



U.S. Environmental Protection Agency

Strategic Sustainability Performance Plan

FY 2010–FY 2020

June 3, 2011

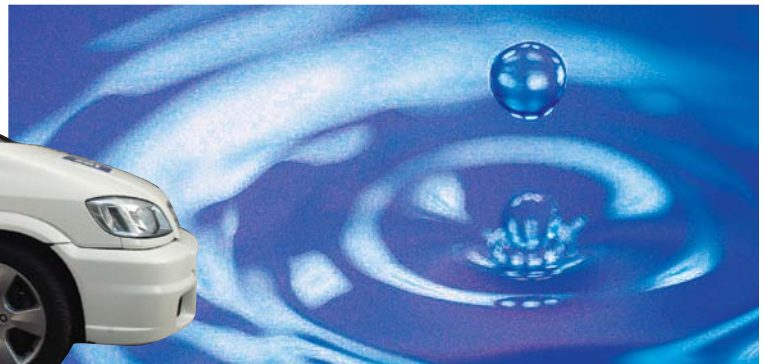


TABLE OF CONTENTS

- Section 1: Agency Policy and Strategy 1
 - I. Agency Policy Statement 1
 - II. Sustainability and the Agency Mission 3
 - III. Greenhouse Gas Reduction Goals 4
 - IV. Plan Implementation 6
 - V. Evaluating Return on Investment..... 8
 - VI. Transparency..... 11
- Section 2: Performance Review and Annual Update 13
 - I. Summary of Accomplishments 13
 - A. Scope 1 and 2 GHG Reduction 13
 - B. Scope 3 GHG Reduction and Develop and Maintain Agency Comprehensive GHG Inventory 14
 - C. High-Performance Sustainable Design/Green Buildings and Regional and Local Planning 15
 - D. Water Use Efficiency and Management 17
 - E. Pollution Prevention and Waste Reduction..... 19
 - F. Sustainable Acquisition..... 21
 - G. Electronic Stewardship and Data Centers 21
 - H. Agency Innovation and Government-Wide Support 23
 - II. Goal Performance Review..... 24
 - Goal 1: Scope 1 and 2 GHG Reduction 24
 - Goal 2: Scope 3 GHG Reduction and Develop and Maintain Agency Comprehensive GHG Inventory 32
 - Goal 3: High-Performance Sustainable Design/Green Buildings and Regional and Local Planning .. 39
 - Goal 4: Water Use Efficiency and Management..... 49
 - Goal 5: Pollution Prevention and Waste Reduction 52
 - Goal 6: Sustainable Acquisition 58
 - Goal 7: Electronic Stewardship and Data Centers 61
 - Goal 8: Agency Innovation and Government-Wide Support..... 65
- Section 3: Agency Self-Evaluation 68
 - I. Self-Evaluation Table 68
 - II. Self-Evaluation Narrative 68

SECTION 1: AGENCY POLICY AND STRATEGY


1. Agency Policy Statement

The U.S. Environmental Protection Agency has integrated a commitment to reduce its carbon footprint and protect the environment into its core programs including strategic planning, budget processes, operations and management systems. The EPA is committed to the priorities and sustainability goals established in its Strategic Sustainability Performance Plan (SSPP) for the following areas:

- Greenhouse gas and energy reductions
- Fleet efficiency
- Water conservation
- High-performance, sustainable buildings and regional and local planning
- Pollution prevention, waste reduction and diversion
- Sustainable acquisition
- Electronic stewardship and data center issues
- Agency innovation and governmentwide support

The agency also recognizes the need to continue to serve as a model for other federal agencies in reducing its impact on the environment. In the coming year, the EPA plans to invest human and financial resources toward cost-effective improvements in its energy and environmental performance.

As the EPA's Senior Sustainability Officer and its Chief Acquisition Officer, I am committing the Agency's leadership and every EPA employee to actively participate in the implementation of the agency's SSPP. In conjunction with the EPA's Chief Financial Officer, Chief Information Officer, Senior Real Property Officer, General Counsel, all program offices and regions, the EPA commits to meeting its SSPP goals in a comprehensive and cost-effective manner.

 5/25/11

Craig E. Hooks
EPA Senior Sustainability Officer

A. Agency Contacts

Craig E. Hooks, Senior Sustainability Officer (SSO), Office of Administration and Resources Management (OARM) Assistant Administrator
hooks.craig@epa.gov
202-564-4600

Renee Page, Office of Administration (OA) Director
page.renee@epa.gov
202-564-8400

Bridget C. Shea, Senior Real Property Officer, Facilities Management and Services Division (FMSSD) Director
shea.bridget@epa.gov
202-564-5441

Dan Amon, Senior Energy Advisor (**Primary Point of Contact**)
amon.dan@epa.gov
202-564-7509

Bucky Green, Chief, Sustainable Facilities Practices Branch (SFPB)
green.bucky@epa.gov
202-564-6371

II. SUSTAINABILITY AND THE AGENCY MISSION

EPA Administrator Lisa Jackson has established seven key priorities for the Agency:

- Taking action on climate change;
- Improving air quality;
- Assuring the safety of chemicals;
- Cleaning up our communities;
- Protecting America’s waters;
- Expanding the conversation on environmentalism and working for environmental justice; and
- Building strong state and tribal partnerships.

Although the Agency has focused on these important challenges in the past, nowhere is it more important to model environmental stewardship than at EPA’s own facilities.

In supporting the Agency’s mission to protect human health and the environment and to demonstrate leadership in environmental stewardship, EPA is committed to actively managing its operations and activities in a compliant and sustainable manner. This commitment is supported by environmental management systems (EMS) at all appropriate organizational levels to address the sustainability goals presented in this SSPP through Agencywide targets and performance metrics.

EPA’s mission is carried out in more than 130 leased office facilities and more than 30 laboratories, 20 of which are owned by EPA. Laboratories use significantly more energy and present greater environmental challenges than offices. For EPA, the goal is to manage laboratories to accomplish the Agency’s mission while minimizing the impact of these operations on the environment and their surrounding communities. As the Agency continues its fifth decade and looks to modernize facilities, the Administrator’s seven priorities will be integrated into daily operations and practices.

Table 1-1: Summary of the Agency’s Size and Scope of Operations

Total # Employees	17,208
Total Acres Land Managed	661.56
Total # Facilities Owned	20
Total # Facilities Leased (GSA Lease)	136 (37 owned by GSA)
Total # Facilities Leased (Non-GSA)	15
Total Facility Gross Square Feet (GSF)	11,293,842
Operates in # of Locations Throughout the United States	171
Operates in # of Locations Outside the United States	0
Total # Fleet Vehicles Owned	199
Total # Fleet Vehicles Leased	1,013
Total # Exempted-Fleet Vehicles (Tactical, Emergency, Etc.)	397
Total Operating Budget Fiscal Year (FY) 2010 (\$ Million)	\$10,299.8
Total # Contracts Awarded FY 2010	7,591
Total Amount Contracts Awarded FY 2010 (\$ Million)	\$1,984.607
Total Amount Spent on Energy Consumption FY 2010 (\$ Million)	\$21.34

Total Energy Consumed per GSF (Thousands of British Thermal Units, or MBtu) in Reporting Facilities	317.42
Total Gallons of Water Consumed per GSF in Reporting Facilities	28.47
Total Scope 1&2 Emissions (Comprehensive) FY 2008 Baseline MMTCO ₂ e (Million Metric Tons of Carbon Dioxide Equivalent)	0.14078 MMTCO ₂ e
Total Scope 1&2 GHG Emissions (Subject to Agency Scope 1&2 Reduction Target) FY 2008 Baseline MMTCO ₂ e	0.14078 MMTCO ₂ e
Total Scope 3 GHG Emissions FY 2008 Baseline MMTCO ₂ e	0.067315 MMTCO ₂ e
Total Scope 3 GHG Emissions (Subject to Agency Scope 3 Reduction Target) FY 2008 Baseline MMTCO ₂ e	0.067315 MMTCO ₂ e

III. GREENHOUSE GAS REDUCTION GOALS

On January 4, 2010, EPA submitted its Scope 1 and 2 GHG emissions reduction target to the Council on Environmental Quality (CEQ) and the Office of Management and Budget (OMB) in accordance with the requirements of Executive Order (EO) 13514. The Agency's goal is to reduce its combined Scope 1 and Scope 2 GHG emissions 25 percent by fiscal year (FY) 2020 from its FY 2008 baseline of 140,780 metric tons of carbon dioxide equivalents (MTCO₂e), as shown in Table 1-2. These figures represent EPA's inventory of Scope 1 and Scope 2 GHG emissions as updated and reported to CEQ and OMB in January 2011.

Table 1-2: Estimated FY 2008 Scope 1 and 2 Emissions

EPA's Scope 1 Emissions	Estimated FY 2008 Baseline (MTCO ₂ e)
Stationary fuel (e.g., natural gas, fuel oil, propane, kerosene) combustion at reporting facilities	21,726
Fugitive emissions in reporting facilities from building air-conditioning, refrigeration, and fire suppression equipment	1,741
Mobile fuel combustion in EPA's fleet vehicles	3,707
Mobile fuel combustion in tactical vehicles/equipment (e.g., boats, trailers)	3,075
Fugitive emissions from mobile air-conditioning equipment in EPA's vehicles	280
Process emissions from laboratory fume hood testing	171
Process emissions from National Vehicle Fuel Emissions Laboratory vehicle and engine testing	175
Process emissions from furnace testing at the High Bay Laboratory in Research Triangle Park (RTP), North Carolina	22
Process emissions from RTP incinerator/waste-handling facility's stack	119
Process emissions from chemical use in reporting facilities	44
Total Scope 1 Emissions	31,060

EPA's Scope 2 Emissions	Estimated FY 2008 Baseline (MTCO _{2e})
Purchased electricity at reporting facilities	73,031
Purchased hot water at RTP-Main	10,928
Purchased chilled water at RTP-Main and RTP-National Computer Center (NCC)	10,939
Purchased combined heat and power (CHP) electricity at RTP-Chapel Hill	3,495
Purchased chilled water at RTP-Chapel Hill	2,423
Purchased CHP steam at RTP-Chapel Hill	8,904
Total Scope 2 Emissions	109,720
Total EPA Scope 1 and Scope 2 Emissions	140,780

EPA's Scope 1 and 2 GHG reduction plan is based on existing and ongoing efforts to improve energy efficiency at its reporting laboratories. The Agency will focus on making mechanical system improvements during infrastructure replacements, identifying new energy efficiency projects through energy assessments and re-commissioning, focusing on preventive maintenance, consolidating space, and making operations and maintenance (O&M) a priority in existing facilities.

Even as the Agency reduces energy consumption within targeted laboratories, or those that have the opportunity for the greatest return on investment and payback, it will continue to mitigate the environmental impacts associated with its electricity use by continuing to purchase green power or renewable energy certificates (RECs) for 100 percent of EPA's electricity needs. The Agency will use the results of a National Onsite Renewable Energy Study that it completed in FY 2009 to make decisions regarding onsite renewable energy generation through technologies such as ground source heat pumps (GSHPs). The Agency is working to reduce fuel consumption and the GHG emissions associated with its vehicles through several fleet management initiatives, including "right-sizing" the Agency's fleet, acquiring low GHG-emitting vehicles, promoting alternative fuel vehicles (AFVs) and filling stations, increasing the fleet's average miles per gallon, and educating and encouraging fleet managers and employees to reduce vehicle miles traveled and fuel consumption through a series of site visits.

EPA will focus on refining estimates for the following Scope 3 GHG emissions sources in FY 2011:

- GHG emissions associated with employees' air and ground business travel and with employee commuting;
- GHG emissions associated with the Agency's contracted waste disposal (solid waste and wastewater); and
- Transmission and distribution (T&D) losses related to purchased electricity.

To estimate the GHG emissions associated with employees' air travel, EPA will continue to use the U.S. General Services Administration's (GSA's) Travel Management Tool. The Agency reduced its travel budget in FY 2011, which should translate into a reduction in associated Scope 3 GHG emissions. The Agency has also estimated employee commuting-related emissions and set a preliminary target for reducing these emissions by FY 2020.

To calculate the GHG emissions associated with its solid waste disposal, EPA has estimated the total mass of waste produced Agencywide and used the Federal Energy Management Program (FEMP) Reporting Portal Tool to quantify the resulting GHG emissions. To calculate GHG emissions associated

with wastewater disposal, EPA utilized data from its Office of Human Resources (OHR) regarding the number of full-time employees and relied upon the Reporting Portal Tool to calculate the resulting GHG emissions.

To reduce GHG emissions associated with T&D losses of purchased electricity, EPA will focus on reducing demand for purchased electricity, using the same strategies that it plans to use to reduce Scope 1 and 2 GHG emissions.

EPA has also estimated several sources of optional Scope 3 GHG emissions, including emissions associated with energy use in non-reporting facilities, fugitive emissions in non-reporting facilities, energy used to deliver potable water to EPA facilities, and fuel consumed in EPA-chartered aircraft. EPA is working to develop an initial estimate for emissions associated with the supply of products and services through Agency vendors and contractors. Over time, the Agency plans to develop data collection methods to quantify emissions associated with its outsourced environmental remediation activities.

IV. PLAN IMPLEMENTATION

The SSPP is not EPA's first Agencywide strategy for sustainability; rather, it is built on years of EPA experience in reducing its environmental footprint. In October 2008, the Agency released the Energy and Environmental Performance, Leadership, Accountability, and (Carbon) Neutrality Plan (E2PLAN) as a path to meet and exceed then current Federal requirements in energy efficiency, water conservation, green buildings, renewable energy, transportation, and EMS. That plan was the culmination of a number of individual strategies for energy and water conservation, sustainable buildings, and other policies. The SSPP builds on that baseline and outlines a refined focus on GHG reductions.

A. Internal Coordination and Communication

EPA has demonstrated a firm commitment from the Administrator and SSO, with support from the Agency's Assistant Administrators, to integrate the GHG reduction goals of the SSPP into all of the Agency's programs, facilities, and operations.

To ensure coordination and communication among the key individuals and offices responsible for implementing the SSPP, EPA has established a process for ongoing input and feedback. By developing and issuing its EMS objectives, targets, and metrics, EPA has established a coordination and communications mechanism for setting targets and monitoring performance in support of environmental compliance, stewardship, and sustainability.

EPA created an Executive Steering Committee as the premier management committee charged with overseeing the development of the SSPP. Next, a Technical Advisory Group (TAG) was convened to develop the SSPP and includes representatives from all of EPA's Program Offices, Regions, and key administrative bodies. EPA has available an organizational chart outlining the communications channels for developing and reviewing its SSPP on an annual basis. The chart is available to the public from EPA upon request.

Annually, the Agency will review and adjust sustainability targets and metrics to reflect the Executive Steering Committee's determination of current Federal mandates. The Agency's EMS objectives, targets, and metrics will be adjusted accordingly.

B. Coordination and Dissemination of the Plan to the Field

EPA has a number of channels for distributing the SSPP to employees and senior managers who are directly and indirectly responsible for assisting with implementation. The Agency provides updates on the implementation of EO 13514 and other sustainability requirements to key contacts through an environmental stewardship e-newsletter. The Administrator further reiterated these efforts in an EMS commitment statement distributed in February 2010. EPA has posted this plan on the Agency's intranet, as well as on the EPA OA website, www.epa.gov/greeningepa.

EPA has informed senior managers, including Assistant Administrators, Regional Administrators, and Laboratory Directors, of the development and contents of the SSPP, as well as their responsibilities for its implementation.

C. Leadership and Accountability

EPA's support for environmental stewardship and sustainability is grounded in the Agency's mission. The SSO for the Agency is the Assistant Administrator for OARM, who reports directly to the Administrator. The SSO chairs the Executive Steering Committee, composed of Assistant Administrators and senior Regional management, which was established to:

- Ensure the ongoing suitability and appropriateness of the Agency's response to the goals established in the SSPP; and
- Provide guidance on continual improvement of the Agency's operations and sustainability initiatives.

D. Agency Policy and Planning Integration

The Executive Steering Committee and the TAG play critical roles in continuing to evaluate the appropriateness and sustainability of Agency policy for compliance. Input from these groups is used to review, maintain, and adjust goals and targets in the Agency's SSPP, as appropriate. This process is facilitated by the SSO and OARM and conducted within standard review cycles to ensure timely revision and issuance of annual SSPP updates.

In addition to representatives from each Program Office and other EPA offices, the SSPP TAG includes members of the Agency's strategic planning staff, who ensure that overall EPA strategic planning goals are incorporated and reflected in the goals of the SSPP. EPA ensures that annual updates to the SSPP include feedback from the appropriate managers to integrate overall Agency goals and objectives.

E. Agency Budget Integration

EPA's annual budget planning process includes reviewing facility needs; facility master planning incorporates resource efficiency, low-impact development, and other sustainability strategies.

F. Methods for Evaluation of Progress

EPA uses current reporting systems to assess progress toward the goals contained in the SSPP. The Agency currently collects data quarterly on energy consumption and water use and evaluates facility-specific targets in these areas annually. Solid waste generation and recycling data, for both owned and leased facilities, are collected to determine waste diversion rates. Transportation data are tracked using

the Automotive Statistical Tool database; transportation initiatives and fuel use are evaluated using the Agency's Alternative Fuel Compliance Emphasis Program. Performance information for other targets and goals is acquired through an annual data call.

Performance reports are provided periodically to the SSO and the Executive Steering Committee, along with recommendations for action and adjustments to the SSPP as appropriate.

V. EVALUATING RETURN ON INVESTMENT (ROI)

EPA has well-established processes to evaluate and prioritize capital improvement projects for its buildings and facilities based on financial and non-financial criteria.

Through EPA's Five-Year Capital Investment Plan, Energy Conservation Plan, Water Conservation Strategy, and Buildings and Facilities Capital Budgeting Process (also known as the Buildings and Facilities [B&F] Project Ranking Process), the Agency ranks projects based on financial criteria, including initial investment, energy and operational cost savings, paybacks, and potential for reducing facility maintenance.

A. Economic Lifecycle Cost/ROI

EPA has several processes to evaluate the economic lifecycle costs and ROI related to new facilities, major renovations, mechanical system upgrades and replacements, and other facility projects.

For new major EPA facilities, GSA-owned buildings being renovated for EPA, or build-to-suit buildings leased by GSA from private landlords for EPA, the Agency performs extensive energy modeling to ensure compliance with the requirement that new buildings and major renovations perform 30 percent better than the American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) 90.1 standard. During this process, EPA weighs the cost of incremental mechanical system and building envelope investments against the benefits in terms of energy cost savings to the taxpayer. The Agency pursues energy efficiency performance beyond the 30 percent better than ASHRAE standard when it can be achieved in a lifecycle cost-effective manner.

Through the B&F Project Ranking Process, EPA's Architecture, Engineering, and Asset Management Branch (AEAMB) receives potential projects from the Agency's Regions, Programs, and Headquarters (after they have been prioritized using the strategies described above) and places them in one of the following categories:

- Energy conservation (includes water conservation and green building projects);
- Engineering/planning studies;
- Environmental compliance;
- Health and safety;
- Program requirements;
- Repair and upkeep; and
- Space alteration.

AEAMB verifies the prioritized project list and assigns a 0 to 100 numeric value based on the B&F Project Ranking Process scoring criteria. Weighted scoring criteria provide a basis for analyzing Agencywide and organization-specific priorities.

B. Social Costs and Benefits

The National Environmental Policy Act (NEPA) is one of the two key mechanisms that consider social costs and benefits of EPA's capital investments in facilities. The NEPA review process is not limited to ecological effects, such as air quality and water quality, but includes aesthetic, cultural, historic, health, and socioeconomic impacts as well. EPA developed a new NEPA form for relevant facility projects and has made its NEPA review process public by posting all NEPA actions on the OA website. In future years, the Agency will expand the NEPA process to incorporate social costs and benefits associated with sustainability initiatives.

NEPA regulations apply to all EPA facility construction projects, regardless of size. During the NEPA process, the Agency reviews projects to:

- Determine the appropriate level of NEPA review for a proposed construction project;
- Define the significant issues to be analyzed through information gathering, scoping meetings, and public participation;
- Evaluate project alternatives, including the proposed action and possible mitigation measures, to determine whether their environmental impacts are significant, not significant, or none at all; and
- Develop documentation to assist the public and decision-makers in evaluating the proposed action and alternatives.

To perform a comprehensive review, EPA is updating its GreenCheck and review processes to ensure that they incorporate the following steps to evaluate social factors:

- Consider renewable energy investments in areas with energy security and reliability issues;
- Consider environmental justice issues when siting facilities;
- Focus on water conservation efforts near high-drought areas to reduce EPA's impacts on overburdened water supplies; and
- Ensure energy conservation efforts are promoted in areas with higher pollution levels.

C. Environmental Costs and Benefits

In addition to financial metrics, EPA evaluates each project or initiative to understand its contribution to the environmental performance goals of EO 13514, EO 13423, the Energy Independence and Security Act of 2007 (EISA), and the Energy Policy Act of 2005 (EPA 2005). As described in detail in Section 2, the Agency considers and includes in projects, where appropriate, key elements of these environmental mandates, including GHG emission reductions, energy efficiency, renewable energy use, sustainable buildings, water conservation, stormwater management, indoor environmental quality, and waste management.

In addition to financial metrics, EPA tracks each individual facility project against the goals and requirements of EO 13514, EO 13423, EISA, and EPA 2005, using the GreenCheck form. EPA developed GreenCheck specifically to track key elements of the Executive Orders and other environmental mandates, including:

- GHG impact;
- Energy consumption/intensity and renewable energy use;

- High-performance sustainable buildings;
- Water consumption/intensity;
- Stormwater management;
- Indoor environmental quality; and
- Waste management.

Moreover, EPA occupies a small number of facilities that have been identified as having potential historic significance; therefore, EPA complies with all Federal, state, and local laws and regulations regarding the preservation of cultural resources.

D. Mission-Specific Costs and Benefits

EPA is realigning its real estate portfolio management process, capital budgeting process, and other facilities processes to support the Agency's seven strategic goals (which align with the goals of EO 13514):

- Taking action on climate change;
- Improving air quality;
- Assuring the safety of chemicals;
- Cleaning up our communities;
- Protecting America's waters;
- Expanding the conversation on environmentalism and working for environmental justice; and
- Building strong state and tribal partnerships.

Currently, AEAMB evaluates the impact of each project submitted based on how it contributes to EPA's seven strategic goals using a set of B&F scoring criteria. EPA makes these scoring criteria available to the public upon request.

E. Operations and Maintenance (O&M) and Deferred Investments

One of EPA's greatest challenges is to improve the O&M of its facilities, especially laboratory operations. The Agency is working to develop facility-level O&M plans at several of its owned facilities. The structure of the O&M plans will vary based on the facilities' missions, functional activities, building inventory composition, and evaluation results. Each facility's plan will document at least its operating parameters and maintenance plans and procedures.

EPA is currently piloting a nationwide program to improve the quality of O&M across its building portfolio. To support this effort, the Agency has developed Building Management Plan Guidelines (BMPG), described in detail in Section 2, to test in several facilities.

EPA tracks data related to the Federal Real Property Council's key performance measures—utilization, condition indices, mission dependencies, and annual O&M costs. The Agency's operations performance is measured by its level of compliance with the environmental and energy criteria established in EO 13423, EAct 2005, and EISA, as documented in EPA's Agencywide EMS objectives, targets, and metrics, as well as in the E2PLAN.

The Agency uses a condition index (CI), derived from the facility condition assessments, to qualitatively assess the current state of its facilities. EPA tracks the percentage of office and laboratory space

occupied versus the design capacity, referred to as the facility utilization index. The vacancy rate derived from this calculation is tracked on an asset level and used as part of EPA's annual performance measures.

The Agency also tracks recurring maintenance, utility, cleaning and janitorial, roads and grounds, and ongoing security operating costs. These operating costs are benchmarked with those of the private sector for office and laboratory space and used as part of EPA's annual performance measures. The Agency classifies its owned and direct leased assets into the following categories: mission critical, mission dependent, not critical, or not mission dependent. EPA strives to categorize all assets as mission critical or mission dependent; therefore, if it is determined that an asset no longer meets these criteria, the Agency will consider disposing of it through appropriate means. Using this methodology, EPA has identified several significant opportunities to reduce per capita energy consumption by releasing and consolidating underutilized space, as described in the Goal 1 chapter later in this document.

F. Climate Change Risk and Vulnerability

EPA recognizes that its community and infrastructure may need to cope with severe weather events; therefore, the Agency will identify vulnerable facilities and systems to develop an adaptation strategy. EPA's Security Management Division (SMD) within OARM has an established Continuity of Operations (COOP) Plan that addresses ways the Agency can resume operations in a rapid and efficient manner following an emergency. The COOP Plan provides guidance for, and facilitates preparation of, site- and activity-specific plans and procedures that support EPA during an emergency situation. The objectives of the COOP Plan are:

- Support execution of EPA's essential functions;
- Reduce disruptions to essential Agency operations;
- Protect essential equipment, records, and other assets needed to support EPA's essential functions;
- Minimize damage to and loss of EPA resources;
- Provide organizational and operational stability;
- Facilitate decision-making; and
- Provide support for the physical protection of information and equipment for EPA's critical infrastructure.

As part of the security process, EPA identified essential support functions and personnel and developed lists of the vital records and databases necessary to continue to perform its essential support function from a COOP relocation site. The Agency will continue to assess current vulnerabilities and future risks and develop a risk inventory to document all the ways EPA's operations are vulnerable to climate change. EPA will evaluate each sustainability project against this risk inventory. Projects that mitigate the risk will be highlighted, and the mitigation strategy will be documented. The risk inventory provides the input for assessing both mitigation and adaptation scenarios in facing these risks. EPA has created a climate adaption policy for the Agency and will formulate an adaptation strategy to integrate climate change risks and vulnerabilities into its existing COOP framework.

VI. TRANSPARENCY

EPA has long worked to share with internal and external audiences the information learned in pursuing sustainability. Its intranet serves as a secure portal for internal communications, resources, technical

assistance, and information sharing among employees. EPA's external website on its sustainable facilities and practices (www.epa.gov/greeningepa) publicizes all annual progress toward meeting energy efficiency, water conservation, green buildings, renewable energy, and pollution prevention goals. The SSPP and associated performance reports will be posted on that site, along with subsequent annual updates.

In addition, EPA continues working on the following actions:

- Publishing government information online;
- Improving the quality of government information;
- Creating and institutionalizing a culture of open government; and
- Creating an enabling policy framework for open government.

In response to OMB's Open Government Directive, issued December 8, 2009, EPA established an Open Government Plan that describes a framework for increased transparency and engagement of stakeholders. The Agency evaluates how its open government activities are promoting its mission and strategic goals. EPA also created an open government Web page (<http://www.epa.gov/open/>) as a gateway for obtaining information on Agency activities and for receiving public feedback on EPA's efforts. This effort is furthered by the launch of www.openepa.ideascale.com, which enables the public to make suggestions, present new ideas, or vote and comment on others' ideas.

EPA will continue to use the open.gov Web page to post information regarding the Agency's progress and performance with respect to achieving the goals and metrics outlined in the SSPP.

SECTION 2: PERFORMANCE REVIEW AND ANNUAL UPDATE

I. SUMMARY OF ACCOMPLISHMENTS

A. Scope 1 and 2 GHG Reduction

As shown in Figure 2-1, EPA has reduced its Scope 1 and 2 GHG emissions in FY 2010 by 111,880 MTCO₂e, or 79.5 percent, compared with FY 2008, when taking green power purchases into account as allowed under Federal GHG emissions accounting guidance. When green power purchases are not taken into account, EPA's FY 2010 Scope 1 and Scope 2 GHG emissions increased slightly relative to the Agency's FY 2008 baseline—by 1,199 MTCO₂e, or an increase of 0.9 percent.¹ By reinvigorating its progress towards reducing energy intensity in FY 2011, EPA expects to achieve Scope 1 and 2 GHG emission reductions next year, regardless of green power purchases.

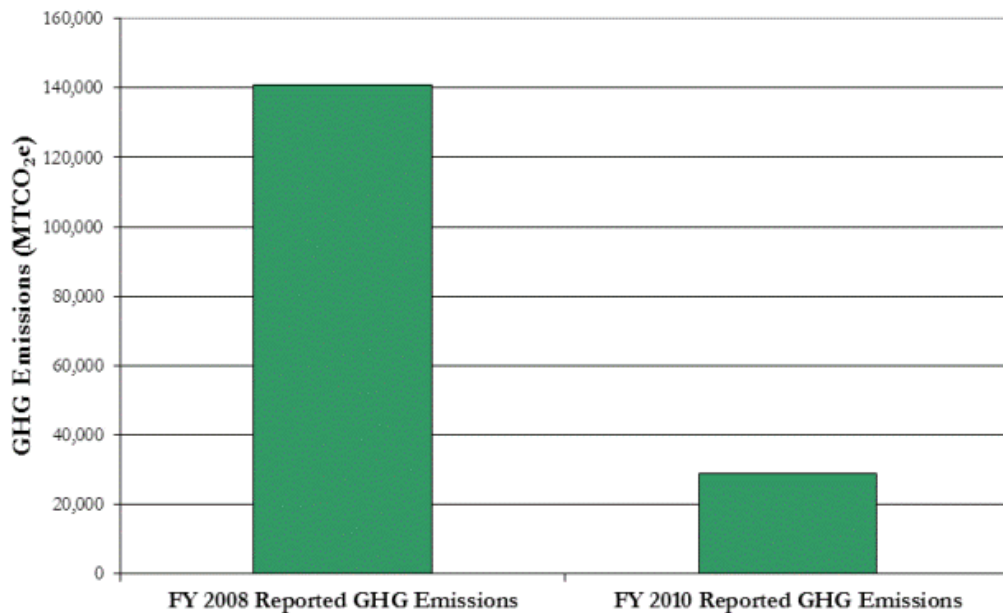


Figure 2-1: EPA's GHG Emissions in FY 2008 and FY 2010

In September 2006, EPA became the first major Federal agency to offset 100 percent of its Agencywide annual electricity consumption with green power and REC purchases, and it has continued to do so since. The Agency has purchased enough green power to offset 100 percent of its electricity use through the end of FY 2011.

¹ In FY 2008, EPA had reduced its energy intensity 18.1 percent from its FY 2003 baseline, well ahead of that year's 9 percent reduction requirement of EO 13423 and EISA. Since FY 2008, EPA's energy reduction progress has leveled out, though. With several major projects underway, EPA anticipates again seeing significant energy intensity reductions in FY 2011. Nonetheless, EO 13514 set FY 2008 as the new baseline year for GHG emission reductions but did not change the energy reduction baseline year (still FY 2003). Thus, the new FY 2008 baseline year for Scope 1 and 2 GHG emissions does not allow EPA to take advantage of its early energy successes between FY 2003 and FY 2008. Because EPA's energy performance remained mostly flat in FY 2009 and FY 2010, EPA has not yet achieved its target Scope 1 and 2 GHG emission reductions based solely on energy conservation and relied on green power credits to achieve its FY 2010 GHG emissions reduction goal.

In January 2009, EPA commissioned a feasibility study of potential onsite renewable energy projects at its reporting laboratories. The study, completed in September 2009, evaluated solar, wind, and GSHP projects and concluded that the Agency could generate 5.5 percent of its FY 2003 baseline energy consumption through onsite renewables at an estimated cost of \$115 million. The study confirmed that GSHP systems are the most economical renewable technology to reduce fossil fuel use at EPA facilities. The Agency has installed a number of onsite renewable energy projects: solar awnings, solar arrays, solar hot water heaters, and “solar walls,” as well as a GSHP system. These systems collectively generate 10.3 billion British thermal units (BBtu), or 0.71 percent of EPA’s FY 2003 energy consumption baseline. The avoided GHG emissions from these projects represent approximately 0.46 percent of the Agency’s total FY 2008 Scope 1 and 2 GHG emissions.

EPA’s recent successes in reducing GHG emissions from its vehicle fleet include:

- Exceeded its EPA Act 1992 AFV acquisition requirement by a significant margin (EPA achieved an AFV acquisition rate of 107 percent in FY 2010);
- Reduced petroleum consumption by 24.9 percent in FY 2010 from the baseline year, exceeding the requirement of EO 13423 by nearly 15 percent; and
- Implemented the Alternative Fuel Compliance Emphasis Program (AFCEP) and conducted site visits to review fleet data and operations, identify best practices, and help fleet managers meet fuel consumption targets at five locations.

B. Scope 3 GHG Reduction and Develop and Maintain Agency Comprehensive GHG Inventory

Scope 3 GHG Emission Reductions

EPA has taken a phased approach to quantifying and managing the identified sources of Scope 3 GHG emissions associated with its operations. The Agency has accounted for the following categories of Scope 3 GHG emissions, in accordance with EO 13514 Section 9 Guidance:

- **Employee Business Travel:** EPA accounts for the emissions associated with business air travel by querying GSA’s travel management information system (“TravelTrax”), which also provides GHG emissions data for the portion of EPA’s business ground travel associated with rental cars. EPA has also supplemented GSA travel data by estimating emissions from employees’ use of personally owned vehicles (POVs) for business travel. The Green Travel Working Group (GTWG), chaired by the Office of the Chief Financial Officer (OCFO), has done extensive work on “greening” EPA business travel. The GTWG, established in summer 2009 as a budget and GHG planning exercise, has been developing policies and approaches (e.g., videoconferencing, smart travel, green meetings) to reduce expenses and Scope 3 GHG emissions associated with Agency travel and to measure the resulting economic and environmental benefits.

For example, the GTWG has examined expanding the 14 questions in the EPA Acquisition Regulations (EPAAR) to more effectively promote sustainability in the industries serving EPA’s conference needs. In addition, the GTWG has increased its scope by chairing a new inter-agency green travel partnership initiative, established by GSA, with the goal of implementing sustainability measures in both the Federal Travel Regulation (FTR) and the Federal Acquisition Regulation (FAR)—each of which, when amended, will have a direct effect on Scope 3 emissions for EPA through the acquisition of more sustainable lodging, conference facilities, and travel.

- **Employee Commuting Emissions:** EPA gathered existing employee commuting and transit subsidy data from several Regional and Program laboratories. EPA also conducted an onsite employee commuting survey at seven locations throughout Headquarters in April 2010, soliciting commuting information from employees as they arrived at work. Using these data, EPA refined its initial estimate for GHG emissions associated with employee commuting nationwide, recognizing that regional differences can be significant.
- **Emissions From T&D Losses From Purchased Electricity:** EPA applied the emission factors contained in the EO 13514 Section 9 Guidance to quantify the T&D emissions associated with its purchased electricity.
- **Waste Disposal:** EPA currently collects accurate waste diversion and disposal data from facilities that represent more than 40 percent of the Agency's total square footage and has used this data to inform an Agencywide estimate for its GHG emissions associated with waste disposal.
- **Wastewater Treatment:** EPA applied the emission factors contained in the EO 13514 Section 9 Guidance to the total number of Agency full-time employees (FTEs) in order to quantify these GHG emissions.

Develop and Maintain Comprehensive GHG Emissions Inventory

EPA has been maintaining its GHG emissions inventory for several years, having started the process proactively in advance of Federal requirements. In January 2008, EPA voluntarily began developing a GHG emissions inventory to better understand and manage the environmental impacts of its day-to-day operations. In May 2009, the Agency formally became a Climate Leaders Partner and, as part of this commitment, began developing a comprehensive Inventory Management Plan (IMP) that transparently documents the Agency's management systems and inventory development processes. In FY 2010, EPA refined existing sources of GHG emissions, aligning its quantification methods with the EO 13514 Section 9 Guidance, and expanded the breadth of its inventory. The Agency now includes all sources of required Scope 3 GHG emissions in its inventory, as well as several sources of Scope 3 GHG emissions that are currently optional, including:

- Energy use at non-reporting facilities;
- Fugitive emissions from air-conditioning, refrigeration, and fire suppression equipment at non-reporting facilities;
- Operation of EPA-chartered aircraft; and
- Upstream energy used to pump, treat, and deliver potable water to reporting facilities.

EPA's Scope 1 and 2 GHG emissions, as reported in January 2011, are described in Table 2-3 later in this section.

C. High-Performance Sustainable Design/Green Buildings and Regional and Local Planning

High-Performance Sustainable Design/Green Buildings

EPA has been "greening" its real estate portfolio since the early 1990s, well before the U.S. Green Building Council (USGBC) launched its Leadership in Energy and Environmental Design (LEED®) green building certification program. Virtually all EPA major new building acquisitions initiated since 1997, whether owned or leased through GSA, have achieved LEED Gold or Silver certification under the LEED for New Construction & Major Renovations™ rating system (see Table 2-1). In addition, four of EPA's

leased office buildings have achieved Platinum, Gold, or Silver certification under the LEED for Existing Buildings: Operations & Maintenance rating system (see Table 2-2).

Table 2-1: EPA Facilities Certified Under the LEED for New Construction Rating System

Facility	Region	Square Feet	Certification		
			Version	Level	Date
EPA-Owned Facilities					
RTP, NC–NCC	4	100,922	2.0	Silver	Jan 2005
RTP, NC–Childcare	4	24,225	2.1	Silver	Mar 2008
Cincinnati, OH–Annex 2	5	45,719	2.1/2.2	Gold	Dec 2008
Gulf Breeze, FL–Building 67	4	7,691	2.2	Silver	Apr 2009
GSA-Owned or -Leased Facilities Occupied by EPA					
Chelmsford, MA–New England Regional Laboratory	1	68,950	1.0	Gold	Apr 2003
Kansas City, KS–Science & Technology Center	7	71,979	2.0	Gold	Aug 2003
Arlington, VA–Potomac Yard One	HQ	312,460	2.1	Gold	Jun 2006
Arlington, VA–Potomac Yard Two	HQ	100,129	2.1	Gold	Jun 2006
Denver, CO–Region 8 Office	8	248,849	2.1	Gold	Sep 2007
Boston, MA–Region 1 Office	1	328,862	2.1	Gold	June 2010
Total		1,309,786			

Table 2-2: EPA Facilities Certified Under the LEED for Existing Buildings Rating System

Facility	Region	Square Feet	Certification		
			Version	Level	Date
GSA-Owned or -Leased Facilities Occupied by EPA					
Lacey, WA–Region 10 Washington Operations Office	10	4,615	1.0	Silver	Feb 2005
Arlington, VA–Potomac Yard One	HQ	312,460	2.0	Gold	Jul 2008
San Francisco, CA–Region 9 Office	9	226,216	2.0	Gold	May 2009
Seattle, WA–Region 10 Office	10	172,320	2.0	Platinum	Nov 2009
Total		715,611			

At the end of FY 2010, 8.2 percent² of the buildings in EPA's projected FY 2015 Federal Real Property Profile (FRPP)³ inventory met the Guiding Principles for Federal Leadership in High Performance and Sustainable Buildings (Guiding Principles).

² This percentage is by number of buildings with more than 5,000 GSF. Calculated by GSF, 5.7 percent of EPA's projected FY 2015 FRPP met the Guiding Principles at the end of FY 2010.

³ EPA's FRPP is the inventory of buildings that EPA owns or directly leases from a private landlord. All of EPA's FRPP buildings are laboratories.

EPA has three carbon-neutral facilities in its inventory. The Agency's first carbon-neutral laboratory building, the Robert S. Kerr Environmental Research Center in Ada, Oklahoma, installed a GSHP system, uses variable air volume (VAV) laboratory ventilation to reduce fossil fuel use onsite, and purchases RECs to offset its remaining electricity use. EPA's existing all-electric Region 7 Office in Kansas City, Kansas, which has earned the ENERGY STAR[®] label, purchases enough RECs to offset its conventional energy use. EPA's Gulf Breeze, Florida, laboratory complex, also an all-electric facility, purchases enough RECs to offset its conventional electricity use.

Regional and Local Planning

When planning where its facilities will be located, EPA balances the overall impact of new facilities on surrounding communities and their local environments to promote sustainability and strengthen the vitality and livability of the communities. As a result, the Agency strongly encourages reducing or eliminating potential environmental impacts by promoting the use of green design and planning principles that are inherent in its mission—protecting human health and the environment. Agency strategies, guidelines, and processes ensure compliance with EO 13514, EO 13423, EPO 1992, EPO 2005, and EISA.

Since July 2009, EPA has worked with the U.S. Department of Transportation (DOT), the U.S. Department of Housing and Urban Development (HUD), and other Federal agencies in a Partnership for Sustainable Communities (PSC) to address and publish resources about sustainable strategies for Federal facility siting at the national level. At the regional and local level, the PSC effort is working to incorporate six "Livability Principles" into local and regional planning efforts. For example, EPA's Region 1 developed a resource guide with information about national programs and those specific to the New England Region for distribution to communities and local groups. EPA scientists in that region are also collaborating with state and local agencies on an air pollution model to evaluate local impacts and ideas for mitigating air pollution from traffic congestion along the I-95 and I-91 corridors in New Haven, Connecticut.

In December 2010, the Agency updated its Architecture and Engineering (A/E) Guidelines covering all new construction and major renovation projects at EPA-owned facilities, including information on sustainable siting and transportation planning. In early 2011, EPA created a new section of its OA website (www.epa.gov/greeningepa) to disclose all new construction and renovation actions subject to NEPA and any information relevant to environmental assessments (EAs) or environmental impact statements (EISs) required under NEPA. Several master planning efforts that will incorporate sustainability principles also began in FY 2011.

D. Water Use Efficiency and Management

In January 2007, EO 13423 instituted the first specific numeric water conservation goals for Federal agencies and called for each agency to reduce potable water intensity (in gallons per GSF) by 2 percent per year through FY 2015, for a total reduction of 16 percent from an FY 2007 baseline year. For EPA, that baseline water intensity was 35.0 gallons per GSF or 133.7 million gallons, for reporting facilities. The Agency's water use in FY 2010 was 109.6 million gallons, and its water intensity was 28.5 gallons per GSF, a reduction of 18.7 percent compared to the FY 2007 water intensity baseline, which far surpassed the required 6 percent reduction (see Figure 2-2).

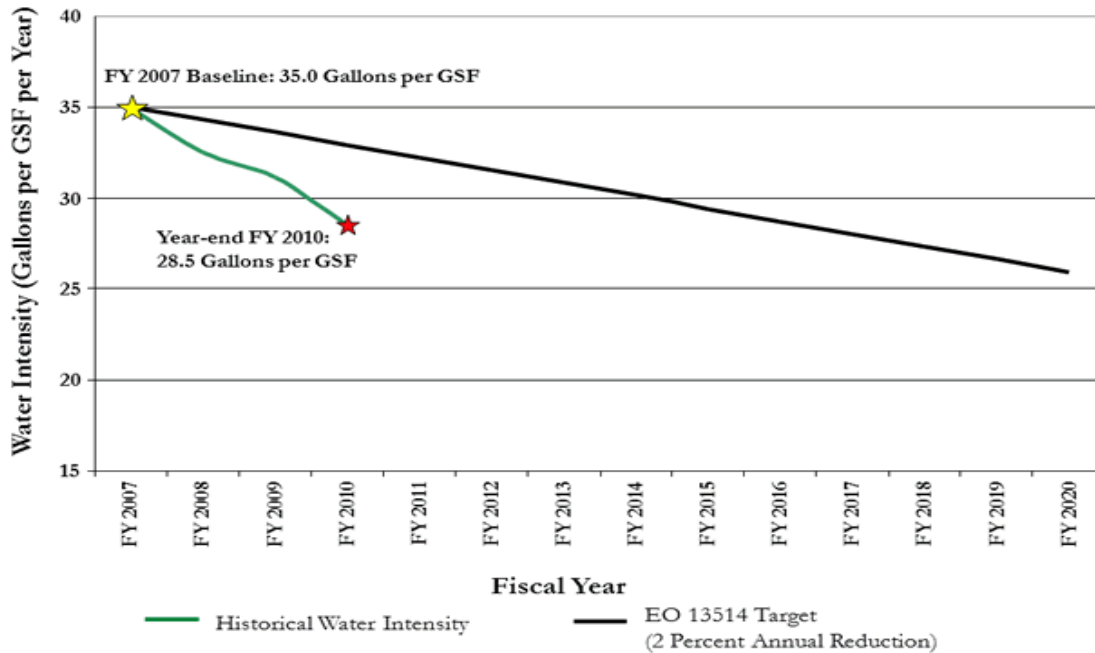


Figure 2-2: EPA Water Intensity Relative to EO 13514 Goals

In FY 2008, EPA developed its first formal Water Conservation Strategic Plan, based on years of experience in water conservation, to ensure the Agency as a whole could meet the EO 13423 water reduction goals. The strategy set out a rough timetable for implementing water conservation projects at individual facilities and estimated the water reductions from each potential project.

In October 2009, EO 13514 extended the 2 percent annual potable water reduction goal through FY 2020, and EPA updated its Water Conservation Strategic Plan in May 2010 to remain on track to meet the new requirement for Federal agencies to reduce potable water intensity 26 percent by FY 2020.

EO 13514 also included a new requirement for Federal agencies to reduce industrial, landscaping, and agricultural water use by 2 percent per year through FY 2010, from an FY 2007 baseline. It includes water use from all freshwater sources—potable and nonpotable—including water from lakes, rivers, and wells.

In FY 2010, EPA focused efforts on several water conservation initiatives: optimizing cooling tower operations, installing condensate recovery systems, improving irrigation systems, eliminating single-pass cooling, controlling tempering water flow, replacing and maintaining vacuum pump systems, and replacing or retrofitting restroom fixtures. The Agency completed water efficiency projects representing 6.1 million gallons of savings, or nearly 1.6 gallons per GSF per year. The Agency also developed a plan and calculated the FY 2010 industrial, landscaping, and water use baseline.

Stormwater Management

To comply with EISA Section 438, the Agency has adopted EPA’s Office of Water *Technical Guidance on Implementing the Stormwater Runoff Requirements for Federal Projects under Section 438 of the Energy Independence and Security Act* for all new construction and major renovation projects. Many EPA facilities currently incorporate design features that reduce the volume and intensity of runoff; reduce the occurrence of combined sewer overflow; and increase the amount of water retained onsite to

maintain the natural hydrology of groundwater, streams, and wetlands. The most effective stormwater management projects utilize a combination of techniques and technologies to reduce runoff volumes, promote infiltration, and increase water quality. Examples of successful EPA stormwater management projects include:

- **Wet Weather Green Infrastructure Master Planning:** In early FY 2010, EPA completed a stormwater management retrofit site master plan at the Andrew W. Breidenbach Environmental Research Center (AWBERC) in Cincinnati, Ohio. That 20-acre site is currently 50 percent impervious. This master plan follows the requirements of EISA Section 438 Guidance issued December 4, 2009.
- **Pervious Paving:** In FY 2011, EPA finished installing 65 permeable concrete parking spaces at the Edison, New Jersey, laboratory that demonstrate the performance of three types of pervious pavement. The Agency completed other smaller pervious parking lot projects at its Chapel Hill, North Carolina, laboratory and pervious parking additions at the Office of Research and Development (ORD) laboratory in Athens, Georgia.
- **Rain Gardens and Bioretention Areas:** In FY 2009, EPA installed a rain garden and a rain barrel at the entrance to its Environmental Science Center in Fort Meade, Maryland. Rain gardens and bioretention systems are also used at EPA Headquarters in Washington, DC; in Edison, New Jersey; and at the Agency's Main Laboratory campus in RTP, North Carolina.
- **Green Roofs:** EPA has installed green roofs in numerous facilities. The Agency installed a 2,600-square-foot green roof at the Narragansett, Rhode Island, laboratory. In addition, the Cincinnati AWBERC Annex 2 (EPA-owned) has an 8,300-square-foot green roof; and four major GSA-leased facilities—EPA's Regional Offices in Denver (19,200 square feet), Seattle (7,400 square feet), and Boston (8,800 square feet), and a Headquarters satellite building in Arlington, Virginia (1,700 square feet)—also have green roofs.
- **Rainwater Collection and Reuse:** EPA collects rooftop runoff in large cisterns and stores the water in manufactured tanks or built underground storage areas. Collected rainwater is used for toilet flushing and cooling tower makeup water at EPA's Kansas City, Kansas, Science and Technology Center (STC). Rainwater is also used as cooling tower makeup water at EPA's Edison, New Jersey, laboratory; for green roof irrigation at EPA's Narragansett, Rhode Island, laboratory; for toilet flushing at the Gulf Breeze Computational Science Building in Florida; and for landscape irrigation at the Federal Triangle Headquarters complex in Washington, DC.

E. Pollution Prevention and Waste Reduction

Recycling and Waste Diversion

All EPA facilities have established comprehensive waste reduction programs and recycle typical items such as high-grade and mixed paper; corrugated cardboard; and glass, plastic, and aluminum containers. Many facilities also recycle fluorescent bulbs; toner and ink jet cartridges; "technotrash" (e.g., CDs, diskettes, DVDs, video/audio tapes); scrap metal; wood; and batteries. A number of facilities also compost food waste from cafeterias and other food sources.

EPA's estimated waste diversion rate for non-hazardous solid waste (excluding construction and demolition waste and electronics) for FY 2010 was 55 percent. The Agency had previously exceeded the 45 percent waste diversion goal that EPA set under EO 13423 and is also exceeding the 50 percent waste reduction requirement by FY 2015, as established under EO 13514. In FY 2010, EPA set a more aggressive waste reduction goal than required for Federal agencies—55 percent—and is on track to

continue to meet or exceed that goal. The Agency's waste diversion rate is based on available data; it does not include data from all of EPA's major facilities. However, recent efforts have increased the number of major EPA facilities that are able to collect and report both trash and waste diversion data, from 10 facilities in FY 2007 to 17 facilities in FY 2010, with additional outreach efforts targeted at raising the number of facilities reporting data even higher.

EPA has conducted recycling and pollution prevention (P2) assessments at all of its major office and laboratory facilities, documenting waste reduction practices, recommending areas for improvement, and discussing barriers to data collection. In FY 2011, EPA reassessed its Region 6 Office in Dallas, Texas. The Agency continues to compile best practices from each facility, share them with other facilities on a recycling intranet site, and post them to the Internet at www.epa.gov/greeningepa/.

Construction Waste Diversion and Recycled Content Building Materials

EPA real property policies and documents require use of the Comprehensive Procurement Guidelines for recycled materials, biobased products, building products from local areas, and consideration of the reuse of historic structures to capture their "embodied energy." EPA's A/E Guidelines, Best Practice (Environmental) Lease Provisions (BPLP), and GreenCheck process also require construction projects that involve areas of more than 20,000 square feet to achieve 75 percent construction and demolition (C&D) waste diversion; projects that involve areas of less than 20,000 square feet must achieve 50 percent C&D waste diversion.

Recently completed EPA green buildings, both FRPP inventory and outside the FRPP, have achieved excellence in C&D diversion, as described below:

- EPA's Region 1 Office in Boston, a GSA-owned historic renovation completed in December 2009, diverted more than 75 percent of C&D waste for recycling, reused 99 percent of the historic structure, and retained some historic fixtures, including marble partitions from the restrooms;
- The Agency's Computational and Geospatial Sciences Building in Gulf Breeze, Florida, which is Silver certified under version 2.2 of the LEED for New Construction rating system, diverted 702 cubic yards of material from landfills during construction, achieving a 73 percent diversion rate; and
- During construction of the Annex 2 building of EPA's AWBERC laboratory in Cincinnati, Ohio, 924 cubic yards, or 96 percent, of C&D waste was diverted from landfills.

Hazardous Material and Chemical Use Reductions

EPA encourages best practices in chemical management, such as procurement controls and efficient chemical tracking, to minimize the purchase of toxic or hazardous chemicals and ensure that chemicals are used up or "adopted out" before they expire. The chemical management targets and metrics in EMSs across all appropriate laboratory facilities establish baselines for "priority" chemicals and ozone-depleting substances (ODSs) and also promote reduction of specific chemicals and mercury thermometers.

The Agency actively encourages its laboratories to regularly review existing analytical methods to determine whether more environmentally preferable options are available. EPA laboratories have implemented a variety of practices to analyze environmental samples using less solvent, acid, and other reagents. Nearly half of EPA's laboratories have implemented chemical adoption programs in which the

laboratories identify unneeded chemicals in their inventories and donate them to local high schools, universities, and other organizations. In addition, many laboratories operate onsite solvent recovery and reuse systems.

EPA has developed guidance on green cleaning products and has incorporated green cleaning requirements in janitorial service contracts at Agency facilities. EPA has also developed a Green Clean Pollution Prevention Calculator that enables facilities to quantify reductions in chemical use resulting from the implementation of green cleaning practices.

EPA encourages its facilities to adopt green landscaping practices to reduce the amount of chemicals used outdoors. For example, approximately 70 percent of EPA's landscaped facilities have incorporated native plants, which are better able to withstand local pests and conditions. EPA uses a variety of nonchemical approaches (e.g., geo-textiles and mulch) to control weeds. Some EPA locations included clauses in their leasing contracts to prohibit use of toxic chemicals. Others modified landscaping contracts to require use of integrated pest management (IPM), a sustainable approach to managing outdoor pests and weeds, and discourage over-application of pesticides and herbicides. To help facilities and consumers identify safer products, EPA's Design for the Environment program developed a label and website with information: www.epa.gov/dfe/pubs/projects/formulat/saferproductslabeling.html.

About 75 percent of the Agency's major facilities collect and recycle spent fluorescent bulbs. In addition, EPA is moving toward using low-mercury bulb alternatives. In 2005, 58 percent of the Agency's reporting facilities were using conventional bulbs, but at the end of FY 2009, only 37 percent were using them. All facilities donate or recycle electronic equipment at the end of its useful life (refer to the Electronic Stewardship section of this plan).

F. Sustainable Acquisition

In FY 2009, EPA's Office of Acquisition Management (OAM) established a Green Purchasing Plan (GPP) as part of the Agency's Contracts Management Manual (CMM). The GPP promotes a preference for using environmentally preferable products and services produced and performed in an environmentally responsible manner, and also requires the responsible distribution, maintenance, reuse, and disposal of such products and services.

In FY 2010, OAM instituted a new acquisition software system across the Agency. This system, known as EPA Acquisition System (EAS), will assist EPA in collecting more comprehensive data about sustainable acquisitions in the future. EPA also continued to hold green purchasing trainings in 2010 and 2011.

OAM's mandated Quality Assessment Plan (QAP) for contracts requires regular oversight of green procurement issues, including compliance with the GPP, collection of vendor certifications, and data integrity. OAM managers ensure compliance with the GPP by performing periodic, systematic audits consisting of file reviews.

G. Electronic Stewardship and Data Centers

EPA continues to maintain a series of initiatives launched over the past several years to support energy management, environmentally preferable purchasing, and sound reuse and recycling of electronics Agencywide. In October 2010, EPA's Chief Information Officer (CIO) released an updated version of the Personal Computer (PC) Configuration and Management Standard, which includes a section on green information technology (IT) operations. EPA also continues to use a centralized seat management

program known as Customer Technology Solutions (CTS) for about 12,000 Agency users, which accounts for about 50 percent of its desktop computer assets (i.e., desktop and laptop computers, monitors, and imaging equipment). Through the requirements of the PC Configuration and Management Standard, EPA's GPP, and the CTS maintenance, EPA ensures that all of its facilities are using electronic equipment that is:

- ENERGY STAR qualified and registered as Electronic Product Environmental Assessment Tool (EPEAT) products, preferably with an EPEAT Silver rating or higher;
- Enabled with environmentally friendly settings (e.g., duplex printing, power management); and
- Reused or recycled in an environmentally safe manner.

All equipment provided under CTS is ENERGY STAR qualified and EPEAT registered, as applicable. The Agency also relies on a blanket purchase agreement (BPA) for IT acquisitions, which ensures the delivery of EPEAT-registered and ENERGY STAR qualified products. In addition to CTS and the BPA, EPA promotes green IT acquisitions across the Agency through green purchasing training, in which contracting officers participate annually. EPA is demonstrating solid performance in this area. In FY 2010, nearly all (99.9 percent) of the personal computers and laptops that EPA acquired were EPEAT-registered, and 85 percent of them were rated Silver or Gold. As for monitors, 97.95 percent of the Agency's acquisitions were EPEAT-registered, and more than 75 percent of them were rated Silver or Gold.

The PC Configuration and Management Standard also outlines numerous operational best practices that must be implemented to reduce the amount of energy that EPA uses to operate electronics. For example, it requires employees to power down their systems at the end of the day and indicates that ENERGY STAR settings must be enabled so that computers, monitors, and printers go into sleep or standby modes after a designated amount of inactivity. To ensure compliance, EPA installed an Agencywide power management solution in 2010. This tool allows EPA to monitor and control power usage settings. If users try to deviate from energy-efficient default settings, EPA can detect the change and re-establish the preferred settings. Use of this tool allows EPA to maintain a 100 percent power management enabling rate on all eligible Agency computers and monitors.

The Agency also achieved a 100 percent environmentally sound disposition rate of electronic products in FY 2010. In addition to providing equipment for internal reuse, EPA utilizes the Computers for Learning program to donate used equipment to eligible schools and nonprofit organizations. Obsolete and broken equipment is recycled through UNICOR or other electronics recyclers certified by third-party organizations.

Working with OARM, the Office of Environmental Information (OEI), and Agency facilities, EPA established a separate metering capability for its primary Tier III data center, the NCC. To better understand energy utilization in this facility, the Agency participated in a pilot U.S. Department of Energy (DOE) study assessing energy in data center buildings and implemented many of the findings to increase power efficiency across hot and cold aisles and individual racks and servers. The Agency currently uses a multiprong approach to achieve efficiencies in computing across the enterprise system: identify and negotiate software licensing, increase virtualization, establish four covered data centers, and migrate primary EPA applications to those locations.

In August 2010, EPA completed its Data Center Consolidation Plan, outlining its intentions to reduce the Agency's data center square footage, as well as the number of physical servers presently in use. In 2010, the Region 8 Office in Denver, Colorado, updated and optimized its data center, implementing

virtualization solutions. Prior to project initiation, Region 8 was using 20 servers to support business operations. Now, the Region is meeting its needs using just two high-performance servers, saving energy and money in the process. Calculations suggest that the project will yield annual energy savings of 86,600 kilowatt hours (kWh) and that it will allow the Region to spend \$91,000 less for physical equipment replacements and \$19,500 less for server maintenance over a three-year period.

H. Agency Innovation and Government-Wide Support

As the agency charged with protecting human health and the natural environment, EPA uses innovation to expand the Agency's sustainability mission beyond what is required in EO 13514 and other Federal environmental requirements. Many of the accomplishments listed throughout this plan reflect EPA's leadership in this area. Furthermore, it is part of EPA's mission to provide examples and guidance to other Federal agencies on how to reduce GHG emissions and achieve other sustainability goals. Following are a few of the key areas where EPA provided innovation in government-wide sustainability support over the past year.

In November 2010, EPA Administrator Lisa Jackson asked the National Academy of Sciences to convene a panel of experts that could provide EPA with an operational framework for sustainability that applies across all of the Agency's programs, policies, and actions. This guidance will establish a "Green Book," or a foundation for a new approach toward policies and programs to support a healthier and more sustainable future. The report is expected to be completed in September 2011.

In the area of sustainable acquisition, in September 2010, EPA published a Federal Register notice seeking stakeholder input on EPA's role in the green/sustainable products movement. EPA has also begun a Federal Partners Sustainable Products Discussion to share information and improve coordination on various Federal actions underway related to sustainable products. For example, the group is discussing the Federal Trade Commission's pending revisions to its "Green Guides" for environmental claims on products.

EPA continues to provide support to other Federal agencies and facilities in the area of electronics stewardship through the Federal Electronics Challenge (FEC). October 2010 marked the sixth anniversary of the program, which currently assists more than 250 partner Federal facilities from 18 different agencies in the sustainable management of office electronics throughout their lifecycle. FEC is evaluating options for expanding the program in 2011 to include resources and guidance on sustainable management of data centers and servers.

EPA played a leadership role in 2010 and 2011 on the following EO 13514-related work groups:

- **Section 2d: Inter-Agency Water Working Group.** EPA was asked to co-lead the working group on goals for water reduction with FEMP.
- **Section 9: Recommendations for Greenhouse Gas Accounting and Reporting.**
- **Section 10: Recommendations for Sustainable Locations for Federal Facilities.** DOT (with GSA, the U.S. Department of Homeland Security [DHS], U.S. Department of Defense [DOD], and others) recommends sustainable location strategies.
- **Section 11: Recommendations for Federal Local Transportation Logistics.** GSA (in coordination with DOT, the U.S. Department of the Treasury, DOE, Office of Personnel Management, and others) recommends revisions to current policies and practices associated with use of public transportation by Federal personnel.

- **Section 12: Guidance for Federal Fleet Management.** DOE, with GSA and others, issues guidance on Federal fleet management.
- **Section 13: Recommendations for Vendor and Contractor Emissions.** GSA works with DOD, EPA, and others to recommend procedures for counting Scope 3 contractor and vendor emissions. With GSA, EPA is co-leading a Section 13 subgroup on product labeling that is developing criteria for evaluating environmentally sustainable standards for products and services.
- **Section 14: Stormwater Guidance for Federal Facilities.** EPA issued guidance on the implementation of Section 438 of EISA and continues to assist agencies in implementing it.
- **Section 16: Inter-Agency Climate Change Adaptation Agency Working Group.** EPA helped this working group develop recommended *Implementing Instructions* for adaptation planning requirements and provided those inter-agency recommendations to CEQ.

In addition to participating in the PSC to promote sustainable communities, in 2011 EPA participated or played a leadership role in developing: a Sustainable Materials Management effort led by the Office of Solid Waste and Emergency Response (OSWER) to advance the sustainable use of materials throughout their lifecycles; a Green Building Workgroup coordinated by EPA's Office of Sustainable Communities; Re-Powering America's Lands, an OSWER program that encourages and facilitates siting of renewable energy on potential contaminated land and mining sites; and the Green Infrastructure cross-agency work group that will guide EPA's Office of Water efforts over the next several years to promote stormwater management and low-impact development tools and policies. EPA has also established a senior level working group of Federal agency representatives on sustainable products. This group is a forum for EPA to vet options and approaches with other Federal agencies with related green product initiatives and mandates.

II. GOAL PERFORMANCE REVIEW

GOAL 1: SCOPE 1 AND 2 GHG REDUCTION

A. Goal Description

In FY 2008, EPA's combined Scope 1 and 2 GHG emissions totaled 140,780 MTCO₂e, based on energy use in its facilities and fuel for its fleet. Approximately 95 percent of these emissions (133,718 MTCO₂e) were related to building energy use and operations, and 5 percent (7,062 MTCO₂e) were related to fleet vehicle use, as shown in Table 2-3.

Table 2-3: EPA's Scope 1 and 2 GHG Emissions Inventory

EPA's Scope 1 Emissions	GHG Emissions (MTCO ₂ e)	
	FY 2008 Baseline	FY 2010
Stationary fuel (e.g., natural gas, fuel oil, propane, kerosene) combustion at reporting facilities	21,726	21,132
Fugitive emissions in reporting facilities from building air-conditioning, refrigeration, and fire suppression equipment	1,741	1,747
Mobile fuel combustion in "covered" fleet vehicles	3,707	3,466
Mobile fuel combustion in "exempt" fleet vehicles	0*	0*
Mobile fuel combustion in tactical vehicles/equipment (e.g., boats, trailers)	3,075	1,615
Fugitive emissions from mobile air-conditioning equipment in EPA's vehicles	280	253
Process emissions from laboratory fume hood testing	171	188
Process emissions from National Vehicle and Fuel Emissions Laboratory vehicle and engine testing	175	284
Process emissions from furnace testing at the High Bay Laboratory in RTP	22	33
Process emissions from RTP incinerator/waste-handling facility's stack	119	137
Process emissions from chemical use in reporting facilities	44	44
Total Scope 1 Emissions	31,060	28,900
EPA's Scope 2 Emissions		
Purchased electricity at reporting facilities	73,031	73,650
Purchased renewable energy biomass emissions	N/A	565
Purchased hot water at RTP-New Main	10,928	11,436
Purchased chilled water at RTP-New Main and RTP-NCC	10,939	15,546*
Purchased CHP electricity at RTP-Chapel Hill	3,495	2,713
Purchased chilled water at RTP-Chapel Hill	2,423	1,703
Purchased CHP steam at RTP-Chapel Hill	8,904	7,466
Total Scope 2 Emissions	109,720	113,080
Total EPA Scope 1 and Scope 2 Emissions	140,780	141,979
<i>Note:</i> This table represents the Scope 1 and 2 GHG emissions data that EPA reported to CEQ and OMB in January 2011 to meet EO 13514 reporting requirements. EPA will incorporate subsequent updates to its FY 2008 and FY 2010 Scope 1 and 2 GHG emission inventories in its FY 2011 Annual Report. * Emissions estimate subject to change.		

EPA has committed to reduce its combined Scope 1 and 2 GHG emissions 25 percent by FY 2020 compared with its FY 2008 baseline. To reach this aggressive target, the Agency will reduce its facility energy intensity by 3 percent annually through FY 2020, five years beyond the FY 2015 statutory requirements in EISA. Mechanical system upgrades, infrastructure replacement projects, energy assessments, and re-commissioning will enable the Agency to achieve this goal. EPA will also continue to purchase green power and RECs equivalent to 100 percent of its conventional electricity use for the foreseeable future. In addition, EPA will consolidate existing space, where appropriate to reduce per capita facility energy consumption.

The Agency will pursue onsite renewable energy where feasible and will reduce its fleet fuel consumption by optimizing the fleet size, increasing the use of low-emission vehicles, and reducing petroleum fuel use by 45 percent from FY 2005 levels by FY 2020.

B. Agency Lead for Goal

OARM has overall Agency responsibility for facilities, utilities, transportation, and GHG reductions. The office within OARM with lead responsibility is OA, and under OA, the lead division is FMSD.

C. Implementation Methods

Buildings

1. Reduce Facility Energy Intensity

Because energy use in EPA facilities contributes, by far, the largest share of the Agency's Scope 1 and 2 GHG emissions, EPA has identified facility energy conservation as the primary method for meeting its FY 2020 Scope 1 and 2 GHG emission reduction goals. To reach the 25 percent emissions reduction goal by FY 2020, EPA has committed to reducing its facility energy intensity by 3 percent annually through FY 2020, exceeding the statutory requirement by five years.

EPA will use its current Energy Conservation Plan to reach this goal, incorporating the following strategies:

- **New Building Design:** EPA will design and construct new facilities to be much more energy efficient than the buildings they replace;
- **Mandatory Commissioning:** Since FY 2003, EPA has required mandatory commissioning on all projects that include laboratory mechanical systems;
- **Infrastructure Replacement Projects and Mechanical System Upgrades:** EPA is pursuing major mechanical system replacement projects as well as operating efficiency projects at all of its facilities;
- **GSHP Systems:** GSHP systems will help the Agency meet EISA fossil fuel use reduction strategies for buildings;
- **Energy Assessments and Re-Commissioning:** EPA conducts energy assessments, often at high-energy-intensity and large laboratories, and then conducts re-commissioning at each EPA facility every four years, as required under EISA;
- **Energy Forecasting:** EPA uses an energy forecasting process to track, schedule, and prioritize energy conservation projects; maintain cost and energy savings estimates; and predict its near- and long-term energy performance;
- **Space Consolidation:** EPA is exploring a variety of strategies for consolidating underutilized space, primarily focused on improving laboratory and office infrastructure and increasing employees' capacity to telework.
- **Advanced Metering Implementation Strategy:** EPA is installing advanced meters for utilities where they are cost effective, according to the Agency's advanced metering implementation strategy; and
- **Training and Education:** The Agency encourages energy efficiency training, including attendance at conferences such as Laboratories for the 21st Century and GovEnergy.

2. Install and Use Renewable Electricity

With the procurement of two major REC contracts in November 2009 and September 2010, EPA purchased sufficient green power to offset 100 percent of FY 2011 estimated Agencywide electricity use with delivered green power and RECs through September 2011. EPA intends to continue purchasing

green power to offset 100 percent of its electricity use for the foreseeable future and will continue to make substantial REC purchases for FY 2012.

In September 2009, the Agency completed a nationwide survey of potential renewable energy projects at each of its laboratories. The study evaluated solar, wind, and GSHP projects and concluded that, at full-scale implementation, EPA potentially could generate more than 79 BBTu of renewable energy, representing 5.5 percent of FY 2003 Agencywide energy consumption. At a total estimated cost of \$115 million (based on market conditions at the time the report was completed), these projects would enable EPA to reduce its FY 2008 Scope 1 and 2 GHG emissions by 16,700 MTCO₂e, which is approximately 12 percent of the Agency's FY 2008 baseline Scope 1 and 2 GHG emissions.

EPA's national onsite renewable energy feasibility study confirmed that GSHP systems are the most economical renewable technology to reduce energy and fossil fuel use. GSHP systems, when combined with other measures, such as VAV ventilation systems for laboratories and low-velocity fume hoods, can reduce heating and cooling-related energy consumption by 40 to 50 percent. EPA currently is pursuing GSHP projects at its Corvallis, Oregon; Narragansett, Rhode Island; Fort Meade, Maryland; and Houston, Texas, laboratories. EPA has already completed one GSHP project at its Ada, Oklahoma, laboratory.

EPA also will pursue smaller scale onsite renewable generation projects. In April 2010, the Agency completed installation of a 50 kilowatt (kW) photovoltaic (PV) system on the roof of its Main facility in RTP, North Carolina, and a 100 kW system on the roof of the RTP Child Care facility. In FY 2011, EPA began construction of a 55 kW, thin-film PV array on an additional roof of RTP-Main and initiated design of an onsite wind energy project at its Atlantic Ecology Division Laboratory in Narragansett, Rhode Island. EPA will undertake larger onsite renewable energy projects as funding becomes available.

As required under EISA, EPA plans to implement solar hot water heating for major renovations and new construction of laboratories, where feasible and cost-effective. In FY 2010, for example, the Agency completed a solar hot water heating project at the ORD laboratory in Athens, Georgia. EPA will incorporate cost-effective solar hot water heating to supply at least 30 percent of hot water demand in new facilities or major renovations. The Agency also will use the GreenCheck process to ensure that all new buildings and major renovations meet the EISA Section 523 requirement to meet 30 percent of EPA's domestic hot water demand (i.e., for restrooms and kitchens) with solar hot water heaters. GreenCheck ensures that EPA's major projects comply with all energy and environmental goals and regulations. More information about the GreenCheck process is included in the discussion of Goal 3: High-Performance Sustainable Design/Green Buildings and Regional and Local Planning.

3. Reduce Per Capita Energy Consumption Through Space Management Policies

EPA has identified several significant opportunities to reduce per capita energy consumption by releasing and consolidating underutilized space and by maximizing the performance of its existing laboratory and office space. For example, EPA has initiated a multi-year effort to consolidate its Reproductive Toxicology Facility (RTF) into EPA's Main Laboratory in RTP, North Carolina. EPA expects that this space consolidation effort, when completed in late 2014, will reduce the Agencywide inventory of laboratory space by approximately 40,000 GSF. While energy intensity at the RTP-Main facility may increase slightly, the net impact of this space management initiative will be a decrease in overall energy intensity and a corresponding drop in the Agency's total Scope 1 and 2 GHG emissions.

Also, as part of an effort to rehabilitate its National Air and Radiation Environmental Laboratory (NAREL) in Montgomery, Alabama, EPA completed a master plan that closely aligned facility infrastructure with

current research and testing needs. The plan reduced the number of energy-intensive fume hoods by 25 percent and converted most of the remaining fume hoods to VAV models. In addition, EPA will install four fume hoods that it will only operate in the case of a national emergency response. When completed, EPA anticipates that the consolidation of fume hood capacity at NAREL will produce significant renovation and operating cost reductions, reduced energy use, and a decrease in GHG emissions.

Fleet

1. Reduce Petroleum Use in Fleet Vehicles

EO 13514 requires agencies to reduce petroleum consumption by 30 percent by FY 2020, compared with an FY 2005 baseline. EPA has made significant progress toward meeting this goal and already has exceeded the 20 percent reduction mandated by EO 13423. In FY 2010, EPA achieved a 24.9 percent reduction in petroleum consumption from the baseline, one of the largest percentage reductions in the government. The Agency fully expects to exceed the 30 percent petroleum reduction requirement several years before FY 2020 through increased fleet efficiency.

EPA will increase fleet efficiency by maintaining appropriate utilization levels of fleet resources. For example, the Agency will continue to encourage consolidating multiple vehicle trips into one vehicle trip, thereby reducing vehicle miles traveled and gasoline consumed. In addition, ride-sharing, mass transit, teleconferencing, and videoconferencing will be promoted as alternatives to in-person meetings that require the use of fuel for personnel to travel between offices. This will be accomplished by educating the fleet staff via site visits, policy memoranda, newsletters, and other communications. EPA also will continue to “right-size” its vehicle inventory to ensure lean and efficient use of resources.

Fleet efficiency also can be increased through proper maintenance and operation. Ensuring that vehicles undergo regular, preventive maintenance programs can optimize fuel efficiency. Attention to details such as maintaining proper tire pressure also can increase miles per gallon (MPG). EPA will review maintenance procedures during site visits to ensure an appropriate protocol is implemented. Smart operation of motor vehicles also can reduce fuel consumption; EPA will encourage such driving practices as accelerating slowly, avoiding engine idling for long periods, and carefully planning trips.

2. Increase Use of Alternative Fuels in Fleet AFVs

Alternative fuels provide an opportunity for EPA to significantly reduce petroleum consumption while promoting America’s energy security. Under EO 13423, the Agency is required to increase alternative fuel use to 115,655 gasoline gallon equivalents (GGE) by FY 2015. Despite the lack of infrastructure, EPA will continue to strive to meet this goal through coordinated action with all Regions, Offices, and Programs within EPA.

By continuing on this accelerated track, the Agency would total 186,263 GGEs of alternative fuel consumption by FY 2020. Based on the reduction strategies detailed above, EPA’s total petroleum consumption in FY 2020 will be 247,861 GGEs. Alternative fuel, therefore, would constitute approximately 43 percent of the Agency’s total fuel consumption or 33.5 percent more than the 9.5 percent alternative fuel use in FY 2008. This means that an additional 33.5 percent of petroleum consumption will be offset by alternative fuel use by FY 2020.

EPA has implemented its AFCEP, a series of site visits to Regional fleet locations to review fleet operational procedures, identify best practices, and assist fleet managers in meeting alternative fuel increase targets. Site visits include formal and informal discussions on how to best increase alternative fuel use while decreasing petroleum and vehicle miles traveled. One of the goals of the AFCEP is to continue to educate all fleet managers about the wide array of Federal fleet requirements and strategies to achieve them. The Agency has completed five site visits and plans to continue these reviews throughout FY 2011. EPA believes that this program will push the Agency onto a compliant track and projects that E85 will displace an additional 33.5 percent of the Agency's petroleum consumption by FY 2020.

3. Optimize Use of Vehicles and Right-Size Fleet

EPA continually right-sizes its fleet to ensure responsible use of acquisition funding and to lower fuel consumption. Because the Agency's fleet is decentralized—with each Region or Program Office operating its own independent budget—it is more difficult to govern and standardize operations. However, the Agency has engaged fleet staff responsible for vehicle management (Regional Fleet Managers) in various ways to make EPA's overall fleet leaner. The Agency Fleet Manager has conducted several ad hoc site visits to fleet locations to discuss fleet size and fuel consumption. The success of these visits led to development of the AFCEP, a comprehensive and coordinated fleet review.

The AFCEP focuses on more than just alternative fuel consumption, as the name might imply; it also includes site visits to Regional fleets to review fleet size and operational procedures, identify best practices and deficiencies, and help fleet managers meet fuel consumption targets. Site visits have included formal discussions on how to right-size the fleet, increase alternative fuel usage, and decrease petroleum use and vehicle miles traveled.

As part of the AFCEP, EPA applies small-scale vehicle allocation methodologies to the Regional fleets so that they can attain a maximum-efficiency fleet size. In addition, the Agency reviews historical fleet data to determine utilization requirements, vehicle miles traveled, user and vehicle ratios, trips per vehicle, and vehicle downtime.

The Agency expects that the AFCEP will help to optimize its fleet size by issuing recommendations for actions on underutilized and overutilized vehicles. The program also will assist the Agency in meeting the fuel consumption requirements of EO 13423 and EO 13514.

4. Increase Use of Low-Emission and High-Fuel Economy Vehicles

EPA achieved an AFV acquisition rate of 107 percent in FY 2010. EO 13514 reiterates the goal of EISA Section 141, which requires Federal fleets to acquire only "low GHG-emitting vehicles." EPA guidance defines low GHG-emitting vehicles (LGVs) by issuing a GHG score for each vehicle make and model on EPA's Green Vehicle Guide (www.epa.gov/greenvehicles/Federalfleet.do). Vehicles must achieve a score of 5, 6, 7, or higher (depending on the vehicle type) to be considered an LGV. Additionally, LGVs help the Agency meet EAct 1992 alternative fuel vehicle acquisition requirements, regardless of the vehicle's fuel type. EPA tracks the GHG score of new Agency acquisitions in the Automotive Statistical Tool (AST) database. The Agency is in the process of approving exemptions to this acquisition requirement in cases when an LGV model is not able to meet the mission requirements for law enforcement, emergency response, or special purpose vehicles.

During AFCEP site visits, the Agency has encouraged Regional Fleet Managers to acquire and utilize LGVs and AFVs at all times. EPA has also repeatedly educated fleet staff of this requirement via annual workshops, quarterly newsletters, and quarterly conference calls. EPA has provided guidance and resources to help Regional Fleet Managers plan for LGV acquisitions prior to making final decisions. In January 2011, EPA Headquarters sent vehicle order forms specific to each Region's expiring leases with potential LGV and AFV options for replacement. As a result, EPA saved thousands of dollars in acquisitions and will reap the benefits of lower fuel consumption over the following three years. EPA will continue to educate and encourage Regional Fleet Managers to acquire LGVs to meet both petroleum and GHG reduction goals. Moving forward, the Agency intends to focus on continually increasing the acquisition rates of three types of motor vehicles, where cost-effective: fuel-efficient non-hybrids, hybrid electric vehicles (HEV), and plug-in hybrid electric vehicles (PHEVs).

Electric vehicle technology found in HEVs and PHEVs will play a critical role in reducing mobile source emissions. Although HEVs have been commercially available for several years, the additional acquisition costs (compared with the costs of similar vehicles without hybrid battery systems) have prevented EPA from acquiring large numbers of them. As battery production becomes more efficient, the cost of HEVs and PHEVs will decrease, and the Agency will continually increase its inventory through FY 2020.

5. Replace Conventional Senior Executive Fleet With Low GHG-Emitting, Highly-Efficient Vehicles

EPA currently leases 16 vehicles that are designated for senior executive use, all of which are already considered LGVs. EPA will continue to replace all senior executive vehicles with LGVs as their leases expire over the next four years. However, this determination will be revisited each time a vehicle is replaced to ensure passenger safety, due to the sensitive mission requirements of these vehicles. If there is not an LGV model vehicle available that meets security requirements, EPA reserves the right to acquire a non-LGV vehicle. If this scenario arises, EPA will identify an alternative and equivalent emissions reduction path that would otherwise have been achieved by replacing the vehicle with an LGV.

6. Streamline Existing Shuttle Bus Routes by Consolidating Ridership With Other Agencies

EPA operates a shuttle bus service within the National Capitol Region between the Ronald Reagan Building in Washington, DC, and the Headquarters buildings at Potomac Yard in Arlington, Virginia. EPA has already begun sharing this shuttle service with the U.S. Agency for International Development (USAID). As a result of this consolidation, the EPA shuttle transports approximately 323 EPA and USAID employees each day between locations. By consolidating shuttle service between the agencies, fuel costs and consumption are reduced by approximately 16 percent annually.

7. Implement Sustainable Transportation Options

EPA has made great progress toward a low-carbon fleet footprint. The Agency requires that all new subject acquisitions be LGVs (including HEVs and AFVs) and has informed Fleet Managers that fuel efficiency must always be increased when replacing vehicles. EPA continues to right-size its fleet by individually discussing and scrutinizing each Region's inventory via the AFCEP. The Agency has conducted trainings, conference calls, and newsletters to reiterate that alternative fuel must be used in subject AFVs. Additionally, EPA specifies that fleet vehicles must always utilize retreaded tires and recycled oil for maintenance purposes. The biggest challenge facing EPA's fleet is the lack of alternative

fuel infrastructure throughout the country. The Agency reviewed onsite fueling options, but these created financial and safety concerns, rendering them infeasible for implementation. Without an expansion of alternative fuel (specifically E85) infrastructure, it will remain challenging to meet alternative fuel goals of EO 13423.

D. Agency Status

Given the current economic climate, EPA will achieve energy conservation goals and its Scope 1 and 2 GHG emission reduction targets by using a cost-effective strategy that emphasizes energy conservation, and then by implementing more expensive approaches as funding becomes available. The Agency will continue to purchase green power and RECs for the foreseeable future, as long as they are reasonably priced. Similarly, EPA will continue to develop demonstration renewable energy projects, pursue long-term contracts for green power, and install large onsite renewable energy projects as funding becomes available.

By June 2011, EPA will have completed energy assessments and have re-commissioning efforts well underway or complete at the following facilities:

- The Main Laboratory complex in RTP, North Carolina (portion of entire facility);
- AWBERC in Cincinnati, Ohio (portion of entire facility);
- Western Ecology Division Laboratory in Corvallis, Oregon;
- Region 6 Laboratory in Houston, Texas;
- Robert S. Kerr Environmental Research Center in Ada, Oklahoma; and
- NAREL in Montgomery, Alabama.

EPA will further investigate the potential for installing onsite renewable energy systems in future years, based on cost-effectiveness, to reduce its demand for conventional electricity and fossil fuel combustion.

EPA is currently projected to exceed the FY 2020 30 percent petroleum consumption reduction requirement in FY 2013, a full seven years ahead of schedule. The Agency completed AFCEP fleet site visits in Boston, Atlanta, Philadelphia, Chicago, and Washington, DC, and plans to continue these reviews throughout 2011.

E. Highlights

EPA continues to install new onsite PV systems to complement its aggressive energy conservation program. In April 2010, EPA installed two PV systems (one owned and one leased) on separate buildings at EPA's RTP, North Carolina, Main Laboratory campus. In April 2011, EPA began to install a thin-film PV array at an additional building on the RTP Main campus. EPA is managing a competitive procurement for a power purchase agreement (PPA), which will include a large PV array, at the Region 2 Laboratory in Edison, New Jersey.

EPA has begun construction of a heat recovery system for its largest laboratory, New Main in RTP, North Carolina, which is expected to reduce energy intensity at that facility by 4 to 5 percent once construction is completed. EPA awarded construction contracts for Phases 4a and 4b of the Infrastructure Replacement Project (IRP) at EPA's Cincinnati, Ohio, AWBERC Laboratory.

EPA continued its commitment to green power/REC purchases (Note: by June 2011, EPA will likely have initiated procurement of a green power contract for FY 2012). EPA also secured funding for a GSHP project at its Region 3 Environmental Science Center in Fort Meade, Maryland, as well as for onsite solar and wind projects at its Atlantic Ecology Division Laboratory in Narragansett, Rhode Island.

EPA completed an initial pilot project to understand the relative magnitude of GHG emissions associated with chemical use in laboratories and offices. In fleet-related GHG highlights, EPA completed its AFCEP to emphasize fuel requirement compliance at its fleet locations and conducted site visits in the first five locations. The Agency is well underway in implementing its ambitious plans to reduce fleet GHG emissions.

GOAL 2: SCOPE 3 GHG REDUCTION AND DEVELOP AND MAINTAIN AGENCY COMPREHENSIVE GHG INVENTORY

A. Goal Description

Scope 3 GHG Reduction

In its FY 2010 Annual Energy and Water Conservation Report to FEMP, EPA submitted its current estimates for FY 2008 and FY 2010 Scope 3 GHG emissions data. The Agency used the best data available, acknowledging that improving the quality of its Scope 3 emissions inventory will require time and additional effort. The required classes of Scope 3 GHG emissions and associated reduction targets covered the following emission sources:

- Federal employee business travel–air transportation;
- Federal employee business travel–ground transportation;
- Federal employee travel–commuting;
- Contracted solid waste disposal;
- Contracted wastewater treatment; and
- T&D losses from purchased electricity.

Based on current Scope 3 emission estimates, the Agency plans to reduce the required sources of Scope 3 GHG emissions by 8 percent by FY 2020 (see Table 2-4).

Table 2-4: EPA FY 2008/FY 2010 Scope 3 GHG Emissions and FY 2020 Reduction Targets

Source of Emissions	FY 2008 Emissions (MTCO ₂ e)	FY 2010 Emissions (MTCO ₂ e)	Target Reduction by FY 2020 Compared to FY 2008	FY 2020 Emission Reductions (MTCO ₂ e)
Sources of Scope 3 GHG Emissions Currently Required for EO 13514 Reporting				
T&D Losses from Purchased Electricity	4,811	4,851	20 percent	962
Employee Business Travel–Air ⁴	14,725	15,635	11 percent	1,620
Employee Business Travel–Ground	9,124	8,579	10 percent	912
Employee Commuting	36,773	37,501	5 percent	1,839
Contracted Waste Disposal	1,799	1,560	5 percent	90
Wastewater Transport and Treatment	83	85	5 percent	4
Subtotal	67,315	68,146*	8 percent	5,427
<p><i>Notes:</i> Emissions data presented in this table represent EPA's best estimates as of January 19, 2011, and are subject to additional refinement. FEMP and CEQ have not yet promulgated Federal guidance for quantifying Scope 3 GHG emissions from supply chain, contracted activities, and agencies' grants or programs; emissions associated with these categories could represent a significant portion of EPA's Scope 3 GHG emissions inventory (5 to 10 times greater than currently known Scope 3 emissions).</p> <p>*EPA's FY 2010 subtotal includes a 65 MTCO₂e credit (i.e., reduction) associated with energy generated onsite at the RTP Child Care facility, where EPA hosts a PV array for the local utility company but does not retain the RECs associated with this energy.</p>				

Develop and Maintain Agency Comprehensive GHG Inventory

To maintain the robustness of its existing GHG emission inventories for FY 2008 and FY 2010, EPA will continue to evaluate the quality of its Scope 1 and 2 GHG emissions data. Specifically, the Agency will improve the quality of its mobile fuel consumption data and evaluate options for refining its estimate for fugitive emissions from facilities-related refrigerants.

The Agency will continue to expand the breadth and improve the accuracy of its Scope 3 GHG emissions inventory. In addition to the currently required classes of Scope 3 GHG emissions, EPA calculated and reported several categories of optional Scope 3 GHG emissions in its FY 2010 Annual Report, including the following:

- Energy consumption at leased, non-reporting facilities;
- Fugitive emissions from air-conditioning, refrigeration, and fire suppression equipment at non-reporting facilities;
- Emissions from EPA-chartered aircraft; and
- Upstream energy used to pump, treat, and deliver potable water to reporting facilities.

EPA has also begun to collect activity data necessary to estimate emissions associated with the Agency's supply chain. EPA will strive to estimate additional Scope 3 categories, including energy used for site remediation activities, as soon as reasonably possible. The Agency will continue to use a step-by-step process in this effort, first developing rough estimates of these types of Scope 3 GHG emissions and following up with more precise GHG accounting methodologies over time. Currently uninventoried Scope 3 GHG emissions likely represent a large portion of EPA's overall GHG emissions, and the Agency plans to focus as quickly as possible on efforts to reduce emissions in these areas. EPA also understands

⁴ EPA's Scope 3 GHG emissions associated with business air travel increased in FY 2010 compared to FY 2008. However, initial data indicate that EPA has reduced these emissions significantly through second quarter FY 2011 compared to year-to-date FY 2010 resulting from both a reduced FY 2011 travel budget and increased use of videoconferencing equipment.

that it must prioritize emissions reductions for the components that the Agency has the greatest potential to manage.

B. Agency Lead for the Goal

Scope 3 GHG inventory and reduction work will be dispersed throughout EPA; will require significant Agencywide coordination, planning, and implementation; and will be a multiyear effort.

OARM has overall Agency responsibility for facilities, utilities, and GHG emission reductions.

- The office within OARM with lead responsibility is OA, and under OA, the lead division is FMDS.
- EPA's OAM is responsible for acquisition and will lead efforts to develop supply chain Scope 3 GHG emissions inventory data and implement long-range supply chain emission reduction strategies.
- OCFO has overall Agency responsibility for employee travel.

Overall Agency responsibility for programmatic Scope 3 emissions is an Agencywide effort coordinated under the SSO within OARM. EPA's OHR is responsible for developing the Agency's Telework Policy. OEI is responsible for managing network capacity to accommodate increased telework opportunities.

C. Implementation Methods

1. Federal Employee Travel (Business Travel and Commuting)

Reduce Federal Employee Business Travel—Air and Ground

Emissions resulting from EPA employee business travel are significant. EPA's current estimates for air travel and the rental car portion of ground travel are based on emissions data that come directly from GSA's Travel Management Tool. The Agency is working with GSA, DOE, and DOD to improve the data collected by various government travel management systems on rental vehicles. EPA has developed its own estimate of ground travel emissions associated with employees' use of POVs for business travel. EPA has not yet attempted to estimate Scope 3 GHG emissions associated with employees' uses of other types of ground transit for business travel (e.g., taxi, rail, bus) due to the lack of available activity data. EPA acknowledges that this is an area of its inventory that will require additional effort to refine.

EPA plays a key role as technical advisor to the GSA government green travel initiative, which includes developing new policies for GSA's "city pairs" airline contract carrier program as a way to address Scope 3 GHG emissions reduction in the solicitation/award process. EPA is also providing recommendations for sustainability criteria for hotel lodging and conference facility acquisition to be incorporated into the FTR and FAR.

Since FY 2009, the EPA GTWG has been working to develop ways to reduce Agency travel, minimize travel spending, and reduce GHG emissions. The GTWG has been developing a plan and investment options to make videoconferencing equipment accessible to all appropriate EPA locations. The Agency envisions parallel efforts to facilitate and educate employees on this mode of communication, reduce employees' business travel needs, and reduce EPA travel expenditures in FY 2011. To reduce Agency air travel and associated Scope 3 GHG emissions, OEI completed the deployment of 50 new Tandberg videoconferencing units throughout its Headquarters and Regional Offices and large research laboratories in FY 2010.

To further reduce its emissions from employee business travel, EPA will pursue the following strategies:

- Continue to reduce the Agency travel budget, as described in a recent statement from the EPA Administrator;
- Expand information on existing videoconferencing facilities, install new videoconferencing facilities, and educate EPA personnel about the Agency's videoconferencing capabilities;
- Encourage webinars and conference calls as an alternative to traveling; and
- "Green" meetings and conferences by:
 - Working to create a dedicated and consolidated meetings/events/planning service group within EPA that has green travel and meeting expertise;
 - Encouraging the use of more efficient modes of transportation whenever possible (e.g., trains, buses, or cars) for short distance travel (e.g., smarter travel);
 - Encouraging selection of meeting and conference locations that allow for the selection of direct airline flights, and with airports that are accessible by public transit;
 - Incorporating more green travel requirements into Agency contracting activities; and
 - Working closely with GSA to incorporate sustainability provisions within the FTR and FAR to reduce emissions associated with Federal lodging and use of conference facilities.

Employee Commuting

EPA has more than 17,000 employees working at locations across the country, most of whom regularly commute to work. Whether employees drive POVs, carpool, or rely on public transportation, the Agency understands that the collective annual emissions associated with employee commuting represent a significant component of its Scope 3 emissions.

EPA recognizes that the scope of its current dataset for employee commuting is limited; to date, EPA has made broad assumptions regarding the commuting patterns for the majority of Agency employees. In an effort to improve data quality, EPA plans to establish a formal, systematic framework for annual collection of Agencywide employee commuting data (while protecting personally identifiable information [PII]). This new framework would enable EPA to capture more comprehensive information about its employees' commuting patterns to better inform efforts to manage these emissions and to more closely track progress toward EPA's emissions reduction goal. In FY 2011, EPA began this process by updating the enrollment and recertification form for Headquarters' transit subsidy program (TSP) in order to collect more targeted commuting information from enrollees. EPA also distributed this form among its Program and Regional TSP Coordinators and encouraged them to implement this form at their facilities.

The Agency will consider improving its existing programs for reducing emissions associated with employee commuting, including providing education, training, and incentives for biking, carpooling, and taking public transportation, and encouraging compressed work-week/flexi-place scheduling. By enhancing the capability for employees to work remotely, EPA anticipates increasing the number of employees that telework—or the overall employee hours worked remotely—by 10 percent in FY 2011 compared to FY 2010. The Agency also plans to develop and issue a revised teleworking policy by September 2011. Finally, EPA will continue to promote leasing and building on sites that have access to a variety of transportation options (e.g., active transportation, public transportation, and carpooling).

2. Contracted Waste Disposal

EPA currently collects accurate waste diversion and disposal data from facilities that represent more than 40 percent of the Agency's total square footage. The Agency will work with GSA and its O&M contractors to expand the number of facilities reporting complete waste metrics, with a goal of having complete, regular, and consistent data collection and reporting for all major EPA facilities. EPA estimates that it achieved a 55 percent waste diversion rate at its facilities in FY 2010. To further reduce these emissions, the Agency plans to reduce resource use and encourage waste diversion at all facilities.

EPA has not collected information concerning the quantities or specific treatment processes associated with wastewater generated at its facilities. As a result, EPA has utilized the Reporting Portal default calculation methodology, which estimates emissions associated with wastewater treatment based on the number of FTEs. Recognizing that these emissions represent a very small portion of EPA's Scope 3 GHG emissions, EPA plans to improve its data quality over time as Federal emissions accounting guidance evolves.

3. T&D Losses from Purchased Electricity

To reduce its Scope 3 GHG emissions associated with T&D losses from purchased electricity, the Agency must focus on reducing its site consumption of purchased electricity. Strategies that EPA will pursue include mechanical upgrades, re-commissioning, infrastructure replacement, and increased O&M and preventive maintenance, as described in the Goal 1 and Goal 3 sections of the SSPP.

4. Improve Data Accuracy and Overall Data Collection and Analysis Methods Related to Scope 3 GHG Emissions

EPA will continue to improve the quality of its Scope 3 emission estimates. For example, EPA may consider implementing a national employee commuting survey on an annual basis to establish a consistent baseline for these emissions and to enhance EPA's ability to track emission reductions over time. EPA might also consider revising its travel vouchers to enable the Agency to capture activity data concerning employees' uses of taxi, rail, bus, and other types of ground travel that EPA has not yet accounted for within the business travel portion of its Scope 3 emissions inventory.

EPA will continue to expand the breadth of its Scope 3 inventory by quantifying as many additional Scope 3 GHG emissions categories as possible. In FY 2011–2012, EPA will investigate the feasibility of quantifying and incorporating the Scope 3 GHG emissions associated with the following sources:

- EPA's supply chain;
- Vendor/contractor emissions;
- Outsourced/site remediation activities (e.g., Superfund and Brownfields programs).

As the Agency improves data collection methods and refines its calculation and estimation methodologies, EPA will update its GHG emissions IMP accordingly to ensure that subsequent inventories properly account for these improvements. In addition, the Agency will revise previous inventories according to EPA's documented process for making revisions to past years' inventories.

5. Discuss the Methods Used to Calculate Scope 3 GHG Emissions

EPA employed various methodologies to calculate its FY 2008 and FY 2010 Scope 3 GHG emissions:

- **Employee Business Travel**
 - Air portion: EPA queried GSA’s TravelTrax tool to collect emissions data associated with employee air travel.
 - Ground portion: EPA used GSA’s TravelTrax tool to collect emissions data for the rental car portion of employee business travel. EPA also estimated emissions associated with employees’ use of POVs for business travel by compiling a bottom-up calculation using a small sample of individual travel vouchers (with PII redacted) and extrapolating these results to approximate POV usage for business travel Agencywide. EPA is currently investigating the feasibility of acquiring travel voucher data electronically via GovTrip, which would enable the Agency to greatly expand the size of the sample pool used in these calculations and thus refine the current estimate.
- **Employee Commuting:** EPA has chosen to take a phased approach for improving the precision of its employee commuting emissions estimate over time. In FY 2010, EPA first estimated these emissions using available transit subsidy information from Headquarters and several Programs and Regions and set a preliminary percentage target for reducing them. To refine this initial estimate, EPA conducted an onsite employee commuting survey at seven locations throughout Headquarters in April 2010, soliciting commuting information from employees as they arrived at work. Also, in March and September 2010, FMSD sent requests to EPA’s Program and Regional TSP Coordinators to submit any available employee commuting data for their facilities for FY 2008–2010. The Agency then combined the results of the onsite survey with existing data gathered from Headquarters and Regional transit subsidy databases to obtain a more complete estimate for commuting-related GHG emissions on an Agencywide basis. EPA may consider implementing a national employee commuting survey in the future to further improve the quality of this data and enable closer tracking of annual emission reductions.
- **Contracted Waste Disposal:** To compile its FY 2010 inventory, EPA estimated the total mass of solid waste produced Agencywide. Using actual waste disposal data that individual facilities reported (largely via the Agency’s WasteWise Re-TRAC online waste diversion data collection system), EPA estimated the quantity of waste generated by the remaining facilities in order to develop an estimate for the entire Agency. EPA then relied upon FEMP’s Reporting Portal to quantify the GHG emissions associated with the mass of waste produced.
- **Contracted Wastewater Treatment:** Due to a lack of available activity data, EPA calculated these emissions using the default methodology in FEMP’s Reporting Portal, which estimates wastewater treatment emissions based on the total number of EPA FTEs.

6. Discuss the Development of the Agency’s FY 2010 GHG Emissions Inventory

To compile its FY 2010 GHG emissions inventory, EPA collected data from a wide variety of sources. EPA already has a well-established, systematic framework in place for collecting energy consumption data on a quarterly basis from its reporting facilities. Throughout FY 2010, EPA worked to identify appropriate Agency contacts that could provide non energy-related information needed for EPA’s emission inventories. At the end of FY 2010, EPA distributed specific data calls to these individuals in order to compile the required activity data. EPA plans to continue and systematize this data call process in future years.

EPA developed a GHG emissions IMP to transparently document these procedures and to describe the Agency’s process for verifying the reliability of the inventory. EPA’s IMP also presents a plan to improve data quality over time. For example, the Agency currently estimates Scope 1 fugitive emissions associated with facility air-conditioning and refrigeration equipment using a default emissions factor

based on square footage of conditioned space. EPA will investigate the feasibility of collecting actual data related to the equipment type and the refrigerant charge quantities by conducting a pilot project at a facility; EPA could extrapolate the results of this study to inform a more refined Agencywide estimate for these emissions.

EO 13514 Section 9 Guidance required that agencies choose one of three options to ensure that reported GHG emissions data were accurate and verifiable. EPA submitted its IMP to FEMP in January 2011 to fulfill this requirement. In future years, EPA may consider conducting external verification to meet the emissions verification requirement.

D. Agency Status

EPA has a solid understanding of its Scope 1 and 2 GHG emissions, as well as the currently required sources of Scope 3 GHG emissions. To date, EPA has quantified all Scope 3 emission components that are currently required for Federal GHG emissions reporting and will refine these estimates when possible as data quality and Federal GHG emissions inventory guidance improve.

Based on preliminary data, EPA has already begun to see reductions in air travel emissions during the first half of FY 2011, due to a reduced travel budget and increased deployment and use of videoconferencing equipment. Business air travel emissions are down more than 40 percent in the first and second quarter of FY 2011 compared to the same time period in FY 2010, and average monthly videoconferencing usage has increased more than 125 percent. In the future, EPA expects to see a continued drop in GHG emissions associated with employee business travel. GHG emissions associated with T&D losses from purchased electricity will also decrease as a result of EPA's current and planned energy conservation projects.

Achieving and measuring reductions in other categories of Scope 3 emissions, such as employee commuting, will be challenging as data quality and collection methods continue to evolve. Significant work remains to refine some of the current Scope 3 GHG emissions estimates and to develop initial estimates for other Scope 3 GHG emissions that are not currently required.

E. Highlights

EPA completed the deployment of 50 new Tandberg videoconferencing units at Headquarters, Regional Offices, and major laboratories in September 2010 to help reduce Agency air travel and associated Scope 3 GHG emissions. Based on currently available data, EPA employees have increased average monthly FY 2011 telework hours by 28.6 percent compared to FY 2009, and by 10.6 percent compared to FY 2010. Regional Offices are implementing efforts to reduce business travel; for example, EPA's Region 5 has set a goal of reducing business travel air miles by 20 percent in FY 2011, compared to FY 2010. EPA also initiated its investigation of the Agency's supply chain GHG emissions.

EPA submitted robust and comprehensive Scope 1, 2, and 3 GHG emission inventories for FY 2008 and FY 2010 to FEMP in January 2011, including four categories of optional Scope 3 emissions. EPA refined its initial estimate of Scope 3 GHG emissions associated with employee commuting by utilizing employee commuting data from Headquarters and from numerous Programs and Regions. EPA achieved greater access to data concerning mileage traveled in employees' POVs for business travel.

GOAL 3: HIGH-PERFORMANCE SUSTAINABLE DESIGN/GREEN BUILDINGS AND REGIONAL AND LOCAL PLANNING

A. Goal Description

High-Performance Sustainable Design/Green Buildings

EPA is committed to achieving the following high-performance sustainable design/green building goals:

- Beginning in FY 2020, all of the Agency's new Federal buildings will be designed to achieve zero-net energy by FY 2030;
- All new construction, major renovation, or repair and alteration of EPA buildings will comply with the Guiding Principles;
- EPA will assess and demonstrate that at least 15 percent of the Agency's owned and directly leased buildings will meet the Guiding Principles by FY 2015 (with a 5,000 GSF threshold);
- EPA will demonstrate annual progress toward 100 percent conformance with the Guiding Principles for its entire building inventory by 2015 and thereafter;
- EPA will incorporate sustainable practices into the policy and planning for new facilities, new leases, and lease renewals;
- EPA facilities will demonstrate the use of cost-effective, innovative building and landscape strategies to minimize energy, water, and materials consumption;
- EPA will operate and maintain and conduct 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;
- EPA will strive to optimize performance of the Agency's real property portfolio, examining opportunities to decrease the Agency's environmental impact through consolidation, reuse, and disposal of existing assets prior to adding new assets;
- EPA will reduce the need for new building space by utilizing technologies to increase telework opportunities and expand the delivery of services over the Internet or electronically;
- EPA will ensure use of best practices and technology in conserving, rehabilitating, and reusing historic Federal properties; and
- EPA will align Agency space actions (new construction, new leases, consolidation) with Agency Scope 1, 2, and 3 GHG reduction targets.

Regional and Local Planning

EPA will continue to use its A/E Guidelines and master planning process to incorporate green design and planning principles such as transportation, local energy planning, and NEPA for new construction and major renovation projects. The Agency consults with state, local, and municipal officials early in the site selection process to incorporate and support local sustainability goals and objectives.

The Agency will continue to advance regional and local planning efforts through the following activities:

- EPA will continue to 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;
- EPA will continue to align Agency policies to increase the effectiveness of local energy planning efforts regarding transportation, energy resources, and the environment;

- EPA will continue to increase the effectiveness of regional measures that enhance the integrity of local ecosystems and watersheds;
- EPA will continue to update its policy and guidance to ensure completion of all EISs and EAs required under NEPA for proposed new or expanded Federal facilities and, as appropriate, identify and analyze impacts associated with energy and climate change;
- EPA will continue to integrate the methods and practices necessary to achieve the goals of this plan into EPA's master planning documents;
- EPA will continue to promote its policy and guidance to ensure coordination and consultation with Federal, state, tribal, and local management authorities regarding impacts on local ecosystems, watersheds, and environmental management associated with proposed new or expanded Federal facilities; and
- EPA will continue to participate in critical local and regional sustainability efforts and environmental initiatives.

B. Agency Lead for Goal

OARM has overall Agency responsibility for facilities and construction and their integration into local and regional planning. The office within OARM with lead responsibility is OA; and under OA, the lead division is FMSD.

C. Implementation Methods

High-Performance Sustainable Design/Green Buildings

Although the Agency occupies approximately 11.3 million square feet of space, it has a small FRPP (i.e., EPA-owned or EPA direct leased facility inventory). EPA's FRPP includes 4.3 million square feet, primarily consisting of laboratory space. GSA provides the remaining square footage of laboratory, office, and support space, either in GSA-owned facilities or in facilities leased by GSA from private owners.

EPA has developed a variety of strategies and tools to ensure high-performance sustainable buildings throughout its FRPP and GSA-provided inventory. The Agency updates these items regularly to incorporate new requirements, best practices, and lessons learned. EPA also incorporates the most recent Guiding Principles into all of its sustainable building tools, as demonstrated below:

- **Sustainable Building Implementation Plan (SBIP, updated April 11, 2011):** The SBIP describes how EPA implements Federal sustainable building requirements and EPA's best practices;
- **Strategy for Meeting the Guiding Principles in 15 Percent of Existing Buildings by FY 2015 (updated April 15, 2011):** This strategy is a year-by-year implementation plan for meeting the Guiding Principles in at least 15 percent of EPA's existing FRPP facilities over 5,000 GSF by FY 2015;
- **Architecture/Engineering Guidelines:** Updated with sustainability requirements in December 2010, these guidelines are used for all new construction and major renovation projects at EPA-owned facilities;
- **Mandatory Commissioning:** EPA requires commissioning of the mechanical, electrical, and plumbing system components of construction projects that affect energy efficiency and ventilation performance;

- **Green A/Es:** EPA hires only A/E firms that have LEED-accredited professionals and energy conservation, green building, and commissioning experience;
- **Best Practice (Environmental) Lease Provisions:** The Agency maintains a compendium of environmental performance-related lease provisions to augment GSA's standard Solicitation for Offer (SFO);
- **Building Management Plan Guidelines (BMPG):** In January 2010, EPA developed building operating and management plan guidelines to be implemented in both EPA-owned and EPA-leased facilities;
- **GreenCheck:** This process ensures that all EPA green building policies and the Guiding Principles, as well as other legal and EO high-performance building requirements, are met in each construction project or new lease acquisition; and
- **Sustainable Building Assessments:** In FY 2009, EPA began conducting a series of sustainability assessments to evaluate each facility's progress toward meeting the Guiding Principles. As of June 2011, EPA has completed assessments at 98 percent of its projected FY 2015 FRPP baseline inventory calculated by GSF.

The Agency uses these documents and strategies as a framework for ensuring environmental compliance, meeting the Guiding Principles, incorporating green building best practices, and meeting the other high-performance, sustainable building goals in a comprehensive, cost-effective manner. EPA updates these documents regularly based on lessons learned, refinements to EPA's Green Building Policy, and new EO and legislative requirements. EPA provides green building training and education for Headquarters and field staff through electronic media and conference calls.

1. Beginning in FY 2020, Design All New Federal Buildings to Achieve Zero-Net Energy by FY 2030

EPA interprets net-zero energy to encompass the following hierarchy: first, focus on efficiency technologies that reduce energy use as much as possible; second, examine the potential for and the cost-effectiveness of onsite energy generation to provide electricity and/or hot water; and third, offset remaining electricity use with renewable energy purchases, if possible, through long-term green power or REC purchases.

The Agency increasingly considers the "embodied energy" of building materials, or the amount of energy used in the production and transportation of building materials and the construction of buildings, when it acquires new facilities.

2. 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

The Agency will take a similar approach to all new construction or major renovation projects involving FRPP buildings. As noted, EPA has updated the A/E Guidelines to include all requirements under the new construction Guiding Principles. The A/E firms involved with any EPA construction or major renovation projects receive and must adhere to these Guidelines. EPA's GreenCheck process is the oversight mechanism used to ensure the Guiding Principle requirements are incorporated into all projects.

3. Assess and Demonstrate That at Least 15 Percent of the Agency's Existing Government-Owned Buildings, Agency Direct-Leased Buildings, Delegated

Authority Leased Buildings, and FRPP-Reported Leased Buildings Meet the Guiding Principles by FY 2015

As of December 31, 2010, four of EPA’s facilities, representing 8.2 percent⁵ of EPA’s projected FY 2015 FRPP building inventory (by number of buildings), meet the Guiding Principles (see Table 2-5). These facilities met the December 1, 2008, version of the Guiding Principles by registering with a multi-attribute green building standard prior to October 1, 2008, and by achieving third-party certification to the standard.

Table 2-5: Existing EPA FRPP Facilities Meeting the Guiding Principles

Facility	Region	Square Feet	Certification		
			Version	Level	Date
RTP, NC–NCC	4	100,922	2.0	Silver	Jan 2005
RTP, NC–Childcare	4	24,225	2.1	Silver	Mar 2008
Cincinnati, OH–Annex 2	5	45,719	2.1/2.2	Gold	Dec 2008
Gulf Breeze, FL–Building 67	4	7,691	2.2	Silver	Apr 2009
Total		178,557			

In January 2010, the Agency completed the first version of the BMPG, a tool to help facility managers incorporate the Guiding Principles into their day-to-day operations. EPA has targeted several facilities, based on their ability to meet the energy performance and water conservation principles, to provide technical assistance to meet the remaining principles. In 2010, EPA began comprehensive implementation of sustainable O&M practices at three FRPP facilities (the Agency’s laboratories in Ann Arbor, Michigan; Fort Meade, Maryland; and Grosse Ile, Michigan). EPA will continue to focus on these facilities in FY 2011.

4. Demonstrate Annual Progress Toward 100 Percent Conformance With the Guiding Principles for the Entire Building Inventory by 2015 and Thereafter

The goal of the BMPG is to improve and standardize green facility O&M practices at all EPA-owned facilities. When existing facilities are able to meet both the energy and water conservation Guiding Principles, as well as the remaining Guiding Principles, EPA will increase the share and number of facilities in compliance with all the Guiding Principles.

5. Incorporate Sustainable Practices Into Agency Policy and Planning for New Federal Facilities and Leases, and Into Lease Renewal Strategies

EPA’s strategic plans, regularly updated standards and guidance documents (listed above), and continuously improving processes and procedures help EPA incorporate and institutionalize sustainable practices into planning for new Federal facilities and leases and into lease renewal strategies.

6. Demonstrate Use of Cost-Effective, Innovative Building and Sustainable Landscape Strategies to Minimize Energy, Water, and Materials Consumption

⁵ This percentage is by number of buildings with more than 5,000 GSF. Calculated by GSF, 5.7 percent of EPA’s projected FY 2015 FRPP met the Guiding Principles at the end of FY 2010.

EPA will use lifecycle cost analyses to determine the most cost-effective strategies for ensuring that energy-efficient systems, water-saving technologies, and other resource-conserving measures are incorporated in all of its new facilities. The Agency will review all projects and suggested upgrades to determine initial capital cost, amortization, GHG emissions impacts, and payback period/ROI. EPA also will work with GSA to use the design competitions and best value-based lease award process to obtain the most innovative high-performance buildings.

7. 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

The Agency has strategies in place to assess its facilities for energy conservation measures, implementation of those measures to achieve cost-effective energy savings, and provision of the O&M necessary to continue to realize solid energy performance. EPA's water efficiency efforts are covered under a Water Conservation Strategy, EISA-mandated water assessments, and facility-specific water reduction targets that are described elsewhere in the SSPP. Similarly, the Agency's sustainable acquisition policies for electronics, paper, and other items, as well as the recycling and P2 assessments discussed elsewhere in the SSPP, help to ensure purchasers are aware of the need to reduce materials consumption across the Agency.

The Agency will continue to use the quadrennial energy and water assessments and re-commissioning efforts required under EISA to identify projects that could improve facility O&M practices and slow the increase in deferred maintenance costs. In addition, the BMPG provides comprehensive guidance on implementing sustainable building O&M and includes, as an appendix, Renovations and Alterations Guidelines that are used to ensure appropriate sustainability practices are incorporated into minor repairs and alterations.

8. Optimize Performance of the Agency's Real Property Portfolio, Examining Opportunities to Decrease Environmental Impact Through Consolidation, Reuse, and Disposal of Existing Assets Prior to Adding New Assets

EPA is working to maximize the performance of its real estate portfolio by scrutinizing current buildings, mission-support needs, and funding availability, and releasing and consolidating space wherever possible. Beginning in FY 2005, EPA conducted a comprehensive national rent and space analysis to evaluate space allocations for potential savings. As a result of this effort, to date, EPA has released more than 375,000 square feet of space, for an annual rent avoidance of approximately \$12.7 million. The Agency plans to release approximately 99,750 square feet of additional space between FY 2012 and FY 2014, for an annual rent avoidance of approximately \$2.2 million.

EPA is currently in the process of consolidating its Research Toxicology Facility in RTP, North Carolina, into the Main research facility in RTP. This will result in a net reduction of approximately 47,500 rentable square feet of laboratory and office space for an annual rent avoidance of more than \$1.7 million, and will increase the utilization of the Main research facility. The consolidation should be completed in late 2014.

9. Reduce the 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)

EPA encourages employees to utilize telework capabilities, has already seen a greater than 10 percent increase in employee hours worked remotely over the past year, and will continue to increase telework opportunities as the workforce adapts to the Agency's resources and technologies. In addition, the Agency does not anticipate any financial or technological obstacles to expansion of electronic services in future years. EPA anticipates that this continued growth in telework will lead to a reduced need for new building and field office space.

10. Conserve, Rehabilitate, and Reuse Historic Federal Properties Using Current Practices and Best Technology

Although EPA currently does not have any historic restoration projects planned for the near term, the Agency worked closely with GSA on two GSA-owned historic buildings—the historic John W. McCormack Post Office and Courthouse in Boston, Massachusetts, which houses its Region 1 Office, and the Ariel Rios Headquarters buildings in Washington, DC—that provided a variety of lessons learned and ensure that future restoration projects will maintain historical integrity and optimum efficiency.

11. Align Agency Space Actions (New Leases, New Construction, Consolidation) With Agency Scope 1 and 2 and Scope 3 GHG Reduction Targets

In addition to office space reductions and laboratory consolidations, EPA is committed to aligning its real estate infrastructure with Agency needs. Currently, EPA is working on the long-term rehabilitation of an Agency-owned research laboratory in Montgomery, Alabama. The laboratory currently has 43 constant volume fume hoods; during the rehabilitation process, EPA will reduce the number of fume hoods in the laboratory to 34. In addition, four of the remaining fume hoods will only be used in the case of emergency national radiation response situations. This realignment of EPA space to match actual Agency needs significantly reduces energy use at the facility and eliminates the associated GHG emissions, helping the EPA move toward its GHG reduction targets. In addition, EPA's reduction of rentable square footage will reduce electricity consumption and associated Scope 3 GHG emissions.

Regional and Local Planning

1. 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

EPA considers the availability and accessibility of existing road systems, public transportation, and other transportation networks during the planning and siting process, as well as opportunities for transit-oriented development and community connectivity to maximize access to public transportation.

The Agency takes into account Federal and local planning and economic development goals during the acquisition of new leases and the building of new facilities. As a policy and as required under its A/E Guidelines, EPA engages local transportation planning authorities to ensure access to a community transportation infrastructure and to review the impacts of local traffic patterns on the environment.

The Agency's A/E Guidelines promote sustainable site selection and reduction of EPA's energy footprint. During the acquisition of new leases and when siting new FRPP facilities, EPA identifies potential sites that provide safe and efficient multimodal travel options for trips to and from employee homes and to other locations and services in an effort to reduce or eliminate the need for employees to drive. When

available, the Agency mandates that a building be located within the immediate vicinity of a commuter rail, light rail, or subway station, not to exceed the ½-mile walkable distance. Alternatively, two or more public or campus bus lines usable by tenant occupants are required to be located within the immediate vicinity of the building, generally not to exceed ¼-mile walkable distance.

2. Align Agency Policies to Increase Effectiveness of Local Energy Planning Efforts Regarding Transportation, Energy Resources, and the Environment

EPA coordinates with state, county, local, and municipal planning authorities to increase the effective use of local energy planning resources and considers partnerships with local utilities and energy-saving companies to assist in financing low-emissions, low-operating cost mechanical systems. EPA strongly advocates siting facilities near existing communities to reduce the natural and financial resources required for construction and maintenance of utilities.

3. Increase the Effectiveness of Regional Measures That Enhance the Integrity of Local Ecosystems and Watersheds

EPA has standardized the green site planning language in its A/E Guidelines. The following issues are considered when determining whether the proposed development site is appropriate and compatible with its natural environment and surrounding community:

- Preserving surrounding neighborhoods and communities;
- Preserving the character of the site, to the maximum possible extent, by retaining natural features, such as ground forms, trees, and other natural vegetation;
- Using the existing site to the best advantage by locating and orienting buildings so that they are compatible with natural site features;
- Developing functional relationships between site access points, parking lots, buildings, service areas, and all other project site elements;
- Providing for orderly future expansion of facilities by considering logical expansion of buildings, parking, and support services; and
- Reviewing and assessing the impact of development with respect to any approved campus master plan and site infrastructure master plan.

EPA also encourages smart growth principles during the facility siting process to ensure its facilities increase the effectiveness of Regional measures that enhance the integrity of local ecosystems and watersheds.

4. Update Agency Policy and Guidance to Ensure That All EISs and EAs Required Under NEPA for Proposed New or Expanded Federal Facilities Identify and Analyze Impacts Associated With Energy, Alternative Energy Sources, and Climate Change

EPA amended its procedures for implementing the requirements of NEPA on September 19, 2007 (72 FR 53652). In accordance with these procedures, actions involving renovations or new construction of Agency facilities are types of actions that normally require the preparation of an EA [see 40 Code of Federal Regulations (CFR) § 6.205(b)(3)].

In May 1998, OARM published the guidance document titled *National Environmental Policy Act Review Procedures for EPA Facilities* and currently is revising the guidance in accordance with the Agency's

revised NEPA regulations. NEPA EAs will be required for renovation and construction of facilities to identify and analyze impacts associated with energy use and alternative energy sources. OARM anticipates publication of the revised NEPA guidance in FY 2011.

The Agency also applies NEPA regulations to all EPA facility construction projects, regardless of size. The review process takes energy, air, water quality, aesthetic, cultural, historic, health, and socioeconomic impacts into consideration through the following activities:

- Determination of the appropriate level of NEPA review for the proposed project;
- Definition of significant issues requiring further analyses through information gathering, scoping, public meetings, and public participation;
- Evaluation of project alternatives, including the proposed action and possible mitigation measures, to determine whether there are environmental impacts and if so, whether they are significant or not significant; and
- Development of documentation to assist the public and decision-makers in evaluating the proposed action and alternatives.

5. Integrate the Methods and Practices Necessary to Achieve the Goals of This Plan Into EPA's Master Planning Documents

EPA has piloted several sustainable master plans in its laboratories as a way to incorporate green infrastructure, energy efficiency, and other sustainability goals into the master planning process. EPA's GreenCheck process also verifies that environmental requirements and initiatives are included in any major renovation or construction project. EPA will continue to increase its efforts to more fully integrate into its master planning process the methods and practices necessary to achieve all of the goals of this plan, including high-performance sustainable buildings, pollution prevention, waste reduction, water use reduction, sustainable acquisition, electronics stewardship, and data center consolidation.

6. Update Agency Policy and Guidance to Ensure Coordination and Consultation With Federal, State, Tribal, and Local Management Authorities Regarding Impacts on Local Ecosystems, Watersheds, and Environmental Management Associated With Proposed New or Expanded Federal Facilities

The Agency ensures that its facility siting process minimizes destruction, loss, and degradation of wetlands. To the extent possible, EPA considers the requirements of EO 11988 and EO 11990, which govern Federal actions related to floodplains and wetlands, respectively. When siting a facility, the Agency:

- Locates the 100-year floodplains in the area. If floodplains are located near the site, the boundaries are delineated on all surveys and site plans. New facilities are not to be located within the 100-year floodplain. In addition, to the extent possible, facilities are not sited in areas subject to flash floods;
- Avoids the long-term and short-term adverse impacts associated with the destruction of wetlands and the occupancy and modification of floodplains and wetlands, and avoids direct and indirect support of floodplain and wetlands development wherever there is a practicable alternative for new development;
- Incorporates floodplain management goals and wetland protection considerations into its planning, regulation, and decision-making;

- Carefully considers the potential impacts of any EPA action in a floodplain and the impacts of any new Agency construction on wetlands not located in a floodplain;
- Identifies, considers, and, as appropriate, implements alternative actions to avoid or mitigate adverse impacts on floodplains and wetlands;
- Provides opportunities for early public review of any plans or proposals for actions in floodplains or new construction in wetlands; and
- Ensures that construction within floodplains or wetlands complies with environmental review requirements under 10 CFR 1022 and NEPA.

All EPA construction activities that have a potential for significant impact on wetlands comply with the requirements in Section 404 of the Clean Water Act (CWA). Only after avoidance and minimization criteria are satisfied can wetlands mitigation be considered. An EA or EIS under NEPA review requirements is prepared for any wetlands construction permit application. These EAs are then coordinated and reviewed by all Federal, state, tribal, and local authorities having jurisdiction over impacted ecosystems, wetlands, or environmental impacts regarding the designated facility.

7. Continue to Participate in Critical Local and Regional Sustainability Efforts and Environmental Initiatives

Through the Partnership for Sustainable Communities, EPA not only participates with HUD, DOT, and other Federal agencies at the national level, but each of EPA's Regional entities participates in PSCs at the regional, state, and local level. For example, EPA's Region 4 is working with regional HUD, DOT, and U.S. Department of Agriculture (USDA) officials and a host of other state agencies on specific projects around the region that will not only decrease environmental impacts, but also create jobs and more sustainable communities. Funded projects include port expansion, new construction, and local highway projects. Whether funded through EPA or another agency, all have goals that address some aspect of environmental protection. Region 6 is working closely with other Federal and State agencies, nongovernmental organizations, and the private sector to implement environmental and economic improvement in the showcase community of Port Arthur, Texas.

Signed May 15, 2009, EO 13508 *Chesapeake Bay Protection and Restoration* refers to EISA stormwater requirements and a guidance document on Federal land management practices (S. 502 Guidance). Through its Region 3, EPA is providing leadership as an early adopter and is sharing its policies and approaches to implementation through an inter-agency team consisting of representatives from agencies with land and facilities in the Chesapeake Bay watershed. EPA's Region 5 participates in the Great Lakes Restoration Initiative, where its Great Lakes National Program Office plays a leadership role. In all of the Regions and areas where EPA is located, however, the Agency is committed to local and regional sustainability efforts and initiatives.

EPA's Office of Wetlands, Oceans, and Watersheds (OWOW) provides a wide array of guidance for Federal facilities, local management authorities, and other affected parties regarding impacts to local ecosystems and watersheds and environmental management associated with proposed new or expanded Federal facilities. For example, OWOW assisted the Inter-Agency Water Working Group with issuing draft Guidance for Water Goals in EO 13514 in January 2011.

D. Agency Status

High-Performance Sustainable Design/Green Buildings

As of December 31, 2010, EPA was more than halfway to meeting its FY 2015 goal of 15 percent of existing buildings meeting the Guiding Principles. The Agency expects to continue this trend by using the implementation methods described in this section.

EPA has completed the latest update to the SBIP and the Strategy to Meet the Guiding Principles. The third round of sustainable building assessments will be completed by June 16, 2011, covering 98 percent of the Agency's projected 2015 FRPP inventory.

Regional and Local Planning

EPA's GreenCheck form includes the requirements of EO 13514; specifically, the requirements for sustainable siting and regional transportation planning for new construction and new lease facilities. EPA's A/E Guidelines include sustainable siting and regional transportation planning. In procurement selections, EPA gives preference for buildings located in neighborhoods offering amenities, services, and public transportation.

EPA will continue to work with states and local communities to encourage development and use of the PSC's livability principles. EPA will also work to include sustainability goals—including energy efficiency, water conservation, waste diversion, sustainable acquisition, recycled content, C&D recycling, and other high-performance sustainable design goals—into its master planning documentation.

E. Highlights

High-Performance Sustainable Design/Green Buildings

EPA began the challenging process of implementing sustainable O&M practices at three laboratories in an important step toward meeting the Guiding Principles in 15 percent of Agency FRPP buildings by FY 2015. As of June 2011, EPA has completed sustainability assessments at 98 percent of the Agency's projected 2015 FRPP inventory.

Regional and Local Planning

EPA strives to be a model for other agencies in how to work with regional, state, and local entities, as well as tribes, to achieve sustainability goals. EPA's ORD recently realigned several diverse programs into the Sustainable and Healthy Communities Program and is reaching out to Regions, states, and local communities to provide more integrated planning for efforts on green building, brownfield redevelopment, and ecosystem and human health, in order to support more sustainable communities.

In EPA's Region 3, EPA is both leading the integration of all Federal facilities into the Chesapeake Bay watershed total maximum daily load (TMDL) and ensuring the facilities it owns or occupies are contributing to the nutrient and sediment reductions needed to achieve the TMDL. EPA's Chesapeake Bay Program has created a training program, "Introduction to a Chesapeake Bay-Focused EMS" that demonstrates how to build an EMS that reflects a commitment to a local environmental priority such as Chesapeake Bay restoration. For the past three years, EPA Region 3 staff members have delivered the training during a multiday conference for Federal facility environmental managers in the watershed.

GOAL 4: WATER USE EFFICIENCY AND MANAGEMENT

A. Goal Description

EPA's water-use efficiency and management goals are:

- EPA will reduce potable water intensity (in gallons per GSF) by at least 26 percent by FY 2020;
- EPA will reduce industrial, landscaping, and agricultural water use (in gallons) by 20 percent by FY 2020;
- EPA will identify and implement water reuse strategies;
- EPA will achieve objectives established by EPA in Stormwater Guidance for Federal Facilities; and
- EPA will incorporate appropriate reduction strategies for nonpotable water use into Agency policy and planning.

B. Agency Lead for Goal

OARM has overall Agency responsibility for facilities and utilities; the office within OARM with lead responsibility is OA; and under OA, the lead division is FMDS.

C. Implementation Methods

1. Reduce Potable Water Use Intensity by at Least 26 Percent by FY 2020

EPA completed water management plans at all reporting laboratory facilities between FY 2002 and FY 2008 and implements those plans. Under EISA requirements, the Agency is reassessing facilities every four years and revising existing water management plans to include new water conservation opportunities and best practices.

EPA will update its Water Conservation Strategic Plan regularly to reflect new water conservation opportunities, the status of water conservation projects underway, and new Agencywide initiatives. EPA will select the most practical and cost-effective projects each year for implementation.

2. Reduce Industrial, Landscaping, and Agricultural Water Use by at Least 20 Percent by FY 2020

Industrial, landscaping, and agricultural water use includes all freshwater sources, including nonpotable water uses from wells, lakes, and rivers (e.g., well water used for equipment cooling and lake water used for irrigation). It includes any potable water used for industrial, agricultural, or landscaping purposes if it is not already included in the Agency's FY 2007 potable water use baseline; all of EPA's potable industrial, landscaping, and agricultural water uses were already accounted for in FY 2007.

In FY 2010, EPA developed an inventory and baseline of its nonpotable, industrial, landscaping, and agricultural water uses. The Agency developed a metering and measurement plan that relies on metered data, where available, and on estimating methods where meters are not present. Over the longer term, EPA will install meters, where feasible, to improve the accuracy of estimated data. EPA will use EISA water assessments to identify project opportunities for reducing nonpotable water use; revise facility water management plans; set facility-specific nonpotable water-reduction targets, where applicable; and incorporate best management practices to reduce nonpotable water use.

EPA will update its industrial, landscaping, and agricultural water use inventory, baseline, and conservation strategy once CEQ and OMB release the final guidance on interpreting the industrial, landscaping, and agricultural reduction requirements in EO 13514.

3. Identify and Implement Water Reuse Strategies

EPA currently employs and plans to continue a number of methods for reusing water at its facilities:

- **Condensate Recovery:** EPA recovers air-handler condensate and reuses it for nonpotable uses, typically cooling tower makeup water, wherever practical. Cooling towers account for 27 percent of EPA laboratory water use and, where practical, recovered air-handler condensate can provide up to one-third of this amount, leading to significant water savings.
- **Reverse Osmosis (RO) Rejected Water Reuse:** EPA uses RO to generate ultra-pure water for research purposes. As part of this process, a portion of the water containing dissolved minerals is discharged to the sewer. Although the discharged water is not of sufficient quality for research purposes, with proper treatment it sometimes can be reused in equipment such as cooling towers and for flushing lavatory fixtures. For example, EPA currently is designing an RO system with the National Institute of Environment Health Sciences at the RTP campus to use RO on cooling tower blowdown to improve the quality of that water and reuse it in the cooling tower. Savings are estimated to be 8.7 million gallons of water per year.
- **Rainwater Harvesting:** EPA is evaluating opportunities for harvesting rainwater for low-quality water needs such as irrigation, automobile and boat washing, cooling tower makeup, and toilet flushing. EPA already uses this method at its Science and Technology Center in Kansas City, Kansas; Computation Science Building in Gulf Breeze, Florida; Pacific Coastal Ecology Division in Newport, Oregon; Region 2 Laboratory in Edison, New Jersey; and Headquarters Federal Triangle complex in Washington, DC.

The Agency also implements new opportunities for water reuse identified during water assessments or developed by the EMS teams at each major facility, where feasible. Lessons learned during reuse projects will be shared with facility staff using the training methods described above.

4. Achieve Objectives Established by EPA in Stormwater Guidance for Federal Facilities

On December 4, 2009, EPA's Office of Water released *Technical Guidance on Implementing the Stormwater Runoff Requirements for Federal Projects under Section 438 of the Energy Independence and Security Act*. EPA has incorporated the EISA Section 438 Guidance into its A/E Guidelines, BPLP, and GreenCheck process and will update those documents and processes to reflect lessons learned from new stormwater management projects. The Agency will apply the EISA Section 438 Guidance at all new construction and renovation projects.

Sustainable stormwater management retrofit strategies, such as the implementation of pervious parking lots, green roofs, rain gardens, and rainwater harvesting practices that promote water efficiency, will be considered where opportunities present themselves. EPA identifies new stormwater management opportunities during sustainability assessments, which include ideas developed by the EMS teams at each major facility. These ideas are shared as part of the Agency's ongoing education and training program.

5. Incorporate Nonpotable Water Reduction Strategies Into Agency Policy and Planning

EPA is updating Agencywide policy and planning documents such as A/E Guidelines, BPLP, BMPG, the Water Conservation Strategic Plan, and the GreenCheck process to ensure that water efficiency for all systems and equipment is considered for both potable and nonpotable water sources. The updates will also indicate that water should be reused whenever possible (as discussed below) to replace the need for potable or nonpotable water.

D. Agency Status

In FY 2010, EPA completed water efficiency projects that will save approximately 6.1 million gallons of water per year. The Agency also continued an irrigation system retrofit project at the Corvallis Main facility, continued working on a large-scale air-handler condensate recovery project at the RTP Main facility, and began working with the National Institute of Environment Health Sciences at the RTP campus to use RO on cooling tower blowdown to improve the quality of that water and reuse it in the cooling tower.

FY 2011 priority projects in various EPA laboratories include condensate recovery, high-efficiency plumbing fixture replacements, irrigation system replacements/retrofits, using rainwater for green roof irrigation, and eliminating single-pass cooling. By September 30, 2011, EPA should complete projects that will save an estimated 2.6 million gallons of water per year.

In FY 2011, EPA will prioritize and begin implementing projects to reduce EPA's nonpotable, industrial, landscaping, and agricultural water uses. EPA will also work to update policy and planning documents to incorporate nonpotable water reduction strategies.

In FY 2012, EPA will continue to focus on condensate recovery, high-efficiency plumbing fixture replacements, controlling tempering water flow, and eliminating single-pass cooling. EPA will also continue focusing on reducing nonpotable water use. By September 30, 2012, the Agency expects to complete projects that will save an estimated 1.7 million gallons of potable water per year.

In FY 2011, EPA will continue to comply with EISA Section 438 for all applicable new construction and major renovation projects. Additional stormwater retrofit projects at existing sites will be identified and implemented, which will further contribute to water reduction goals.

E. Highlights

EPA recently achieved the following water conservation advances:

- Reduced potable water intensity by 8.5 percent between FY 2009 and FY 2010 and set a goal to reduce potable water intensity by 4.5 percent in FY 2011 compared to FY 2010;
- Completed projects at five facilities estimated to save more than 2 million gallons of water per year, including capturing and reusing rainwater and air-handler condensate, reducing tempering water flow to steam sterilizers and boiler blowdown, and eliminating single-pass cooling;
- Conducting EISA water assessments at six facilities, located in Montgomery, Alabama; Gulf Breeze, Florida; Athens (ORD), Georgia; Kansas City, Kansas; Ann Arbor, Michigan; and

Narragansett, Rhode Island, to identify water reduction opportunities and develop revised water management plans;

- Developed a plan and calculated the FY 2010 baseline of the nonpotable industrial, landscaping, and agricultural water uses subject to EO 13514 requirements;
- Installed 600-gallon cisterns at the Atlantic Ecology Division Laboratory in Narragansett, Rhode Island, which collect green roof runoff to irrigate the green roof plantings;
- Installed 65 permeable concrete parking spaces at the Edison, New Jersey, Laboratory; and
- Completed drafting a long-term stormwater management plan for the Western Ecology Division Laboratory in Corvallis, Oregon.

GOAL 5: POLLUTION PREVENTION AND WASTE REDUCTION

A. Goal Description

EPA's P2 and waste reduction goals include the following:

- EPA will increase source reduction of pollutants and waste;
- EPA will exceed the EO 13514 goal to divert at least 50 percent of non-hazardous solid waste by FY 2015, excluding C&D debris (its goal is to divert at least 55 percent by FY 2015);
- EPA will reduce municipal solid waste sent to landfills to help achieve FY 2020 GHG reduction targets;
- EPA plans to exceed the EO 13514 goal of diverting at least 50 percent of C&D materials and debris by FY 2015;
- EPA will continue to reduce printing paper use through duplex printing requirements;
- EPA will continue to exceed the requirement to purchase uncoated printing and writing paper with 30 percent postconsumer content;
- EPA will continue to reduce and minimize the acquisition, use, and disposal of hazardous chemicals and materials as a way to help achieve FY 2020 GHG reduction targets;
- EPA will increase diversion of compostable and organic materials from the waste stream;
- EPA will continue to expand its use of IPM and landscape management practices that reduce and/or eliminate the use of toxic and hazardous chemicals and materials;
- EPA will continue to increase use of acceptable alternative chemicals and processes; and
- EPA facilities will continue to report in accordance with Sections 301–313 of the Emergency Planning and Community Right-to-Know Act (EPCRA) of 1986.

B. Agency Lead for Goal

OARM has overall Agency responsibility for facilities, waste diversion, P2, and chemical management; the office within OARM with lead responsibility is OA, and under OA, the lead division for waste diversion and P2 is FMDS. Also under OA, the lead division for chemical management and safety issues is SHEMD.

EPA's OSWER is the Agency's policy group for resource conservation and sustainability.

C. Implementation Methods

1. Increase Source Reduction of Pollutants and Waste

EPA makes source reduction of pollutants and waste a priority through appropriate purchasing and property management policies. The Sustainable Acquisition and the Electronic Stewardship and Data Centers sections of the SSPP provide additional information in this area. In addition, EPA encourages its facilities to consider waste prevention opportunities before recycling in its waste management hierarchy. The Agency emphasizes source reduction in technical assistance to its facilities and encourages facilities to include waste prevention activities in their waste diversion data.

EPA has been working to phase out equipment containing toxic materials, such as mercury-containing thermometers, standard fluorescent bulbs, and equipment containing ODSs, which are part of the Agency's Scope 1 and 2 GHG emissions reduction target. EPA actively encourages its laboratories to regularly review their analytical methods to determine whether more environmentally preferable options to toxic materials are available. The Agency provides assistance to its laboratories on proper disposal of toxic materials through a newsletter and guidelines distributed to Safety, Health, and Environmental Management Program (SHEMP) managers.

The Federal green purchasing program requires agencies to minimize procurement of ODSs. EPA requires procurement officials to give preference to alternative chemicals, products, and manufacturing processes that reduce risks to human health and the environment. A comprehensive list and alternatives to ODSs can be found under the Agency's Significant New Alternatives Policy (SNAP) Program. EPA has developed guidance and contract requirements to reduce the quantity of hazardous chemicals used in janitorial services.

2. Divert at Least 50 Percent of Non-Hazardous Solid Waste by FY 2015, Excluding C&D Debris

EPA's largest non-hazardous solid waste streams within its office and laboratory facilities include scrap metal, paper, organics, corrugated cardboard, and other packaging materials (including food packaging). To reduce the GHG emissions associated with disposing of those and other waste materials, the Agency emphasizes source reduction as a priority and continually explores opportunities to recycle additional materials—at Headquarters, Regional Offices, and laboratories—through its waste reduction program and through individual facility "green teams" and EMSs.

Because the Agency already has met the 50 percent waste diversion goal, EPA's strategies to continue to exceed EO 13514 requirements include:

- Conducting waste reduction and sustainability assessments;
- Providing technical assistance to facility recycling and EMS coordinators;
- Conducting education and training, including a webinar on composting and organics, which are focus areas under EO 13514;
- Highlighting best practices and model programs that can be replicated;
- Targeting larger facilities with the lowest waste diversion rates;
- Incorporating recycling into new lease provisions and renovations;
- Expanding metrics capability to collect solid waste and recycling data; and
- Conducting ongoing challenge programs to provide incentives for facilities.

3. Reduce Municipal Solid Waste Sent to Landfills to Help Achieve FY 2020 GHG Reduction Targets

In FY 2010, EPA submitted to CEQ and OMB a goal of reducing Agency Scope 3 GHG emissions 8 percent by FY 2010. Under Federal GHG accounting guidance from CEQ, GHG emissions from waste sent to landfills are counted as Scope 3 GHG emissions. One hundred tons of municipal solid waste sent to a landfill equates to approximately 73 MTCO₂e.

In FY 2010, the amount of municipal solid waste EPA sent to landfills was estimated at 2,136 tons, a reduction of 13.3 percent compared to FY 2008. The GHG emissions associated with this waste were 1,560 MTCO₂e, a 13.3 percent reduction compared to the FY 2008 associated emissions, and equivalent to 2.29 percent of all the Scope 3 GHG emissions EPA was required to report.

EPA's efforts to continue raising the Agency's waste diversion rate include conducting waste reduction and sustainability assessments, providing technical assistance to facility recycling and EMS coordinators, conducting education and training, highlighting best practices and model programs that can be replicated, targeting larger facilities with the lowest waste diversion rates, incorporating recycling into new lease provisions and renovations, expanding metrics capability to collect solid waste and recycling data, and conducting ongoing challenge programs to provide incentives for facilities. Continuing to raise EPA's waste diversion rate will reduce the amount of municipal solid waste sent to landfills, correspondingly lowering the Agency's Scope 3 GHG emissions that can be attributed to this source.

4. Exceed the Goal to Divert at Least 50 Percent of C&D Materials and Debris by FY 2015

EPA's real property policies, program, and processes currently require 75 percent diversion for projects 20,000 square feet or larger and require facilities to submit a plan on how C&D wastes will be separated and managed. In addition, both the GreenCheck checklist for projects and BPLP address C&D waste diversion. The Agency will continue to work with facilities to ensure that C&D waste diversion is addressed in all renovation projects, and it is in the process of developing a mechanism to expand its data collection and tracking in this area.

5. Reduce Printing Paper Use

Under EPA's new contract for computers and IT support services at Headquarters and laboratory facilities, all eligible computers and printers are required to be set to duplex by default. The Agency is working to ensure that the duplex printing feature is set as the default for all eligible computers and imaging products. EPA's PC Configuration and Management Standard requires setting all networked and shared printers to duplex printing as the default.

EPA will continue education and outreach related to reducing paper use, including adding technical assistance resources to the intranet site, hosting a webinar, and working through the emerging Headquarters green teams to develop initiatives related to reducing paper use.

6. Increase Use of Uncoated Printing and Writing Paper Containing at Least 30 Percent Postconsumer Fiber

EPA's policy is to purchase 100 percent recovered paper with 50 percent postconsumer content for its Headquarters facilities, and the three full-catalog Federal Strategic Sourcing Initiative (FSSI) office supply BPAs that EPA uses require 50 percent postconsumer fiber. The Agency will continue to seek options for increasing the environmentally preferable attributes of paper (e.g., purchasing paper from mills that use

wind as the primary power source and evaluating the use of recyclable coated stock) and purchasing paper with higher postconsumer content (e.g., file folders).

7. Reduce and Minimize the Acquisition, Use, and Disposal of Hazardous Chemicals and Materials to Help Achieve FY 2020 GHG Reduction Targets

EPA laboratories use and dispose of toxic chemicals in analyzing environmental samples, performing toxicology studies, and conducting ecological studies. To reduce the amount of toxic and hazardous chemicals and materials acquired, used, and disposed, the Agency will:

- Support chemical management work groups and committees;
- Strengthen chemical management systems by encouraging all EPA laboratories to implement a robust set of chemical management best practices;
- Minimize the disposal of chemicals due to expiration or overpurchase;
- Incorporate green chemistry principles, techniques, and standard operating procedures that reduce the use of toxic and hazardous chemicals;
- Replace toxic analytical reagents with benign substitutes; and
- Reduce the amount of sample that enters the laboratory.

In 2011, EPA will update its EMS targets and metrics to communicate clear chemical and hazardous waste reduction goals to the Agency's laboratories. Reducing the Agency's use of chemicals will help reduce GHG emissions that are released in the process of chemical manufacture. Additionally, reductions in hazardous waste quantities will help reduce GHG emissions related to waste hauling activities.

Sixty-five percent of EPA's laboratories have established internal chemical management committees that meet periodically to identify ways to enhance their chemical management systems and further reduce the environmental impacts associated with analytical procedures. The Agency will encourage all its laboratories to implement such committees by the end of 2011. In addition, EPA will promote best practices for chemical management systems, communicating with individual laboratories that lack specific best practices to encourage them to adopt best practices and alternative analytical methods.

EPA will work to phase out equipment that contains toxic and hazardous chemicals. For example, the Agency will continue an ongoing effort to communicate to EPA laboratories the importance of replacing mercury-containing thermometers with non-mercury alternatives. Since 2005, the Agency has phased out at least 1,700 mercury-containing thermometers.

EPA will promote the phaseout of existing equipment using ODSs that can negatively affect the stratospheric ozone layer if released and also exhibit a high global warming potential. This equipment may include freezers, refrigerators, fire-extinguishing systems, chillers, and other components of heating, ventilation, and air-conditioning (HVAC) systems. The Agency has instructed all of its facilities to establish baselines for their Class I and Class II ODS use and to establish a written ODS Management Plan. EPA will communicate with facilities that have not yet completed these activities and instruct them to do so. Next, the Agency will review the plans and determine whether additional technical assistance is needed to assist EPA locations with phaseout efforts. The Agency also added new language within its EMS targets and metrics to affect the phaseout of ODS equipment across all laboratory facilities and recognize any impact of other ozone-depleting laboratory chemicals. Additionally, EPA offices and laboratories will promote the use of green cleaning programs and methods. For example,

EPA locations will be instructed to modify custodial contracts to encourage the use of green custodial practices and promote the use of environmentally preferable custodial products and cleaning and odor-control agents in lieu of conventional products.

8. Increase Diversion of Compostable and Organic Materials From the Waste Stream

Nineteen EPA facilities currently have composting programs; the Agency will continue to share these model programs with other facilities, using the technical assistance avenues described under the non-hazardous solid waste diversion goal discussed previously, including a webinar through which facilities with successful composting programs can disseminate information about starting and conducting their programs. In FY 2011, EPA's Potomac Yard facility in Arlington, Virginia, a high-profile Headquarters facility, fully implemented a program that was piloted in 2010 to compost food scraps, paper towels, napkins, and paper plates. EPA is considering replicating this program in other EPA Headquarters facilities.

9. Implement Integrated Pest Management and Landscape Management Practices to Reduce and Eliminate the Use of Toxic and Hazardous Chemicals and Materials

EPA is committed to reducing the amount of toxic materials used to control pests and maintain facility grounds. To that end, the Agency has instructed EPA facilities to implement IPM. In addition, the Agency encourages facilities to adopt green landscaping practices to reduce the amount of chemicals required to support landscaped areas. EPA's BMPG provides guidelines for implementing IPM and green landscaping practices at existing EPA facilities. EPA also works with GSA to implement IPM in leased buildings, as stated in EPA's BPLP.

10. Increase Agency Use of Acceptable Alternative Chemicals and Processes

EPA encourages its laboratories to regularly review their existing processes to determine whether there are more environmentally preferable options available. To date, Agency laboratories have implemented a variety of practices that enable them to analyze environmental samples using less solvent, acid, and other reagents. For example, many of them use microscale chemistry techniques and/or have implemented efficient extraction and digestion technologies.

11. Report in Accordance With Sections 301–313 of EPCRA of 1986

EPA uses its SHEM Audit and Evaluation Program to ensure that Agency facilities are complying with EPCRA Sections 301–313. Under this program, EPA audits its offices and laboratories on a three- to five-year cycle. As part of the process, auditors examine facilities to determine whether they are meeting all of the emergency planning, emergency release notification, hazardous chemical storage reporting, and Toxic Release Inventory (TRI) reporting requirements listed under EPCRA Sections 301–313.

D. Agency Status

EPA's goal is to add composting, either onsite or offsite, at one facility in each year from FY 2011 to FY 2020. Because the Agency already has met the 50 percent waste diversion goal ahead of schedule, EPA's strategies to exceed EO 13514 requirements in FY 2011 and beyond include:

- Providing technical assistance to facility recycling and EMS coordinators;
- Highlighting best practices and model programs that can be replicated;

- Targeting larger facilities that have the lowest current waste diversion rates;
- Conducting waste reduction and sustainability assessments;
- Incorporating recycling into lease provisions;
- Expanding metrics collection capabilities; and
- Conducting ongoing challenge programs to provide incentives to facilities.

EPA will continue to ensure that C&D waste diversion is addressed in all renovation projects and to expand its data collection and tracking in this area by FY 2012.

To reduce the amount of toxic and hazardous chemicals and materials acquired, used, and disposed of, EPA will encourage all of its laboratories to solicit comments from its employees on internal chemical management to identify ways to enhance their chemical management systems and share best practices by FY 2011. Over the next two years, the Agency also will work to phase out equipment that contains toxic and hazardous chemicals, encourage IPM, reduce the amount of chemicals used for landscaping maintenance, and work with facilities on ODS management plans.

E. Highlights

To help facilities divert even more waste and exceed EO 13514 requirements, EPA replaced its previous “Strive for 45” campaign with a “Think Beyond the Bin” campaign to frame EPA’s waste diversion efforts through FY 2015. Think Beyond the Bin supports facility coordinators in encouraging employees to not only recycle, but also prevent waste. EPA also expanded its waste diversion intranet site to include “Metrics” and “Benchmarking” sections and conducted a composting pilot at the Potomac Yard facility, in Arlington, Virginia, in summer 2010, which has since been expanded into a permanent program.

To calculate its waste diversion rate, EPA adopted the WasteWise Re-TRAC online waste diversion metrics collection and management system as an option for EPA facility data tracking and reporting and developed guidance for using the Re-TRAC system in summer 2010. EPA’s P2 Coordinator hosted a metrics webinar for Agency facilities introducing the Re-TRAC system and discussing data collection challenges and strategies, and contractors provided one-on-one assistance to facility contacts during a pilot of the Re-TRAC system for FY 2010 reporting.

In 2010, EPA initiated a pilot to collect construction period waste recycling data via a software system at the Atlantic Ecology Division Laboratory in Narragansett, Rhode Island. For the entire Agency, EPA analyzed waste tonnage and diversion data collected through the Re-TRAC system and other means and determined that the Agencywide waste diversion rate was 55.2 percent for FY 2010.

As part of its recycling/P2 technical assistance effort, EPA conducted a waste diversion and recycling assessment of the Region 6 Office in Dallas, Texas, in January 2011 and initiated green teams in major Headquarters facilities to help improve the Headquarters waste diversion rate. EPA updated its waste diversion campaign intranet website with additional technical assistance on composting and conducted a webinar to highlight existing EPA facility organics composting efforts and to provide information to help facilities without programs start composting.

GOAL 6: SUSTAINABLE ACQUISITION

A. Goal Description

The Agency will continue to advance sustainable acquisition through the following goals:

- Ensure 95 percent 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, biobased, environmentally preferable (excluding EPEAT-registered products), non-ozone depleting, contain recycled content, or are nontoxic or less toxic alternatives. To aid this effort:
 - EPA will use its new EAS acquisition system, which was rolled out in FY 2010, allowing purchasers (Contracting Officers and Contract Specialists) to check a box if they purchase a “green” product or service. Once the EAS system’s data collection capabilities are fully realized in FY 2012, the Agency will use this new system periodically to accurately track contracts; and
- Update Agency affirmative procurement plans (also known as green purchasing plans or environmentally preferable purchasing plans), policies, and programs to ensure that all mandated federally designated products and services are included in all relevant acquisitions. In addition:
 - EPA will continue to promote and focus on green procurement training for Agency personnel to educate suppliers, contractors, and the general public about EPA’s preference for green products and services.

B. Agency Lead for Goal

OARM has overall Agency responsibility for acquisitions and acquisition management; the office within OARM with lead responsibility is OAM.

C. Implementation Methods

- 1. Ensure 95 percent 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, biobased, environmentally preferable (excluding EPEAT-registered products), non-ozone depleting, contain recycled content, or are nontoxic or less toxic alternatives**

EPA will continue to advance sustainable acquisition through guidance documented in the GPP, which specifies the Agency’s preference for environmentally sound products and services. The GPP provides Agencywide guidance for implementing a green procurement program for acquisition of the following items:

- EPA’s designated recovered-content products;
- USDA’s designated biobased content items;
- Energy- and water-efficient products;
- Environmentally preferable products;
- Products using renewable and innovative energy technologies;
- AFVs/alternative fuel;

- Non-ozone depleting substances; and
- Priority chemicals.

Furthermore, the Agency's SBIP requires that whenever feasible, ENERGY STAR qualified/FEMP-designated products are specified, and that offices use USDA's designated products that meet or exceed USDA's biobased content recommendations. EPA also continues to promote the WaterSense program as a national brand for water efficiency through GPP guidance and training. EPA's GreenCheck process also includes a products and materials "green checklist" to ensure products within EPA's facility projects are energy efficient and sustainable.

The Agency's new contract writing system, EAS, rolled out in FY 2010, contains a data field for recording information on the sustainable attributes of new contract actions. This data field will provide information on progress in meeting the goal that 95 percent of new contract actions contain the environmentally preferable attributes listed in EO 13514. Initial training on data entry for this field has been developed and is currently being provided to all contracting offices. Training will continue in FY 2012. Based on EAS reports and QAP review results, additional training and assistance will be provided as needed to contracting offices in support of meeting the 95 percent goal.

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

The Agency's procurement plans incorporate a number of Federal programs:

- Comprehensive Procurement Guidelines (CPG) for recycled-content products;
- BioPreferred Program;
- ENERGY STAR and FEMP;
- Environmentally Preferable Purchasing (EPP) Program;
- AFVs/Alternative Fuels Program;
- WaterSense Program;
- Significant New Alternatives Program (SNAP); and
- Priority Chemicals Program.

The CPG implemented by EPA's OSWER promotes the purchase of products containing materials recovered from solid waste. By purchasing recycled-content products, EPA is ensuring that the materials collected in recycling programs are reused in the manufacture of new products.

The Agency also promotes the purchase of items made in whole or in significant part from biobased, forestry, or renewable domestic agricultural materials. EPA follows USDA's BioPreferred Program and procures products with the highest biobased content practicable. The Agency also purchases ENERGY STAR qualified products, including appliances, light bulbs, lighting fixtures, office equipment, electronics, and heating and cooling devices. EPA follows FEMP guidelines for purchasing the most energy-efficient products. The GPP includes guidance on incorporating ENERGY STAR qualified and FEMP-designated products into Agency procurements. EPA also incorporated the EPP Program into its GPP.

In addition, EPA looks for the WaterSense label to purchase water-efficient, high-performance products and services and will continue to do so in accordance with the GPP.

The Agency also is committed to minimizing procurement of ODSs by making sure that procurement officials give preference to alternative chemicals, products, and manufacturing processes that reduce risk to human health and the environment. Through its SNAP Program, EPA has put together a comprehensive list of alternatives to ODSs. The Agency also promotes the use of the Priority Chemicals Program by providing guidance and instructions in its GPP.

EPA will continue promoting IPM through its procurement actions, aiming to realize a goal of carrying out all pest management activities through sustainable techniques at EPA buildings and landscapes. By leveraging procurement choices, EPA demonstrates IPM effectiveness, models best procurement practices for other Federal agencies, and enjoys the benefits of employing IPM to reduce the risks of both pests and pesticides.

EPA will continue to promote and focus on green procurement training for Agency personnel to educate suppliers, contractors, and the general public about EPA's preference for green products and services.

D. Agency Status

Since recently transitioning to EAS, the previous Agency legacy systems have been closed; however, information is not currently available from EAS, which was deployed in incremental stages throughout FY 2010 and the beginning of FY 2011. By FY 2012, the Agency anticipates that the system will provide reliable data. As more users are exposed to EAS, the resulting data will become more reliable. As EAS is fully utilized, the data collected will be readily available and up-to-date.

EPA has developed a training module specifically targeting EAS inputs as they relate to Sustainable Acquisition criteria. Users will continue to receive this training throughout FY 2011. As more users are trained on this requirement, the data in EAS and subsequent reports will be more accurate and aligned with EPA's goals.

For green purchasing, EPA held a breakout session during its week-long OAM training conference in spring 2011 and training in May 2011, as well as three "Green Mini Training" sessions in the first half of 2011. During FY 2011, the Agency also plans to provide additional training on green procurement via videoconference for EPA contracting officers and contract specialists in Regional Offices. EPA's procurement operating divisions and Regional Contracting Offices will continue to include an element in their QAPs that requires regular oversight of green procurement issues, including compliance with the GPP, collection of vendor certifications, and data integrity. In FY 2011, OAM will increase the total contract actions to be green procurements by 15 percent, thereby achieving the 95 percent green acquisition goal.

E. Highlights

The Agency's new contract writing system, EAS, rolled out in FY 2010, contains a data field for recording information on the sustainable attributes of new contract actions. This data field will provide information on progress in meeting the goal that 95 percent of new contract actions contain the environmentally preferable attributes listed in EO 13514. Initial training on data entry for this field has been developed and is currently being provided to all contracting offices. Training will continue in FY 2011 and 2012.

GOAL 7: ELECTRONIC STEWARDSHIP AND DATA CENTERS

A. Goal Description

In FY 2009, EPA launched a series of initiatives designed to create a foundation of policies to support electronics energy management, environmentally preferable purchasing, and sound recycling activities. The Agency will continue to advance electronic stewardship and efficient data centers through the following goals:

- EPA will continue to ensure acquisition of EPEAT-registered, ENERGY STAR qualified, and FEMP-designated electronic office products when procuring electronics in eligible product categories;
- EPA will use the Agency's existing PC Configuration and Management Standard to ensure use of power management and duplex printing, as well as to address the emergence of other relevant energy efficient or environmentally preferred options and features on all eligible Agency electronic products;
- EPA will update Agency policy to reflect environmentally sound practices for disposition of all Agency excess or surplus electronic products;
- EPA will continue to increase the quantity of electronic assets disposed of through sound disposition practices;
- EPA will require IT planning/Life Cycle Manager to replace and/or waive equipment that does not meet "green" compliance requirements; and
- EPA will continue to implement its OMB-approved Data Center Consolidation Plan to ensure implementation of best management practices for energy-efficient management of servers and data centers.

B. Agency Lead for Goal

Electronic stewardship is implemented by two organizations within EPA: OARM and OEI. The Office of Chemical Safety and Pollution Prevention (OCSPP) provides guidance on best practices in electronic stewardship to OARM and OEI. OEI is responsible for managing the Agency's computer and network infrastructure, including data centers. OARM is in charge of all acquisition and disposition of electronic devices.

C. Implementation Methods

1. Ensure Acquisition of EPEAT-Registered, ENERGY STAR Qualified, and FEMP-Designated Electronic Office Products When Procuring Electronics in Eligible Product Categories

The Agency's purchasing and IT policies require the purchase of energy-efficient and environmentally preferred options and features on electronic products. For example, EPA's GPP and the PC Configuration and Management Standard both require procurement preference for EPEAT-registered electronic products. During annual green purchasing training, purchase of EPEAT-registered equipment is reinforced. In addition, EPA's CTS program and its IT BPA both require EPEAT-registered desktops, notebooks, and monitors with a Silver or higher rating, as well as delivery of ENERGY STAR qualified products to internal customers.

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

The Agency has made great strides in establishing and promoting the use of key environmental features and practices on eligible electronic products. EPA's Electronic Stewardship Implementation Plan outlines how the Agency is meeting the electronic stewardship goals of EO 13514 and EO 13423.

To ensure proper use of power management, EPA is using the PC Configuration and Management Standard approved by the Agency's CIO, which includes the following requirements:

- ENERGY STAR qualified computers and monitors should be purchased whenever feasible;
- Each monitor must be set to enter sleep mode after 10 minutes of inactivity;
- Each computer must be set to turn off hard disks after 60 minutes of inactivity and enter standby mode after 60 minutes of activity;
- Employees must power down (turn off) both the computer and monitor at the end of each day, unless otherwise instructed;
- All work group (network, shared) printers must be set to default to duplex printing and enable sleep mode (if available) after 60 minutes of activity;
- All toner cartridges and other packing materials and supplies must be recycled to the greatest extent possible; and
- All electronics purchased should be rated EPEAT Silver or higher, if available.

EPA has achieved a 100 percent power management enabling rate on all eligible Agency computers and monitors. EPA deployed an enterprise-wide management software that is capable of establishing power-management settings for computers and monitors over the network and auditing computers and monitors on the network for compliance. The software module for power management has been deployed to all eligible equipment throughout the enterprise.

EPA leverages its seat management program to ensure that all participating Program Offices have duplexing set as the default on eligible computers and imaging equipment and that the duplex printing features are enabled. Currently, most computers and imaging equipment deployed under this program are set to duplex by default, and EPA is working toward 100 percent. EPA deployed a software package for the configuration, monitoring, and reporting of printers deployed under the seat management program. The software provides increased visibility to ensure that duplexing is enabled on each network printer.

3. Update Agency Policy to Reflect Environmentally Sound Practices for Disposition of All Agency Excess or Surplus Electronic Products

EPA Personal Property Policy requires internal reuse of electronic equipment to the maximum extent possible. EPA's *Personal Property Policy and Procedures Manual* provides guidance and direction to the Agency's personal property staff to ensure that electronic equipment is reused prior to disposal. When electronic equipment is deemed "excess," it is recorded in the property database, making it available to other Program Offices and Regions for reuse.

4. Increase the Quantity of Electronic Assets Disposed of Through Sound Disposition Practices

EPA ensures environmentally sound disposition of electronic products in several ways. The Agency follows the GSA personal property disposition procedures of transfer, donation, sale, and recycling of electronic equipment and will continue to do so. EPA uses GSA's Computers for Learning (CFL) Program to donate electronics to eligible schools and nonprofit organizations, as mandated by EO 12999, *Educational Technology: Ensuring Opportunity for all Children in the Next Century*.

The Agency uses electronics recyclers that are certified in the practices identified in the most current version of the "Responsible Recycling (R2) Practices for Use in Accredited Certification Programs for Electronics Recyclers," or an equivalent certification. EPA's CTS Program also mandates environmentally sound disposition of equipment removed from service under its associated contract.

All of the electronic equipment that EPA retired from service in 2010 was donated, reused, or recycled in an environmentally responsible manner. Early in 2010, EPA instructed its property officers to donate unwanted electronics to organizations that can reuse them (e.g., UNICOR, the CFL Program) or to send their excess material to R2-certified companies that adhere to 13 specific R2 environmental, worker safety, and public health best practices.

5. Require IT Planning/Life Cycle Manager to Replace and/or Waive Equipment That Does Not Meet "Green" Compliance Requirements

EPA's PC Configuration and Management Standard details numerous "green" requirements in accordance with EO 13423 and EO 13514. Specifically, the PC Refresh Cycle requires that all EPA PCs be upgraded or replaced if they do not meet the minimum standard. The standard also states that PCs at EPA will follow a standard refresh lifecycle that encompasses the acquisition, deployment, maintenance, and retirement phases. Guidance for the disposition of electronics that do not meet the standard is detailed in the EPA's *Personal Property Policy and Procedures Manual*. Procurement requirements for replacement or upgraded electronics are set by the EPA's GPP.

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

Through the Agency's OMB-approved Data Center Consolidation Plan, EPA has identified covered and non-covered facilities and is striving to meet the following goals:

- Consolidate data centers to achieve cost savings, energy consumption reductions, optimal space utilization, and improvements in IT asset utilization; and
- Define, measure, and monitor standard operational metrics such as server (CPU) utilization (percentage) and power usage efficiency (PUE) at its covered data centers.

EPA has defined its four covered data centers, which are those data centers that were qualified on a set of core criteria, including floor capacity, power backup, location, power and cooling capacity, and other factors. Over the past three years, the Agency has performed a thorough analysis of computer room, server, and storage management activities. A thorough analysis of data center consolidation was conducted in FY 2009, and the resulting recommendation was approved by EPA management.

Currently, NCC, EPA's primary data center, is independently metered on a continuous basis. For each of the remaining three covered data centers, EPA will invest in appropriate energy-metering devices for

installation at each location in FY 2011 and FY 2012. EPA will then baseline and measure at regular intervals PUE, CPU utilization, and other appropriate industry and energy usage metrics. Until metering devices are installed and implemented at EPA's four covered data centers, PUE and CPU utilization are not calculable on an Agencywide basis.

EPA's OMB-approved plan to reduce its number of data centers includes increasing virtualization of data center activity, increasing activity hosted in a cloud computing environment, consolidating space and servers, and embracing efficient technologies through the following activities:

- Virtualization is already extensively used to support database hosting, and EPA currently is expanding virtualization to support the Web and application server tiers;
- EPA hosts more than 200 individual Agency business applications in an innovative shared hosting environment offering many of the features of private cloud services; and
- The Agency is engaged in an effort to consolidate a major national application by 40 percent, from 200 servers across the country to about 30 servers and related storage.

D. Agency Status

EPA exceeded the 95 percent acquisition rate for EPEAT-registered electronic products in FY 2010 and will continue to exceed the 95 percent goal in future fiscal years. The Agency met 100 percent of the power management goals for applicable computer equipment in its seat management program. In FY 2010, EPA implemented an enterprise-wide power management solution for all Agency computers.

All computers and imaging equipment deployed under EPA's seat management program are set to duplex print by default, and the Agency will continue to deploy all new equipment at this same setting.

EPA met the 100 percent environmentally sound disposition rate of electronic products in FY 2010, and will continue to meet that goal in future fiscal years through its many programs and initiatives.

To date, significant progress has been made in EPA's data center consolidation effort. EPA began a phased approach to virtualization and data center consolidation that will result in a reduction in the number of data centers and server closets in the coming years. Currently, EPA has not reduced the total number of data centers. NCC is metered and monitored on a regular basis.

E. Highlights

In FY 2010, nearly all (99.9 percent) of the personal computers and laptops that EPA acquired were EPEAT-registered products, and 85 percent of them were rated Silver or Gold. As for monitors, 97.95 percent of the Agency's acquisitions were EPEAT-registered, and more than 75 percent of them were rated Silver or Gold. EPA also installed an Agencywide power management solution in FY 2010 that allows EPA to monitor and control power usage settings.

Based on their individual efforts in the area of electronics stewardship, EPA's OARM, Region 5 Office in Chicago, and Region 8 Office in Denver received Gold Level Awards from the Federal Electronics Challenge (FEC), and EPA's Environmental Sciences Division Laboratory in Las Vegas received a Bronze Level FEC Award.

EPA has an OMB-approved Data Center Consolidation Plan in place, outlining strategies to reduce the Agency's data centers. In FY 2010, the Region 8 Office updated its data center from 20 servers to two high-performance servers.

GOAL 8: AGENCY INNOVATION AND GOVERNMENT-WIDE SUPPORT

A. Goal Description

EPA will continue to lead Federal agencies in providing innovation and government-wide support for meeting the goals of EO 13514 and beyond through the following activities:

- EPA will continue to be responsible for inter-agency working groups that support efforts covered in this plan;
- EPA will continue to develop tools or provide assistance to other agencies in meeting Federal/Congressional reporting requirements; and
- EPA will collaborate to transfer or share space with other agencies or co-locate field offices across metropolitan areas or regions.

B. Agency Lead for Goal

OARM has overall Agency responsibility for the Agency's facilities, coordinating of space sharing with other agencies, and transferring of properties. Numerous EPA Program Offices are responsible for leading EO 13514 working groups, as well as developing tools and assistance for other Federal agencies to help meet their sustainability goals.

C. Implementation Methods

1. Continue to Be Responsible for Inter-agency Working Groups That Support Efforts Covered in This Plan

EPA is pleased to co-lead or play a major contributing role on a number of working groups that are helping Federal agencies meet the goals of EO 13514:

- Section 2d: Water Working Group;
- Section 9: Recommendations for Greenhouse Gas Accounting and Reporting;
- Section 10: Recommendations for Sustainable Locations for Federal Facilities;
- Section 11: Recommendations for Federal Local Transportation Logistics;
- Section 12: Guidance for Federal Fleet Management;
- Section 13: Recommendations for Vendor and Contractor Emissions;
- Section 14: Stormwater Guidance for Federal Facilities; and
- Section 15: Inter-Agency Climate Change Adaptation Agency Working Group.

EPA also participates in the GTWG as a way to coordinate on green travel issues and reduce Scope 3 emissions from its own employee business travel, as well as assist other Federal agencies in promoting green business travel. The Agency will continue to co-lead these efforts and participate in other working groups to support the goals of its own SSPP and assist in other agencies' implementation efforts.

2. Continue to Develop Tools or Provide Assistance to Other Agencies in Meeting Federal/Congressional Reporting Requirements

EPA has developed many tools, resources, programs, and other forms of technical assistance to support Federal and private sector sustainability efforts, but they are too numerous to list in this plan. From ENERGY STAR to WasteWise, EPA supports a number of programs that agencies can use to collect and benchmark resources used and saved in their organizations. ENERGY STAR's Portfolio Manager, for example, can help agencies understand and benchmark their energy use as a first step in reducing energy intensity. EPA's Laboratories for the 21st Century program provides a similar tool for laboratories, which EPA, DOE, and the National Institutes of Health have used. WasteWise's Re-TRAC has proven useful to Federal agencies such as EPA in collecting their waste and recycling data and calculating an Agencywide waste diversion rate required for reporting on EO 13514 goals. To view a full list of the partnership programs EPA provides for both Federal agency and private sustainability efforts, visit www.epa.gov/partners/.

EPA's Region 6 Office provides support to other agencies in the Dallas-Fort Worth area through the Federal Executive Board (FEB), including helping to implement a Federal employee ride-share program and serving as a "carbon consultant" to the FEB. In Region 5 in Chicago, EPA co-chairs a sustainability council that has initially focused on information sharing and reducing air miles from business travel. In Regions 9 and 10, EPA has started the Federal Green Challenge to help agencies in those areas reduce GHG emissions; the initiative will be extended nationwide in the next fiscal year.

3. Collaborate to Transfer or Share Space With Other Agencies or Co-Locate Field Offices Across Metropolitan Areas or Regions

EPA's Regional Offices not only share space with other Federal agencies, but they also share ideas with them on how to reduce energy, water, and waste. For example, EPA's Region 4 staff worked with GSA and other agencies in the Sam Nunn Atlanta Federal Center over the past 14 years on a number of successful energy savings projects, and the staff is currently helping the building's Environmental Team explore other opportunities to reduce environmental impacts. Region 5 is encouraging other Federal agencies in the Chicago area to track and reduce air miles and GHG emissions from business travel through the Interagency Sustainability Council. In Chapel Hill, North Carolina, EPA shares laboratory space with the state of North Carolina and University of North Carolina personnel. EPA's Regional Offices in Regions 1, 2, 3, 4, 5, and 6, are all GSA multi-Federal tenant buildings where EPA works with GSA and the other agencies to coordinate and co-locate space as much as feasible. EPA "embeds" its employees in other Federal locations where an office would be unnecessary; for example, a Region 6 Ecosystems Protection Branch employee is co-located at the Army Corps of Engineers District Office in New Orleans.

D. Agency Status

EPA's leadership and participation on Federal working groups related to EO 13514 implementation is critical to helping all agencies meet these important goals. EPA is also continuing to help the other Federal agencies in the buildings it occupies be more sustainable. The Agency will continue to provide technical assistance and leadership wherever appropriate. As a critical component of its mission, EPA provides tools that Federal agencies and the private sector can use to reduce their GHG emissions and environmental footprints.

E. Highlights

EPA practices environmental innovation as part of its mission. For example, EPA's ORD initiated new Chemical Safety for Sustainability integrated chemical-related research to include human health,

computational toxicology, nanotechnology, endocrine-disrupting chemicals, and pesticides. A sustainable acquisition work group is examining EPA's role and contributions to advance the development, manufacture, designation, and use of sustainable products. And an E-waste work group not only coordinates EPA activities on this topic, but also is working with CEQ to prepare a plan to improve the design, manufacture, purchase, and use of green electronics and reduce the environmental impacts of Federal agency electronic products across their lifecycles, including disposal.

EPA has already maximized efficiency in office space by sharing space with other Federal agencies, but more importantly, it works with the other agencies to promote sustainability. Based on its first-hand ENERGY STAR Portfolio Manager experience, for example, EPA helped the Sam Nunn Atlanta Federal Center earn the ENERGY STAR label once again in 2010. Across the country, EPA Regional employees are also responsible for helping Federal agencies, states, and the private sector implement voluntary programs such as ENERGY STAR and WaterSense.

SECTION 3: AGENCY SELF-EVALUATION

I. SELF-EVALUATION TABLE

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 FY 2015 and FY 2020 goals?	Yes
Is the Sustainability Plan consistent with the FY 2012 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

II. SELF-EVALUATION NARRATIVE

Other Key Questions for 2011

- i. Did your Agency meet by the December 30, 2010, due date, and/or is it now able to demonstrate comprehensive implementation of the EO 13423 electronic stewardship goals? YES
 1. EPA has acquired at least 95 percent EPEAT-registered electronics;
 2. EPA has enabled ENERGY STAR or power management features on 100 percent of eligible PCs; and
 3. EPA extends the life and/or uses sound disposition practices for its excess or surplus electronics.
- ii. Is your Agency tracking and monitoring all of its contract awards for inclusion of requirements for mandatory federally designated green products in 95 percent of relevant acquisitions? YES
- iii. Has your Agency completed energy evaluations on at least 75 percent of its facilities? YES
- iv. Will your Agency meet the deadline of October 1, 2012; (EPA Act 2005 Section 103) for metering of energy use? YES
 - EPA already has 100 percent of its appropriate buildings metered with standard or advanced electric meters;
 - At the end of FY 2010, three of EPA's 36 reporting facilities had advanced electric meters installed. These advanced meters are capturing more than 35 percent of the cumulative annual electricity used by all EPA reporting facilities;
 - By the end of FY 2012, EPA plans to have advanced electric meters installed at 25 of the Agency's 36 facilities. These advanced meters will capture nearly 82 percent of the cumulative annual electricity used by all EPA reporting facilities. EPA determined that installing advanced electric meters at the remaining 11 facilities was not cost effective; and

- EPA currently has an advanced metering software system in place that compiles 15-minute interval electricity consumption data that is transmitted from advanced metering hardware installed in the field.

v. If your Agency reports in the FRPP, will it be able to report by December 2011 that at least 7 percent of its inventory meets the High-Performance Sustainable Guiding Principles? YES

