economy, and better management of the vehicle inventory.

Insufficient E85 fueling locations in the national capital region are a barrier to increasing use of this alternate fuel. The Smithsonian Institution is in the process of installing new E85 tanks at its Paul E. Garber facility in Suitland, MD. This project will be complete in FY2015.

Electric vehicle charging stations are receiving expanded implementation and evoking policy investigations whereby staff may be allowed to utilize this infrastructure. By FY2016 Smithsonian Institution will have installed EV charging stations at: (1) Museum Support Center, Suitland, MD; (2) National Museum of Natural History, Washington, DC; and (2) at Pennsy Drive, Landover, MD.

Priorities for the year ahead include reinstating telematics, optimizing and right-sizing composition of the fleet and acquiring only highly fuel efficient and alternate fuel vehicles. For vehicle acquisitions the Smithsonian anticipates using the General Services Administration Customer Acquisition Model system.

Goal 4: Water Use Efficiency & Management

Evaluation of progress is based on potable water intensity, expressed in gallons per gross square foot of building area.

- In FY 2014 the Smithsonian achieved a 47.6% reduction in potable water intensity compared to the FY 2007 baseline. This already exceeds the Federal 26% reduction goal for FY 2020.

Smithsonian water efficiency successes include application of sub-meters and leak detectors to discover water waste, and water-efficient management of gardens and landscapes. Water intensive operations are a challenge. Heavy water use can occur in museum air-conditioning systems, National Zoo exhibit pools, irrigation and museum water features.

Priority strategies for the next 12 months include purchasing and installing water efficient technologies, developing and deploying operational controls; and designing, installing and maintaining landscapes for reduced water use. Enhanced water treatment systems are being deployed on cooling tower systems to reduce blow-down. This water treatment upgrade will be implemented in FY2015 under a DOE performance contract. Additionally, electronic water level controls will be deployed in cooling towers whereby providing more robust control and minimized waste.

Goal 5: Pollution Prevention & Waste Reduction

Evaluation of progress is based on metrics including diversion rate, and weight of materials disposed in thirteen discrete streams of non-hazardous solid waste.

- In FY 2014 the Smithsonian diverted 46.7% of non-hazardous solid waste from landfill disposal, and is on track to meet the Federal 50% goal for FY 2015.

Increased composting in Smithsonian restaurants is a main contributor to this success. Recycling performance was one of more than 60 criteria met in the process to become a 3 Star Certified Green Restaurant®. Composting operations began at the National Museum of Natural History restaurants in FY 2012.

Key challenges are inadequate space at some museums for sorting, storing and shipping solid waste; and a diverse waste stream.

In April 2014 the Smithsonian replaced and expanded its disposal program for excess electronics. The program now accepts and properly disposes assets including computers and peripherals, televisions, telephones, electric typewriters, digital cameras, toasters, and microwave ovens. Earth Day events for staff at Smithsonian museums featured the new program, and resulted in collection of at least 4,540 pounds of excess electronics.

Actions planned for the next 12 months include elimination, reduction and recovery of refrigerants; reducing waste generation, increasing composting participation, improving landscape management, and improving tracking and reporting of construction and demolition waste.

Goal 6: Sustainable Acquisition

The metric for sustainable acquisition progress is percent of contracts complying with Federal green product requirements. Inability of Smithsonian financial systems to identify, track and report sustainable procurements, and to support this metric, has been a barrier.

Order rate of recycled content paper increased from 50% in FY12 to 86% in FY14 Q2, most likely due to changes made to the online ordering system that promote recycled content paper as an ordering option.

Strategies for the next 12 months include updating and deploying procurement policies, and deploying corrective actions to address identified barriers.



Smithsonian organizers and a portion of more than two tons of electronics collected for recycling, Earth Day 2014

Goal 7: Electronic Stewardship & Data Centers

Evaluation of progress is based on metrics including percentage of eligible products purchased which are EPEAT compliant, percentage of surplus and end-of-life electronics recycled, percentage of power management-enabled computer, and percentage of power management-enabled monitors.

100% of covered electronic products purchased by the SI Office of the Chief Information Officer (OCIO) are EPEAT (Electronic Product Environmental Assessment Tool) registered. OCIO will continue to research and publish recommendations for sustainable IT products. OCIO also continues to include sustainable requirements as part of contract vehicles managed by OCIO. The FY2015 goal is to replace 90% of Windows desktops with smaller machines (Small Form-Factor or SFF) that consume fewer resources to produce.

The FY2014 E-Cycle Campaign collected more than 28,000 pounds of recyclable electronics (Desktops, Laptops, cords and batteries, LCD Monitors, Printers, and MSC Electronic Equipment) from museums participating in electronic turn in/disposal. All excess IT components and non-working electronics are disposed of through an R2 recycler. Working electronics are sent to GSA for reutilization in other Government agencies. E-Cycle Campaign will continue annually in conjunction with Earth Day events to promote the recycling and proper disposal methods of all excess property.

100% of covered electronic products purchased by SI/OCIO are Federal Energy Management Program-designated and Energy Star qualified. SI employs power management software called Nightwatchman on desktop computers and monitors. This software ensures computers transition to a low energy state when not being used. The FY2015 goal is 85% compliance.

Successful practices in Smithsonian electronics stewardship include designation of EPEAT compliant equipment on the preferred products list, deployment of power management software with setting managed through user authentication, and a hardware recovery program which returns credit towards future equipment purchases.

Priorities for the next 12 months include ensuring that additional power management options are enabled; updating procedures for disposition compliance; and implementing new guidelines for purchasing EPEAT-compliant equipment. Sustainable features of electronic devices will be promoted to SI staff. OCIO is testing a one-year pilot managed print services program with Xerox, in which a single vendor provides support for multiple printers – regardless of manufacturer; just in-time toner delivery – to reduce unnecessary stockpile of toner; and break-fix services.

Data Center - Smithsonian OCIO implemented a server virtualization architecture in late 2011 and continues to promote the migration of physical servers to a virtual platform. FY2014 PUE increased slightly to 1.86, up from 1.83. According to Energy Star Portfolio Manager average PUE is 1.821 (July 2013). Energy intensity has improved from FY2013 to FY2014 decreasing 32kBtu/sqft to 458kBtu/sqft. Priorities for the next 12 months include Research, test, and implement solution(s) to optimize current server virtualization architecture to support more virtualization efforts.

Goal 8: Renewable Energy

Evaluation of progress is based on percentage of electricity from renewable sources.

- In FY 2014, the Smithsonian purchased renewable energy certificates (RECs) equal to 13.9% of electricity used. This surpassed the 7.5% Federal goal for the year.

RECs also supported green power credits in projects pursuing LEED certification. Sources of the certificates included wood and wood residuals in Louisiana; wind in Wisconsin, Oklahoma, Illinois, Minnesota, Indiana, Missouri, South Dakota and Texas; and municipal solid waste in Florida.

Planned actions in the next 12 months include installation of on-site renewable energy, and continuing work with other agencies on renewable energy purchases. The SI will continue to seek goal-level renewable energy percentages in new electricity supply contracts, and will purchase additional renewable energy certificates as needed, when funding allows. The energy management department will explore sales of future SRECS generated by the Mathias PV array to purchase a higher amount of RECs.

Goal 9: Climate Change Resilience

For over 165 years the Smithsonian has been carrying out a wide-ranging agenda of scientific and cultural research. Smithsonian research helps produce data for understanding natural adaptive processes, the ways we can build resilience into the human-adapted ecosystems; and the needs of systems in change. Commitments to climate change research, mitigation and adaptation are integral to the Smithsonian mission and also to the current Smithsonian strategic plan.

In FY 2013 the Smithsonian completed a document entitled “Roadmap for the Development of a Climate Change Adaptation Plan.” It addresses risks and vulnerabilities, methodology, major

milestones, and existing adaptation-related work. It also describes research and other existing Smithsonian programs which address climate change

The roadmap will help the Smithsonian prepare an adaptation plan that is informed by the best science, and that addresses possible impacts on staff and visitors, collections, research, public programs, facilities, and infrastructure within the United States and in other countries. The plan, when complete, will incorporate location-specific detailed risk assessments and recommended actions. It will also discuss opportunities to expand SI research on climate change trends, causes, and impacts.

Executive order 13690, establishing a Federal Flood Risk Management Standard requires Agencies to submit an implementation plan to the National Security Council staff that contains milestones and a timeline for implementation of this order and the Standard, by the agency as it applies to the agency's processes and mission. This is due within 30 days of the closing of the public comment period for the draft amendments to the Guidelines. The Smithsonian Institution intends to respond to this Executive Order within the Climate Change Adaption Plan.

EO 13653, preparing the United States for the Impacts of Climate Change, informs Agency Adaptation Plan content requirement. Pursuant to section 5 of this order, Agency Adaptation Plan revision should ensure compliance with sections 2, 3, 5.



Severe flooding in downtown Washington, DC led to as much as 4 inches of water in the west wing basement of the National Museum of Natural History; adaptation actions included addition of a new 80,000 gallon storm water vault designed to hold and release metered excess runoff during extreme storms.

Planned actions in the next 12 months include appointing a program manager and a steering committee, securing other needed resources such as subject-expert support, and beginning to execute the work.

Goal 10: Energy Performance Contracts

The Smithsonian Institution supports the President's directive to implement performance-based contracts for Federal building energy efficiency, and is on track to meet its commitment under this initiative.

In July, 2013, the SI successfully reached order award for an Energy Savings Performance Contract (ESPC) project with total implementation price \$9,556,666. The award fulfilled the SI commitment to the President's Performance Contracting Challenge. The project meets revitalization needs including replacement of the boiler plant at the Museum Support Center in Suitland, MD. It also includes a photovoltaic power system at the Smithsonian Environmental Research Center Mathias Laboratory in Edgewater, MD.

In May 2014, the Smithsonian National Zoo and Conservation Biology Institute began the process of implementing an ESPC. ESCO selection and a Preliminary Assessment have been completed with a goal of starting the Investment Grade Audit in Q2 of FY15 and a construction start in early FY16

Planned actions in the next twelve months include implementation of the ESPC project in Suitland and Edgewater, MD; award and begin construction for ESPC project focused on National Zoological Park facilities in Washington, DC and Smithsonian Conservation Biology Institute facilities in Front Royal, VA. Review remaining facilities not covered by ESPC projects and priority future projects.

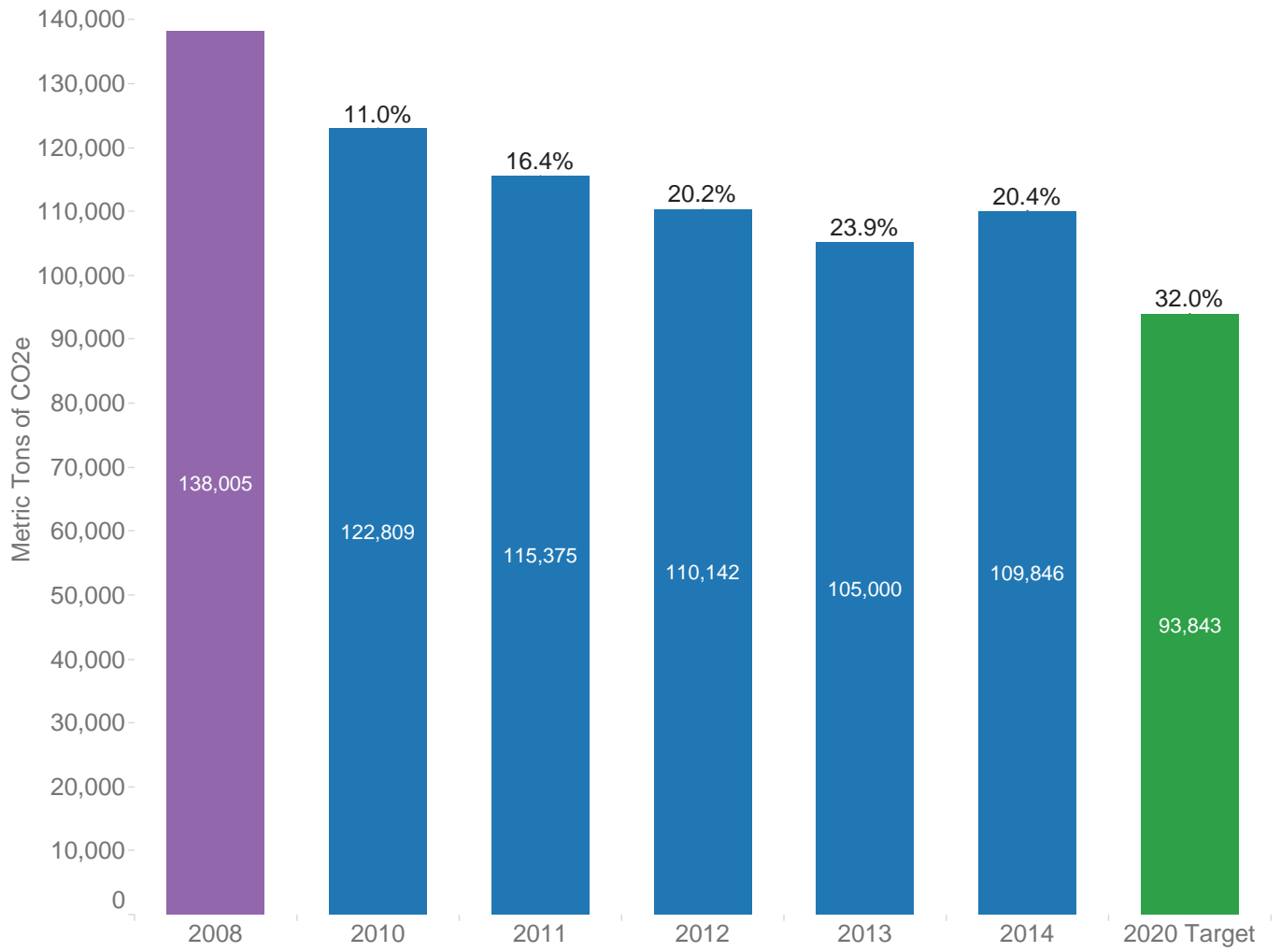
Table 1: Agency Size & Scope

Agency Size and Scope	FY 2013	FY 2014
Total Number of Employees as Reported in the President's Budget	6,576	
Total Acres of Land Managed	42,993	42,993
Total Number of Buildings Owned	601	559
Total Number of Buildings Leased (GSA and Non-GSA Lease)	26	26
Total Building Gross Square Feet (GSF)	12,283,762	12,537,382
Operates in Number of Locations Throughout U.S.	35 cities	19
Operates in Number of Locations Outside of U.S.	17 cities	13
Total Number of Fleet Vehicles Owned	394	362
Total Number of Fleet Vehicles Leased	22	22
Total Number of Exempted-Fleet Vehicles (Tactical, Law Enforcement, Emergency, Etc.)	0	0
Total Amount Contracts Awarded as Reported in FPDS (\$Millions)	366,495,827	283,013,024

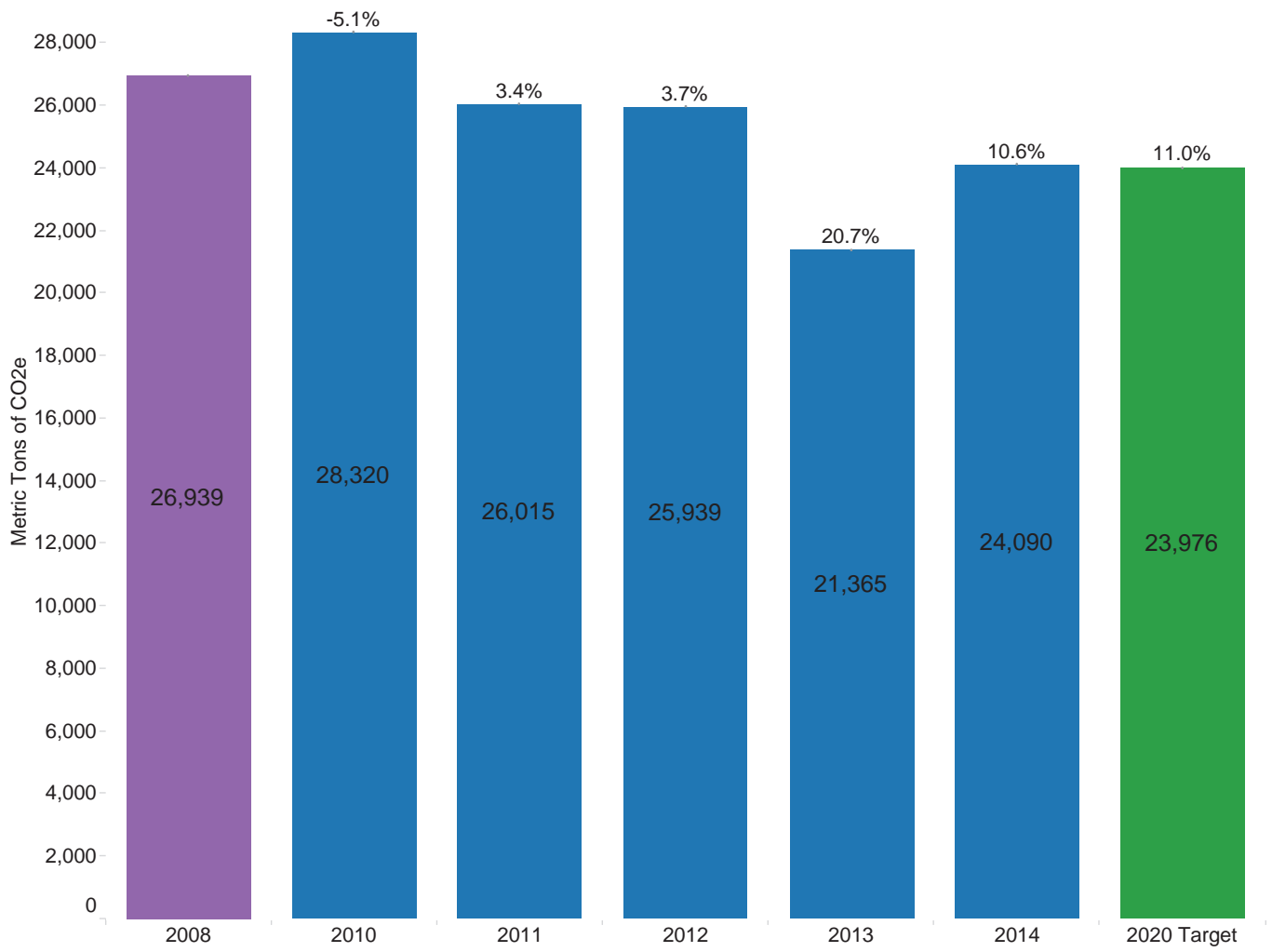
Smithsonian Institution

Goal 1: Greenhouse Gas (GHG) Reduction

SI Progress toward Scope 1 & 2 Greenhouse Gas Goals



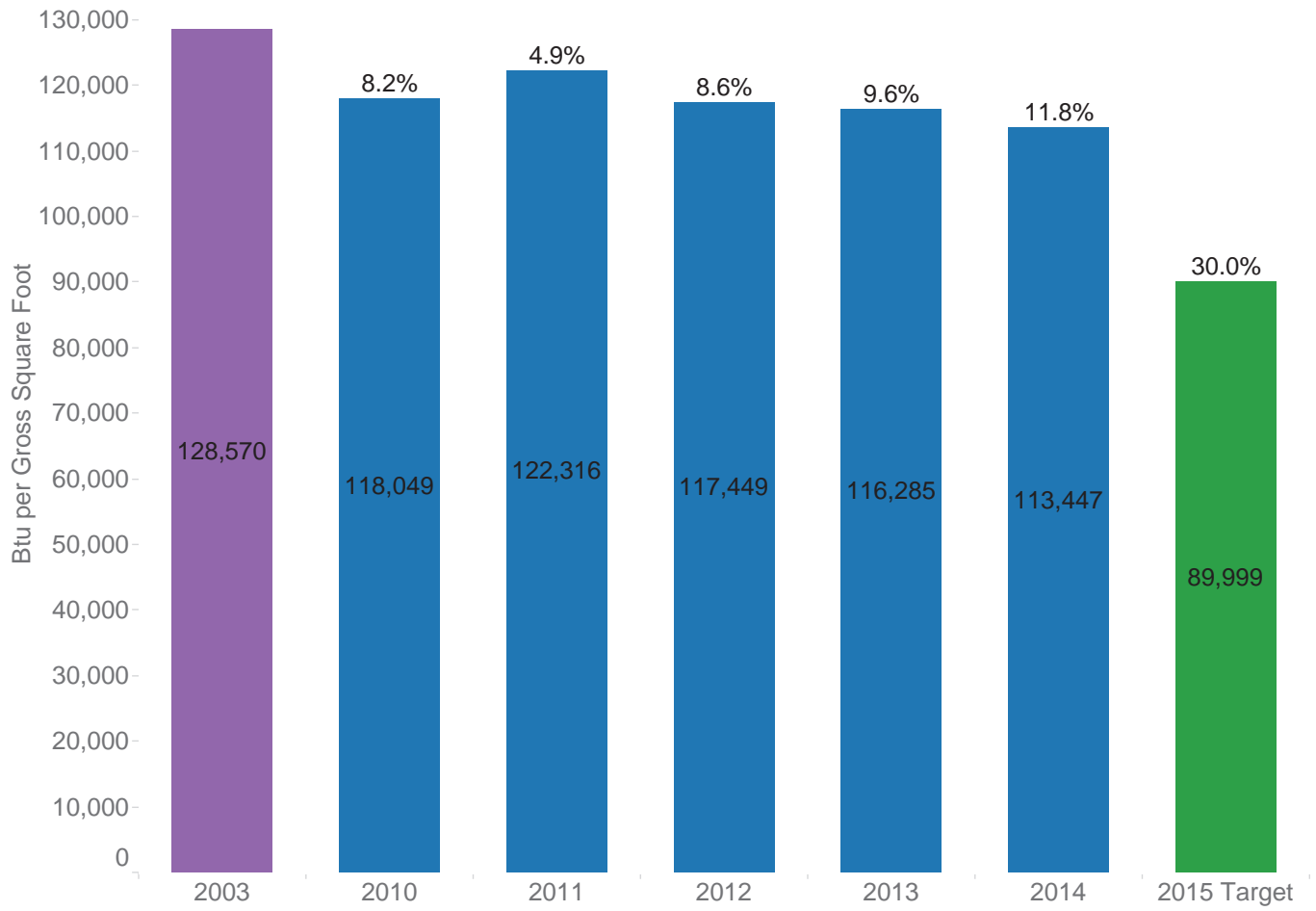
SI Progress toward Scope 3 Greenhouse Gas Goals



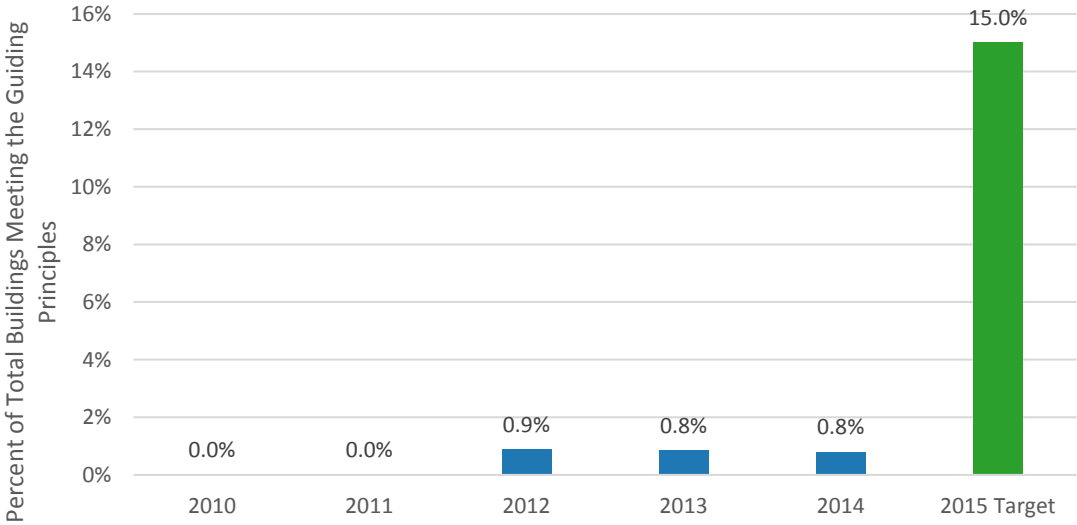
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Goal 2: Sustainable Buildings

SI Progress toward Facility Energy Intensity Reduction Goals (FY 2014 Goal: 27%)

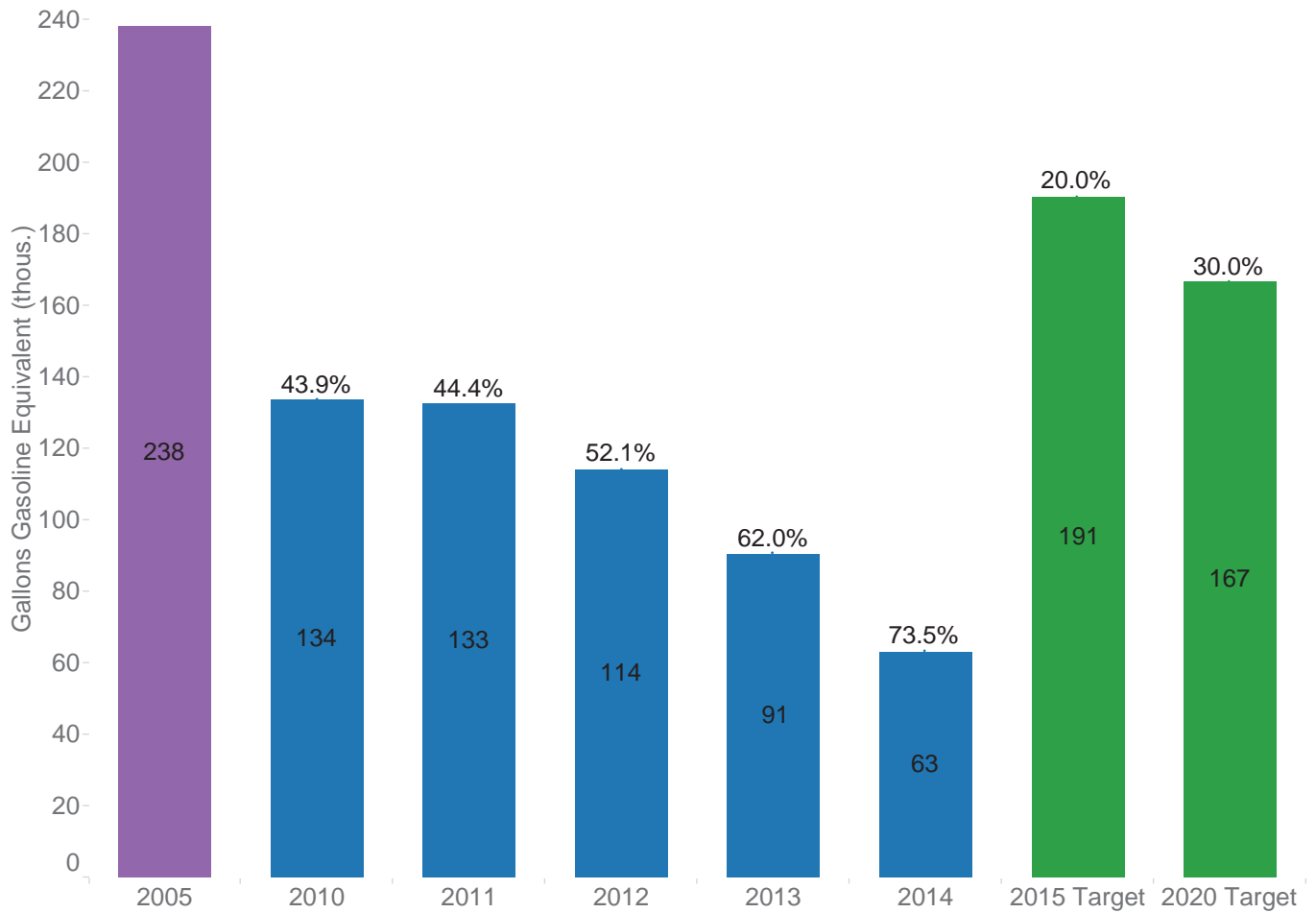


SI Progress toward Total Buildings Meeting the Guiding Principles

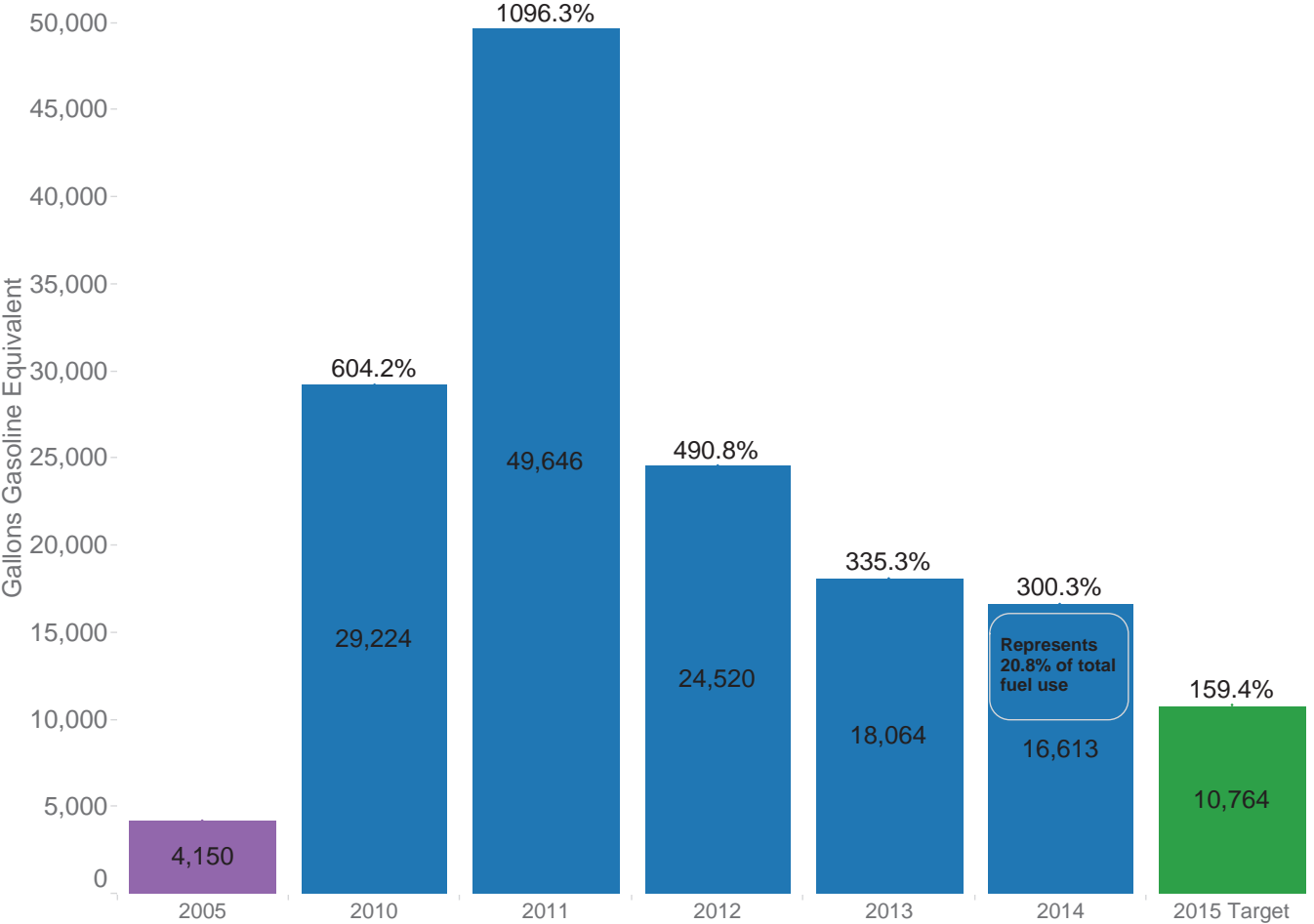


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Goal 3: Fleet Management

SI Progress toward Fleet Petroleum Reduction Goals (FY 2014 Goal: 18%)



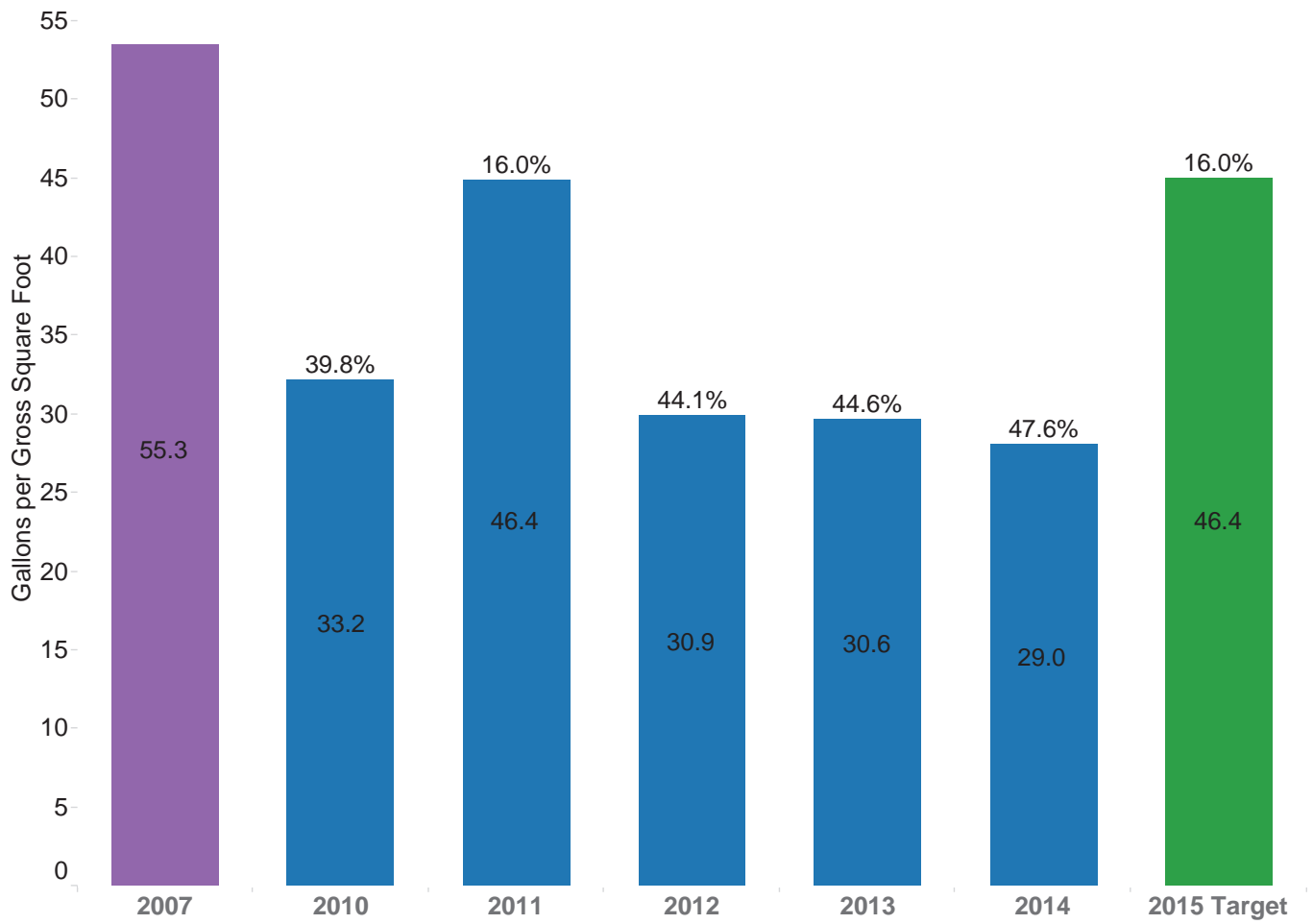
SI Progress toward Fleet Alternative Fuel Consumption Goals (FY 2014 Goal: +135.8%)



Smithsonian Institution

Goal 4: Water Use Efficiency & Management

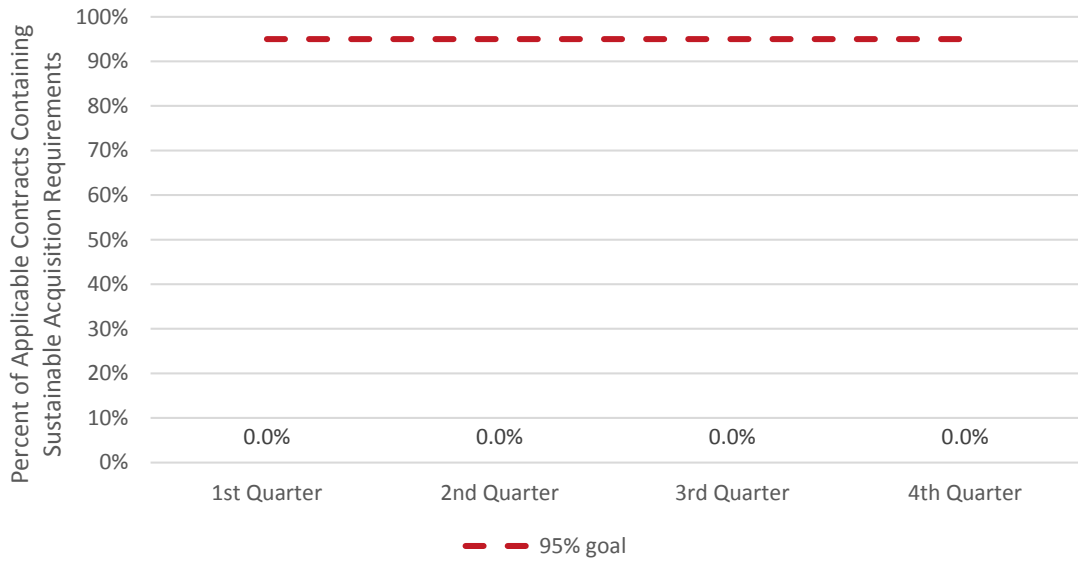
SI Progress toward Potable Water Intensity Reduction Goals (FY 2014 Goal: 14%)



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Goal 6: Sustainable Acquisition

SI Progress toward Sustainable Acquisition Goal






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Goal 7: Electronic Stewardship & Data Centers

EPEAT	POWER MANAGEMENT	END-OF-LIFE	COMMENTS
			




EPEAT:

	95% or more Monitors and PCs/Laptops purchased in FY2013 was EPEAT Compliant Agency-wide
	85-94% or more Monitors and PCs/Laptops purchased in FY2013 was EPEAT Compliant Agency-wide
	84% or less Monitors and PCs/Laptops purchased in FY2013 was EPEAT Compliant Agency-wide

Power Management:

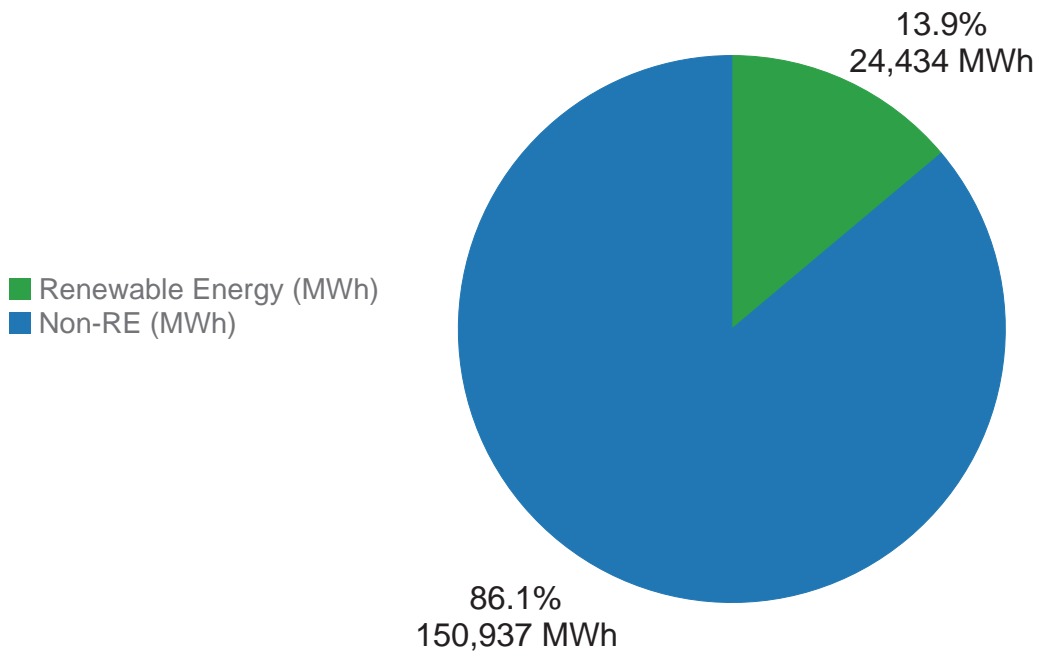
	100% Power Management Enabled Computers, Laptops and Monitors Agency-wide
	90-99% Power Management Enabled Computers, Laptops and Monitors Agency-wide
	89% or less Power Management Enabled Computers, Laptops and Monitors Agency-wide

End-Of-Life:

	100% of electronics tracked at end-of life, demonstrating 100% disposal through GSA Xcess, CFL, Unicorn, USPS Recycling Program or Certified Recycler (R2, E-Stewards). <i>Submitted annual report to GSA for Federal Electronics Assets furnished to non-Federal recipients.</i>
	100% of electronics tracked at end-of life, demonstrating 100% disposal through GSA Xcess, CFL, Unicorn, USPS Recycling Program and/or non-Certified Recycler. Submitted annual report to GSA for Federal Electronics Assets furnished to non-Federal recipients.
	100% of electronics not tracked at end-of-life or less than 100% disposal through GSA Xcess, CFL, Unicorn, USPS Recycling Program or non-Certified Recycler. <i>No annual report submitted to GSA for Federal Electronics Assets furnished to non-Federal recipients.</i>

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Goal 8: Renewable Energy

SI Use of Renewable Energy as a Percentage of Electricity Use
(FY 2014 Goal: 7.5%)



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Goal 10: Energy Performance Contracts

Smithsonian Institution

Strategies - Goal 1: Greenhouse Gas (GHG) Reduction

Table 1-1: Strategies - Scope 1 & 2 GHG Reductions

(A) Strategy	(B) Top Five? Yes/No/NA	(C) Strategy Narrative (100 word limit)	(D) Specific targets/metrics to measure success including milestones in next 12 months
Required Strategies under E.O. 13693			
Use the FEMP GHG emission report to identify/target high emission categories and implement specific actions to resolve high emission areas identified.	Yes	Evaluate designated covered facilities for energy efficiency with direct impact on reducing GHG contribution	When financially viable, award retro commissioning in at least (1) designated covered facility per year.
Identify alternative sources of data or alternative methods of analysis not set forth in E.O. 13693, but with the potential to support its goals.	Yes	Used remote desktop audits for non covered facilities	At least two remote audits.
Identify and support management practices or training programs that encourage employee sustainability and greenhouse gas consideration.	Yes	Train Sustainability champions at each facility on LEED EB credits. Promote training modules at museums and SI units for reducing plug loads.	Train staff on at least 2 LEED EB Credits per year.
Conceptualize the goals of E.O. 13693 within a projected cost-benefit framework to identify low-hanging fruit.	No	Due to budget constraints all low/cost no cost measures are prioritized.	
Isolate successful measures applied toward the goals of E.O. 13514 that could be expanded to meet the goals of E.O. 13693.	Yes	Verify, thru smart electrical meter demand profile, that lighting and non essential loads are scheduled 'OFF' to maximize efficiency.	Implement in at least (1) designated covered facility per year.
Determine unsuccessful programs or measures to be	No	There are currently no known unsuccessful	

(A) Strategy	(B) Top Five? Yes/No/NA	(C) Strategy Narrative (100 word limit)	(D) Specific targets/metrics to measure success including milestones in next 12 months
discontinued to better allocate agency resources, human and otherwise.		programs. Programs should be expanded to increase success.	
Determine which goals set forth in E.O. 13693 represent unambitious targets given past agency performance, identify by how much they could be exceeded, and establish new within-agency target	No	Due to the nature of Smithsonian Institution mission and preservation environment, no targets have been unambitious.	
Employ operations and management best practices for energy consuming and emission generating equipment.	Yes	Implement fault detection diagnostics into control sequences where cost effective. Analyze trend data to actively troubleshoot and manage energy consumption.	Identify at least 5 types of points to add energy diagnostics. Start pilot for advanced trend review

Table 1-2: Strategies - Scope 3 GHG Reductions

(A) Strategy	(B) Top Five? Yes/No/NA	(C) Strategy Narrative (100 Word Limit)	(D) Specific targets/metrics to measure success including milestones in next 12 months
Required Strategy Under E.O. 13693			
Reduce employee business ground travel.	NA	Employee travel is required for support of Smithsonian's mission	
Reduce employee business air travel.	NA	Employee travel is required for support of Smithsonian's mission	

(A) Strategy	(B) Top Five? Yes/No/NA	(C) Strategy Narrative (100 Word Limit)	(D) Specific targets/metrics to measure success including milestones in next 12 months
Develop and deploy employee commuter reduction plan.	No	Commuter reduction opportunities are identified using the commuter survey	
Use employee commuting survey to identify opportunities and strategies for reducing commuter emissions.	Yes	Use the annual GHG commuter survey to identify areas for improvement.	Share results of survey with staff and encourage the use of existing programs for commuting
Increase number of employees eligible for telework and/or the total number of days teleworked.	Yes	Establish a mechanism through WebTA or other OCIO system to monitor telework participation duration.	Use commuter survey as a proxy for estimating telework capacity. Compare actual level of telework to theoretical capacity. Allow findings to inform policy making.
Develop and implement bicycle commuter program.	Yes	Promote the WageWorks bicycle commuting program	Send reminder to staff about bicycle commuter support; parking, showers, etc.
Provide bicycle commuting infrastructure.	Yes	Large existing infrastructure	Expand to at least one additional building per year
Plan to begin FY 2016: Report scope 3 greenhouse gas emissions for leases over 10,000 E.O. 3(h)(v) rentable square feet.	Yes	All new leases or renewals will incorporate GHG reporting	No deviation of requirement where cost effective

Smithsonian Institution

Strategies - Goal 2: Sustainable Buildings

Table 2-1: Strategies - Sustainable Buildings

(A) Strategy	(B) Top Five? Yes/No/NA	(C) Strategy narrative (100 word limit)	(D) Specific targets/metrics to measure strategy success including milestones to be achieved in the next 12 months
Required Strategy Under E.O. 13693			
Use remote building energy performance assessment auditing technology 3(a)(A)	Yes	Perform market research on available vendors and get quotes. Determine effectiveness through case study review	Identify vendors and receive quotes for up to 25% of required building assessments.
Participate in demand management programs 3(a)(B)	Yes	2016 will be the third year SI is participating in the PJM demand response program. Energy management will evaluate past performance and determine if the program can be expanded in size or to other buildings	Automate demand response where possible for recently added facilities. Review the use of generators for demand response at facilities located in MD and VA.
Ensure that monthly performance data is entered into the Environmental Protection Agency (EPA) ENERGY STAR Portfolio Manager 3(a)(C)	Yes	The current utility management program no longer syncs data to Portfolio manager. Identify possible software replacements and include EnergyStar upload in SOW.	Update portfolio manager data manually on a quarterly basis until software problems can be resolved.
Where feasible: Incorporate Green Button data access system into reporting, data analytics, and automation processes 3(a)(D)	No	SI will rely on software vendors to provide Green Button data import/export functionality where such data is beneficial to energy management goals	
Implement space utilization and optimization practices and policies 3(a)(E)	No		
Identify opportunities to transition test-bed	No	Maintaining collections and the museum environment	

(A) Strategy	(B) Top Five? Yes/No/NA	(C) Strategy narrative (100 word limit)	(D) Specific targets/metrics to measure strategy success including milestones to be achieved in the next 12 months
technologies to achieve the goals of this section 3(a)(F)		requires high reliability and therefore limited opportunities exist for un-proven technologies. Where appropriate and/or low risk opportunities exist SI will consider cost effective technologies.	
Where feasible: Conform to city energy performance benchmarking and reporting requirements 3(a)(G)	No	SI already participates with city benchmarking where required by law.	
Begin planning for FY 2020 requirement: Ensure all new construction of Federal buildings greater than 5,000 gross square feet that enters the planning process be designed to achieve energy net-zero and, where feasible, water or waste net-zero by FY 2030 3(h)(i)	Yes	The energy intensive nature of museum and collections care limits the opportunities for Net-Zero energy buildings. SI strives to reduce energy use at all facilities and where possible will explore net-zero. SI will identify proposed new buildings or existing buildings where Net Zero may be possible	Identify at least 5 buildings over 5000 SF that can achieve net zero. Add Net Zero evaluation to SI Construction requirements
In all new agency lease solicitations over 10,000 rentable square feet, include criteria for energy efficiency as a performance specification or source selection evaluation factor 3(h)(iv)	No	This is not selected as a top priority but our leasing group is aware of the new requirement and will be incorporating language into new lease agreements.	
In all new agency lease solicitations over 10,000 rentable square feet, include requirements for building lessor disclosure of carbon emission or energy	No	This is not selected as a top priority but our leasing group is aware of the new requirement and will be incorporating language into new lease agreements.	

(A) Strategy	(B) Top Five? Yes/No/NA	(C) Strategy narrative (100 word limit)	(D) Specific targets/metrics to measure strategy success including milestones to be achieved in the next 12 months
consumption data for leased portion of building 3(h)(iv)			
In planning new facilities or leases, include cost-effective strategies to optimize sustainable space utilization and consideration of existing community transportation planning and infrastructure, including access to public transit 3(h)(vi)	No	New facilities require LEED assessment and will therefore consider existing community transportation infrastructure. Future planned projects are all within existing urban environments or expansions to existing buildings.	
Ensure that all new construction, major renovation, repair, and alteration of agency buildings includes appropriate design and deployment of fleet charging infrastructure 3(h)(vii)	No	The current fleet management plan identifies expansion of charging infrastructure. New design and major renovation uses USGBC LEED certification as a guide so charging stations will be reviewed. Also many existing facilities on the national mall include limited or no parking infrastructure.	
Include climate resilient design and management into the operation, repair, and renovation of existing agency buildings and the design of new buildings 3(h)(viii)	No	Climate resilient design and management are already being incorporated into design guidelines and best practices.	
Recommended Strategy			
Install and monitor energy meters and sub-meters as soon as practicable.	Yes	Expand advanced metering to all major facilities to add real time analytics.	Develop and deploy SOW for advance metering software FY16 Q2. Start Pilot building after contract is awarded.

Table 2-2: Strategies - Data Center Efficiency

(A)Strategy	(B) Top Five? Yes/No/NA	(C) Strategy Narrative (100 word limit)	(D) Specific targets/metrics to measure success including milestones in next 12 months
Required Strategy under E.O. 13693			
Ensure the agency chief information officer promotes data center energy optimization, efficiency, and performance 3(a)(ii)(A)	Yes	OCIO will participate in any OFEO initiatives on data center greening and will ensure that applicable existing/new OCIO policies are in alignment with SI sustainability policies.	<ul style="list-style-type: none"> • Assign dedicated participant(s) to any OFEO task force(s) on data center energy optimization. • Consult E.O. 13693 as part of review cycle for any technical notes or SI Directives updates.
Install and monitor advanced energy meters in all data centers by fiscal year 2018 3(a)(ii)(B)	Yes	Review existing metering structure and expand as necessary	Incorporate Data center meters into the advanced metering plan and scope
Recommended Strategy			
Optimize agency Data Centers across total cost of ownership metrics.	No		
Improve data center temperature and air-flow management.	Yes	Review latest ASHRAE data center temperature guidance with operators to determine if increased temperature is feasible	Create guidance document for data center temperature and expand to data closets.
Identify and consolidate obsolete and underutilized agency computer servers into energy efficient data centers.	Yes	OCIO has a server virtualization architecture in place since late 2011 and continues to promote the migration of physical servers to a virtual platform.	<ul style="list-style-type: none"> • Research, test, and implement solution(s) to optimize current server virtualization architecture to support more virtualization efforts.

Smithsonian Institution

Strategies - Goal 3: Clean&Renewable Energy

Table 3: Strategies - Clean & Renewable Energy

(A) Strategy	(B) Top Five? Yes/No/NA	(C) Strategy Narrative (100 word limit)	(D) Specific targets/metrics to measure strategy success including milestones to be achieved in the next 12 months
Required Strategy under E.O. 13693			
DoD only: Include in DoD accounting, fulfillment of the requirements of DoD goals under section 2852 of the National Defense Authorization Act of 2007 3(e)(vi)	NA	Not DoD	
Recommended Strategy			
Install agency-funded renewable on-site and retain corresponding renewable energy certificates (RECs) or obtaining replacement RECs 3(d)(i)	Yes	The new NMAAHC museum will incorporate a 94KW solar PV array. The SRECs will be sold and proceeds will be used to buy replacement RECS and additional RECs to impact GHG reduction	Construction is planned to be completed FY16Q4
Contract for the purchase of energy that includes installation of renewable energy on or off-site and retain RECs or replacement RECs for the term of the contract 3(d)(ii)	Yes	SI is participating in the Capital solar challenge which has identified 430 KW of solar on three buildings on the national mall.	Construction will be completed in FY17Q1
Purchase electricity and corresponding RECs or obtaining equal value replacement RECs 3(d)(iii)	Yes	SI purchases electricity through the GSA area-wide contract that currently includes 7.5% RECS. GSA is targeting an increase to 10% RECS	When financially viable Smithsonian Institution will buy RECs toward Scope 1&2 GHG goal.
Purchase RECs 3(d)(iv)	Yes	Purchase RECs as required to meet annual GHG reduction goals not met	10% of total electricity from renewables.

(A) Strategy	(B) Top Five? Yes/No/NA	(C) Strategy Narrative (100 word limit)	(D) Specific targets/metrics to measure strategy success including milestones to be achieved in the next 12 months
		through other strategies. Sale of SRECs and participation in Demand Response programs will be used to pay for additional RECS not requested in the annual utility budget.	
Install thermal renewable energy on-site at Federal facilities and retain corresponding renewable attributes or obtain equal value replacement RECs 3(e)(i)	Yes	Identify facilities where off the shelf solar thermal systems will be cost effective and incorporate projects into future capital plans or ESPC projects.	Identify three possible projects
Install combined heat and power processes on-site at Federal facilities 3(e)(ii)			
Identify opportunities to install fuel cell energy systems on-site at Federal facilities 3(e)(iii)			
Identify opportunities to utilize energy from small modular nuclear reactor technologies 3(e)(iv)			
Identify opportunities to utilize energy from small modular nuclear reactor technologies 3(e)(iv) Identify opportunities to utilize energy from a new project that includes the active capture and storage of carbon dioxide emissions associated with energy generation 3(e)(v)			
Implement other alternative energy approaches that			

(A) Strategy	(B) Top Five? Yes/No/NA	(C) Strategy Narrative (100 word limit)	(D) Specific targets/metrics to measure strategy success including milestones to be achieved in the next 12 months
advance the policy set forth in section 1 and achieve the goals of section 2 of E.O. 13693 3(e)(vii)			
Consider opportunities to install or contract for energy installed on current or formerly contaminated lands, landfills, and mine sites.			

Smithsonian Institution

Strategies - Goal 4: Water Use Efficiency & Management

Table 4: Strategies - Water Use Efficiency & Management

(A) Strategy	(B) Top Five? Yes/No/NA	(C) Strategy narrative (100 word limit)	(D) Specific targets/metrics to measure strategy success including milestones to be achieved in the next 12 months
Required Strategy under E.O. 13693			
Install appropriate green infrastructure features to help with storm- and wastewater management (such as rain gardens, rain barrels, green roofs, or impervious pavement) 3(f)(iv)	Yes	Incorporated rain water collection and reuse where cost effective and beneficial	Identify at least 2 projects.
Install and monitor water meters; collect and utilize building and facility water data for conservation and management 3(f)(ii)	Yes	Expand water meter use at the ZOO for process water. Water sub meters are planned at NMAI for LEED EB renewal.	Complete meter installation as a measure inside of the Zoo ESPC.
Recommended Strategy			
Install high efficiency technologies (e.g., WaterSense).	No	Low flow fixtures are included in Smithsonian Institution design guide.	
Prepare and implement a water asset management plan to maintain desired level of service at lowest life cycle cost (for best practices from the EPA, go to http://go.usa.gov/KvbF).			
Minimize outdoor water use and use alternative water sources as much as possible.			
Design and deploy water closed-loop, capture, recharge, and/or reclamation systems.			

(A) Strategy	(B) Top Five? Yes/No/NA	(C) Strategy narrative (100 word limit)	(D) Specific targets/metrics to measure strategy success including milestones to be achieved in the next 12 months
Install advanced meters to measure and monitor (1) potable and (2) industrial, landscaping and agricultural water use.	Yes	Identify opportunities to add advanced meters to existing high process water users. Incorporate alarm functions for high use.	Identify at least 3 possible meters for upgrade and program into project budgets.
Develop and implement programs to educate employees about methods to minimize water use.			
Assess the interconnections and dependencies of energy and water on agency operations, particularly climate change's effects on water which may impact energy use.			
Consistent with State law, maximize use of grey-water and water reuse systems that reduce potable and ILA water consumption.	Yes	Include grey water or rain water collection systems with new building designs	The new NMAAHC museum will include rain water collection for toilet flushing and irrigation.
Consistent with State law, identify opportunities for aquifer storage and recovery to ensure consistent water supply availability.			
Ensure that planned energy efficiency improvements consider associated opportunities for water conservation.	Yes	Require water efficiency improvements in facility energy audits and/or retrocommissioning projects	Perform required EISA audits
Where appropriate, identify and implement regional and local drought management and preparedness strategies that reduce agency water consumption including recommendations developed			

(A) Strategy	(B) Top Five? Yes/No/NA	(C) Strategy narrative (100 word limit)	(D) Specific targets/metrics to measure strategy success including milestones to be achieved in the next 12 months
by Regional Federal Executive Boards.			

Smithsonian Institution

Strategies - Goal 5: Fleet Management

Table 5: Strategies - Fleet Management

(A) Strategy	(B) Top Five? Yes/No/NA	(C) Strategy narrative (100 word limit)	(D) Specific targets/metrics to measure strategy success including milestones to be achieved in the next 12 months
Required Strategy under E.O. 13693			
Collect and utilize agency fleet operational data through deployment of vehicle telematics " as soon as is practicable, but not later than two years after date of order 3(g)(iii)	Yes	We intend to use telematics in approximately 80% of all assigned light duty trucks and passenger carrying vehicles. The remainders of vehicles in this category or higher are used primarily as campus-type assets.	We intend to use telematics to measure/monitor operator performance and driving behavior. This should lead to reduced numbers of vehicle accidents, unreported damages, and moving violations/citations.
Ensure that agency annual asset-level fleet data is properly and accurately accounted for in a formal Fleet Management System as well as submitted to the Federal Automotive Statistical Tool reporting database, the Federal Motor Vehicle Registration System, and the Fleet Sustainability Dashboard (FLEETDASH) system 3(g)(iv)	No	This was a previous Top 5 initiative that we are still aggressively pursuing.	
Plan for agency fleet composition such that 20% of passenger vehicle acquisitions are zero emission or plug-in hybrid vehicles by 2020, and 50% by 2025. Vehicles acquired in other vehicle classes count double toward this target 3(g)(v)	Yes	This is the next planned step in modernizing our fleet. While SI does not have an Annual Vehicle Replacement budget, we will strongly recommend unit target zero emission or plug-in hybrids as replacements where feasible.	With available End-of-Year funds, OFMR will aggressively pursue zero emission or plug-in hybrids for replacement vehicles in 2016. The planned infusion of these assets will be through both agency owned and GSA leased assets.

(A) Strategy	(B) Top Five? Yes/No/NA	(C) Strategy narrative (100 word limit)	(D) Specific targets/metrics to measure strategy success including milestones to be achieved in the next 12 months
Plan for appropriate charging or refueling infrastructure for zero emission or plug-in hybrid vehicles and opportunities for ancillary services to support vehicle-to-grid technology 3(g)(vi)	Yes	Our program intent is to obtain and install charging stations for zero emission or plug-in hybrid vehicles at all SI locations.	Our next round of targeted charging stations will be for our facilities at Edgewater, MD, NXP in D.C., and SCBI in Front Royal, VA.
Recommended Strategy			
Optimize/Right-size the composition of the fleet (e.g., reduce vehicle size, eliminate underutilized vehicles, acquire and locate vehicles to match local fuel infrastructure).	Yes	Vehicle Validation Visits are planned for each unit with assigned vehicles. Each vehicle must be justified for retention based on individual mission support requirements.	Specific targets are all vehicles above compact status, especially large vans and SUV. A documented, validated mission statement must support the requirement for retention.
Increase utilization of alternative fuel in dual-fuel vehicles.	No	This was a previous Top 5 initiative that we are still aggressively pursuing.	We has added E85 to one of our site locations and continue to be vigilant for available alt fuel at commercial locations.
Use a Fleet Management Information System to track fuel consumption throughout the year for agency-owned, GSA-leased, and commercially-leased vehicles.	No		
Increase GSA leased vehicles and decrease agency-owned fleet vehicles, when cost effective.	Yes	Negotiations are in process with GSA for consolidation of all applicable SI owned vehicles.	Targeted assets includes sedans, pick-up trucks, passenger and cargo vans, stake-body trucks, buses, and some tractor-trailers.
Implement vehicle idle mitigation technologies.	No		
Minimize the use of "law enforcement" vehicle	NA		

(A) Strategy	(B) Top Five? Yes/No/NA	(C) Strategy narrative (100 word limit)	(D) Specific targets/metrics to measure strategy success including milestones to be achieved in the next 12 months
exemption and implementing the GSA Bulletin FMR B-33, Motor Vehicle Management, Alternative Fuel Vehicle Guidance for Law Enforcement and Emergency Vehicle Fleets of November 15, 2011.			
Where State vehicle or fleet technology or fueling infrastructure policies are in place, conform with the minimum requirements of those policies.	No		
Reduce miles traveled (e.g., share vehicles, improve routing with telematics, eliminate trips, improve scheduling, use shuttles, etc.).	No		

Smithsonian Institution

Strategies - Goal 6: Sustainable Acquisition

Table 6: Strategies - Sustainable Acquisition

(A) Strategy	(B) Top Five? Yes/No/NA	(C) Strategy narrative (100 word limit)	(D) Specific targets/metrics to measure strategy success including milestones to be achieved in the next 12 month
Required Strategy under E.O. 13693			
Meet statutory mandates that require purchase preference for recycled content products designated by EPA 3(i)(i)(A)	No	Preference for recycled content products exists.	
Meet statutory mandates that require purchase preference for energy and water efficient products and services, such as ENERGY STAR qualified and FEMP-designated products, identified by EPA and DOE 3(i)(i)(B)	No	Purchasing requires energy and water efficient products. Major plumbing specifications are below WaterSense and all IT products require Energy Star	
Meet statutory mandates that require purchase preference for Biopreferred and biobased designated products designated by the USDA 3(i)(i)(C)	No		
Purchase sustainable or products and services identified by EPA programs such as the ones outlined in 3(i)(ii)	No		
Purchase Significant New Alternative Policy (SNAP) chemicals or other alternatives to ozone-depleting substances and high global warming potential	No		

(A) Strategy	(B) Top Five? Yes/No/NA	(C) Strategy narrative (100 word limit)	(D) Specific targets/metrics to measure strategy success including milestones to be achieved in the next 12 month
hydrofluorocarbons, where feasible 3(i)(ii)(A)			
Purchase WaterSense certified products and services (water efficient products) 3(i)(ii)(B)	No	Strategy already required for new construction and major renovation of restrooms	
Purchase Safer Choice labeled products (chemically intensive products that contain safer ingredients) 3(i)(ii)(C)	No	SI's green cleaning program prefers safer ingredients for staff and visitor safety	
Purchase SmartWay Transport partners and Smartway products (fuel efficient products and services) 3(i)(ii)(D)	NA	SI contracts transportation of goods and purchases local light and medium trucks through GSA fleet	
Purchase environmentally preferable products and services that meet or exceed specifications, standards, or labels recommended by EPA that have been determined to assist agencies in meeting their needs and further advance sustainable procurement goals of this order 3(i)(iii)(A)	No		
Meet environmental performance criteria developed or adopted by voluntary consensus standards bodies consistent with section 12(d) of the National Technology Transfer and Advancement Act of 1995 3(i)(iii)(B)	No	SI follows the USGBC LEED program for environmental performance criteria	

(A) Strategy	(B) Top Five? Yes/No/NA	(C) Strategy narrative (100 word limit)	(D) Specific targets/metrics to measure strategy success including milestones to be achieved in the next 12 month
Ensure contractors submit timely annual reports of their BioPreferred and biobased purchases 3(i)(iv)(B)	No	Not required at this time.	
Reduce copier and printing paper use and acquiring uncoated printing and writing paper containing at least 30 percent postconsumer recycled content or higher as designated by future instruction under section 4(e) of E.O. 13693 3(i)(v)	No	SI has made significant improvement to recycled paper ordering by changing priority on our ordering system.	
Recommended Strategy			
Update and deploy agency procurement policies and programs to ensure that federally- mandated designated sustainable products are included in all relevant procurements and services.	Yes	Update policy and procedure, reporting and educating SI-staff	<ul style="list-style-type: none"> - Update core contracting directive (SD 314) and procedures manuals to include sustainability - Explore options for adding additional training on sustainability to SI staff
Deploy corrective actions to address identified barriers to increasing sustainable procurements with special emphasis on biobased purchasing.	Yes	Continue to collaborate with appropriate offices to implement enhancements for tracking sustainable procurements	<ul style="list-style-type: none"> - Meet with OCIO to determine feasibility and timeline of adding fields in SI procurement processing systems to track and report sustainable procurements.
Include biobased and other FAR sustainability clauses in all applicable construction and other relevant service contracts.	Yes	Review and update sustainability clauses tied to applicable A-E and construction contracts.	<ul style="list-style-type: none"> - Review existing clause matrices and update availability of mandatory and pertinent FAR sustainability clauses available for all major construction contracts.

(A) Strategy	(B) Top Five? Yes/No/NA	(C) Strategy narrative (100 word limit)	(D) Specific targets/metrics to measure strategy success including milestones to be achieved in the next 12 month
Review and update agency specifications to include and encourage biobased and other designated green products to enable meeting sustainable acquisition goals.	Yes	Collaborate with managers and procurement delegates across SI on including appropriate and achievable goals.	- Meet with other SI organizations that purchase biobased and green products for the Institution to further our sustainable reporting goals. - Review SI guidance provided at the org level
Use Federal Strategic Sourcing Initiatives, such as Blanket Purchase Agreements (BPAs) for office products and imaging equipment, which include sustainable acquisition requirements.			
Report on sustainability compliance in contractor performance reviews.			
Ensure that agency purchase-card holder policies direct the exclusive use of the GSA Green Procurement Compilation where desired products are listed in the Compilation.	Yes	Review existing charge card policies to establish appropriate use of GSA Green Procurement products	- Update purchase-card policies and procedures to include sustainable procurement guidance.
Employ environmentally sound disposal practices with respect to agency disposition of excess or surplus electronics.	No	Current working strategy: All excess IT components and non-working electronics are disposed of through an R2 recycler. Working electronics are sent to GSA for reutilization in other Government agencies	

Smithsonian Institution

Strategies - Goal 7: Pollution Prevention & Waste Reduction

Table 7: Strategies - Pollution Prevention & Waste Reduction

(A) Strategy	(B) Top Five? Yes/No/NA	(C) Strategy narrative (100 word limit)	(D) Specific targets/metrics to measure strategy success including milestones to be achieved in the next 12 months
Required Strategy under E.O. 13693			
Report in accordance with the requirements of sections 301 through 313 of the Emergency Planning and Community Right-to-Know Act of 1986 (42 U.S.C 11001-11023) 3(j)(i)	Yes	Review existing reporting requirements at all facilities	Complete survey of existing safety coordinators on annual reporting.
Reduce or minimize the quantity of toxic and hazardous chemicals acquired, used, or disposed of, particularly where such reduction will assist the agency in pursuing agency greenhouse gas reduction targets established in section 2 of E.O. 13693 3(j)(iv)	Yes	Identify toxic and hazardous chemical used and determine if alternatives exist	Complete survey of toxic and hazardous chemical use.
Recommended Strategy			
Eliminate, reduce, or recover refrigerants and other fugitive emissions.	Yes	Use SIs existing refrigerant tracking system to update current inventory and maintain log of use and recovery	Retrain pertinent staff of use of the tracking system
Reduce waste generation through elimination, source reduction, and recycling.	Yes	The SI Recycle Task force will work with each facility to increase waste diversion rates.	Perform waste audit on at least two facilities and identify strategies to maintain 50% diversion rate.
Implement integrated pest management and improved landscape management practices to reduce and			

(A) Strategy	(B) Top Five? Yes/No/NA	(C) Strategy narrative (100 word limit)	(D) Specific targets/metrics to measure strategy success including milestones to be achieved in the next 12 months
eliminate the use of toxic and hazardous chemicals/materials.			
Establish a tracking and reporting system for construction and demolition debris elimination.	Yes	Identify central contact person for management of the C&D database and share reporting requirements with all project managers	Track C&D waste for all major projects in FY16
Develop/revise Agency Chemicals Inventory Plans and identify and deploy chemical elimination, substitution, and/or management opportunities.			
Inventory of current HFC use and purchases.			
Require high-level waiver or contract approval for any agency use of HFCs.			
Ensure HFC management training and recycling equipment are available.			

Smithsonian Institution

Strategies - Goal 8: Energy Performance Contracts

Table 8: Strategies - Energy Performance Contracts

(A) Strategy	(B) Top Five? Yes/No/NA	(C) Strategy Narrative (100 word limit)	(D) Specific targets/metrics to measure strategy success including milestones to be achieved in next 12 months
Required Strategy under E.O. 13693			
Utilize performance contracting to meet identified energy efficiency and management goals while deploying life-cycle cost effective energy and clean energy technology and water conservation measures 3(k)(i)	Yes	Use performance contracting where lack of appropriated funds will not support deep energy retrofit projects	Complete construction of Suitland ESPC and begin construction of Zoo ESPC. Identify future ESPC projects based on resources available to support projects and feasibility.
Fulfill existing agency performance contracting commitments towards the \$4 billion by the end of calendar year 2016 goal established as part of the GPRA Modernization Act of 2010, Climate Change Cross Agency Priority process 3(k)(ii)	Yes	Award Zoo ESPC prior to end FY16	Completing the zoo award wil exceed SI's commitment for performance contracting
Recommended Strategy			
Evaluate 25% of agency's most energy intensive buildings for use with energy performance contracts.	No	Smithsonian Institution strategy is to evaluate these buildings in concert with 5-year capital plans and Master Plan initiatives. We prefer to avoid conflicts with planned or ongoing construction projects.	
Prioritize top ten projects which will provide greatest energy savings potential.	Yes	Review remaining facilities not covered by existing ESPC and prioritize by potential	Ten projects will not be feasible due to size of building portfolio and

(A) Strategy	(B) Top Five? Yes/No/NA	(C) Strategy Narrative (100 word limit)	(D) Specific targets/metrics to measure strategy success including milestones to be achieved in next 12 months
			support staff. Identify 2 projects.
Cut cycle time of performance contracting process by at least 25%.			
Assign agency lead to participate in strategic sourcing initiatives.			
Devote 2% of new commitments to small buildings (<20k sq. ft.)			
Identify and commit to include 3-5 onsite renewable energy projects in energy performance contracts.			
Ensure relevant legal and procurement staff are trained by FEMP ESPC/ UESC course curriculum			
Provide measurement and verification data for all awarded projects.	Yes	Provide data as available	Enter project data into MAX
Enter all reported energy savings data for operational projects into MAX COLLECT (max.gov).	Yes	Provide data as available	Enter project data into MAX

Smithsonian Institution

Strategies - Goal 9: Electronics Stewardship

Table 9: Strategies - Electronics Stewardship

(A) Strategy	(B) Top Five? Yes/No/NA	(C) Strategy Narrative (100 word limit)	(D) Specific targets/metrics to measure strategy success including milestones to be achieved in the next 12 months
Required Strategy under E.O. 13693			
Establish, measure, and report procurement preference for environmentally sustainable electronic products 3(1)(i)	Yes	OCIO will continue to research and publish recommendations for sustainable IT products. OCIO also continues to include sustainable requirements as part of contract vehicles managed by OCIO.	<ul style="list-style-type: none"> • Issue to SI community an annual update to list of recommended printers will include highlights of sustainable features and best practices for sustainability. • Quarterly updates to IT Buying Guide on Intranet will include section on sustainability for each product category.
Establish, measure, and report policies to enable power management, duplex printing, and other energy-efficient or environmentally sustainable features on all eligible agency electronic products 3(1)(ii)	Yes	OCIO implemented Nightwatchman, a power management tool for desktops, in 2010, and continues to employ this strategy for reducing power consumption outside of business hours. Through the Periodic Desktop Hardware Replacement Program, OCIO continues to adopt new standards for more sustainable equipment.	<ul style="list-style-type: none"> • 85% of Windows desktops are using Nightwatchman for power management. • 90% of Windows desktops replaced with smaller machines (Small Form-Factor or SFF) that consume fewer resources to produce and transport.
Establish, measure, and report sound practices with respect to the agency's disposition of excess or surplus electronic products 3(1)(iii)	Yes	All excess IT components and non-working electronics are disposed of through an R2 recycler. Working electronics are sent to GSA for reutilization in other Government agencies.	<ul style="list-style-type: none"> • Continue GSA annual EOY reporting. • Investigate options for measuring sound practices. • Continue to explore creative options to repurpose scrap material into useful products such as the Banners to Bags initiative.

(A) Strategy	(B) Top Five? Yes/No/NA	(C) Strategy Narrative (100 word limit)	(D) Specific targets/metrics to measure strategy success including milestones to be achieved in the next 12 months
Recommended Strategy			
Update and deploy policies to use environmentally sound practices for disposition of all agency excess or surplus electronic products and monitor compliance.	Yes	The Smithsonian ensures environmentally sound disposal practices through the use of an R2 compliant recycler. The SI encourages the disposal of excess property and provides recommended disposal methods during the annual Earth Day Events. Scrap metals are segregated and disposed of through a scrap metal vendor for recycling. Proceeds obtained fund sustainability initiatives SI wide.	<ul style="list-style-type: none"> • Continue annual Earth Day events to promote the recycling and proper disposal methods of all excess property. • Continue to explore alternative methods of disposal to include CFL and disposal through USPS.

Smithsonian Institution

Strategies - Goal 10: Climate Resilience

Table 10: Strategies - Climate Change Resilience

(A) Strategy	(B) Top Five? Yes/No/NA	(C) Strategy Narrative (100 word limit)	(D) Specific targets/metrics to measure strategy success including milestones to be achieved in the next 12 months
Required Strategy under E.O. 13693			
Update agency external programs and policies (including grants, loans, technical assistance, etc.) to incentivize planning for, and addressing the impacts of, climate change. (In column C, identify names of agency programs or policies)	Yes	One of the four grand challenges we have undertaken is “Understanding and Sustaining a Biodiverse Planet.” .	
Recommended Strategy			
Update agency emergency response procedures and protocols to account for projected climate change, including extreme weather events.	Yes	The new Emergency Response office will update emergency procedures. Existing plans identify weather related risks.	
Ensure workforce protocols and policies reflect projected human health and safety impacts of climate change.			
Update agency external programs and policies (including grants, loans, technical assistance, etc.) to incentivize planning for, and addressing the impacts of, climate change.			
Ensure agency principals demonstrate commitment to adaptation efforts through			

(A) Strategy	(B) Top Five? Yes/No/NA	(C) Strategy Narrative (100 word limit)	(D) Specific targets/metrics to measure strategy success including milestones to be achieved in the next 12 months
internal communications and policies.			
Identify vulnerable communities that are served by agency mission and are potentially impacted by climate change and identify measures to address those vulnerabilities where possible.			
Ensure that agency climate adaptation and resilience policies and programs reflect best available current climate change science, updated as necessary.			
Design and construct new or modify/manage existing agency facilities and/or infrastructure to account for the potential impacts of projected climate change.	Yes	New facility design considers the 500 year flood plane	
Incorporate climate preparedness and resilience into planning and implementation guidelines for agency-implemented projects.	Yes	The CCAP will incorporate climate preparedness into master planning and project guidelines.	Draft of plan completed in Dec 16
Ensure climate change adaptation is integrated into both agency-wide and regional planning efforts, in coordination with other Federal agencies as well as state and local partners, Tribal governments, and private stakeholders.	Yes	SI representatives will participate with NCPC climate risk planning. Draft CCAP will identify other opportunities for coordination with local and regional planning.	Draft of plan completed in Dec 16

FY 2015 FLEET MANAGEMENT PLAN AND BUDGET NARRATIVE FOR SMITHSONIAN INSTITUTION

(A) Introduction that describes the agency mission, organization, and overview of the role of the fleet in serving agency missions.

The Smithsonian's mission is to advance the *increase and diffusion of knowledge*. We do this through the world's largest museum and research complex, with 19 museums and galleries, numerous research centers, the National Zoo, and 177 affiliate museums in the United States, Puerto Rico, and Panama. The bulk of our vehicle fleet provides direct mission support to the museums, research centers, and facilities and security of personnel, property, and facilities. Vehicles are the linchpins of logistical support requirements that we provide, either through acquisition or pooled resources to users in the form of "loaner vehicles" for short-term users.

It is very important to note that the Smithsonian is a *trust instrumentality* of the United States, and is unique in many ways, including some vehicle acquisitions. Although functionally and legally a body of the U.S. government, we are separate from the government's federal legislative, executive, and judicial branches. Many of our *government* vehicles are *trust* funded, and not subject to the federal rules of acquisition and disposition. As such, projections for optimization via the VAM criteria are challenging. While we monitor, maintain, and provide other administrative support for these assets, we exercise very little control over them.

The Smithsonian Tropical Research Institution (STRI) in Panama, is a bureau of the Smithsonian Institution based outside of the United States. STRI is dedicated to understanding biological diversity. STRI's facilities provide a unique opportunity for long-term ecological studies in the tropics, and are used extensively by some 900 visiting scientists from academic and research institutions in the United States and around the world every year. Our STRI Panama location has just over 100 vehicles assigned to their fleet (a mixture of federal and trust), all purchased, maintained, and disposed of in country

Other unique characteristics of the Smithsonian fleet lies in the support requirements of animals in both the DC National Zoological Park and our many rare/endangered species at our Smithsonian Conservation Biology Institute, located in Front Royal, VA "...which serves as an umbrella for the Smithsonian's global effort to conserve species and train future generations of conservationist." This is a group of five centers that collectively manages more than 25,000 acres devoted to endangered species study, management and recovery.

The Smithsonian Astrophysical Observatory (SAO) is a "research institute" of the Smithsonian Institution. It is joined with the Harvard College Observatory (HCO) to form the Harvard-Smithsonian Center for Astrophysics (CfA). The staff at SAO's Whipple Observatory, in AZ conducts amazing research on the evolution of galaxies that host massive black holes. These are but some of the examples of the work being done to advance the *increase and diffusion of knowledge*.

Our current fleet is comprised of 35 heavy duty vehicles, 96 medium duty vehicles, 265 light duty vehicles, and 10 sedans. Most of our heavy, medium duty, and light duty vehicles, especially trucks and cargo vans, are dedicated to facilities, animal care, maintenance, and security. The large passenger carrying vehicles our five employee shuttles to some 16 museums, galleries, business buildings, and our Smithsonian Institution Building, the Castle, in the D.C. Metro Area. We utilize trucks and cargo vans to transport U.S. mail, shop packages, supplies, equipment and furniture to our locations throughout the D.C. metro area. Additionally, we utilize our heavy duty trucks to transport food for the animal from our commissary, and to transport live animals, animal waste, and animal carcasses on as needed basis. Based on the low mileage and relatively good mechanical condition of our vehicles, small percentages of vehicle replacements from year to year is a standard practice to maximize our return on investment.

(B) Criteria for justifying and assigning vehicles (including home-to-work vehicle assignments).

Some of the factors and considerations used to assign vehicles are mission, frequency, number/amount of passengers/cargo, and mission impact if not authorized. Every assigned vehicle is assigned in either a direct or

indirect mission support category. Additionally, only the minimum number of vehicles necessary to support the mission is authorized. We do not authorize vehicles for reasons of grade, prestige, personal convenience or to individual persons. Our loaner fleet vehicles are used to satisfy short duration or sporadic mission requirements, to help minimize increased numbers of permanently assigned vehicles. We continue to encourage users at the National Zoo and our Front Royal, VA locations to consider seasonal leasing of snow control assets. Also, based on the fact that our two largest users are on campus locations, and a lion's share of the work done is to and/or around facilities, our vehicle use is predicated more on hours vice miles. We currently have no home-to-work authorizations.

(C) Vehicle Allocation Methodology (VAM) target development and explanation for reported fleet size and cost changes or not meeting agency VAM targets.

By far, the single largest vehicle user with the Smithsonian is the Office of Facilities, Engineering and Operations. This customer service dedicated organization includes such diverse services as engineering design, construction management, project management, facilities maintenance and operations, horticulture, physical and technical security, occupational safety and health, and transportation management. The lion's share of light, medium and heavy duty trucks and the buses are assigned to these units. The Smithsonian considers some (not all) fleet vehicles with less than 5,000 miles annually to be targets for downsizing/rightsizing opportunities. However, care must be exercised due to the nature of work performed and the campus-like environment of our locations. Often, vehicle need is predicated more on hours in use at the job site that on miles traveled. An aggressive fleet management vehicle validation program is being implemented to ensure retention of assigned assets is justified based on verifiable criteria. For example, tradesman vehicles, the hours of service are obtained from service orders. Less than 800 hours of service is considered underutilized. Security vehicles are considered in use when on post sites and available for dispatch.

Our most recent VAM study asked: What tasks do you accomplish with the vehicle and how do those tasks support the agency's mission? How critical is the vehicle's need to accomplish the mission?

How many people and what cargo will be transported per trip on a regular basis?

Is the vehicle shared with others?

Is there access to alternative fuel within 5 miles or 15 minutes of the vehicle's garaged location?

What types of alternative fuel is available?

What type of driving conditions is the vehicle used in (highway, off road, used for snow removal operations, tows a trailer with equipment, etc.)?

Can the vehicle's work be done via alternatives to owning or leasing a vehicle such as sharing vehicles with other offices/agencies, or short term rentals when needed?

Smithsonian is on-track to meet all VAM objectives.

(D) Description of efforts to control fleet size and cost.

SI's fleet size, composition, and acquisition and lease costs has remained fairly constant over the past few years, with the exception of parts cost and operating cost, which are almost all directly attributed to increased fuel cost. Our primary acquisition source for vehicles remains GSA, as the most cost-effective source. However, we do maintain a large operation in Panama, and vehicles to support that mission are purchased locally as a cost savings initiative. We recently met with GSA representatives and are looking into the possibility of consolidation, however, we are still in the early stages. We continue to right-size the fleet, and focus on the acquisition of green vehicles and the

infrastructure to support them. Our planned projects to increase the number of electric vehicle charging stations has resulted in two additional stations here in the National Capital Region (NCR). Additionally, our new fuels station is currently under construction at our Suitland facility, and should be operational this summer. This will provide on-site E-8, regular unleaded, and diesel capability for us.

(E) Explanation of how law enforcement vehicles are categorized within the agency (See FMR Bulletin B-33).

SI currently has no law enforcement vehicles authorized or assigned to our fleet.

(F) Justification for restricted vehicles.

SI does not use sedans larger than class III (midsize), but does have some large SUVs. These assets are being specifically identified, and organizational users are being task to provide justification if like-type replacements are required. Barring sufficient justification on a functional needs exemption, these vehicles will be right-sized upon replacement. There are no executive fleet vehicles assigned at the Smithsonian, nor any limousines in our inventory.

(G) Description of vehicle replacement strategy and results.

(1) SI conducts a cost analysis to determine the best vehicle sourcing method and vehicle type. SI compares cost of owned vehicles to leased vehicles, compares all direct and indirect costs projected for the lifecycle of owned vehicles to the total lease costs over an identical lifecycle. Due to the structure of SI facilities and the limited miles travelled annually, SI is currently reviewing the numbers of vehicles we can economically consolidate to GSA lease. During the VAM process, SI will ensure that all AFVs are in proximity to an Alternative Fuel station where possible.

(2) Currently SI has three EV charging stations capable of charging two vehicles at once, and a CNG station (located at our Suitland, MD facility). We intend to replace existing, aged CNG vehicles with new asset and locate them in Suitland for ease of access to the station. Our plans for additional charging stations at the National Museum of Natural History in Washington DC and one at the Museum Support Center in Suitland, MD, are complete. Our final unit for the Collections and Support Center located in Landover, MD is still pending. In areas where alternative fuels are not available, we will focus our effort on obtaining low green-house-gas emitting vehicles. We are also exploring renewable stations for the National Zoological Park, in Rock Creek.

(3) SI conducts a cost analysis to determine the best vehicle sourcing method and vehicle type. SI compares cost of owned vehicles to leased vehicles, compares all direct and indirect costs projected for the lifecycle of owned vehicles to the total lease costs over an identical lifecycle.

(H) Description of the agency-wide Vehicle Management Information System (See FMR Bulletin B-15).

SI has a comprehensive web-based Vehicle Fleet Management Information System (FMIS)—FleetWave. It is a fleet-dedicated, comprehensive system that captures all fleet data, including transactions, expenses by vehicle, and out year planning and reporting. The system also provides our production control capability for vehicle maintenance work orders and parts ordering/tracking. We plan to add a vehicle dispatch module to complete our total fleet management functionality. Our FMIS is fully compliant with FMR 102-34 requirements and includes most of the fields recommended in the B-15 Bulletin.

(I) Plans to increase the use of vehicle sharing.

SI continues to maximize loaner fleet vehicles at our locations in Suitland, MD; Edge Water, MD; and Front Royal, VA. Additionally, we employ a shuttle system of five routes that services our locations throughout the NCR. These shuttles are available to all SI employees, and to other OPS ID card federal employees on a space-available basis. SI does not assign vehicles to a single person. All assignments are based on shop/area mission requirements.

(J) Impediments to optimal fleet management.

SI has concerns regarding the availability and cost of alternative fuels and alternative fuel vehicles, primarily hybrids. The cost of hybrids, the incremental costs, limited range/platform of electric vehicles, and no annual vehicle replacement budget within the agency are all objects for concern. Additionally, the availability of E85 fuel infrastructure is still a major issue nationally. There will continue to be areas where there are no realistic solutions for AFVs, particularly in our very rural locations. Modernization efforts rest on increased obtainment of alternative fuel vehicles as replacements for our aging fleet, for operating at maximum efficiency. Additionally, our out dated on-site refueling stations data management processes greatly hamper our data reporting accuracy efforts. We are hard at work with our agency IT personnel and commercial vendors to automate our fuels inventory/dispensing data to resolve these problems.

(K) Anomalies and possible errors.

A. The Smithsonian vehicle fleet is comprised of a mix of federally funded and trust funded assets. Trust funded assets are not to be reported in the FAST programming, nor included as part of the agency VAM program. A review of FAST reported inventory numbers from 2013 to 2014 revealed erroneous exclusion of numerous vehicles in 2013 that were misidentified as trust assets, which are actually federal assets. The true number of trust vehicles has been verified by the Office of Risk Management, and the other misidentified assets. This correction of records is getting us to our true, FAST reportable assets and well as true fleet optimization. Additionally, our GSA lease Annual Operating Cost for 2014 was also inaccurate. The annual operating cost for 2014 should have been \$119, 552, not \$619,552.

B. Our “fuel use to vehicle” ratio, plus or minus is an issue we are constantly addressing, to ensure reported “fuel type” data accurately matches the fuel being purchased. This situation will require constant monitoring.

(L) Summary and contact information.

The SI's point-of-contact for questions about the agency fleet is MacArthur Burton at burtonm@si.edu/301-238-1861, or Ted Croom at croomt@si.edu/301-238-2046. The Smithsonian's Office of Planning, Management and Budget is the budget reviewing office.