



Smithsonian Institution

Strategic Sustainability Performance Plan

Office of Facilities Engineering and Operations

06/03/2011

Founded in 1846, the Smithsonian Institution (SI) 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. With permanent locations in 8 states plus Washington, D.C. and Panama, the Institution is active in over 80 countries around the world. James Smithson established the Smithsonian Institution as "an Establishment for the increase & diffusion of knowledge..." with a sweeping public mission for learning and teaching. The Smithsonian has been, and must be, sustainable for generations to come.

The Smithsonian is a trust instrumentality of the United States¹, and although not an Executive branch of the U.S. Government, the Smithsonian is committed to the strategic objectives and goals of Executive Order 13514 that set sustainability goals for federal agencies and focuses on making improvements in environmental, energy, and economic performance. As stated in the current Smithsonian Strategic Plan, one of the four grand challenges the Smithsonian has undertaken is "Understanding and Sustaining a Biodiverse Planet". The goals established by the Executive Order complement and underscore the Smithsonian's 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. The Smithsonian nurtures over 180 acres of gardens surrounding many of our museums and support facilities providing new and innovative opportunities for the exhibition of sustainability best practices. In our unique way, the Smithsonian is helping to green our city and beautify our landscape. These gardens are full of plants which help to vegetate the city and cool the air, hopefully making the tourists just a bit more comfortable.

The Smithsonian is meeting goals to decrease potable water use per square foot, decrease fleet petroleum use, establish inventories of direct and indirect greenhouse gas emissions, and increase the use of renewable energy. The Smithsonian exceeded our goal of reducing fleet petroleum use by decreasing its fleet size, installing bio-diesel fueling equipment, piloting an idle reduction system, and deploying both alternative-fuel and hybrid vehicles. The Smithsonian fulfilled the renewable energy goal by purchasing green power from wind and biomass sources.

Sustainability challenges faced by the Smithsonian include resource intensive aspects of its unique operations, and major commitments to other critical Smithsonian priorities. Funds and personnel dedicated to improving the condition, appearance and security of Smithsonian facilities cannot be diverted without impacting essential operations. These are very challenging financial times. Few, if any priorities exceed those associated with delivering the new National Museum of African American History and Culture, scheduled to open on the National Mall in November 2015.

Despite these difficult financial challenges, the Smithsonian has made significant progress toward its sustainability goals this past year, and will continue to do so in the years to come. We are committed to the following goals for the next fiscal year: Submit our first LEED-EB certification for the National Museum of the American Indian, select our second ESPC for our Suitland campus, finalize our advanced metering plan, and improve our energy intensity at two of our most challenging facilities.

We look forward to another sustainable year while serving and educating our public.



June 3, 2011

Nancy J. Bechtol, Senior Sustainability Officer

Date

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

I. Agency Policy Statement (optional image)

II. Sustainability and the Agency Mission

Sustainability is a central tenet of the Smithsonian. The Strategic Sustainability Performance Plan complements the Smithsonian's overall Strategic Plan for 2010 – 2015, *Inspiring Generations Through Knowledge and Discovery* and the four Grand Challenges of the plan:

- Unlocking the Mysteries of the Universe
- Understanding and Sustaining a Biodiverse Planet
- Valuing World Cultures
- Understanding the American Experience

Of these goals, “Understanding and Sustaining a Biodiverse Planet” and “Valuing World Cultures” relate directly to sustainability. As stated in the Strategic Plan, “While Environmental variability has resulted in major changes in biodiversity, it is the activities of man that have greatly accelerated the rate of change, threatening life on the planet...Efforts to address the loss of biodiversity raise a critical issue...in some ways, we know more about the stars in the universe than we know about the biodiversity in our own backyards, or its role in the ecosystems that supply us with clean water and a host of other environmental services.” While Smithsonian researchers grapple with these issues, it is critical that Smithsonian sites, facilities, and operational units function in a sustainable and responsible manner, allowing the Smithsonian to truly lead by example. Teaching the value of diversity of human culture -- particularly American culture -- is both a traditional and an increasing SI focus, as the completion of the National Museum of the American Indian and the planning of the National Museum of African American History and Culture, will attest. Social equity – the third foundation of the sustainable triple bottom line – is a basic SI value.

Mission

The language of James Smithson's 1826 bequest dictates the SI mission, to be “an establishment for the increase and diffusion of knowledge...”

To support the idea of leading by example, the Smithsonian's Office of Facilities, Engineering, and Operations (OFEO), in its own strategic plan for fiscal years 2009–2013 included the goal “Sparkling Facilities: Through Impassioned Stewardship” with “Go Green” as its final objective, encompassing two actions, both underway:

- Lead sustainability movement throughout the Smithsonian;
- Obtain United States Green Building Council's (USGBC), Leadership in Energy and Environmental Design (LEED) ratings for new construction and existing buildings.

Mission-related Challenges

The Brundtland Report's 1987 definition of sustainability is the ability to meet the needs of the present without compromising the needs of the future. Under this definition, sustainability for the SI means the continuity and preservation of the collections, embodying the history of our shared human culture. It also means preserving access to those collections by scholars and by the public. With the demands of preservation and of public access in mind, these are the primary challenges to achieving sustainability goals:

- A "resource-intensive" mission. In 2010, the SI had a approximately 30 million visits to SI facilities, exhibits, and lectures. SI cultural and scientific research and astrophysical observatories add to global knowledge. Truly the SI is, in Smithsonian's words, "an establishment for the increase and diffusion of knowledge." Yet this public mission includes energy and resource intensive activities such as providing and maintaining environments suitable for storing and preserving collections and historic buildings; operating food service, museum shops, theatres and other services for visitors; hosting hundreds of special events each year; and conducting specialized scientific research. The goals of EO 13514 and the demands of the SI mission may not always coincide.

- Planning and financing sustainable facilities during periods of rapid growth. Since 1950 the major facilities of the SI have grown from 2 million square feet to over 12 million (sf). The completion of the National Museum of African American History and Culture will add another 313,000 sf to the SI building inventory. This period of growth in itself represents a challenge to sustainability. Planning for High-Performance Green Buildings requires much time-intensive, front-end planning, and some higher first costs (however rapidly recouped).

- Balancing requirements for historic preservation with the need for sustainable retrofits. The SI building inventory includes facilities that range in age from several months to more than 150 years old, and includes buildings on or eligible for inclusion on the National Register of Historic Places – the SI must balance the need for the greening of building stock consistent with the demands of historic preservation.

- The need for a consistent tracking and reporting for a global institution. The SI facilities are global - from Massachusetts, to the desert Southwest, to tropical Panama, to the mountains of Hawaii; the operations of individual and widely scattered SI facilities are rather autonomous, and management practices vary among geographic locations. Enterprise level tracking and reporting will require additional staff, IT applications, time, and money.

Actions to Address Challenges

Overcoming the challenges noted above will necessitate the following actions:

- Establishing SI-tailored sustainability benchmarks for EO 13514's Goal Areas 1, 2, and 3 in situations where meeting proposed targets would result in the compromise of the mission. For example:

> Because the collections require constant, 24-hour climate control with narrow or few variations in humidity and temperature, achieving a 30% reduction in energy intensity relative to the FY 2003 baseline, as directed in the Energy Independence and Security Act of 2007, is not practical for SI museums. More modest goals for reduction in energy intensity are achievable without compromising the mission.

- Taking the first steps to develop a consistent tracking tools for the Smithsonian, beginning this year with the expansion of current purchasing tracking and inventory tools to include metrics for sustainability.
- Continuing the development of an integrated management team to ensure a forum for ideas, alignment and continuity of sustainable efforts, and involvement of all SI stakeholders, including those at the executive level.
- Finding ways to finance green priorities. This will involve the searching for sources for performance contracting; aligning green priorities with other strategic or required objectives, like historic preservation; and noting and prioritizing, within budgetary limits, line items for sustainable capital expenditures.
- Redirecting staff efforts or hours towards greening the SI, or prioritizing new hires for such efforts when possible.
- Reducing carbon emissions through offsets and actions, such as the purchase of renewable energy certifications or plans for reforestation of areas near or around SI facilities.

Size and Scope of Operations

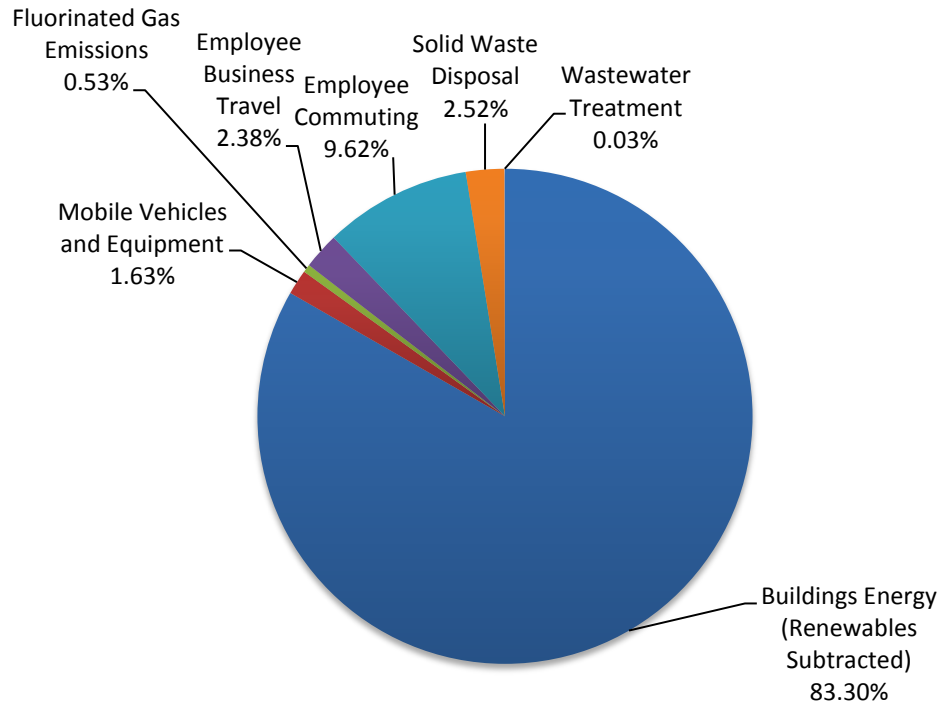
Size and Scope of Operations	Number	Comment
Total # Employees	6173	As of 3/26
Total Acres Land Managed	7408	6683 - owned; 725 - leased
Total # Facilities Owned	356	
Total # Facilities Leased (GSA lease)	1	
Total # Facilities Leased (Non-GSA)	153	
Total Facility Gross Square Feet (GSF)	12000000	FC data; owned, leased, and foreign govt owned
Operates in # of Locations throughout U.S.	14	States and the District of Columbia
Operates in # of Locations outside of U.S.	8	Countries in addition to the U.S.
Total # Fleet Vehicles Owned	484	
Total # Fleet Vehicles Leased	26	
Total # Exempted-Fleet Vehicles (Tactical, Emergency, etc.)	10	
Total Operating Budget FY 2010 (\$MIL)	1095	
Total # Contracts Awarded FY 2010	1372	Includes modifications, does not include simplified acquisitions

Size and Scope of Operations	Number	Comment
Total Amount Contracts Awarded FY 2010 (\$MIL)	240000000	Includes obligations and deobligations, does not include simplified acquisitions
Total Amount Spent on Energy Consumption FY 2010 (\$MIL)	36.1	
Total BTU Consumed per GSF	148	
Total Gallons of Water Consumed per GSF	41.5	
Total Scope 1 & 2 GHG Emissions (Comprehensive) FY 2008 Baseline MMTCO ₂ e	135476	
Total Scope 1 & 2 GHG Emissions (Subject to Agency Scope 1 & 2 Reduction Target) FY 2008 Baseline MMTCO ₂ e	135476	
Total Scope 3 GHG Emissions (Comprehensive) FY 2008 Baseline MMTCO ₂ e	26939	
Total Scope 3 GHG Emissions (Subject to Agency Scope 3 Reduction Target) FY 2008 Baseline MMTCO ₂ e	8896	

II. Sustainability and the Agency Mission (optional image)

III. Greenhouse Gas Reduction Goals

The SI established FY2020 targets to reduce scope 1 & 2 GHG emissions by 32%, and to reduce scope 3 GHG emissions by 11%, relative to FY 2008 baselines.



Summary of SI GHG Emission Sources, FY2010

In FY2010, more than 83% of SI GHG emissions were associated with energy used in buildings, and approximately 2/3 of this amount was from the generation, transmission and distribution of electricity. Employee commuting was the 2nd largest contributor, generating 9.6% of FY 2010 SI GHG emissions. Solid waste disposal accounted for 2.5%. Employee business travel accounted for 2.4%. Mobile vehicles and equipment accounted for 1.6%. Less than 1% originated from fluorinated gas emissions and wastewater treatment.

Main SI strategies for achieving the scope 1 & 2 GHG reduction goal are reducing average energy intensity in buildings, increasing purchases of green energy, increasing renewable electricity generation on SI property, and reducing fossil fuel use in mobile vehicles and equipment.

The scope 3 GHG reduction goal will be achieved by reducing landfill disposal of solid waste, and by scope 2 strategies which yield reductions in scope 3 emissions associated with transmission and distribution of energy.

The SI does not anticipate reduction of GHG emissions as a result of ARRA investment.

IV. Plan Implementation

The SI is a hierarchical organization under the direction of the Secretary (The Office of the Secretary) that provides oversight in support of decentralized execution by the operating units. This provides the flexibility and adaptability needed to perform the SI mission across the globe, however, also poses significant challenges to consistent policy execution across units and varied geographic locations. The SI will build on the success to date to implement the SSPP by improving existing internal and external communication capabilities with a commitment by leadership across the Smithsonian to lead by example.

a. Internal Coordination and Communication

The SI uses a variety of internal coordination and communication methods that historically have been “grass roots” efforts led by operating units. In support of the SSPP, the existing methods will be used with a new centralized reporting capability. The tools and methods include internal and external websites; Share Point work sites; e-mail, print, public relations channels, and special events such as the Folklife Festival. Sustainability infuses the thinking of SI employees, as evidenced by the numerous programs and initiatives such as the self-organized Sustainability Committee, the Gardens initiative, and SI Go Green campaign.

b. Coordination and Dissemination of the Plan to the Field

There are multiple offices within SI that will coordinate and disseminate the SSPP to operating units, visitors, vendors and suppliers. Currently, the SI has an informal Sustainability Committee and numerous green teams that will be used to communicate the SSPP while the SI undertakes the creation of a more formalized program. Key offices and goal areas include:

- Office of Facilities Engineering and Operations (OFEO) – Planning, Sustainable Buildings, Energy, Water and Wastewater, Pollution and Waste, Vehicles (also Chairs Sustainability Committee)
- Office of Chief Information Officer (OCIO) – Electronic Product Environmental Assessment Tool (EPEAT)
- Chief Financial Officer (OCFO) – Budget and Reporting
- Office of Contracting and Personal Property Management (OCON & PPM) – Green Acquisition

The plan for dissemination to the field contains the following key elements:

- Deployment of a new web page on the SI external website to highlight Sustainability Initiatives at the SI (for both internal and external communication);
- Use of SI-wide email announcements to communicate and to share progress towards goals;
- Internal educational sessions and workshops for SI staff;
- Establishment of a webpage for reports and notices on the SI Intranet.

c. Leadership and Accountability

The SI is working to develop a formal organized structure for sustainability. It will draw on existing staff who are committed to promoting sustainability and whose efforts have already yielded great progress. It will utilize existing structures such as the Sustainability Committee and numerous green teams. It includes establishment of a new executive committee for sustainability leadership that shall report to the Secretary.

The SI requires evidence of incorporation of sustainable practices in its performance evaluations of senior SI officials and relevant staff, to achieve its level of conformance with EO 13514, including the Senior Sustainability Officer, environmental and energy managers, fleet managers, facility managers and the sustainable design and construction manager. This plan proposes that real property managers, contracting officials, information technology specialists and other relevant positions also have these requirements included in performance evaluations.

For purposes of goal-setting and to initiate data gathering, the SI held two workshops attended by staff from many SI facilities, including SI architects, energy managers, fleet managers, museum exhibit designers, purchasing managers, and information technology (IT) representatives. On April 1, 2010, the Office of Facilities Engineering and Operations (OFEO) coordinated and held the first of these workshops to outline the requirements of EO 13514 and related Federal directives and Acts, such as the Energy Independence and Security Act of 2007. On April 8 the second workshop – attended by 40 persons including the SI Senior Sustainability Officer -- met to give input and ideas and identify informational gaps. Subsequent follow up meetings and data gathering continued where possible in the limited time frame. Representatives of OFEO coordinated these meetings and will continue to act as facilitators for this data gathering, which will use an internal SI SharePoint site as a digital working archive.

d. Agency Policy and Planning Implementation

Policy and planning integration, facilitated through OFEO via existing SI energy management and sustainable design directives, will occur through the work of assigned managers in the operating units. This integration will further occur through an Executive Sustainability Committee of high-level decision makers and SI budget planners.

e. Agency Budget and Policy Integration

The challenges to budget integration include funding challenges and competing priorities for funds, such as the need to provide for non-discretionary operating costs and to address significant deferred operations and maintenance backlogs. At present, the Smithsonian budget requests to OMB and Congress do not highlight sustainability principals and practices. Leaving aside the “soft costs” for items such as LEED certification fees and professional services relating to sustainable design or operations, sustainability is embedded in most retrofit and construction efforts at the SI. Because sustainability is difficult to capture as a single budgetary line item, the SI will determine the best means of accounting for and tracking these costs in its financial system. There are existing SI procedures and regulations for designating facilities capital allocations depending on their source. Unrestricted trust funds provide limited resources to support other higher priority operations. Restricted trust funds must be used in accordance with donor guidance or SI Board designated restrictions. SI financial management staff from the Office of Planning, Management and Budget (OPMB) and other SI units will be consulted on green initiatives and the use of financial resources.

f. Methods for Periodic Monitoring and Evaluation of Progress

The SI evaluates progress through periodic reviews and reporting mechanisms such as the Office of Management and Budget (OMB) scorecards. As new OMB instructions and guidance are issued, these will be incorporated into a future SI enterprise database with a senior executive reporting dashboard capturing goals, milestones, and timelines providing real time updates on progress.

Internally to the SI, there will need to be a number of programs and metrics developed in conjunction with other federal agencies, in particular, the Environmental Protection Agency and Department of Energy, for the development of new facility categories to include museums, in the EPA Energy Star Portfolio Manager.

Operating unit budgets, staff position descriptions, workforce development, transit and alternative work schedules will be reviewed and updated to incorporate SSPP principals.

Metrics for assessment will initially come from existing tracking and reporting mechanisms, which currently use a number of independent IT applications and systems to provide the data, and must then be manually compiled and analyzed to generate the reports. SI employees perform sustainability related tasks as part of daily activities.

In the next two years, the SI will give priority to executing the Sustainable Buildings Implementation Plan (SBIP) and for developing and deploying an EPEAT program for all IT related equipment to include servers, cell phones, printers, and copiers.

IV. Plan Implementation (optional image)

Table 1: Critical Planning Coordination

Originating Report / Plan	Scope 1 & 2 GHG Reduction	Scope 3 GHG Reduction	Develop and Maintain Agency Comprehensive GHG Inventory	High-Performance Sustainable Design/Green Buildings	Regional and Local Planning	Water Use Efficiency and Management	Pollution Prevention and Waste Elimination	Sustainable Acquisition	Electronic Stewardship and Data Centers	Agency Specific Innovation
GPRA Strategic Plan	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Agency Capital Plan	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
A-11 300s	N/A	N/A	N/A	Yes	N/A	N/A	N/A	N/A	N/A	N/A

Originating Report / Plan	Scope 1 & 2 GHG Reduction	Scope 3 GHG Reduction	Develop and Maintain Agency Comprehensive GHG Inventory	High-Performance Sustainable Design/Green Buildings	Regional and Local Planning	Water Use Efficiency and Management	Pollution Prevention and Waste Elimination	Sustainable Acquisition	Electronic Stewardship and Data Centers	Agency Specific Innovation
Annual GHG Inventory and Energy Data Report	Yes	Yes	Yes	Yes	No	Yes	No	No	No	Yes
EISA Section 432 Facility Evaluations/Project Reporting/Benchmarking	No	No	No	No	No	No	No	No	No	No
Budget	Yes	No	Yes	Yes	Yes	Yes	Yes	No	No	No
Asset Management Plan / 3 Year Timeline	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Circular A-11 Exhibit 53s	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
OMB Scorecards	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
DOE's Annual Federal Fleet Report to Congress and the President	Yes	N/A	Yes	N/A	N/A	N/A	N/A	N/A	N/A	Yes
Data Center Consolidation Plan	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Yes	N/A
Environmental Management System	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Originating Report / Plan	Scope 1 & 2 GHG Reduction	Scope 3 GHG Reduction	Develop and Maintain Agency Comprehensive GHG Inventory	High-Performance Sustainable Design/Green Buildings	Regional and Local Planning	Water Use Efficiency and Management	Pollution Prevention and Waste Elimination	Sustainable Acquisition	Electronic Stewardship and Data Centers	Agency Specific Innovation
Instructions for Implementing Climate Change Adaptation Planning	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Other (reports, policies, plans, etc.)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

V. Evaluating Return on Investment

SI financial resources are drawn from a number of sources; Congressional Appropriations, trust assets generated by its business and retail operations, charitable contributions, and endowments/grants obtained by researchers and scientists. The SI uses a number of methods to evaluate Return on Investment (ROI). The SI currently prioritizes projects, initiatives, and efforts using the strategic capital investment plan process. To support SSPP objectives based on lifecycle return on investment, the SI is evaluating other federal agency and industry methods and will update plans, policies and procedures to incorporate new calculation methods to take into account both monetary and non-monetary factors to prioritize projects and initiatives.

a. Economic Lifecycle Cost / Return on Investment

The SI uses the National Institute of Standards and Technology (NIST) Building Life-Cycle Cost (BLCC) methodology for economic analysis of project investment alternatives. The BLCC is a prioritization tool which compares alternative designs in order to understand which have the best life cycle values. Net savings, savings-to-investment ratio, adjusted internal rate of return, and years to simple payback are used to rank proposed energy and water efficiency projects. Overall prioritization of project investment recognizes other factors. The SI often must first satisfy other, more urgent requirements, such as life safety issues; code compliance; repair backlogs; and pressing operations and maintenance concerns.

Energy service companies (ESCOs) engaged by the SI for performance contracting also evaluate projects based on Return on Investment (ROI) and Net Present Value (NPV) consistent with methodology in the OMB Circular A-94 “Guidelines and Discount Rates for Benefits – Cost Analysis of Federal Programs.”

OMB has customized a version of the A-II 300s for the Smithsonian, titled the “Smithsonian Institution Capital Asset Plan (Exhibit 300) for Revitalization and Construction FY20__ Budget Submission”, in which language will be included to reference compliance with Federal Environmental and Energy Management requirements for applicable projects.

b. Social Costs and Benefits

Social Costs and Benefits (SCB) analysis is a challenging calculation for any organization, and the SI is no exception. Specific techniques for calculating social costs and benefits require a subjective interpretation of “well-being” that introduces areas of uncertainty, which include the social rate of return and the correction of market prices in the presence of externalities and distortions. A traditional formula to calculate SCB is:

Net Social Benefit = Social Benefit for Direct Effects + Net Effect of Externalities

For the SI, it is difficult to measure costs and benefits because the choices involve indivisibilities [1] and inter-industry linkages [2]. At present the SI has no direct method of evaluating the social costs and benefits of capital projects, yet because of its mission and public outreach, these are embedded in all SI investment decisions, and may outweigh other more quantifiable concerns.

The SI is evaluating the Department of Interior, the US Army Corp of Engineers, and the National Oceanographic and Atmospheric Administration calculation methods, along with industry methods, and will attempt to incorporate SCB into the planning process.

c. Environmental Costs and Benefits

The SI has a well defined program and processes in place to calculate traditional Environmental Cost and Benefits (ECB), which is primarily defined by the National Environmental Policy Act (NEPA) and the ISO Standards.

However, the global extent of SI facilities and missions, and the recognition that there are larger international environmental costs and benefits such as health impacts, property damage, ecosystem losses, and other welfare effects should be included in ECB. Many of these costs or benefits occur over the long term and/or are irreversible to include global warming and biodiversity losses, which has a direct impact on SI missions. Currently, there are few well developed calculation methods that the SI can use in the current planning processes.

As a longer term goal, the SI will initiate the development of a process and metrics for determining ECB for each EO goal.

d. Mission-Specific Costs and Benefits

The SI has not historically used a formal Mission-Specific Cost and Benefits (MSCB) calculation; however, the SI budget is to some degree developed on the basis of MSCB. Because the operating units (museums, zoo, Tropical

Research Institute, etc.) use a combination of public and private funds, each director in essence must balance the operating funds to achieve and maintain mission performance. To support this EO objective, the SI will evaluate other agency and industry MSCB calculation methods and will attempt to incorporate MSCB into the planning process.

e. Operations & Maintenance and Deferred Investments

Reduction of deferred maintenance is a very high priority and a significant challenge for the SI.

The SI has adopted the Deferred Maintenance (DM) parametric estimating technique to calculate DM or backlog of maintenance and minor repair costs, System Condition Index (SCI), and Facility Condition Index (FCI) as defined by FASAB Standard 6. Designed to be a simplified approach using existing empirical data, the method is based on:

- Condition assessments performed at the system level rather than the component level which is consistent with the Reliability Centered Maintenance (RCM) approach;
- A limited number of systems to assess (eight);
- Facilities classified based upon function and use (35 types);
- Use of generalized condition levels (five); and
- Current replacement values (CRV) of the systems and the facility they support.

This approach gives an overall assessment of condition of both the facilities and systems. The calculated deferred maintenance is a function of the current replacement value which, at minimum, must be updated annually. The resulting Facility Condition Index (FCI) is a function of all these factors. Using this methodology, the current SI estimate of deferred maintenance is \$802 million.

f. Climate Change Risk and Vulnerability

As a leading research institution, the Smithsonian acknowledges the risk of climate change and the vulnerability associated with rising sea levels, changes in atmospheric composition, and impacts of global weather pattern movement. In 2009, the SI sponsored an online conference on Climate Change. In the Strategic Plan commitment to “Understanding and Sustaining a Biodiverse Planet”, SI pledges to “advance and synthesize knowledge that contributes to the survival of at-risk ecosystems and species”. In addition to leading this effort, SI will continue to apply lessons learned to conservation efforts for its own sites, facilities, and collections, with the aim of preserving not only for the short term, but for future generations.

[1] Typically when investment must be of a minimum size or greater

[2] When a project harms an industry that is an important supplier to industries

V. Evaluating Return on Investment (optional image)

VI. Transparency

The SI as an educational institution is founded on collaboration to expand the knowledge base of the human experience. The scientific method is based on peer review and requires open debate. However, not all aspects of the Smithsonian can be, or should be, transparent to the public at large. Because the SI operates using a combination of public and private funds in multiple nations, the SI is restricted by law and/or covenants on what information is open to distribution. Specifically to sustainability, the SI is committed to sharing best practices, lessons learned, and collaboration with the local communities to implement the target goals.

a. Communication within the SI

As cited in Plan Implementation above, the SI, through the establishment of an Intranet or SharePoint website with content on the Sustainable SI, through emails to all staff, and through staff workshops intends to be open and transparent.

b. Communication to the Public

The SI will also devote space on its public website and via media campaigns to communicate with the public about SI sustainability efforts, and through public education programs such as the Horticultures Public Gardens Day.

c. Communication Methods

The World Wide Web, print, and emerging social media such as Facebook and Twitter are all major SI delivery mechanisms for public education on sustainability. Digital versions of content are preferred; hard copies will be provided only as necessary .

d. Scope of Transparency

Ideally, all content, deliberations, and reports will be captured and published on a SI-wide SharePoint site and on the World Wide Web, except for data sensitive to private donors, which will not be made public.

VI. Transparency (optional image)

Section 2: Performance Review & Annual Update (Update and Submit Annually)

I. Summary of Accomplishments

Throughout the course of the past year, the SI completed several notable achievements. These achievements spanned the public out-reach mission of the SI and included internal programs that furthered efforts toward

compliance with Executive Orders, statutory requirements, and internal goals and objectives. Among its achievements were:

- Increased alternative fuel consumption by 8% from FY09.
- Reduction of petroleum used by 5.6% from FY09 exceeding EO mandate of 2%.
- Conversion of Smithsonian Conservations Biological institute (SCBI) fuel site to B20 Biodiesel.
- Completed comprehensive GHG emission inventory.
- Anticipation of the first LEED certified Smithsonian buildings and projects in FY 2012, including the first Smithsonian museum LEED for Existing Buildings certification for the National Museum of the American Indian.
- Implementation of Federal Environmental and Energy Management requirements in all design and construction projects in 2011 (requirements set in 2010).
- The completion of a National Mall-Wide Water Reclamation Study using the National Museum of Natural History as a pilot project in 2009, and the initiation of subsequent projects to implement water reclamation measures in Smithsonian Mall buildings in 2010.
- The Office of the Chief Information Officer launched the NightWatchman (computer power management) utility beginning in 2010. First year savings were approximately \$162,000.
- In July 2010 the Folklife Festival hosted a Smithsonian Sustainability display and the Smithsonian Sustainability Committee members participated in a discussion panel at the Folklife Festival Discussion Stage. The display consisted of flip-panels that provided informative facts and figures about sustainability efforts at the Smithsonian and a hands-one product table with biodegradable plates used in some of the Smithsonian cafeterias, rice hull and coir fiber pots donated by Horticulture, solar science kits that are sold in Smithsonian Museum stores, amongst other items. The flip panels were made from repurposed material that was discarded from a prior exhibit display. The index cards contained 10% post-consumer recycled content and were recycled after the display was taken down, and even the pencils provided were manufactured from 100% recycled wood fibers. The main attractions at the display were two small trees used to collect ideas and visitor sustainability efforts. Individuals were encouraged to write their own sustainable goal on a slip of paper and tie it onto the tree. Almost three hundred goals and ideas were collected from our visitors.

The topic of the panel was “Tools for the 21 st Century: Greening the Smithsonian” and the team discussed sustainability initiatives in Smithsonian research and collections, buildings, gardens, restaurants, and fleet management. The festival receives approximately one million visitors during the festival each year.

The National Zoo also had a number of accomplishments:

- An inventory of the National Zoo's green building characteristics include:
 - Total number of areas with solar panels at the Zoo: (3) Panda, Sloth Bear, Lion-Tiger;
 - Total number of green roofs: (6) Sloth Bear, Panda, Otter, Elephant, Bison Shed, Panda Bamboo Storage.
- The Asia Trail also boasts the following green attributes: drip irrigation, passive solar design, low VOC paints and finishes. Energy Star appliances, LED lighting technology, certified timber and bamboo, low-flow water fixtures - including "on demand" animal waterers.
- The Sloth Bear exhibit design includes passive solar and a solar hot water heater.
- In 2010, the National Zoo completed the installation of 26 sub-meters to measure and monitor water usage throughout the park.
- Installed almost 200 containers to collect recyclable cans and bottles used by visitors and staff. In their first season of use, the National Zoo increased the amount of recycled material from ¼ ton to 2 ½ tons per month;
- Established an electronic-waste recycling collection program for staff and visitors. Items can be dropped off at the Visitor Center front desk and Zoo staff will see that they are recycled properly. Items recycled include: cell phones and accessories, MP3 players, digital cameras, gaming devices, external hard drives, and certain Apple laptop computers, as well as printer cartridges and many types of batteries.
- The National Zoo's souvenir shops have made an effort to reduce the use of plastic bags by providing bags made from recyclable plastic and offering reusable shopping bags as a low cost option for shoppers. More than 27,572 reusable bags have sold since introducing the program in March of 2009.

Goal 1: Scope 1 & 2 Greenhouse Gas Reduction (Basic Performance Discussion, A - H)

a. Goal Description

In response to Section 2 of the Executive Order, the SI reported the following values for Scope 1 and Scope 2 greenhouse gas emissions

- 1) FY 2008 total scope 1 & 2 emissions baseline = 135,476 MTCO₂e
- 2) FY 2020 reduction target = 32% relative to the FY 2008 total scope 1 & 2 emissions baseline

b. Agency Lead

The SI organizational lead for scope 1 & 2 greenhouse gas reduction target development, implementation, and oversight is the Office of Facilities Management and Reliability.

c. Implementation Methods

Buildings

1) Reduce facility energy intensity

- Annual and ongoing - Meet energy performance prerequisites for LEED sustainable building certifications according to the SI Sustainable Buildings Implementation Plan.
- FY 2011 - Complete energy and water assessments at the Donald W. Reynolds Center for American Art and Portraiture, the Herndon Data Center, and the George Gustav Heye Center.
- FY 2011 – Complete a combined energy and water assessment/retro-commissioning project at the Freer Gallery of Art, the Ripley Center, and the African Art Museum,
- FY 2011 – Commence EPA Energy Star Portfolio Manager Benchmarking of SI museum facilities
- FY 2012 – Complete Energy Savings Performance Contract “Preliminary Assessment” and “Investment Grade Audit” of Suitland, MD facilities including the National Museum of the American Indian – Cultural Resource Center (NMAI-CRC), the Museum Support Center (MSC), the Smithsonian Gardens Greenhouse, the Botany Greenhouse, the Osteo Prep Laboratory, and the Garber complex.
- FY 2012 – Award ESPC task order for Suitland, MD facilities.
- FY 2012 – Complete implementation of selected energy conservation measures at the Herndon Data Center and the National Air and Space Museum, funded in FY 2011.
- FY 2012 – Award and commence a retro-commissioning project at the National Museum of the American Indian, contingent on funding available.

2) Increase renewable electricity installation & use.

- FY 2011 and FY 2012 – Purchase renewable energy certificates to meet Federal goal 5% of total electricity use.
- FY 2011 - Assess opportunities for on-site renewable electricity generation in projects including the Smithsonian Environmental Research Center Mathias Laboratory Renovation and the new National Museum of African American History and Culture.
- FY 2012 - Assess opportunities for on-site renewable electricity generation in the ESPC proposed for Suitland, MD facilities.

3) Reduce per capita energy consumption through space management policies – The SI has documented no reduction in per capita energy consumption through space management policies.

Fleet [i]

1) Reduce petroleum use in fleet vehicles. [ii]

In 2010, the Smithsonian Institution (SI) built upon the success of previous years and continued to focus on the pillars of our green fleet plan - Fleet Rightsizing, Alternative Fuels, Management & Maintenance Practices, and Emissions Reduction. Focusing on key tactics throughout the year, the Smithsonian continued to make significant progress. These small successes led to a considerable reduction of our agency-wide petroleum consumption. Some of our key programmatic targets were:

- Transition from program fleet reviews (general) to Vehicle Allocation Methodology (specific). This process looked at how vehicles were assigned and utilized, focusing on mission, tasks, cargo, and number of users, and resulted in the creation of central pools. These pools limited the total number of vehicles assigned based on demand history and allowed SI to optimize the size and fuel efficiency of the vehicles provided.
- The conversion of two of our in-house diesel fuel sites to a soy-based B20 biodiesel blend.
- Optimizing our fleet purchases focusing not only on fuel efficiency and low emissions, but ensuring the vehicle matched the true need of the mission.

Individually, these practices make small impacts, but together create a successful program that has placed the Smithsonian fleet in a position to continue to make smart fact-based fleet decisions.

To improve our strategy to reduce our global petroleum consumption and optimize our fleet, the SI will continue to implement a number tactics in FY11 and FY12. They are outlined below.

2) Increase use of alternative fuels in fleet alternative fuel vehicles (AFVs) and Flex-Fuel Vehicles (FFVs). [iii]

The Smithsonian has focused its attention toward increasing its alternative fuel use. A focal point of the Smithsonian's alternative fuel program success was the conversion of two in-house diesel fuel sites to a soy-based B20 biodiesel blend. These conversions, implemented mid-year FY2010, proved to be successful. With a comprehensive fuel strategy in mind, the B20 now provides fuel to a majority of our diesel fleet, specifically shuttle buses. Additionally, because of the success of these two sites, the SI has revised its fleet acquisition strategy. This new approach allows us to expand our options to include more diesel fleet vehicles. In FY10, SI noticed a slight reduction in E85 fuel consumption. The SI attributed this to a number of factors including a reduction in miles driven by E85 fleet vehicles, inadequate availability to commercial E85 facilities, and a lack of driver awareness. Additionally, in FY2010, the Smithsonian completed the installation and integration of new fuel site accounting and monitoring controls. In order to improve fuel accountability, the SI installed fuel inventory systems at two additional sites. The data derived from these sites is integrated into the Smithsonian's web-based Fleet Management information System for each respective fleet vehicle. This allows for detailed analysis and monitoring of fuel economy and consumption.

To improve our alternative fuel strategy, the SI has a number of tactics to implement in FY11 and FY12 which will increase our alternative fuel consumption.

- Driver Education - Continuing the Go Green>> Go Clean>> Go Smithsonian>> driver awareness campaign implemented in 2008, fleet management will reinforce alternative access locations via electronic communication, vehicle log books maps, training, and vehicle labeling.
- Program Scorecards - As part of fleet program reviews, units and executive management will be provided updates of their fuel consumption. A new component: units will be graded on their compliance on alternative fuel use.
- Increase CNG fuel access - To maximize our CNG fleet, SI will be opening a central in-house CNG fueling site in FY11. This in-house solution will provide increased accessibility by our CNG fleet and promote the purchase of future CNG fleet vehicles.
- Develop E85 infrastructure - A challenge for the SI fleet is consistent and reliable access to E85 fuel. In FY10, the Smithsonian worked to reassign E85 fleet vehicles to maximize access to commercial fueling locations. E85 vehicles represent the majority of SI's alternative fuel fleet. As the fleet continues to be replaced with new E85-capable vehicles, the need for a central fueling site will become more important. As part of the Smithsonian's green fleet strategy, it will continue to request capital funding to install a central E85 fueling facility.

3) Optimize use of vehicles and right-size fleet.

“You can't manage what you don't measure” is the motto of the fleet management team. In FY10, as part of the Smithsonian's green fleet plan, the team refined its strategy for rightsizing the fleet, redefined fleet utilization reviews, and incorporated a basic Vehicle Allocation Methodology (VAM). Since implementation SI has developed utilization and fuel efficiency targets for each class of fleet equipment based on true mission requirements. To improve data reliability, SI incorporated the use of vehicle telematics to optimize routing and track utilization. The real time data tools provided critical metrics that Identified areas for improvements and consolidation. Using that data, SI created central pools, assigning the appropriate type of vehicle based on demand history, cargo requirements, and passengers. The results have been extremely positive, providing accessibility to a broad range of fleet vehicles to meet the mission needs. While fleet optimization was successful, one issue derived from the consolidation process was the increase in mileage of fleet vehicles. Because the Smithsonian does not have a replacement fund, the increased utilization placed a defined emphasis on the need to replace vehicles on regular cycle.

To improve our fleet rightsizing strategy, SI tactics for FY11 and 12 are:

- Expand our Vehicle Allocation Methodology (VAM) review to two additional programs during the year.
- Develop an Excel-based fleet replacement tool. The tool will factor alternative fuel availability, annual costs, lifecycle costs, emissions, program requirements, and utilization goals.
- Request a capital vehicle replacement budget that matches the Smithsonian's strategic plan and the needs of our green fleet goals.
- Expand the utilization of telematics to additional units in conjunction with our vehicle allocation methodology (VAM).

- Expand Fleet Share program to Smithsonian Astrophysical Observatory in Arizona in FY12.

4) Increase use of low emission and high fuel economy vehicles.

As part of the Smithsonian's goals to right size its global fleet, each vehicle replacement is selected to meet the requirements of alternate fuel and lowest emissions score while meeting the functional requirements of the mission. As part of our replacement strategy, each class of vehicle has a minimum vehicle standard. Over the past few years, the Smithsonian has done exceptionally well to optimize new vehicles to meet our goals of fuel efficiency and low emissions. If vehicles do not meet the minimum requirements for the respective assigned class, units must provide a functional justification outlining the requirements for selecting the vehicle outside the minimum requirements. In FY2011 the Smithsonian is updating the fleet management policy and accompanying handbook. As part of this critical revision, the updated requirements for meeting federal goals to purchase low emission and high fuel efficiency vehicles will be incorporated into the SI green fleet plan. Historically, the challenge for the Smithsonian is the lack of a capital fleet replacement budget. The practice of utilizing year-end funding to meet the federally mandated goal of purchasing green vehicles is challenging. In FY2010, the Smithsonian achieved the Epect acquisition goal of 75%, which was a first for the Smithsonian. Greenhouse gas scores have also been incorporated into the replacement plan.

Our plans to improve the use and acquisition of low emission and high fuel efficiency vehicles for FY11 and FY12 are:

- Update the Smithsonian policy on the acquisition of fleet vehicles to include the new federal policy on purchasing high fuel efficient, low green house gas emitting vehicles.

- Request a capital vehicle replacement budget that matches the Smithsonian's Strategic plan and the needs of our green fleet goals.

5) Replace conventional senior executive fleet with low-GHG emitting, highly-efficiency vehicles.

The Smithsonian has set the standard for senior executive transportation by incorporating a model strategy for rightsizing, fuel efficiency, and low greenhouse gas emissions. The leadership of the Smithsonian utilizes a shared, light duty (LD) alternative fuel passenger vehicle. This vehicle was selected to match the leadership's historical demand and passenger requirement while meeting the green requirements of alternative fuel and the low emissions. The gas vehicle has the lowest emissions in its class. The Smithsonian Institution is meeting its needs while setting an example for other federal organizations.

6) Agencies operating shuttle buses should discuss efforts to streamline existing routes by consolidating ridership with other agencies. Identify specific challenges related to consolidation of and/or sharing of transportation services with other agencies.

The Smithsonian has a very comprehensive and efficient shuttle bus program in the Washington DC Metro area. Over the past 7 years, the Smithsonian has refined its shuttle operations to meet the growing operational needs of the Institution, carefully modeling the growth based on historical ridership and expanding mission requirements. Additionally, as part of our global fleet strategy, the shuttle program promotes public transportation to reduce the

total number of fleet vehicles and fuel consumption. In 2009, the Smithsonian became a leader in the federal fleet community by being the first federal organization to introduce hybrid electric buses into the fleet. These clean buses have become the cornerstone of an efficiency program built on rightsizing and alternative fuels.

The Smithsonian's program was identified as part the shuttle bus consolidation program that could potentially grow to accommodate additional agencies' routes.

The proposed consolidation and expansion of shuttle routes presents a number of opportunities and challenges to the Smithsonian. Currently, the institution operates 5 full-time shuttle routes which have been optimized to be cost efficient and tailored to meet the needs of the institution. Several discussion points are presented below.

Mission & Schedule - At present, the Smithsonian shuttle schedule is reviewed bi-annually to ensure the needs of the mission are supported. The shuttle program is an essential part of the institution's transportation strategy. If expanded to include additional agencies, the schedule would have to be adjusted to accommodate the additional stops and would potentially limit the current service provided to Smithsonian staff on each impacted route. If service is negatively impacted, the light duty fleet could grow to meet demands.

Staffing - The Smithsonian has the minimum number of in-house staff to efficiently operate its current fleet and schedule. The proposed shuttle consolidation and schedule growth would require additional FTE's to meet the demand of the new schedule. This would also include the administrative duties related to dispatching, scheduling, and tabulating shuttle metrics/data for other agencies in order to provide them with information on their ridership and costs.

Fleet growth - The Smithsonian has a model shuttle bus fleet carefully grown and optimized to meet the needs of the current program. The proposed consolidation plan would increase both daily ridership and the need for a larger fleet. The projected increase, while not significant, is necessary to ensure the increased demand for ridership is being accommodated each day with no potential impact due to maintenance. The fleet increase can be projected based on ridership metrics provided by each agency, however the cost of the proposed increase would have to be estimated. Participating agencies would have to provide funding to cover the cost of larger shuttle buses. Currently, the Smithsonian does not have a fleet replacement budget and uses year-end funding to purchase new equipment.

Maintenance - The Smithsonian has an exceptional vehicle maintenance program staffed to meet the current operational demand. The proposed consolidation program would increase maintenance hours and cost, and more importantly, the need to ensure all shuttle bus assets are in-service each day. The proposed expansion would require a more detailed evaluation of maintenance staffing hours in order to maintain a larger fleet.

Fuel increase - The Smithsonian was identified for the consolidation program to accommodate additional agencies. This increase in ridership and the requirement for a larger fleet will increase the consumption of fuel. While the Smithsonian is in the infancy of its B20 biodiesel program, this proposed expansion would increase its cost, petroleum consumption, and overall GHG footprint. The proposed consolidation would require a more detailed analysis of the cost increases as well as the potential impact to petroleum consumption.

To explore the potential consolidation of the shuttle bus program and growth of the schedule, the Smithsonian will employ the following tactics:

- Develop a revised schedule to incorporate proposed consolidations;
- Develop a survey to measure mission impact and potential positive/ negative results;
- Determine the appropriate level of operations and maintenance staffing required to accommodate the program;
- Determine the operational cost increase to fuel, maintenance, and shuttle buses. Conduct a lease versus own review of the shuttle fleet.

The Smithsonian has made significant progress over the past few years in fleet management methodically implementing the basic processes of a progressive a fleet management strategy. The fleet management team has transformed the fleet into a federal leader. In the future, the challenges of creating a cleaner, more efficient fleet presents true challenges that require innovative solutions. In the coming year, the Smithsonian will continue to lead the way, implementing a number of strategies to continually optimize our global fleet and reduce our carbon footprint.

In FY2011, the Smithsonian will be updating its green fleet plan to include the revised EO mandates; this essential revision will combine the revision of our Fleet Management directive and accompanying handbook. Our updated vision will outline our tactics that will create an innovative fleet solution. Some of the key initiatives in the revision will be the development of an electric vehicle integration and infrastructure plan, outlining a course of action to install Level 2 charging stations, the use of telematics, and our vehicle allocation methodology to optimize our existing fleet.

Additionally in FY2011, the Smithsonian will open the doors to a new state of the art central fleet maintenance facility. This environmentally-friendly facility will provide technicians space to implement our comprehensive preventive maintenance program which includes re-refined and synthetic oils. The new facility will also house a new CNG fueling site and two Level 2 Electric vehicle changing stations. These smart stations will be integrated into our Fleet Management Information System (FMIS) to capture vehicle data.

Plans and Policies

Actions to reduce energy used in the buildings and fleet are guided mainly by the following plans and policies, which are updated as requirements evolve.

- SI Sustainable Buildings Implementation Plan – Defines the SI commitment to incorporating Federal guiding principles and Leadership in Energy and Environmental Design standards in both new and existing buildings; identifies projects, timelines, quantities and areas of buildings anticipated to become compliant.
- Smithsonian Directive 414 “Energy Management and Water Emergency Plan” – Establishes policy and identifies unit responsibilities for planning, design, construction and facilities management activities which reduce energy and water use in buildings.

· Smithsonian Directive 421 - Transportation Management - establishes policies and identifies unit responsibilities for all actions which reduce fossil fuel use in mobile vehicles and equipment.

d. Positions

No positions are dedicated to Scope 1 & 2 GHG reduction. Work on this goal is performed as a collateral duty of “Agency Lead” staff and other stakeholders.

e. Planning Table

See below

f. Agency Status

Energy Intensity Reduction

Buildings

1) Reduce facility energy intensity - The FY 2010 Federal target reduction in energy intensity was 15% relative to the FY2003 baseline. SI FY 2010 energy intensity was 147,997 Btu/sq.ft., which represented a reduction from FY 2009, but remained 4.8% higher than the FY 2003 baseline.

The Federal target 30% reduction in energy intensity relative to the FY 2003 baseline is not practical for all Smithsonian facilities. The Smithsonian has special energy management challenges that include co-located concession activities such as IMAX TM theaters, restaurants and shops; highly variable occupancy including up to 30 million museum visits per year; hundreds of special events in the museums as well as impacts from major events on the National Mall; growth of information technology not only in office areas but also in museum exhibit spaces. Current Smithsonian guidelines for conservation of collections include 45% ±8% relative humidity and 70°F ±4°F temperature. In most exhibit and collection storage areas, the objective is to maintain these conditions 24 hours per day, 365 days per year. Often, renovations of the museums must add significant capacity for de-humidification, humidification, ventilation and filtration in order to meet current conservation standards.

Notwithstanding the challenges, the SI has indentified eight large facilities where energy conservation investment is likely to yield important reductions in energy intensity and GHG emissions. If all eight were undertaken the target annual GHG emission reduction would be approximately 23,320 MTCO₂e. Among these, MSC and NMAI-CRC, both located in Suitland, MD, are targeted for ESPC investment in FY 2012. Refer to Implementation Methods, above.

2) Increase renewable electricity installation & use - The FY 2010 Federal target for renewable energy use was 5% of total electricity. SI FY 2010 renewable energy use was 9.2% of total electricity, consisting of purchased renewable energy certificates.

In accordance with Federal goals, the SI seeks to implement on-site renewable electricity generation where it is cost effective.

Fleet Management Goals

- 1) Reduce petroleum use in fleet vehicles. [i]
- 2) Increase use of alternative fuels in fleet alternative fuel vehicles (AFVs) and Flex-Fuel Vehicles (FFVs). [ii]
- 3) Optimize use of vehicles and right-size fleet.
- 4) Increase use of low emission and high fuel economy vehicles.

g. Return on Investment

No projects have been cancelled, suspended, or expanded due to return on investment different from expectations.

h. Highlights

Completed comprehensive GHG emission inventory

Met renewable energy goal

Met fleet petroleum reduction goal

Goal 1: Scope 1 & 2 Greenhouse Gas Reduction (Planning Table)

.	SCOPE 1&2 GHG TARGET	Unit	FY10	FY11	FY12	FY13	FY14	FY15	...	FY20
Buildings										
Buildings										
Buildings	Energy Intensity Reduction Goals (BTU/SF reduced from FY03 base year)	%	15	18	21	24	27	30		
Buildings	Planned Energy Intensity Reduction (BTU/SF reduced from FY03 base year)	%	0	0	0	0	0	2	...	5
Buildings	Renewable Electricity Goals (Percent of electri-	%	5	5	5	7.5	7.5	7.5		7.5

	SCOPE 1&2 GHG TARGET	Unit	FY10	FY11	FY12	FY13	FY14	FY15	...	FY20
	city from renewable sources)									
Buildings	Planned Renewable Electricity Use (Percent of electricity from renewable sources)	%	5	5	5	7.5	7.5	7.5	...	42
Fleet	Petroleum Use Reduction Targets (Percent reduction from FY05 base year)	%	10	12	14	16	18	20		30
Fleet	Planned Petroleum Use Reduction (Percent reduction from FY05 base year)	%	10	12	14	16	18	20	...	30
Fleet	Alternative Fuel Use in Fleet AFV Target (Percent increase from FY05 base year)	%	61	77	95	114	136	159		159
Fleet	Planned Alternative Fuel Use in Fleet AFV (Percent increase from FY05 base year)	%	61	77	95	114	136	159	...	159
Fleet	Senior Executive Fleet Replaced with Low-GHG, High Efficiency Vehicles (Percent replaced from FY08 base year)	%							...	
	Other as defined by agency								...	
	Total Scope 1 & 2 GHG Emissions (Comprehensive)	MMTCO2e	124000	134500	134500	132100	132100	128200	...	92100

	SCOPE 1&2 GHG TARGET	Unit	FY10	FY11	FY12	FY13	FY14	FY15	...	FY20
	Total Scope 1 & 2 GHG Emissions (Subject to Agency Scope 1 & 2 GHG Reduction Target)	MMTCO _{2e}	124000	134500	134500	132100	132100	128200	...	92100
	Overall Agency Scope 1 & 2 Reduction (reduced from FY08 base year)	%	1	1	1	2.5	2.5	5.4	...	32.0

Goal 1: Scope 1 & 2 Greenhouse Gas Reduction (Goal-Specific Items)

Goal 1 (optional image)

Goal 2: Scope 3 Greenhouse Gas Reduction & Develop and Maintain Agency Comprehensive Greenhouse Gas Inventory (Basic Performance Discussion, A - H)

a. Goal Description

In response to Section 2 of the Executive Order, the SI reported the following values for Scope 3 greenhouse gas emissions:

FY 2008 total scope 3 emissions baseline = 24,306 MTCO_{2e}

FY 2020 reduction target = 11% relative to the FY 2008 total scope 3 emissions baseline

In accordance with Federal guidance, the SI comprehensive GHG emission inventory includes carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride. These GHGs have varying heat-trapping abilities and atmospheric lifetimes as illustrated below. To facilitate comparison among GHGs, a global warming potential (GWP) value is assigned to each GHG. GWP represents the heat-trapping impact of a GHG relative to carbon dioxide (CO₂), which has a GWP of 1.0, and functions as a warming “index.” For instance, methane (CH₄) has a GWP of 21, so each metric ton of CH₄ emissions has 21 times the impact on global warming (over a 100-year time horizon) as one metric ton of CO₂ emissions. To provide a single metric that embodies all GHGs, emissions are reported in metric tons of carbon dioxide equivalent (MT CO_{2e}). To calculate CO_{2e}, the mass of emissions of each GHG is multiplied by the appropriate GWP for that gas. [1]

Global Warming Potential of Greenhouse Gases [2]

Carbon dioxide (CO₂): 1 (GWP*) [Sources: Mobile and stationary combustion]

Methane (CH₄): 21 [Sources: Coal mining, fuel combustion, landfills, wastewater treatment]

Nitrous oxide (N₂O): 310 [Sources: Fuel combustion, fertilizers]

Hydrofluorocarbon gases (HFCs): 12 – 11,700† [Sources: Refrigerants, fire suppressants, various manufacturing processes]

Perfluorocarbon gases (PFCs): 6,500 – 17,700† [Sources: Electrical equipment, various manufacturing processes, refrigerants, medicine]

Sulfur hexafluoride (SF₆): 23,900 [Sources: Electrical equipment, various manufacturing processes, tracer in air modeling, medicine]

100-year Global Warming Potential. Source: “EPA Greenhouse Gas Mandatory Reporting Rule (MRR),” [74 Federal Register (FR) 56260].

† Many different individual gases constitute HFCs and PFCs, so there is a range of GWP values associated with each.

b. Agency Lead

The SI organizational lead for scope 3 greenhouse gas reduction target development, implementation, and oversight is the Office of Facilities Management and Reliability.

c. Implementation methods

1) Federal employee travel (business travel and commuting) - SI employee travel is not currently targeted for reduction of GHG emissions. Much of the travel performed by Smithsonian employees is necessary for research and is paid by grant money specifically for this purpose. Travel reductions associated with research efforts would compromise fulfillment of the SI mission. At this time, research-related travel is not tracked separately from non-research related travel. The Smithsonian uses video and teleconferencing to supplement travel for meetings, and much of the training and conference attendance is via webinar or done locally. Significant existing use of mass transit by SI employees in Washington, DC and New York City, existing parking limitations, and existing use of alternative work schedules indicate little potential for scope 3 GHG emission reductions from employee commuting.

2) Contracted waste disposal

FY 2011 – Award contract for waste audits, if funding is available.

FY 2011 – Commence quarterly reporting of recycling and solid waste weight by facilities management zone

FY 2011 – Commence publication of recycling newsletter.

3) Transmission and distribution losses from purchased energy – Transmission and distribution losses from purchased energy will be reduced by actions which reduce energy intensity and increase on-site renewable energy generation. Refer to GOAL 1.

4) Efforts are underway to improve data accuracy and overall data collection and analysis methods for contracted municipal solid waste disposal and recycling.

5) The SI used Federal guidance including the FEMP GHG Sustainability Data Report workbook to calculate GHG emissions. To develop inputs the SI used the following data sources, tools and methodologies:

- Transmission and Distribution Losses - FY 2008 and FY 2010 utility bill records from the central EnergyCAP Enterprise energy accounting system.
- Air Business Travel - FY 2008 and FY 2010 export from General Services Administration Travel Management Information System (GSA TMIS). SI units may arrange travel outside of systems linked to GSA TMIS. The GHG inventory team consulted the travel management office which provided an estimate of the percentage of total travel arranged outside GSA TMIS, which the team used to extrapolate values for the emission inventory
- Ground Business Travel - FY 2008 and FY 2010 data exported from General Services Administration Travel Management Information System (GSA TMIS). SI units may arrange travel outside of systems linked to GSA TMIS. The GHG inventory team consulted the travel management office which provided an estimate of the percentage of total travel arranged outside GSA TMIS, which the team used to extrapolate values for the emission inventory.
- Commuter Travel - Electronic survey of employee commuting developed, administered, and analyzed by the GHG inventory team and the SI Office of Policy and Analysis. 32% of the surveyed employees successfully completed the survey. Automation prevented employees from completing the survey more than once. Electronic survey was based on FEMP and CEQ-furnished templates and allowed entry of up to four modes of travel per one-way commute. FY 2010 results were used as estimates for FY 2008 as well.
- Contracted Wastewater Treatment - Employee count from report, Smithsonian Institution Workforce Demographics, Office of Human Resources, October 2009
- Contracted Waste Disposal - Central records of monthly trash pickups and weight.

6) The inventory team's inputs to the FEMP GHG Sustainability Data Reports were subjected to second-party verification by the SI Office of Safety, Health and Environmental Management. Verifier-selected samples in each emission category were checked for discrepancies. Source data, supporting calculations and documentation of methodologies were posted to a collaboration intranet site. Collaboration functions ensured version control and allowed continuous access by GHG inventory team and the verifier, which facilitated resolution of issues identified in verification. The SI has not developed an Inventory Management Plan. Non-U.S. sources are excluded except for Building Energy, Vehicles and Equipment Energy, FAST Mobile Energy, and Transmission and Distribution Losses where applicable. Emissions from refrigeration equipment with less than 50 lbs. of refrigerant charge are excluded. Federal Greenhouse Gas Accounting and Reporting Guidance states that

non-domestic sources are not required to be included in inventories. The SI elected to include non-U.S. sources where practical. The Federal Greenhouse Gas Accounting and Reporting Guidance Technical Support Document recognizes agency prerogative to exclude refrigeration equipment with installed charge size of less than 50 lbs, based on small equipment inventory challenges.

Plans and Policies

Actions to reduce contracted waste disposal and transmission and distribution losses from purchased energy are guided mainly by the following plans and policies, which are updated as requirements evolve.

- SI Sustainable Buildings Implementation Plan – Defines the SI commitment to incorporating Federal guiding principles and Leadership in Energy and Environmental Design standards in both new and existing buildings; identifies projects, timelines, quantities and areas of buildings anticipated to become compliant.
- Smithsonian Directive 414 “Energy Management and Water Emergency Plan” – Establishes policy and identifies unit responsibilities for planning, design, construction and facilities management activities which reduce energy and water use in buildings.

d. *Positions*

No positions are dedicated to Scope 3 GHG reduction. Work on this goal is performed as a collateral duty of “Agency Lead” staff and other stakeholders.

e. *Planning Table*

See below

f. *Agency Status*

The SI completed and submitted comprehensive GHG emission inventories for FY 2008 and FY 2010.

g. *Return on Investment*

No projects have been cancelled, suspended, or expanded due to return on investment different from expectations.

h. *Highlights*

Completed comprehensive GHG emission inventory

[1] Source: Federal Greenhouse Gas Accounting and Reporting Guidance, October 6, 2010.

[2] Source: Federal Greenhouse Gas Accounting and Reporting Guidance, October 6, 2010.

Goal 2: Scope 3 Greenhouse Gas Reduction & Develop and Maintain Agency Comprehensive Greenhouse Gas Inventory (Planning Table)

SCOPE 3 GHG TARGET	Units	FY10	FY11	FY12	FY13	FY14	FY15	...	FY20
Total Scope 3 GHG Emissions (Comprehensive)	MMTCO ₂ e	28300	26400	26200	26100	26000	25700	...	21600
Total Scope 3 GHG Emissions (Subject to Agency Scope 3 GHG Reduction Target)	MMTCO ₂ e	10000	8300	8200	8100	7900	7600	...	6200
Overall Agency Scope 3 Reduction (reduced from FY08 base year)	%	6.2	1	1	2.5	2.5	5	...	11
Other, as defined by agency	%							...	

Goal 2: Scope 3 Greenhouse Gas Reduction & Develop and Maintain Agency Comprehensive Greenhouse Gas Inventory (Goal-Specific Items)

Goal 2 (optional image)

Goal 3: High-Performance Sustainable Design/Green Buildings & Regional and Local Planning (Basic Performance Discussion, A - H)

a. Goal description: High-Performance Sustainable Design / Green Buildings

- Beginning in FY 2020, all new Federal buildings are to be designed to achieve zero-net energy by FY 2030.
- Comply with the, “Guiding Principles for Federal Leadership in High Performance and Sustainable Buildings (Guiding Principles),” in all new construction, major renovation or repair and alteration of Federal buildings.
- Assess and demonstrate that at least 15% of agency’s existing government-owned buildings, agency direct-leased buildings, delegated authority leased buildings, and FRPP-reported leased buildings meet Guiding Principles by FY 2015 [5,000 GSF threshold for existing buildings and building leases].
- Demonstrate annual progress toward 100% conformance with Guiding Principles for entire building inventory by 2015 and thereafter.
- Incorporate sustainable practices into agency policy and planning for new Federal facilities and leases, and into lease renewal strategies.
- Demonstrate use of cost-effective, innovative building and sustainable landscape strategies to minimize energy, water and materials consumption.

- Operate and maintain, and conduct all minor repairs and alterations for existing building systems to reduce energy, water and materials consumption in a manner that achieves a net reduction in agency deferred maintenance costs.
- Optimize performance of the agency's real property portfolio – dispose and consolidate excess and underutilized property, co-locate field offices, consolidate across metropolitan and regional locations.
- Reduce need for new building and field office space by utilizing technologies to increase telework opportunities and expand delivery of services (over the internet or electronically).
- Conserve, rehabilitate, and reuse historic Federal properties, using current best practices and technology.
- Align agency space actions (new leases, new construction, consolidation) with agency Scope 1&2 and Scope 3 GHG reduction targets.

Goal Description: Regional and Local Planning

- Incorporate consultation with local and metropolitan planning organizations regarding the impact, or potential impact, of Federal actions on local transportation infrastructure and local development plans into existing policy and guidance.
- Align agency policies to increase effectiveness of local planning efforts regarding transportation, energy resources and the environment.
- Increase effectiveness of regional measures that enhance integrity of local ecosystems and watersheds.
- Update agency policy and guidance to ensure that all Environmental Impact Statements (EIS's) and Environmental Assessments (EA's) required under the National Environmental Policy Act (NEPA) for proposed new or expanded Federal facilities, and as appropriate, identify and analyze impacts associated with energy (including alternative energy sources) and climate change.
- Integrate methods and practices necessary to achieve the goals of this plan into agency master planning documents (i.e., high-performance, sustainable building goals, pollution prevention and waste reduction goals, water use reduction goals, sustainable acquisition goals, electronic stewardship and data center consolidation, etc.).
- Update agency policy and guidance to ensure coordination and (where appropriate) consultation with Federal, State, Tribal and local management authorities regarding impacts to local ecosystems, watersheds and environmental management associated with proposed new or expanded Federal facilities.
- Discuss agency participation in critical local and regional efforts and initiatives (i.e., Executive Order on Chesapeake Bay Protection and Restoration, Executive Order on Stewardship of the Ocean, Our Coasts, and the Great Lakes, etc.).

b. Agency lead for goal

· The Smithsonian's organizational leads for further goal area target development, implementation, and oversight are three units in the Office of Facilities Engineering and Operations, including the Office of Planning and Project Management (OPPM), the Office of Engineering Design and Construction (OEDC), and the Office of Facilities Management and Reliability (OFMR).

c. Implementation methods

The Smithsonian's efforts toward achieving its targets, including existing and planned implementation methods, are:

- To achieve increased peer agreement and management approval through wider reviews of Smithsonian sustainable buildings policies in the SSPP, SBIP, and internal policy documents such as the Sustainable Design of Smithsonian Facilities directive (SD 422) and the OEDC/OFMR Design Standards (currently in development);
- To designate and agree on responsible persons in the Office of Planning and Project Management (OPPM), OEDC and OFMR for these initiatives;
- To update baseline building inventory information on an annual basis;
- To develop better oversight of Smithsonian LEED and sustainable design projects;
- To institute a more consistent tracking mechanism to measure interim progress on sustainable design projects (SI uses LEED certifications as the third party validation system and as a means to track implementation of sustainability in design and construction projects, as well as existing buildings);
- To incorporate Federal Environmental and Energy Management requirements in boilerplate design and construction contract documents to ensure that all design and construction projects (not just LEED certification projects) will meet these requirements (currently in process).
- To consider using EPA's Portfolio Manager to track the 5 Guiding Principles;
- To continue to explore, with EPA, the inclusion of a comparative museum building type for energy benchmarking, and;
- To educate SI visitors on SI green building goals, to promote their responsible use of SI resources.

High-profile SI museums (such as the upcoming National Museum of African-American History and Culture) for cultural, intellectual, and political reasons deserve new, unique, and LEED certified buildings. Otherwise, the SI will continue to reuse or reconfigure existing space as the first resort, followed by new construction or expansion only as necessary.

The unique public-facing mission of the Smithsonian necessitates special implementation methods associated with local and regional planning efforts:

- The SI collaborates with local governmental authorities and decision makers through outreach to the National Capital Planning Commission (NCPC).
- OFEO, OPPM Master Planning coordinates the Smithsonian's participation in the NEPA process with additional input from the Office of General Counsel.
- SI participates in the interagency Federal Triangle Stormwater Management Study.
- SI Master Plans include a sustainability component. SI builds very few new construction projects. Most projects are renovations or reconfigurations of existing buildings. However, where possible in the few cases where new sites will be pursued under leases or new construction, SI policies will state preferences for siting that meets the requirements of LEED Sustainable Sites credit 2, Community Connectivity. For example, this may include terms of adjacency to subway routes or within one-quarter mile of two separate and distinct bus lines and to 10 basic services as defined by LEED. Current and recent master planning efforts for the Smithsonian Tropical Research Institute, the National Air and Space Museum, the Smithsonian Astrophysical Observatory are placing an emphasis on consolidation to fewer sites. An SI-wide Collections Space Plan is underway and will provide guidance for the future development of collections storage and related facilities including the incorporation of sustainable design principles for these buildings that typically require energy intensive, consistent environmental conditions.
- The Smithsonian regularly consults with federal and local planning agencies regarding the impact or potential impacts of its projects on transportation infrastructure and local development plans and doing so is part of the requirements incorporated in our guidelines for staff project and design managers as well as in contracts with outside architects and engineers. For example, current projects for which we are consulting with Washington DC planning organizations include the new National Museum of African American History and Culture, the National Postal Museum's Stamp Gallery Expansion, multiple projects at the National Zoological Park, renovations to the Renwick Gallery, the National Museum of American History's Public Space Renewal Project and the Hirshhorn Museum and Sculpture Garden's proposed Seasonal Inflatable Pavilion.

Washington, DC projects as well as some of those in nearby Maryland and Virginia locations, are subject to National Capital Planning Commission (NCPC) review and approval when they have external impacts, including completion of Environmental Assessments or Impact Statements under the National Environmental Protection Act requirements. The US Commission of Fine Arts reviews and comments on the Smithsonian's Washington DC projects for aesthetic appropriateness of building exterior and landscape designs. On matters of local transportation in Washington, DC, the District Department of Planning and the District Department of Transportation are either separately consulted about specific issues (such as the location and design of the service ramp for a new museum) or are included as part of the NCPC reviews. Similarly, individual park and regional staff of the National Park Service whose properties are adjacent to our Mall museums, the National Zoo and the Anacostia Community Museum are consulted regarding impacts of our respective projects and events.

A representative of the Smithsonian master planning staff attends the monthly Mall Roads Interagency Task Force consisting of all of the federal entities with properties in the Monumental Core adjacent to the Mall as well as the local and federal transportation agencies, the NCPC and CFA. This group shares information related to projects as well as coordinating design standards for lighting, street furniture, paving and similar features.

· The Smithsonian's participation in regional measures to enhance the integrity of local ecosystems and watersheds derives from the incorporation of LEED, EISA and best practices requirements in the design of our projects as well as through the research and educational outreach programs of our various museums and science centers including the Smithsonian Environmental Research Center (SERC) in Edgewater, MD, the Smithsonian Tropical Research Institute (STRI) in Panama, the National Zoological Park (NZP), the Smithsonian Conservation Biology Institute (SCBI) in Front Royal, VA, and the National Museum of Natural History (NMNH).

· Because the Smithsonian is not a federal agency, we perform our Environmental Impact Statements and Environmental Assessments in accordance with the guidelines of the federal agency responsible for approving the project (in most cases, the NCPC). Therefore, the analyses of impacts associated with energy and climate change are performed in accordance with the joint responsible Agency's guidelines.

· The Smithsonian prepares or updates the Master Plans for its various museums and science centers approximately every 10-15 years. These master plans relate to physical site and building planning but do not address sustainable acquisition goals, electronic stewardship or operational policies beyond those related to facilities design. Our typical master plan scope of work includes assessment of existing facilities including their relative energy and water efficiency and the identification of opportunities to incorporate sustainable design in the development of new facilities as well as additions and renovations to existing facilities. The master plans completed for the Smithsonian Tropical Research Institute in 2009 and the Smithsonian Environmental Research Center in 2008 represent our most comprehensive efforts to incorporate sustainable building and site development goals. Both units are currently implementing the first group of planned projects including sustainable laboratories at each site.

· Because the majority of the Smithsonian's major facilities projects require a NEPA process, the impacts to local ecosystems, watersheds and environmental management are assessed and other stakeholders are typically involved as consulting parties or cooperating agencies. For example, as part of the process of designing a large retaining wall at the National Zoo, the Smithsonian will complete an Environmental Assessment with the National Capital Planning Commission as Joint Lead Agency and the National Park Service (owners of the adjacent Rock Creek Park) as cooperating agency.

The Smithsonian Tropical Research Institute provides significant support to local and regional environmental stewardship in Panama, including serving as the legal custodian of the Barro Colorado Nature Monument in the middle of the Panama Canal, the only mainland tropical reserve under US stewardship and the most thoroughly studied tropical forest in the world.

d. Positions

Although the Smithsonian Office of Facilities Engineering and Operations (OFEO) recently hired one FTE staff member dedicated to general Institution-wide Sustainability program management, the Institution does not currently

have any FTE staff dedicated to High-Performance Sustainable Design/Green Buildings and Regional and Local Planning. Policy development, new initiatives, implementation, data collection, tracking, and other efforts related to this goal are performed as a collateral duty of existing staff members that primarily work within the functional disciplines related to this goal area.

e. Planning Table

The Smithsonian SSPP projected that in Fiscal Year (FY) 2011, 6% of its building inventory would have completed the multi-year process to earn LEED certification (refer to the 2010 Smithsonian SSPP and SBIP). The 6% figure (measured by square footage) consisted of one LEED-EB (Existing Building) project, one LEED-CI (Commercial Interiors) project, and one LEED-NC (New Construction, Major Renovation) project. These three projects are slated to be the Institution's first LEED certified projects. However, although these projects are very close to obtaining LEED certification, as of the third quarter of FY 2011, this has not yet happened. Delays in obtaining LEED certification are attributed to the fact that institution staff and their consultants were learning the LEED and commissioning processes in these early projects, the difficulties of adapting the LEED certification categories to typical Smithsonian building types (such as museum and research laboratories), and delays in obtaining satisfactory systems commissioning results in these projects. These projects are expected to successfully complete the LEED certification process in FY 2012. Leased properties comprise a small portion of the total Smithsonian building inventory. (At this time, approximately 17 percent of the Smithsonian building inventory is leased from third party property owners.) Therefore, it is not critical for leased buildings to contribute to meeting the 15 percent goal in the near term (by FY 2015). See table below.

f. Agency Status

On August 15, 2009, OFEO completed the first Smithsonian Sustainable Buildings Implementation Plan (SBIP) officially affirming its commitment to the Guiding Principles for Federal Leadership in High Performance and Sustainable Buildings. On August 15, 2010, OFEO submitted an updated SBIP, which accommodated the new EO 13514, including a baseline building inventory (of buildings over 5000 sq. ft.) for sustainable implementation, as well as a list of planned sustainable design, construction, and existing building projects (by number of buildings and by square footage).

The 2010 Smithsonian SBIP states that as of the end of FY 2015, at least 15% of the SI's existing applicable capital asset building inventory as measured in square feet will incorporate the sustainable practices of the Guiding Principles, and by 2030, at least 30% of the building inventory, as measured in square feet, will be sustainable.

In FY 2011, the Smithsonian OFEO-OEDC unit initiated a critical implementation goal from the Smithsonian 2010 SBIP, consisting of researching all of the specific Federal Environmental and Energy Management requirements related to design and construction listed in Executive Orders and other legislative documents, conducting a gap analysis of existing boilerplate design and construction contract documents, and identifying where in these documents these requirements, as well as related LEED strategies, should be incorporated. These documents are currently being updated and are scheduled to be introduced for use by staff, consultants and contractors in early FY 2012. The updated documents roll-out process will include periodic management briefings as well as comprehensive staff training sessions, beginning in the summer of 2011.

LEED Certification at the SI

Because the Guiding Principles for Federal Leadership in High Performance and Sustainable Buildings and other Federal Environmental and Energy Management requirements are closely aligned with the content and goals of the US Green Building Council's LEED Rating Systems, the Smithsonian commits to achieving LEED certification in eligible new construction and renovations projects and high profile existing buildings as a means of achieving these Federal requirements, as well as obtaining third-party validation, also a part of these requirements. The Smithsonian 2010 SBIP introduced the consideration of additionally using the EPA Portfolio Manager database system as an additional third-party validation system for existing building assessments, however, restricted budgets in 2011 and future years has prevented implementation of this process thus far.

The Smithsonian's policy of using the LEED certification process to incorporate sustainable buildings strategies and obtain third-party validation consists of a commitment to achieving LEED certified or above in all new facilities under the LEED for New Construction Rating System; LEED for Existing Buildings: Operations & Maintenance for its high-profile existing buildings, beginning with the National Museum of the American Indian in FY 2012; and LEED for Commercial Interiors for high-profile space in existing SI owned and leased facilities. More than a dozen new construction or major renovation projects and one existing building are currently registered and pursuing certification under the LEED rating system.

OFEO-OPPM will broaden the scope of this inventory for future LEED certification annually, so as to demonstrate annual progress toward 100% conformance with Guiding Principles for its entire building inventory.

To support the Institution's policy to pursue LEED certification for building projects, the Smithsonian initiated an aggressive LEED training program in the last two years. In 2009 and 2010, the Smithsonian provided LEED Accredited Professional and Green Associate exam preparation classes to design, construction, project management, building maintenance and other staff members and succeeded in increasing the number of LEED accredited professionals to approximately 40 staff members. The SI also typically annually funds an intern architect position to support the LEED certification process for SI projects and to maintain the Sustainability Library.

Beyond our successes, the challenges for the SI are:

- Adapting the LEED certification process to museum and research laboratory buildings.
- Completing the LEED certification process within planned and reported time frames.
- The difficulties in showing incremental progress if only tracking implementation of sustainability principles in buildings by LEED certifications.
- Maximizing implementation of sustainable design and operations strategies in its facilities with the existing capital program budget.
- Evaluating where to get the best return on investment for sustainability initiatives.

SI-specific challenges related to regional and local planning include the following:

- Siting decisions for new museums are often political.

- Siting decisions for research and back-of-house facilities are often operational (observatories must be in remote areas; ancillary and support functions, like Suitland warehouse and Herndon data necessary for collection storage and administrative or technological support, are usually sited outside dense, spatially constrained urban areas).

To incorporate sustainable building location into policy and planning, SI requests for proposals for leased facilities will state a preference for siting which meets the requirements of LEED Sustainable Sites credit 2, Community Connectivity, where practical. These preferences, for example, would contain terms of adjacency to subway routes, or within one-quarter mile of two separate and distinct bus lines, and to 10 basic services as defined by LEED. The SI office responsible for Real Estate and the OPPM will recommend siting policies and encourage their adoption for new construction.

The Smithsonian is currently working to align agency policies to increase effectiveness of local transportation, energy and environmental planning efforts in several areas. For example, consultations with the DC Department of Planning and the District Department of Transportation regarding service traffic on 14 th Street have led to restrictions on delivery hours for the largest tractor trailers serving the future National Museum of African American History and Culture and the National Museum of American History. The Smithsonian, the National Park Service and the District Department of Transportation have had initial discussions identifying the potential need for policy changes or interpretations related to vending on Smithsonian/Park Service sidewalks that would need to occur in order to accommodate the District's Capital Bikeshares program.

The Smithsonian will be responding to the guidelines published for the recent executive order for protection and restoration of the Chesapeake Bay Watershed and participated in a recent conference for federal agencies sponsored by the District Department of the Environment and in a conference call organized by the EPA's Chesapeake Bay project director to learn more about implementation guidelines and reporting requirements. Smithsonian staff ecologist Donald Weller of the Smithsonian Environmental Research Center has served as a scientific advisor to this initiative.

The Smithsonian Tropical Research Institute continues to expand and enrich the Smithsonian Institution Global Earth Observatories (SIGEO) which has formed international partnerships involving twenty countries to promote large-scale environmental monitoring of forests around the world and maintains standardized banks of data that provide access to scholars and students around the globe. STRI coordinates the SIGEO programs, which in addition to federal support, received more than \$20 million of in-kind and financial support from other government, private and international partners. The Smithsonian is in the process of developing a marine analog to SIGEO, with a global array of assessment sites focusing on coastal marine environments.

Other local and regional planning efforts include participation as taskforce member in the NCPC- and District Office of Planning- sponsored Southwest Ecodistrict planning project for the neighborhood immediately to the south of the Smithsonian's Mall museums. Although technically outside the boundary of the district, the Smithsonian stands to benefit from the improvements and is a current tenant and potential owner of property located within the ecodistrict boundaries as well as a user of steam and chilled water whose central plant may be upgraded as a result of the project.

On the issue of NEPA compliance and impacts analysis, new facilities under the purview of the National Capital Planning Commission (NCPC) must comply with NCPC NEPA path. SI facilities outside NCPC purview will also follow NEPA guidelines for other agencies if required by those agencies with jurisdiction over the property. Impacts analysis associated with energy usage and alternative energy sources further relate to commuting habits and GHG inventories.

Consultation with Federal, State, Tribal, and local management authorities regarding impacts associated with proposed new or expanded Federal facilities is conducted consistent with NEPA.

For purposes of measurement and verifications related to local and regional planning, the SI is consolidating NEPA records and efforts in one shared network location.

g. Return on Investment

To continue to operate with ever tightening budgets, the Smithsonian has needed to move some projects out to future years.

h. Highlights

- Anticipation of the first LEED certified Smithsonian buildings and projects in FY 2012, including the first Smithsonian museum LEED for Existing Buildings certification for the National Museum of the American Indian.
- The implementation of Federal Environmental and Energy Management requirements in all design and construction projects in 2011.
- The completion of a National Mall-Wide Water Reclamation Study using the National Museum of Natural History as a pilot project in 2009, and the initiation of subsequent projects to implement water reclamation measures in Smithsonian Mall buildings in 2010.
- A number of buildings are currently seeking LEED certification at the National Zoo. An inventory of the National Zoo's green building characteristics include:
 - total number of areas with solar panels at the Zoo: (3) Panda, Sloth Bear, Lion-Tiger;
 - total number of green roofs: (6) Sloth Bear, Panda, Otter, Elephant, Bison Shed, Panda Bamboo Storage.
 - The Asia Trail also boasts the following green attributes: drip irrigation, passive solar design, low VOC paints and finishes, Energy Star appliances, LED lighting technology, certified timber and bamboo, low-flow water fixtures - including "on demand" animal waterers.
 - The Sloth Bear exhibit design includes passive solar and a solar hot water heater.

Goal 3: High-Performance Sustainable Design/Green Buildings & Regional and Local Planning (Planning Table)

GOAL 3 Targets	Units	FY10	FY11	FY12	FY13	FY14	FY15	...	FY20
Owned Buildings	%	0	0	5.39	10.23	13.18	15.65	...	30.14
FRPP-Reported Leased Buildings	%	0	0	0	0	0	0	...	0
Total Buildings	%	0	0	5.39	10.23	13.18	15.65	...	30.14
Other (Buildings), as defined by agency								...	
Other (Reg/Local Planning), as defined by agency	Currently scheduled master plans (SI Unit)	SAO, NASM	SIB, SAO, NASM, Collections Space Plan	Collections Space Plan	ACM	TBD	TBD	...	TBD

Goal 3: High-Performance Sustainable Design/Green Buildings & Regional and Local Planning (Goal-Specific Items)

Goal 3 (optional image)

GOAL 4: Water Use Efficiency and Management (Basic Performance Discussion, A - H)

a. Goal Description [i]

To improve water use efficiency and management, and in response to EO 13514, the SI pursues the following goals:

- 1) Minimize the generation of waste and pollutants through source reduction.
- 2) Reduce potable water use intensity by at least 26% by FY 2020.
- 3) Reduce industrial, landscaping, and agricultural water use by at least 20% by FY 2020.
- 4) Identify and implement water reuse strategies.
- 5) Achieve objectives established by EPA in Stormwater Guidance for Federal Facilities. [ii]
- 6) Incorporate appropriate reduction strategies for non-potable water use into agency policy and planning.

b. Agency Lead

The SI organizational lead for pollution prevention and waste reduction implementation and oversight is the Office of Facilities Management and Reliability.

c. Implementation Methods

SI will use a comprehensive approach to improving water use efficiency and management. The following actions seek to reduce total water use while furthering knowledge of consumption trends:

1) Minimize the generation of waste and pollutants through source reduction.

2) Reduce potable water use intensity by at least 26% by FY 2020.

- Annual and ongoing - Meet requirements for LEED sustainable building certifications according to the SI Sustainable Buildings Implementation Plan.

- FY 2011 - Complete energy and water assessments at the Donald W. Reynolds Center for American Art and Portraiture, the Herndon Data Center, and the George Gustav Heye Center.

- FY 2011 – Complete a combined energy and water assessment/retro-commissioning project at the Freer Gallery of Art, the Ripley Center, and the African Art Museum,

- FY 2012 – Complete Energy Savings Performance Contract “Preliminary Assessment” and “Investment Grade Audit” of Suitland, MD facilities including the National Museum of the American Indian – Cultural Resource Center (NMAI-CRC), the Museum Support Center (MSC), the Smithsonian Gardens Greenhouse, the Botany Greenhouse, the Osteo Prep Laboratory, and the Garber complex.

- FY 2012 – Award ESPC task order for Suitland, MD facilities.

- FY 2012 – Award and commence a retro-commissioning project at the National Museum of the American Indian, assuming funds are available.

- Install metering for sub-systems and individual use-level where possible.

3) Reduce industrial, landscaping, and agricultural water use by at least 20% by FY 2020.

- Ongoing - Smithsonian Gardens staff develop, implement, and document the results of an environmental management plan in five key areas: site assessment and environmental planning; wildlife and habitat management; water conservation; resource management; and outreach and education. Certification is achieved once the Smithsonian has demonstrated that it has met (or exceeded) Audubon International’s environmental management standards in all five areas.

4) Identify and implement water reuse strategies.

- Conduct studies similar to the NMNH water reclamation study at other SI sites to better understand challenges and opportunities associated with each facility and its location.
 - Systematically identify sourcing, use, and discharge alternatives at each SI facility.
 - Assess alternatives for capture and reuse, rainwater harvest, on-site infiltration and/or treatment, non-potable sourcing, and other innovative approaches with quantifiable return on investment.
- 5) Achieve objectives established by EPA in Stormwater Guidance for Federal Facilities. [iii]
- Ongoing – Integrate requirements in applicable contracts

Plans and Policies

Actions to improve water use efficiency and management are guided mainly by the following plans and policies, which are updated as requirements evolve.

- 1) SI Sustainable Buildings Implementation Plan – Defines the SI commitment to incorporating Federal guiding principles and Leadership in Energy and Environmental Design standards in both new and existing buildings; identifies projects, timelines, quantities and areas of buildings anticipated to become compliant.
- 2) Smithsonian Directive 422 “Sustainable Design of Smithsonian Facilities”- Affirms SI commitment to being a responsible environmental steward through the consideration of the environment in its facilities operations. Defines objectives and responsibilities for designing, constructing, procuring, operating, maintaining, and removing buildings in ways that conserve natural resources and reduce pollution.
- 3) Smithsonian Directive 414 “Energy Management and Water Emergency Plan” – Establishes policy and identifies unit responsibilities for planning, design, construction and facilities management activities which reduce energy and water use in buildings.

d. Positions

No positions are dedicated to improve water use efficiency and management. Work on this goal is performed as a collateral duty of “Agency Lead” staff and other stakeholders.

e. Planning Table – see below

f. Agency Status

The FY 2010 Federal target for was potable water reduction was 6% relative to FY 2007. The SI surpassed this target and reduced use by 39%. The FY 2010 SI target for industrial, landscaping, and agricultural water reduction was 6% relative to FY 2007. Potable water continues to be used for these activities and is not sufficiently sub-metered to isolate industrial, landscaping and agricultural uses.

Smithsonian Gardens has implemented several management practices required for Certified Audubon Cooperative Sanctuary designation. These include water conservation technologies, recycling, composting, implementing an integrated pest management program, and educational training. Working with Audubon International will help Smithsonian Gardens find new projects to enhance our urban wildlife habitat and conserve natural resources.

Other future initiatives at the SI originate from a 2009 pilot study at the National Museum of Natural History. The study recommended the following strategies for application at SI facilities in the National capital region:

- Collect and treat rooftop rainfall and surface runoff for use to meet irrigation demand and cooling tower make-up water;
- Collect and treat air conditioning condensate for use to meet irrigation demand;
- Replace existing plumbing fixtures with new, more water efficient plumbing fixtures;
- Evaluate the irrigation system for possible improvements in efficiency and management;
- Increase water efficiency of cleaning and maintenance equipment;
- Implement additional monitoring and/or metering of individual building components to refine building management plans, and;
- Install vegetated roofs wherever possible.

The National Zoological Park is the largest water user among SI facilities. Additional goals for water conservation and quality at the NZP include:

- Conduct water audits of all National Zoo buildings;
- Communicate the Zoo's water use;
- Make recommendations for reducing water use, and
- Implement water conservation and quality practices such as:
 - Installing rain barrels
 - Decreasing storm water runoff by redirecting rainfall into natural infiltration beds
 - Implementing rain gardens
 - Implementing a Seal Lion gray water collection system and erosion control
 - Integrating practices that reduce storm water contamination, like replacing the snow team's use of salt during ice storms with viable alternatives

– Installing water misters with automatic sensors

– Continuing to reduce or eliminate toxic pesticide use around water ways

• In 2010, the National Zoo completed the installation of 26 sub-meters to measure and monitor water usage throughout the park. For 2011, the National Zoo is focused on targeted conservation by analyzing water usage by building and specific areas where water usage tends to be highest. Because many high-water using exhibits have been closed for the time-being, the National Zoo cannot accurately measure aggregate water data across recent years because decreases in usage would not reflect conservation-only strategies.

The SI recognizes significant challenges to meeting its water use efficiency and management goals. At present, the data available on water use in SI facilities is often aggregated and lacks detail. Thus, it is hard to tell where the greatest potential lies. In many cases the cost of acquiring information or installing monitoring capability is prohibitive and the priority for water efficiency projects in the capital planning process is traditionally low. SI is also unique in the range and diversity of water uses within its facilities. Similarly, the physical characteristics of specific sites and surrounding areas create challenges to the implementation of SI-wide storm water policies and plans, which require tailoring and distillation at the facility level for maximum gain.

g. Return on Investment

No projects have been cancelled, suspended, or expanded due to return on investment different from expectations.

h. Highlights

Met potable water intensity reduction goal for FY 2010.

GOAL 4: Water Use Efficiency and Management (Planning Table)

Water Use Efficiency & MGMT	Units	FY10	FY11	FY12	FY13	FY14	FY15	...	FY20
Potable Water Reduction Targets (gal/SF reduced from FY07 base year)	%	6	8	10	12	14	16	...	26
Planned Potable Water Reduction (gal/SF reduced from FY07 base year)	%	6	8	10	12	14	16	...	26
Industrial, Landscaping, and Agricultural Water Reduction Targets (gal reduced from FY10 base year)	%		2	4	6	8	10	...	20
Planned Industrial, Landscaping, and Agricultural Water Reduction (gal reduced from FY10 base year)	%		2	4	6	8	10	...	20
Other, as defined by agency								...	

GOAL 4: Water Use Efficiency and Management (Goal-Specific Items)

Goal 4 (optional image)

GOAL 5: Pollution Prevention and Waste Reduction (Basic Performance Discussion, A - H)

a. Goal Description [i]

To prevent pollution and eliminate waste, and in response to EO 13514, the SI pursues the following goals:

- 1) Minimize the generation of waste and pollutants through source reduction.
- 2) Divert at least 50% non-hazardous solid waste by FY 2015, excluding construction and demolition (C&D) debris.
- 3) Divert at least 50% C&D materials and debris by FY 2015, and discuss methods used to monitor and track progress.
- 4) Reduce printing paper use.
- 5) Increase use of uncoated printing and writing paper containing at least 30% postconsumer fiber.
- 6) Reduce and minimize the acquisition, use, and disposal of hazardous chemicals and materials.
- 7) Increase diversion of compostable and organic materials from the waste stream
- 8) Implement integrated pest management and landscape management practices to reduce and eliminate the use of toxic and hazardous chemicals and materials.
- 9) Increase agency use of acceptable alternative chemicals and processes
- 10) Report in accordance with Sections (301-313) of the Emergency Planning and Community Right-to-Know Act (EPCRA) of 1986. [ii]

b. Agency Lead

The SI organizational lead for pollution prevention and waste reduction implementation and oversight is the Office of Facilities Management and Reliability.

c. Implementation Methods

- 1) Minimize the generation of waste and pollutants through source reduction.

2) Divert at least 50% non-hazardous solid waste by FY 2015, excluding construction and demolition (C&D) debris.

- Annual and ongoing – Fulfill requirements for LEED sustainable building certifications according to the SI Sustainable Buildings Implementation Plan
- FY 2011 – Introduce quarterly reporting of non-hazardous solid waste diversion percentage by zone or building as applicable.
- FY 2011 – Award and commence waste audits for NMAH, NASM, Udvar-Hazy, NZP, Pennsy, Renwick, NPG and SAAM, Hirshhorn, Freer-Sackler, Castle, Anacostia, CRC, MSC, Garber, SERC, NZP-Front Royal and Greenhouses, assuming funds are available.
- FY 2011 – Publish “Recycling Matters” newsletter to inform staff of waste reduction and waste management issues.
- FY 2012 – Complete waste audits for NMAH, NASM, Udvar-Hazy, NZP, Pennsy, Renwick, NPG and SAAM, Hirshhorn, Freer-Sackler, Castle, Anacostia, CRC, MSC, Garber, SERC, NZP-Front Royal and Greenhouses, assuming funds are available.

3) Divert at least 50% C&D materials and debris by FY 2015.

- Annual and ongoing – Fulfill requirements for LEED sustainable building certifications according to the SI Sustainable Buildings Implementation Plan.
- Include construction and demolition waste diversion target requirements in contracts.

4) Reduce printing paper use.

- Eliminate hard-copy purchase orders through use of electronic signatures
- Use FTP server, SharePoint server, and ListServ techniques to avert large file prints and CD downloads;
- Expand implementation of eco-fonts

5) Increase use of uncoated printing and writing paper containing at least 30% postconsumer fiber.

6) Reduce and minimize the acquisition, use, and disposal of hazardous chemicals and materials

- FY 2011 – Purchase software for centralized refrigerant management record-keeping.
- Consider a battery recycling program

7) Increase diversion of compostable and organic materials from the waste stream

· FY 2011 – Investigate alternatives for composting food service waste

8) Implement integrated pest management and landscape management practices to reduce and eliminate the use of toxic and hazardous chemicals and materials.

9) Increase use of acceptable alternative chemicals and processes

10) Report in accordance with Sections (301-313) of the Emergency Planning and Community Right-to-Know Act (EPCRA) of 1986.

Plans and Policies

Actions to prevent pollution and eliminate waste are guided mainly by the following plans and policies, which are updated as requirements evolve.

1) Smithsonian Directive 419 “SMITHSONIAN INSTITUTION SAFETY AND HEALTH PROGRAM” – Establishes policy and roles and responsibilities to provide a safe and healthful environment for staff, volunteers, visitors, and collections.

2) Smithsonian Directive 404 “FACILITIES MANAGEMENT” – Defines facilities management services, roles and responsibilities, including commitment to environmental stewardship.

3) SI Sustainable Buildings Implementation Plan – Defines the SI commitment to incorporating Federal guiding principles and Leadership in Energy and Environmental Design standards in both new and existing buildings; identifies projects, timelines, quantities and areas of buildings anticipated to become compliant.

d. Positions

No positions are dedicated to prevent pollution and eliminate waste. Work on this goal is performed as a collateral duty of “Agency Lead” staff and other stakeholders.

e. Planning Table

See below.

f. Agency Status

The FY 2010 SI target for Non-Hazardous Solid Waste Diversion was 10%. The SI surpassed this target and diverted 18% of non-hazardous solid waste from landfill disposal. The FY 2010 SI target for C&D Material & Debris Diversion was also 10%. Certain SI projects documented C&D diversion in excess of this target, but further development of centralized waste data is needed in order to understand overall C&D diversion performance.

Progress on non-hazardous solid waste included a 44% increase in mixed paper recycling and a 25% increase in comingled container recycling, with FY 2010 totals equal to 106 tons and 80 tons, respectively.

Improving centralized tracking of C&D material and debris diversion is a future goal of the SI Recycling Task Force. In FY 2010, task force priority was improvement of non-hazardous solid waste diversion. Implementation included regular task force meetings, publication of a new newsletter, and development of requirements for waste audits.

Among the challenges in this goal area is the impact of up to 30 million visitors per year. However, this presents SI with an opportunity and a responsibility to help influence the waste and recycling behaviors of many – behaviors that can bring changes far beyond the confines of SI facilities. The SI will continue to improve upon recycling efforts and reduce waste generation through increased public education and more effective waste management throughout its facilities.

Examples of improving waste management include the following waste management strategies that have been implemented at the National Museum of Natural History (NMNH):

- Eliminated Styrofoam and plastics from the Cafes and replaced them with corn, potato starch, sugar cane fiber and paper-based compostable products. Pulping and composting the material will begin this year;
- Cooking oils and grease are collected from cafes and recycled into bio-diesel;
- Extra café food is donated to local food banks;
- Commingled recycling is collected from all staff and public areas;
- Replaced café chairs and tables were diverted to be used by a non-profit organization;
- Whole fruits are exclusively organic reducing customer pesticide exposure;
- Cafes offer \$.05 discounts for staff using their own mugs and staff use of personal reusable dishes and flatware is encouraged;
- Compostable paper cups are offered with signage to encourage drinking tap water rather than bottled water;
- Cardboard from staff areas, cafes, and Smithsonian Enterprises operations are combined and recycled;
- Commingled paper from all sources is recycled;
- Wooden shipping pallets/skids are recycled through a vendor that reuses whole pallets and grinds broken pallets into mulch;
- Staff are calling catalog mailers and other shippers to cancel mailings to reduce junk mail;
- NMNH IT is setting up an internal web site for posting notices of surplus furniture, misc. office supplies and other materials to divert them from waste streams;
- Batteries are collected from staff and at store counters and recycled through OSHEM;

- IMAX 3-D eye glasses are cleaned and reused;
- Cell phones are recycled through SE and Nokia;
- IMAX theater seating and carpeting are being recycled by SE;
- Printer and toner cartridges are recycled by NMNH IT;
- Computers are recycled through contracts with DELL computers;
- Tree limbs, leaf debris, etc. is composted through HSD;
- Gift shop staff reduce bag use by asking the customer if they need a bag before bagging their purchase;
- Reusable tote bags are offered for sale at each register;
- Scrap metal is recycled from all sources (177 tons last year);
- Storm drains around the building are marked with anti-pollution decals;

Additionally, the National Zoo has implemented the following:

- Installed almost 200 containers to collect recyclable cans and bottles used by visitors and staff. In their first season of use, the National Zoo increased the amount of recycled material from ¼ ton to 2 ½ tons per month;
- Established an electronic-waste recycling collection program for staff and visitors. Items can be dropped off at the Visitor Center front desk and Zoo staff will see that they are recycled properly. For many working devices, Friends of the National Zoo will get money to help fund education and conservation programs. Items recycled include: cell phones and accessories, MP3 players, digital cameras, gaming devices, external hard drives, and certain Apple laptop computers, as well as printer cartridges and many types of batteries.
- Reuse and recycle paper, cardboard, newspapers, and magazines in all of office areas.
- Reuse items like cardboard tubes, fire hose, and empty boxes as enrichment for the Zoo's animals.
- Green waste is reused as browse, exhibit furnishings, enrichment, or sent out to be composted.
- Worked with Zoo vendors to recycle mulch bags and plastic pots.
- Reduced the use of bags in souvenir shops and providing visitors the option to purchase reusable bags.
- Eliminated Styrofoam plates and containers and replaced many food services products with those that have 80-100% post consumer recycled content and/or are biodegradable.

- Utensils in Zoo restaurants are made from eco-friendly materials such as corn, sugar cane or bamboo and environmentally friendly; bio-degradable utensils and serving-ware are provided at an increasing number of special events.

- Composted much of the Zoo’s food scraps, plant material, and animal waste (several dumpsters each week).

Future goals for waste management at the zoo include:

- Expansion of composting efforts and creation of a demonstration site;
- Collection of grease from food services to be converted to bio-diesel;
- Continued work with vendors to reduce packaging;
- Implementation of reusable food storage containers for animal feeding; evaluating where reusable vs. disposable containers are being used, with options for making changes;
- Ensure all buildings/offices have co-mingle recycling bins and are being used by Zoo staff;
- Reduce or eliminate use of plastic bags in Souvenir shops and provide increasing supply of reusable bags for Zoo visitors.

g. Return on Investment

No projects have been cancelled, suspended, or expanded due to return on investment different from expectations.

h. Highlights

The SI Recycling Task force has attracted participants from many different SI units, including not only facilities management, design and construction; but also Smithsonian Gardens, Smithsonian Enterprises, and museum programs. In addition, each month the recycling task force publishes an online newsletter titled “Recycling Matters Newsletter.” This publication highlights recycling news from around the SI, reminds readers of points of contact, and provides tips on how to effectively recycle.

Waste audits at more than a dozen major SI sites, anticipated to be awarded in FY 2011, will give new insights to existing waste streams and management practices. Results are expected to highlight opportunities for major improvements in waste reduction.

GOAL 5: Pollution Prevention and Waste Reduction (Planning Table)

Pollution Prevention & Waste Reduction	Units	FY10	FY11	FY12	FY13	FY14	FY15	...	FY20
Non-Hazardous Solid Waste Diversion Targets (Non-C & D)	%	10	15	20	30	40	50	...	50
C & D Material & Debris Diversion Targets	%	10	30	50	50	50	50	...	50

Pollution Prevention & Waste Reduction	Units	FY10	FY11	FY12	FY13	FY14	FY15	...	FY20
If agency uses on-site or off-site waste-to-energy, estimated total weight of materials managed through waste-to-energy	Tons or Pounds	N/A						...	
Number of sites or facilities with on-site composting programs	#	0	0	TBD				...	
Number of sites or facilities recycling through off-site composting programs	#	4	4	TBD				...	
If agency has on-site or off-site composting programs, estimated total weight of materials diverted to composting	Tons or pounds	285	145	TBD				...	
% of agency-operated offices/sites with a recycling program	%	TBD						...	
If agency offices located in multi-tenant buildings, % of those buildings with a recycling program	%	TBD						...	
% of agency-operated residential housing with recycling programs	%	N/A						...	
Other, as defined by agency								...	

GOAL 5: Pollution Prevention and Waste Reduction (Goal-Specific Items)

Goal 5 (optional image)

GOAL 6: Sustainable Acquisitions (Basic Performance Discussion, A - H)

a. Goal Description

SI has great opportunity to reduce environmental impact through its purchasing practices. Where practicable, the SI will incorporate into its task and delivery orders various sustainability criteria modeled from criteria included in Executive Order 13514. The noted goals are:

- Ensure 95% of new contract actions, including task and delivery orders under new contracts and existing contracts, require the supply or use of products and services that are energy efficient (Energy Star or FEMP-designated), water efficient, bio-based, environmentally preferable (including EPEAT-registered products), non-ozone depleting, contain recycled content, or are non-toxic or less toxic alternatives.

- Update agency affirmative procurement plans (also known as green purchasing plans or environmentally preferable purchasing plans), policies and programs to ensure that all Federally-mandated designated products and services are included in relevant acquisitions, where practicable.

b. Agency Lead

The Smithsonian’s organizational lead for target development, implementation, and oversight of Goal Area 8, Sustainable Acquisition is the Office of the Chief Financial Officer, Office of Contracting and Personal Property Management (OC&PPM) within the Office of the Chief Financial Officer.

c. Implementation Methods

- Smithsonian Directive 314, Contracting (SD314), contains SI contracting policy and is implemented through the Procurement and Contracting Procedures Manual (PCPM). The SD and PCPM are periodically reviewed and updated as necessary by OC&PPM. The PCPM guides both large contracts and simplified acquisitions. OC&PPM are currently in the process of updating the PCPM, to which guidance will be included to assist with assuring compliance with the SI level of conformance to Executive Order 13514. SI will undertake an array of actions to reach the Goal 8 performance targets, and incorporate, where practicable, sustainability specifications in vendor selection and contract language;

- Continue working with computer vendors to expand equipment recycling programs;

- Adopt the tenets of electronic commerce in the acquisition process wherever practicable and not prohibited by special requirements or law;

- Create guidance for contracted vendors managing inventories of custodial supplies and consumables;

- Use SI intranet and existing in-house training of purchasing staff to inform and educate on green purchasing procedures, and;

- Amend existing purchasing checklists to guide individuals making purchases through decentralized processes.

- Explore additional financial chartfields or values in PeopleSoft Financials to enable tracking green purchases

d. Positions

This is a new initiative and therefore it may be difficult to implement the actions required as well as monitor and assess compliance with existing staff. As a result, implementation may be slower than desired.

e. Planning Table

The planning table has been updated with all of the available data at this time. The SI will endeavor to complete the table in future versions of this report.

f. Agency Status

Although SI has always emphasized purchasing of eco-friendly products and paper and other products with recycled materials when they adequately meet the needs of the purchasing unit, work already underway to meet the above performance goals is, in many ways, breaking new ground for SI. Since there is no precedent for a standalone sustainable purchasing policy, SI seeks to integrate sustainability actions into existing policies and acquisition processes.

At present, tracking and monitoring capabilities do not facilitate measurement of sustainable percentages for the identified acquisition categories, and data on decentralized purchases made at the individual SI units is extremely burdensome and difficult to collect. This remains a significant barrier to computing baselines and developing targets for which measurement of progress will be practical.

The OC&PPM will investigate the potential of current system enhancements to assist with improved procurement reporting, including the use of purchase cards.

g. Return on Investment

No projects have been cancelled, suspended, or expanded due to return on investment different from expectations.

h. Highlights

GOAL 6: Sustainable Acquisitions (Planning Table)

Sustainable Acquisition	Units	FY10	FY11	FY12	FY13	FY14	FY15	...	FY20
New Contract Actions Meeting Sustainable Acquisition Requirements	%							...	
Energy Efficient Products (Energy Star, FEMP-designated, and low standby power devices)	%							...	
Water Efficient Products	%							...	
Biobased Products	%							...	
Recycled Content Products	%							...	
Environmentally Preferable Products/Services (excluding EPEAT - EPEAT is included in Goal 7)	%							...	
SNAP/non-ozone depleting substances	%							...	
Other, as defined by agency								...	

GOAL 6: Sustainable Acquisition Contract Review

SUSTAINABLE ACQUISITION CONTRACT REVIEW	1st QTR FY 11	2nd QTR FY 11	3rd QTR FY 11 (planned)	4th QTR FY 11 (planned)
Total # Agency Contracts				
Total # Contracts Eligible for Review				
Total Contracts Eligible Contract Reviewed (i.e., 5% or more eligible based on previous OMB guidance)				
# of Compliant Contracts				
Total % of Compliant Contracts				

GOAL 6: Sustainable Acquisitions Contract Review

GOAL 6: Sustainable Acquisitions (Goal-Specific Items)

Goal 6 (optional image)

GOAL 7: Electronic Stewardship and Data Centers (Basic Performance Discussion, A - H)

a. Goal Description

Perceived globally as a keeper and protector of knowledge, SI has the responsibility to improve environmental stewardship of its data and information management practices. SI is committed to following best practices in energy efficiency with respect to electronic device use and data center design and operation. SI also seeks to reduce the impact of electronic asset disposition by working with government and non-profit entities and participating in established industry programs. The specific goals for Electronic Stewardship and Data Centers, as outlined in Executive Order 13514 are:

- 1) Ensure acquisition of EPEAT registered, ENERGY STAR qualified, and FEMP designated electronic office products when procuring electronics in eligible product categories.
- 2) Establish and implement policy and guidance to ensure use of power management, duplex printing, and other energy efficient or environmentally preferred options and features on all eligible agency electronic products.
- 3) Update agency policy to reflect environmentally sound practices for disposition of all agency excess or surplus electronic products.
- 4) Discuss how the agency will increase the quantity of electronic assets disposed through sound disposition practices. Include in the discussion how your agency is using or plans to use programs such as disposal through GSA Xcess, recycling through Unicor, donation through GSA's Computer for Learning (CFL) or other non-profit

organizations, and/or recycling through a private recycler certified under the Responsible Recyclers (R2) guidance or equivalent certification.

5) Discuss how the agency will require IT planning/Life Cycle Manager to replace and or waive equipment that does not meet “Green” compliance requirements.

6) Update agency policy to ensure implementation of best management practices for energy efficient management of servers and Federal data centers, including how the agency will meet data center reduction goals included in the Federal Data Center Consolidation Initiative.

b. Agency Lead

The Smithsonian’s organizational lead for Goal Area 7 target development, implementation, and oversight is the Office of the Chief Information Officer’s Office of Information Technology Operations.

c. Implementation Methods

SI developed comprehensive technology and acquisition strategies that substantially improve electronic stewardship and data center efficiency to meet the performance targets of Goal Area 7, Electronic Stewardship and Data Center. In brief, these strategies include:

- 1) Encourage staff to purchase computers and laptops through existing blanket purchase agreements, and;
- 2) Revise system-wide default settings on printers, computers and monitors to maximize energy and resource efficiency and reduce waste.

d. Positions

Additional FTEs are not anticipated.

e. Planning Table

The Smithsonian has completed the first and largest deployment of desktop power management, deploying power management to all Windows PCs. In the next phase SI will be working with our power management vendor to deploy power management on the Apple operating system to ensure our power management solution covers the broadest range of SI desktop computing.

The Smithsonian is also moving forward with data center efficiency efforts. While SI is not a CIO Council agency and thus not part of the Federal Data Center Consolidation Initiative, the Institution had embarked on a data center consolidation effort long before the FDCCI. In 2006 SI had consolidated to a single data center in Herndon, VA serving the entire Institution. The Smithsonian has made an investment in hardware and software for a large scale server virtualization effort. Over the past 18 months SI has migrated our entire ERP environment to virtual servers and has analyzed the existing physical servers and supported applications to create a prioritized migration path to

get existing servers virtualized. Requests for new servers are now supported with virtual servers when possible, and as legacy hardware reaches end-of-life it is migrated to virtual servers. See table for additional details.

f. Agency Status

The SI acquires 95% EPEAT-registered (Electronic Product Environmental Assessment Tool) electronics, enables power management features on 100% of eligible laptops & monitors, strives to extend life to ≥ 4 years, and uses sound disposal practices. The SI has an ENERGY STAR electronics purchasing plan which was implemented in December, 2010. Details of the implementation are:

- 1) EPEAT is a system to help purchasers in the public and private sectors evaluate, compare and select desktop computers, notebooks and monitors based on their environmental attributes. More than 95% of SI current computers are Dell computers. Every computer listed in the SI Blanket Purchase Agreement (BPA) with Dell is EPEAT-compliant and all computers purchased for the Periodic Desktop Replacement Program are purchased through the Dell BPA. All 810 machines purchased through the Dell BPA in 2009 (including 490 desktops and 320 laptops) were EPEAT compliant.
- 2) The SI extends the life of computers to 4 years through our Periodic Desktop Replacement Program. That program targets replacing PCs every four years. SI business units get the vast majority of their computers through this program, and these are EPEAT compliant machines.
- 3) The SI is working toward being fully Energy Star compliant. At the present time, laptop computers and monitors are compliant.
- 4) The SI complies with end of life goals in using Dell's Asset Recovery Service. Dell takes all SI computer hardware back for credit and recycles or disposes of the hardware in a manner that meets or exceeds all of the EPA guidelines.
- 5) OCIO began installing new software on all Smithsonian Windows computers. This new software, EcoFont , is designed to reduce the ink density of standard fonts to enable the use of 20% less toner for printed documents without compromising legibility.

The current status on SI policy and guidance to ensure use of power management, duplex printing, and other energy efficient or environmentally preferred options and features is notable. Our technology program strives to implement such features as noted below:

- 1) SI currently has power monitoring and management settings in place for desktop machines. This was not done in response to a directive, but rather as a standard operational and deployment protocol. OCIO will seek to expand power management features to laptops, where feasible.
- 2) Duplex printing is the default for all printers with that capability. This can be changed for individual print settings, but default cannot be changed. This is a network wide setting. At present, the SI is not certain of the number of printers that generate duplex output, and is investigating whether a potential supplier will perform this study for free.

In order to update agency policy to reflect environmentally sound practices for disposition of all agency excess or surplus electronic products:

- 1) SI uses Dell's asset recovery service to recycle equipment. This information was reported to EPA in recent scorecards; some data is available on what was bought and recycled; OCIO is confident that this is in the high-90s percentage range.
- 2) SI will develop a policy by leveraging an agency or industry standard template.

The challenges with tracking IT purchases from the standpoint of compliance with OMB requirements are threefold:

- 1) While the Dell BPA is product rich and priced competitively, it is not a mandatory use vehicle for SI units. Further, Dell products cannot meet all of SI computing requirements and mandatory use of a single BPA may also violate federal procurement law. There is currently no mechanism to gain visibility into unit level IT purchases.
- 2) SI lacks over-arching procurement/IT policy or guidance that directs units to consider EPEAT-compliant purchases, so many units (if not most) likely do not consider EPEAT when making an IT purchase. They simply are not aware of the value of the requirement. Once completed, additional steps will be required to establish an audit of SI procurement activities to verify our level of compliance.
- 3) Lastly, reporting of IT purchases is required by OMB. Reports must be aggregated SI-wide to demonstrate compliance with green IT efforts.

g. *Return on Investment*

No projects have been cancelled, suspended, or expanded due to return on investment different from expectations.

h. *Highlights*

OCIO has been actively researching ways to save energy and reduce the Institution's carbon footprint. One effort was to identify and implement a system to remotely power down computers and monitors during periods of non-use, thereby saving electricity and reducing power costs. The key criteria for the product evaluation were ease of use, ease of management, potential return on investment, applicability across multiple platforms, and reasonable cost.

After thoroughly evaluating many products, OCIO selected the NightWatchman utility from vendor 1E Ltd. NightWatchman combines a robust power management tool capable of significant energy savings coupled with minimal impact on staff. OCIO completed NightWatchman implementation on Windows-based computers throughout the Smithsonian in March. Future energy-saving plans include implementing NightWatchman on Macintosh computers and right-sizing the Institution's fleet of printers, copiers, scanners, and fax machines.

First year savings were approximately \$162,000.

GOAL 7: Electronic Stewardship and Data Centers (Planning Table)

ELECTRONIC STEWARDHIP & DATA CENTERS	Units	FY10	FY11	FY12	FY13	FY14	FY15
% of electronic product acquisition covered by current Energy Star specifications that must be energy-star qualified	%	98	100	hold	hold	hold	hold
% of covered electronic product acquisitions that are EPEAT- registered	%	98	hold	hold	hold	hold	hold
% of covered electronic product acquisitions that are FEMP- designated	%	98	hold	hold	hold	hold	hold
% of agency, eligible PC, Laptops, and Monitors with power management actively implemented and in use	%	89	95	100	hold	hold	hold
% of agency, eligible electronic printing products with duplexing features in use	%	97	98	100	hold	hold	hold
% of electronic assets covered by sound disposition practices	%	100	hold	hold	hold	hold	hold
% of agency data centers independently metered, advanced metered, or sub-metered to determine monthly (or more frequently) Power Utilization Effectiveness (PUE)	%	100	hold	hold	hold	hold	hold
Reduction in the number of agency data centers	FDCCI does not apply to small agencies therefore the SI never created a data center consolidation plan for OMB review.						
% of agency data centers operating with an average CPU utilization greater than 65%	%	1	50	75	100	hold	hold
Maximum annual weighted average Power Utilization Effectiveness (PUE) for agency.	#	4.2	3.8	3.4	3.0	2.8	2.4

GOAL 7: Electronic Stewardship and Data Centers (Goal-Specific Items)

a. Ensure acquisition of EPEAT registered, ENERGY STAR qualified, and FEMP designated electronic office products when procuring electronics in eligible product categories.

Included as part of the Smithsonian Institution's Technical Reference Model (TRM) is a preferred product list. All IT purchases must be from the preferred product list or have received a waiver from OCIO. The preferred product list and TRM specify the requirement that SI procure EPEAT registered and ENERGY STAR qualified products where those specifications apply.

b. Establish and implement policy and guidance to ensure use of power management, duplex printing, and other energy efficient or environmentally preferred options and features on all eligible agency electronic products.

The Smithsonian Institution has implemented the NightWatchman power management solution in conjunction with our Active Directory deployment to ensure that all eligible Windows-based desktop computers have power management implemented. Additionally SI utilizes the power management functionality inherent in Energy Star rated printers and duplex printing has been enabled on all capable networked printers.

c. Update agency policy to reflect environmentally sound practices for disposition of all agency excess or surplus electronic products.

The Smithsonian Institution disposes of all excess electronic equipment within the continental United States via the Dell Asset Recovery Service (an EPA list R2 recycler). The Smithsonian Tropical Research Institute in Panama disposes of a small number of excess computers locally through donations to local schools or via local electronics recyclers.

d. Discuss how the agency will increase the quantity of electronic assets disposed through sound disposition practices. Include in the discussion how your agency is using or plans to use programs such as disposal through GSA Xcess, recycling through Unicor, donation through GSA's Computer for Learning (CFL) or other non-profit organizations, and/or recycling through a private recycler certified under the Responsible Recyclers (R2) guidance or equivalent certification.

See response to "c" above.

e. Discuss how the agency will require IT planning/Life Cycle Manager to replace and or waive equipment that does not meet "Green" compliance requirements.

As discussed in "a" above, any IT purchases that are not listed on the SI preferred product list require a waiver from OCIO. The preferred product list already specifies products that meet the EPEAT and ENERGY STAR requirements where applicable.

f. Update agency policy to ensure implementation of best management practices for energy efficient management of servers and Federal data centers, including how the agency will meet data center reduction goals included in the Federal Data Center Consolidation Initiative.

The Smithsonian Institution is not a CFO Act agency and per OMB is not included in the Federal Data Center Consolidation Initiative. Having said that, SI has already consolidated to a single data center for the Institution.

Goal 7 (optional image)

GOAL 8: (New) Agency Innovation & Government-Wide Support (Basic Performance Discussion, A - H)

a. Goal Description

The purpose of Goal 8, Agency Innovation, is to develop innovative methods, practices, technologies, or techniques to expand sustainability beyond what is required in Executive Order 13514 and beyond what is described elsewhere in this document. Part of the definition of innovation is that it should be replicable in other situations and by other agencies. To that end, the SI has realized tremendous successes in Institution-wide coordination and has developed a robust set of unique and innovative ideas that are discussed in this section.

b. Agency Lead

All offices of the SI can lead to the fulfillment of this goal. Coordination across the Institution is led by the Senior Sustainability Officer and the Office of Facilities Engineering and Operations.

c. Implementation Methods

The SI will continue this coordination effort, and all ideas previously identified will need assignment to responsible parties and a timeframe for implementation. These innovative ideas currently under evaluation are categorized and noted as follows:

Financing

- Continue using Energy Performance contracts to obtain funding outside of the Capital Program request, S&E, and/or trust funds. With shrinking budgets, the SI believes performance contracts may be a requirement going forward in order to achieve sustainability goals.
- Reach out to organizations (corporate and private) interested in funding green SI initiatives.
- Research EPA grants and similar.

Integrated Education

- Internal education:
 - Continue to use videos and webinars to educate staff on sustainability (and avoid travel).
 - Update employee orientation programs to focus on green behavior.
 - Continuously educate occupants on recycling, thermostats, lights, etc.

- Add sustainability courses to online offerings.
- External education
- Use signage to inform the public of their responsibilities within all SI facilities.
- Build on digitization efforts associated with SI collections, and develop a full-blown “virtual museum” to allow the public to travel to the SI.

Goal Area 3 High Performance Sustainable Design/Green Buildings

- Continue discussions with the US Green Building Council to explore the establishment of a LEED for Museums pilot (ongoing).
- Work with the EPA to share data, leverage resources, and investigate expanding the CBECS database so that museums can become a ratable space type.
- Identify urban and suburban reforestation opportunities near sites, as engaged carbon offsets.

Goal Area 4 Water Use Efficiency and Management

- Expand efforts in the area of storm/rainwater capture.
- Determine feasibility to direct that future construction projects have onsite water treatment and reuse.

Goal Area 5 Pollution Prevention and Waste Elimination

- Evaluate conducting annual or biannual waste audits.
- Assess food composting at restaurants.
- Implement broader public sorting of recyclables, with signage and education campaign.
- Plan for waste audits at each individual facility to identify the amount, type, and opportunities for further recycling of waste generated, and helping to increase education and access to recycling for the staff members and visitors of the SI.

Goal Areas 6-7 Sustainable Acquisition and Electronic Stewardship

- Continue to evaluate methods for enterprise tracking, develop tools, and then offer to share these with other Agencies.
- Implement best practices for managing IT resources (energy savings/recycling) and communicate results to other Agencies.

Communication

- Use the Sustainability Committee SharePoint site as a more prominent link on the SI intranet site, Prism (final updates in FY11)
- Prominently post the SSPP on the Intranet site (Public site under development).
- Leverage OCIO technology to communicate with Public Affairs offices regarding web interfaces with the public.
- Work with the museum directors to implement sustainability content and links to the general SI sustainability page website.

To further innovation goals, the SI is already collaborating with or proposes to reach out to other organizations to form partnerships. Targeted organizations include:

- The National Park Service
- The Department of Energy
- The Federal Facilities Council
- The American Public Gardens Association
- The International Association of Museum Facility Administrators
- The EPA ENERGY STAR Program
- US Green Building Council

As an example of its commitment to innovative deployment of information technology, the SI in 2009 released an Information Technology Plan for FY 2009 through 2014. This document describes the technology team's progress and staffing, as well as its overall goal: to digitize all its collections. "By digitizing collections, archives, library, and research information, the Smithsonian can continue to focus on its founding mission to increase and diffuse knowledge while simultaneously pursuing its current objectives of dramatically enlarging its audiences and the degree of engagement with them, and strengthening its scientific research. Digitizing our collections will help the Institution meet its founding mission to increase and diffuse knowledge broadly, deeply, and personally. Throughout the Institution an urgent need exists to enrich records with textual information and images, and to make this information available to the public on the web."

d. Positions

The ideas presented in this section require the efforts of many existing staff members.

e. Planning Table

Specific investments in these strategies cannot be determined at this time.

f. Agency Status

In 2010, the SI continued to scope and implement a variety of innovative initiatives. From projects undertaken at the National Zoo to light switch decals placed in all buildings, the Smithsonian continues to seek new ways to encourage more sustainable practices throughout the organization.

g. Return on Investment

No projects have been cancelled, suspended, or expanded due to return on investment different from expectations.

h. Highlights

National Zoo

- The National Zoo constructed a State-of-the-Art Elephant House that includes:
 - Forty geothermal wells which will be used to aid in heating and cooling the building with radiant floor heating and heat pumps for cooling.
 - Super-insulated building envelope, including the massive steel and concrete elephant doors which must withstand 15-kip lateral loads 6 feet above grade.
 - Daylight harvesting and related controls of the lighting system to help optimize energy performance.
 - Natural ventilation strategies for the building, including operable skylights that have retractable shades to optimize energy performance and animal containment doors which allow natural ventilation.
 - Outdoor air economizer ventilation system and CO2 occupancy sensors for the mechanical system. Concrete that is high in fly-ash content.
 - Structural steel that is high in recycled content.
 - Management of construction waste and construction waste recycling programs.
 - A green roof system to reduce storm water runoff, provide additional insulation, and create habitat for local birds, butterflies, and other fauna.
 - Use of recycled materials such as sand, wood chips, stone, and demolished concrete.
- Increased use of signage on all trash and recycling bins to educate visitors on proper waste sorting. Signage includes eco-facts and has the Zoo's green logo for consistent branding.

- The National Zoo installed automated misters that are projected to reduce water usage by approximately 300,000 gallons of water over the course of the 2011 summer compared to previous years.
- The National Zoo is in the process of integrating a Dashboard technology to link with submeters in order track water and energy consumption throughout the Zoo. The technology provides updates of total usage as well by building or location and will serve as basis for targeting problem areas as well as educating visitors about the Zoo's efforts to reduce its environmental impact and use of valuable resources.
- The National Zoo's souvenir shops have made an effort to reduce the use of plastic bags by providing bags made from recyclable plastic and offering reusable shopping bags as a low cost option for shoppers. More than 27, 572 reusable bags have sold since introducing the program in March of 2009.
- In 2010, souvenir shops replaced their plastic bags given with purchases with a biodegradable bag. The bag is made in the U.S.A., and is recyclable. It is made with an additive to start breaking down in 9 months and can be commercially composted to degrade within 12 months, depending on conditions.
- The National Zoo composts food scraps and green waste.
 - The Animal Commissary alone is composting about 200 lbs/week of food waste.
 - Amazonia's composting efforts will increase composting to 1825 lbs of compost a year.
- In 2009, about 200 blue containers were installed throughout Zoo for recycling plastics, glass, and cans. The amount of recycled material increased from 1/4 ton to 2 1/2 tons per month in first season.
- In 2010, a major initiative was launched to test and approve green cleaning products to replace traditional/toxic cleaners. Some green cleaning products are already being used in the National Zoo's food concessions, including Green Seal certified degreaser and window cleaner.
- The Visitor Center established a recycling collection center for printer cartridges, batteries, and cell phones for staff and visitors.
 - In 2010, 300 phones, 300 cartridges, 1000 batteries were recycled or diverted from the landfill.

Other Programs

- The National Museum of Natural History's (NMNH) restaurant services, managed by Restaurant Associates, currently uses compostable food service wares such as cups, plates, and cutlery. Waste from this operation in FY 2010 totaled over 460 tons. The NMNH plans to begin diverting organic materials and food waste from the restaurant operations to a composting facility. This has the potential of diverting as much as 90% of restaurant waste; around 419 tons. The NMNH is currently outfitting a prep room for the compostable waste and plans to launch a 4 month pilot program starting on September 1, 2011.

· Light Switch Decals

Light Switch decals (see attached pdf) were purchased and are currently (not complete) being installed in all primary Smithsonian buildings. Research indicates that affixing these near light switches reminds room occupants to turn off lights when leaving and reduces energy consumption by 15-20%. The payback period can vary from one to several weeks but is very short.

In order to encourage participation by staff, letters similar to the one below were distributed to employees to ease the transition and answer common questions and concerns. It is included for possible replication by other agencies.

Dear Colleagues,

*As you will learn at the Town Hall next Tuesday, the Museum has made important progress improving our sustainability by saving energy, conserving natural resources, and reducing pollution. These changes require help from everyone in the Museum, and **you are part of the solution.***

Did you know that last year the museum used 28,072,619 kWh of electricity at a cost of \$3,481,886? We can reduce this energy consumption substantially through the ongoing HVAC renovations, replacing lights with efficient light bulbs, and also using them more efficiently. So we are asking each of you to join in helping us to reduce energy use by turning off lights when not in use, turning off computers and other office electronics at the end of the day and by looking for ways to help conserve energy in the areas of the museum where you work.

To support that effort, the NMNH Greening Task Force will be working with volunteers from throughout the building to apply decals next to light switches in all staff areas. Studies show that these decals help to encourage energy conservation leading to a 15-20% reduction of energy used in office spaces. With these savings, the decals will pay for themselves in 2-3 weeks and result in savings of tens of thousands of dollars per year at the NMNH.

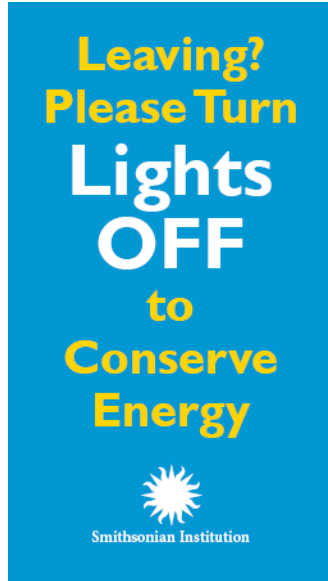
Some staff have expressed the concern that it is more energy efficient or easier on the ballasts to leave lights on when out of the office for short periods. This is a common myth that no longer holds true for the vast majority of lights in the NMNH. See the link here for more details (http://www.consumerenergycenter.org/myths/fluorescent_lights.html). The Smithsonian's Energy Management Branch recommends a "5 minute rule" so if you leave your office for 5 minutes or more you should turn off your lights.

As you can see in the photograph below (picture of director installing decal included in original correspondence), the decals have already been applied to the switches in my own office and throughout the Director's corridor. Please join me in supporting the museum's energy conservation goals through efforts in your own offices and work spaces. A small step can make a big difference if we all work together.

GOAL 8: (New) Agency Innovation & Government-Wide Support (Planning Table)

AGENCY INNOVATION & Government-Wide Support	Units	FY10	FY11	FY12	FY13	FY14	FY15	...	FY20
Programs, Projects, Initiatives that support Gov-wide efforts									
Other, as defined by agency									

GOAL 8: (New) Agency Innovation & Government-Wide Support (Goal-Specific Items)



Section 3: Agency Self Evaluation

Agency Self Evaluation

Agency Self Evaluation	Answer
Does your Sustainability Plan incorporate and align sustainability goals, GHG targets and overarching objectives for sustainability with the Agency Strategic Plan?	Yes
Does it provide annual targets, strategies and approaches for achieving the 2015 and 2020 goals?	Yes
Is the Sustainability Plan consistent with the FY2012 President's Budget?	Yes
Does the Sustainability Plan integrate all statutory and Executive Order requirements into a single implementation framework for advancing sustainability goals along with existing mission and management goals, making the best use of existing and available resources?	Yes
Does your plan include methods for obtaining data needed to measure progress, evaluate results, and improve performance?	Yes

Explanations & Other Key Questions for 2011

1. Did your agency meet by 12/30/10 due date and/or is it now able to demonstrate comprehensive implementation of the EO 13423 Electronic Stewardship goals?

- Acquire at least 95% EPEAT-registered electronics
- Enable energy star or power management features on 100% of eligible PCs
- Extends the life and/or uses sound disposition practices for its excess or surplus electronics

(If these goals have not been met and demonstrated, then agency should describe its plan and milestones to demonstrate full compliance.)

No, the Smithsonian has met the goals for EPEAT acquisition and extending the useful life and/or sound disposition practices for its excess or surplus electronics, but the Smithsonian has not completed the implementation of power management on Apple Macintosh PCs and laptops.

2. Is your agency tracking and monitoring all of its contract awards for inclusion of requirements for mandatory federally-designated green products in 95% of relevant acquisitions?

(If it is finding non-compliance issues, then it should identify corrective actions the agency is taking this year to demonstrate compliance with the 95% sustainable acquisition goal by the end of FY2012.)

No, the Smithsonian has not met this goal. The organization is currently developing a plan to address this issue.

3. Has your agency completed energy evaluations on at least 75% of its facilities?

(If agency has not met this goal, then it should describe plans for catching up on this requirement in the next 6 months.)

No. The SI is funding energy evaluations to the maximum extent practical from appropriations and through energy savings performance contracts, but is not completing evaluations on 25% of EISA 2007 covered facility area per year and will not reach the 75% target in the next 6 months.

4. Will your agency meet the deadline of October 1, 2012 (EPACT'05 Sec 103) for metering of energy use? (Agency should provide current status of buildings metered and plans for meeting the deadline).

Yes.

5. If your agency reports in the FRPP, will it be able to report by December 2011 that at least 7% of its inventory meets the High Performance Sustainable Guiding Principles?

(If no, agency needs to provide schedule and plan for actions to be taken in the next six months.)

No. Refer to the SI Sustainable Buildings Implementation Plan.

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