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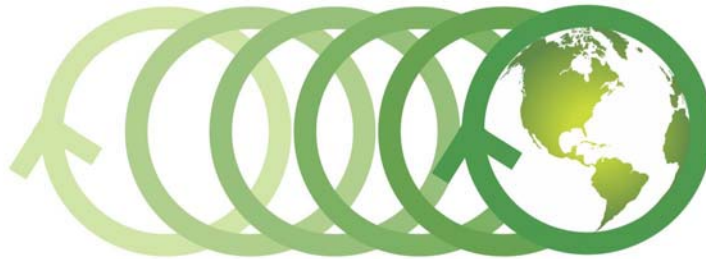
Strategic Sustainability Performance Plan

Go Green Get Healthy HHS

ENERGY/WATER • ENVIRONMENT • ELECTRONICS • PROCUREMENT
SUSTAINABLE BUILDINGS • TRANSPORTATION

DEPARTMENT OF HEALTH & HUMAN SERVICES • USA

U.S. Department of Health and Human Services

U.S. Department of Health and Human Services (HHS) Sustainability Policy
Effective June 2, 2010

For many years, sustainability and social responsibility have been core focal points of responsible business. The benefits of these practices provide efficiency and accountability, as well as happier and healthier citizens and employees. With President Obama's commitment to a more sustainable government and the signing of Executive Order 13514, the opportunity for HHS to meet or exceed the President's challenge is an exciting prospect for a Department that has a strong history in supporting responsible stewardship. As the Senior Sustainability Officer for HHS, I will ensure that our Department not only continues its commitment to compliance with all environmental and energy statutes, regulations and Executive Orders, but also innovates and leads in the areas of sustainable development and operation.

Despite tremendous accomplishments, we have learned that being responsible stewards of the environment is about more than just the structures we work in. Our employees will be educated and empowered as we launch an aggressive communication campaign to instill sustainability into our culture of procurement, IT, travel, and our employees' everyday lifestyle choices.

Most importantly to HHS, sustainability goes hand-in-hand with our mission. The Department is tasked with protecting the health of all Americans, stressing the commitment to sustainability and ensuring that the enduring prosperity of all living things continues. The HHS Sustainability Plan is not just compliance with an Executive Order, but is also the culmination of years of commitment to sustainable practices, as well as the reaffirmation of the importance of the HHS mission. Our Department understands and is committed to taking a leadership role in researching and communicating the relationship between the health of our citizens and the health of our environment.

Our short term goals will focus on increasing awareness and education as well as the continuation of strengthening our sustainability programs in a serious effort to meet the goals of the Executive Order. Through our past accomplishments and future commitments, I am confident that the Department of Health and Human Services will lead the way toward a more sustainable future.

E.J. Holland, Jr.
Assistant Secretary for Administration
HHS Senior Sustainability Officer

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Agency Policy and Strategy

Section 1

I. Sustainability and the Agency Mission

The Mission of the U.S. Department of Health and Human Services (HHS) is "…to protect the health of all Americans and provide essential human services, especially for those who are least able to help themselves." Sustainability has been defined as "the enduring prosperity of all living things." By this measure, sustainability is directly linked to the health of humans, the health of the environment, and the health of economic systems that support and promote our well-being. This triple bottom line – human health, environmental health and economic health – is integral to HHS' mission and the sustainability mandate of Executive Order (EO) 13514. Just as the Department of Energy (DOE) leads initiatives relating to energy reduction, HHS leads initiatives relating to health and well-being. As a key part of the federal community, HHS must assume a leadership role in promoting sustainability in government and public operations. Sustainability is integral to the HHS mission.

The goals laid out in Section II of this Plan are briefly summarized below as they relate to the HHS mission by improving national performance of leading health indicators, improving healthcare outcomes, and reducing costs. To achieve long-term success, HHS must also lead basic and applied research on minimizing the health impacts of greenhouse gas emissions and develop new technologies that can both improve health and meet other sustainability goals such as reduction in energy and water use.

Reducing Emissions

HHS must reduce emissions through technological, programmatic and behavioral change. Our operations produce greenhouse gases (GHG) that are associated with negative health impacts resulting from alterations of climate, ecosystems, food and water supplies. These gases and other air, water and land contaminants are generated directly by mission activities such as patient care and laboratory research, and indirectly by numerous activities (e.g., energy production and use; fleet management, employee travel and commuting; facility construction and maintenance; data operations; and acquisition and use of a vast array of other products and services needed to support mission activities).

Controlling GHG also reduces other emissions and releases that directly impact health. For example, mercury released with GHG from combustion of fossil fuels in power plants may lead to reduced cognitive ability in approximately 300,000 children born each year. Transport-related air pollution is also associated with higher rates of asthma and other allergic responses, cancer, adverse birth outcomes, reduced male fertility and morbidity from cardiopulmonary and respiratory diseases. Studies have shown that reductions in particulate pollution from power plants increased life expectancy by 15% in 51 urban areas over a 20-year period. Clearly, sustainability measures that reduce emissions will have a

beneficial impact on health, the environment and the economics associated with health and well-being.

Conserving Resources

Conserving resources through sustainable purchasing, operations and waste management positions HHS to better meet our mission while cutting costs. Reductions in paper, water, and energy use reduce the costs associated with their purchase. Efficiency in operations further reduces costs and allows resources to be devoted to mission-direct activities. Managing our waste protects the environment and supports human health by reducing the toxins that enter water sources and food chains. Reuse and recycling efforts reduce harmful emissions and lessen the amount of land devoted to landfills and raw material extraction. Preserving biodiversity conserves plant and animal species that are the primary sources of new medications for prevention and treatment of cancer and other diseases.

Protecting and Promoting Human and Environmental Health

Sustainable facilities improve the health of our staff, patients and other building occupants. Including health professionals on integrated project teams ensures that our buildings are designed and constructed in a manner that promotes the health of occupants and the community. Creating safe, walkable communities around federal facilities will help to address obesity and reduce mobile-source air pollution. The introduction of natural light to the indoor environment (daylighting) has been linked to productivity gains, reduction in mental health impacts and other improvements in health. Worker absenteeism, acute disease and chronic diseases that are associated with stressors and pollutants in the indoor environment would be mitigated by ventilation improvements, use of low-emitting materials, green cleaning and pest management practices that reduce toxic chemicals in the built environment. Protecting environmental health is also achieved through sustainability goals including reduced use of ozone-depleting compounds, increased use of materials with recycled and biobased content, and reduction of waste generation. All of these practices can prevent and mitigate illness, reduce health care costs, and increase productivity and wellness.

Maximizing Return on Investment

Returns can significantly exceed investments in sustainability, particularly if cost savings relating to improvements in health are considered. The Institute of Medicine, a component of the National Academy of Sciences that advises the government on medical issues, recently published a report on the health, environmental and economic aspects of green healthcare institutions. A study summarized in the report found that the financial benefits from improved occupant health and productivity in green buildings may exceed those from all other aspects of building operations combined. In addition, these returns may be nearly ten times higher than those resulting from energy savings.

Leading and Engaging the Community

To broadly promote health, HHS must lead and engage our internal and external stakeholders on the benefits of sustainability in all policies and activities. HHS can do so by aligning our facility master planning activities with the concepts of healthy community design such as locating and orienting our facilities with access to public transit, biking infrastructure, safe walking routes, and green space. HHS can also lead by example with supportive telework and flexible workplace policies. HHS, through its actions, can be a model employer for workplace wellness, patient care and quality of life and can share its successes with healthcare providers, local and state health departments, universities, other governmental entities, partners, and collaborators.

II. Greenhouse Gas Reduction Goals

HHS is committed to being a leader in energy efficiency. Since 2003, HHS has reduced its energy intensity by 8.7%. Due to expanding mission requirements, HHS is anticipating a 16% increase in "subject" facilities over the next ten years. Our specific goals and strategies are outlined below:

SCOPE 1 and 2 Emissions

1. Emissions from Facilities
HHS will reduce its total scope 1 (stationary sources) & 2 greenhouse gas (GHG) emissions by 10.4% by 2020 through a combination of energy reduction efforts and the use of renewable energy. This reduction equates to a 22.9% reduction in energy intensity per square foot.
Baseline Year: 2008/GHG Emissions, 2003/Energy Reduction

2. Fleet Emissions: HHS is projecting a 3% reduction in scope 1 (mobile sources) GHG emissions by 2020. This number will be adjusted based on actual experience during the performance cycle 2010 through 2020. HHS will continue to make progress towards this goal by:

1) Reducing petroleum use in fleet vehicles
2) Increasing use of alternative fuels in fleet AFVs
3) Optimize use of vehicles and right-size fleet
4) Increasing use of low emission and high fuel economy vehicles

Baseline Year: 2008

3. Fugitive Emissions: Currently HHS has not set goals for reducing fugitive emissions although we are in compliance with the requirements of the Clean Air Act.

SCOPE 3 Emissions

Like other agencies, HHS is still unraveling its scope 3 baseline and targets. Our initial baseline was created utilizing a combination of official travel and telework records, as well as the Department of Transportation Bureau of Transportation statistics. We will continue to hone data collection and evaluation in the years ahead.

Goal: As an initial estimate, HHS looks to set a scope 3 reduction target of 3.3% by FY20. FY20 reduction targets for the subcategories are: 7.5% for transmission and distribution (T&D) losses from purchased electricity; 1% for federal employee travel; and 14.5% for contract waste and wastewater treatment. The pie chart below shows the FY08 scope 3 emissions, respectively. The chart reveals the magnitude of scope 3 emissions from employee travel. The bulk of the FY08 baseline employee travel emissions are attributed to federal employee commuting (97% of the 74% of total scope 3 emissions). In order to meet

these reduction targets, HHS is taking a multipoint approach, discussed further in section II of this Plan.

Estimated 2008 Actual Ratio of Scope 3 Emissions

- T&D loss sub-total
- Waste sub-total
- Employee travel sub-total

18%
8%
74%
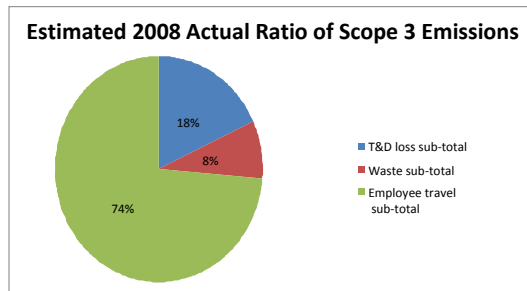
Baseline: 2008

Milestones: HHS' initial focus will be to increase the use of transhare and employee teleworking. In the HHS Secretary's 5 year Strategic Plan (expected to release in Fall 2010), the Secretary calls for at least 20 percent of eligible HHS employees to use telework and/or AWS to reduce commuting by four days per pay period by 2015.

III. Plan Implementation

Continuous communication will be critical to successful implementation of EO 13514. Identifying short-term, intermediate and long-term milestones and metrics, and putting in place the management and oversight tools to track and steer efforts, will be vital. The biggest challenge in plan implementation will be to balance other agency priorities.

A - B. Internal Coordination and Communication/Coordination and Dissemination of the Plan to the Field

Responsible Office: Assistant Secretary for Administration
Key Internal Partners: Assistant Secretary for Public Affairs

HHS elected to merge these discussion items together, as part of our implementation strategy involves better integration and communication with ALL of our HHS employees, including those in the field.

In the past, HHS' approach to sustainability has been decentralized, with OPDIVs and STAFFDIVs individually determining how to achieve their goals. In March 2010, HHS established a Sustainability Steering Committee with decision-makers from across the Department to coordinate the development of the 2010 Strategic Sustainability Performance Plan (SSPP). The Committee is supported by a task force and various working groups.

A recent McKinsey study (March 2010) found that organizations that create concrete mechanisms for their sustainability efforts, and place those mechanisms at high levels of their organizational structure, reap the greatest benefits from sustainability initiatives, not only in terms of overall social, economic and environmental gains, but also in terms of direct organizational benefits (i.e., noticeable improvements in reputation and employee retention).

Given the link between sustainability and the Department's achievement of its health mission, it is critically important for HHS to be a trail-blazer and leader within the government community. In recognizing that oversight and leadership are critical for establishing, implementing and evaluating an integrated Departmental strategy, HHS plans to create a centralized sustainability office team that will:

- Be a champion for sustainability, serving as an organizational strategist to ensure widespread adoption of sustainable practices throughout HHS in an accountable manner;
- Support the Senior Sustainability Officer by providing one voice for HHS on sustainability to the White House environmental offices, the media, Congress, other agencies, and private entities;

- Coordinate implementation of sustainability initiatives in a fair manner across HHS and communicate the Sustainability Plan and progress to employees and the public; and
- Identify best practices and benchmarks, spearheading automated HHS-wide data collection / inquiry / evaluation.

C. Leadership and Accountability

Responsible Office: Assistant Secretary for Administration
Key Internal Partners: All HHS divisions

This HHS Strategic Sustainability Performance Plan establishes the link between health and sustainability and demonstrates the commitment of HHS leadership to embrace sustainability as a continuous area of focus integral to the Department's mission. As discussed in Section IV, A and B, HHS intends to provide oversight through a centralized sustainability office. In addition, each operating division will designate a sustainability champion. These operating division "champions" will work with key staff division policy owners on an executive steering group that will meet regularly under the direction of the Senior Sustainability Officer. This team will lead the Department in the following critical sustainability activities:

1. *Team Development* – Promote a cross-functional, enterprise-wide approach to sustainability and facilitate interdisciplinary coordination in all decision-making. Foster required sustainability training and disciplinary cross-training between sectors including health scientists, health care professionals, engineers, planners, architects, accountants, communications specialists, business analysts, etc. Establish resources, data sharing and credit-sharing practices that promote communication and collaboration across functional areas and agencies. Establish incentives and recognition for teams of multi-disciplinary professionals to work together towards large-scale multifaceted goals. Leveraging existing resources, such as the HHS Innovation Council, can also be used. Innovation is essential in integrating sustainability into our operations as we redesign all processes and work flows with a new focus on the wide range of social, economic, and environmental goals. Sustainability requires innovation in the way we think and operate.

2. *Advanced Science and Technology* – Ensure data reporting protocols, goal tracking, and communication tools such as dashboards and wikis are used to promote sustainability data sharing. Define products, actions, environments, systems and protocols that embody the health and sustainability attributes of the triple bottom line -- human health, environmental health and economic health. Publish best practices and scientific articles on links between health and sustainability. Establish linkages between sustainability and health objectives into new and existing activities (e.g., Global Change Research Program (USGCRP); Healthy People 2020; HHS Climate Change and Health Working Group, the Trans-NIH Working Group on Climate and Health, and other related workgroups).

3. *Policy* – Oversee a comprehensive policy review and work collaboratively across the Department to implement enhancements that promote sustainability. Consider all levels of policy including internal and industry standard operating procedures, research and patient treatment protocols, federal regulatory framework, licensing and inspection procedures, rulemaking, grant guidance, partner agreements, contracts, procurement mechanisms, general accounting principles and other guidance. Foster the revision of and influence policy to incorporate health impacts that reflect a long term, life-cycle cost approach to decision making.

4. *Physical Environment* – Lead the evaluation of all physical attributes of HHS facilities, campuses, leases, transportation systems and energy generation equipment, and establish a plan for integrating physical systems that promote health and wellness, environmental health and economic health. Encourage the use of strategies such as evidence-based design and healthy community design to improve the physical systems within which we work and live.

5. *Culture/Behavior Change* – Foster education and training, and promote opportunities for engagement of staff, contractors, partners, grantees, patients, industry, neighbors and the larger community. Establish performance management elements and other incentives for positive and negative sustainability and health impacts, cascaded from the Senior Executive Service-level throughout the enterprise. Include language in all performance plans to address sustainability requirements. Create enforcement mechanisms for policies and provide support to help partners remove barriers that may block progress.

D. Agency Policy and Planning Integration

Responsible Office: Assistant Secretary for Administration
Key Internal Partners: All HHS divisions

The following Critical Planning Coordination Table identifies existing HHS reports, plans, and policy documents in which sustainability requirements may be integrated. The next step will be to perform a comprehensive assessment of additional policies that overlap with sustainability and determine to what extent and in what order of prioritization such policies and reporting structures should be updated.

Table 1: Critical Planning Coordination

Operating Report/Plan	HHS Office of Primary Responsibility/Point of Contact	Scope 1 & 2 GHG Reduction	Scope 3 GHG Reduction	Develop and Maintain Agency Comprehensive GHG Inventory	High-Performance Sustainable Design / Green Buildings	Regional and Local Planning	Water Use Efficiency and Management	Pollution Prevention and Waste Elimination	Sustainable Acquisition	Electronic Stewardship and Data Centers	Agency Specific Innovation
HHS Strategic Plan	ASPE - Sandra Howard	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Government Performance Results Act (GPRA) Strategic Plan	ASFR - Andrew Baldus	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	n/a
Grant Policy	ASFR - OGAPA	n/a	n/a	n/a	Yes	Yes	n/a	n/a	n/a	Yes	n/a
Agency Capital Plan	OFMP - Diane Stewart	Yes	n/a	n/a	Yes	Yes	Yes	Yes	Yes	n/a	n/a
Circular A-11 Sections: 300s (Buildings)	OFMP - Diane Stewart	Yes	n/a	n/a	Yes	Yes	Yes	Yes	Yes	n/a	n/a
Annual Energy Data Report	OFMP - Pete Aitcheson	Yes	No	Yes	n/a	n/a	Yes	n/a	n/a	Yes	n/a
Energy Independence and Security Act (EISA) Section 432 Facility Evaluations/Project Reporting	OFMP - Pete Aitcheson	Yes	n/a	n/a	Yes	n/a	Yes	n/a	n/a	n/a	n/a
Budget (FY11)	ASFR - Andrew Baldus	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	n/a
HHS Real Property Asset Management Program (RAMP)	OFMP - Diane Stewart	No	No	n/a	Yes	Yes	Yes	Yes	No	n/a	n/a
Circular A-11 Exhibit 53s	OCIO	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
OMB Scorecards	OFMP/PSC	Yes	Yes	Yes	Yes	n/a	Yes	Yes	Yes	Yes	n/a
DOE's Annual Federal Fleet Report to Congress and the President₂	PSC - Jim Kerr	Yes	n/a	Yes	n/a	Yes	n/a	n/a	Yes	n/a	Yes
Data Center Consolidation Plan	OCIO/Tim Mitchell	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Environmental Management System₃	OFMP - Ed Pfister	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	n/a
Sustainable Building Implementation Plan (SBIP)	OFMP - Diane Stewart	Yes	n/a	n/a	Yes	Yes	Yes	Yes	Yes	Yes	n/a
Affirmative Procurement Plan (APP)	ASFR/Acquisitions - Nancy Gunderson	Yes	No	No	Yes	n/a	n/a	Yes	Yes	Yes	n/a
Electronic Stewardship Plan (ESP)	OCIO	Yes	Yes	No	Yes	Yes	n/a	Yes	Yes	Yes	n/a

₁ Agencies should remove plans/reports that they currently are not required to complete and add any additional relevant plans/reports not currently included in the table.
₂ EPAct
₃ Agencies that have a Compliance Management Plan rather than an Environmental Management System should modfiy the table accordingly.
₄ Sustainable Buildings Implementation Plans, Sustainable Procurement (also known as Green or Affirmative Procurement, or Green Purchasing), Electronic Stewardship Plans, Chemical Reduction Plans, Pollution Prevention Plans, Compliance Management Plans, etc.

E. Agency Budget Integration

Responsible Office: Assistant Secretary for Financial Resources
Key Internal Partners: All HHS divisions

HHS is working to incorporate sustainability efforts into its annual budget submission. The FY12 Operating Division budget submissions will include a section specifically addressing sustainability programs, efforts and/or initiatives. The integration between this Sustainability Plan, the HHS Strategic Plan, and the Department's performance budget submission will crystallize as we continue to educate and empower employees on the sustainability initiative.

F. Methods for Evaluation of Progress

Responsible Office: Assistant Secretary for Administration
Key Internal Partners: All HHS divisions

Each of the ten goal areas in this Plan is accompanied by specific milestones and metrics that will be used to evaluate progress moving forward. The planned centralized sustainability

office will coordinate with HHS Operating Divisions to collect information and to evaluate progress on an ongoing basis. In the interim, each Operating Division will be responsible for individually meeting the goals established in this plan and reporting progress to the HHS Office for Facilities Management and Policy for compilation. Continued engagement and guidance from each of the designated goal leads will be critical.

IV. Evaluating Return on Investment

According to the International Facilities Management Association (IFMA), the life cycle costs of a facility typically comprise: 2% for design and construction; 6% for Operations and Maintenance; and 92% for occupants' salaries and benefits. In recognition of the cost of health and human factors across our nation's communities, HHS is committed to considering social, environmental and other sustainability factors in the development of projects, initiatives and efforts, to ensure that our people and the people we serve are healthy, safe, happy and able to focus on contributing to mission. All the financial resources that HHS brings to bear on the issues of health and human services must be evaluated within a framework that measures the return of those resource investments. This return includes not only monetary return and balance sheets in terms of reduced utility bills or reduction of initial costs, but also in terms of increased quality of life, reduced illness and injury, increased social capital and long-term protection of our ecosystems. It is critically important that HHS include these considerations in all strategic and tactical decision-making throughout its operational and scientific programs.

Presently, HHS uses a patchwork of tools and evaluative analyses to identify the costs and benefits of projects, initiatives and programs. Social, environmental and mission-specific costs and benefits are evaluated by different parts of the organization with varying tools, rules, and rigor. HHS has applied a standards-based lifecycle return on investment (ROI) approach to major capital investments through its Facilities and IT capital investments policies. This approach has enabled comparison and evaluation of a wide range of initiatives and efforts across the Department. Similarly, some programmatic areas consider the health impact of various programs through the use of tools such as HealthImpact.Net or by conducting Health Impact Assessments to evaluate the effects of a particular intervention, program or policy. Grant review groups use systematic criteria to determine which grant proposals are most meritorious. Environmental Management Systems are utilized to continuously improve systems and processes to support environmental goals and policies. Safety committees promote awareness and procedures that protect worker safety. "Quality of Work Life" committees identify areas of need and seek solutions to improve health and social aspects of the work environment. Smaller facilities projects may be reviewed by an Asset Management Team and evaluated against a standardized set of criteria including the number of people benefited, the positive impact on facility condition index and the safety or accessibility features of a project.

These disparate evaluation methods benefit the overall analysis of alternatives; however, it makes more sense to review all projects with appropriate rigor in a comprehensive manner using a similar empirical framework. We are challenged by the difficulty of developing a single process for evaluation and we would welcome guidance and tools that will help us establish a comprehensive evaluation framework that considers all costs and benefits. Furthermore, HHS recognizes the importance of applying an evidence-based decision

making process to a greater number of initiatives, especially those that do not meet the current review threshold but would benefit from a similar, rigorous approach. Currently, however, we do not have an easy way of determining which of these decisions should be elevated to a greater standard of evaluation and scrutiny.

The following sections describe the challenges and considerations necessary for the Department to systematize its evaluation of system-wide costs and benefits of projects, initiatives and efforts, so they result in sustainable decisions. It helps illustrate the need to utilize tools and systems at all management levels to help decision makers consider multiple aspects of today's complex, multi-sector problems. These enumerated considerations and challenges underscore the need for an overarching framework that evaluates all financial decision-making according to a comprehensive model that takes long-term social and environmental consequences into account along with short-term financial realities. The resulting ROI framework would appropriately address economic, social, environmental, mission-related, operational, and health costs and benefits. This framework necessitates the development of tools and guidance for decision makers that helps them to quantify and consistently apply all costs and benefits to lifecycle ROI analyses. Guidance will also be needed to describe when to apply these considerations and how to enforce application of these elements. The concepts below should be applied to all initiatives and projects, not just those considered "sustainability projects." While we envision a streamlined, comprehensive process for major capital or overarching investments, we recognize that we cannot micromanage a manager's everyday decisions. Instead, we intend to provide a "toolkit" and checklist for managers to utilize for smaller, day-to-day decisions to help make informed, deliberate investment choices.

a. Economic Lifecycle Cost / Return on Investment

As HHS identifies programs, projects or initiatives that it intends to invest in, it must evaluate the return that those investments are expected to realize for the American people. In many cases, higher initial costs may result in ongoing savings over the lifecycle of the investment, while lower initial costs may result in annual maintenance or replacement costs. Preventive health care spending is one such example where initial investments in prevention can prevent illness and reduce lifetime expenditures on disease care. While this reality is generally understood, however, it is not always implemented due to a combination of factors that make current life cycle cost analysis impossible to separate from other budget implementation and cost savings structures. There is a lack of transparency that results from a need to be economical in the amount of time spent on analysis, however, that economy causes us to lose sight of other issues not included in traditional cost benefit analysis structures. Clearly, analysis methods need to include initial costs, yearly costs and benefits to the entire system, contingent costs for emergencies and other periodic traumas to the system, removal and disposal costs and lifecycle replacement timeframes. Furthermore, analysis methods need to measure the cost of the current state – the "do nothing" scenario – so that projects and initiatives can be compared, not only against

alternative projects but also against the current state. Projects, initiatives and efforts should identify an expected lifecycle cost or return during the planning process so that teams and decision makers can understand up front the expectations for the effort. Periodic evaluation data should be collected and trended against goals to identify underperforming programs and projects and provide oversight for improving their performance.

b. Social Costs & Benefits

Considering the social benefits and costs of projects, initiatives and efforts is much broader than financial measures of costs and cost savings. Social benefits and costs include all the potential benefits and costs to citizens, including monetary, nonmonetary and secondary effects. HHS does not currently utilize a specific ROI tool for calculating social costs and benefits, and it is unknown whether such a tool exists across government. Evidence base to support calculation of social costs and benefits needs to be gathered and codified by the Federal Government as a whole. The full complement of social issues to be included in ROI analysis should include: fair labor practices, fair trade, education access, human development, human rights, life satisfaction, health equity, cultural and ethnic integrity, ecosystem conservation, good governance, social capital, quality of life, prevention of health disparities, promotion of small businesses, worker health and safety, prevention of loss of habitat, and appropriate land use planning. Focus and expertise connecting expected social benefits and costs is needed to develop the tools and measures to appropriately and widely evaluate programs, efforts and initiatives. We will look for assistance from other executive agencies such as Department of Housing and Urban Development (HUD), Department of Labor (DOL), Environmental Protection Agency (EPA), Office of Personnel Management (OPM), Office of the Federal Environmental Executive (OFEE) and Office of Management and Budget (OMB) on these measures is requested.

c. Environmental Costs and Benefits

HHS is structured to include environmental compliance and stewardship programs at the major landholding OPDIVs (NIH, CDC, IHS, and FDA) with professional staff to address the high risk aspects and impacts affiliated with biomedical research and the health and medical missions of the Department. The non-landholding OPDIVs have lower risk 'office centric' activities and impacts, and environmental management duties are assigned as collateral duties. Inclusion of environmentally focused subject matter experts in major project planning facilitates the consideration of environmental costs and benefits in the project decision-making process.

The HHS Environmental Program Manager within the Office for Facilities Management and Policy (OFMP) is the Department's subject matter expert who represents HHS at interagency meetings and regularly meets with the Environmental Managers at the OPDIVs to discuss challenges and activities. With the focus on sustainability, the Department is faced with additional challenges and is considering reorganization activities to best meet

these challenges, which include new metrics and the need to initiate strategies, mechanisms and resources to consolidate and streamline compliance with sustainability requirements.

All Operating Divisions in HHS are required to have an Environmental Management System (EMS) in place. The purpose of an EMS is to integrate environmental policies and accountability into day-to-day decision making and long-term planning processes across all agency missions, activities, and functions to reduce the agency's impact on the environment. While HHS cross-functional teams represent subject matter experts in sustainable buildings, energy, electronics stewardship, procurement and transportation and serve to ensure coordination across the programs, specific ROI analyses are not routine products of these collaborative efforts. Current EMS documentation ranks agency projects and initiatives on a relative scale but does not attempt to equate environmental impacts with their expected monetary costs to society. Focus and expertise connecting expected environmentally related benefits and costs is needed to appropriately and widely evaluate programs, efforts and initiatives. Assistance from EPA, OFEE and OMB on these measures is requested.

HHS currently embraces the guidance contained in OMB circular A-4 (http://www.whitehouse.gov/omb/circulars/a004/a-4.pdf) and EPA's *Guidelines for Preparing Economic Analyses* http://yosemite.epa.gov/ee/epa/eed.nsf/webpages/Guidelines.html , on how to conduct cost-benefit analyses when there are environmental impacts.

d. Mission-Specific Costs & Benefits

As part of HHS' health mission, we have data and information about the costs and benefits of various interventions and their effects on health. Health disparities, environmental health, chronic disease, obesity, physical activity, nutrition, cardiovascular health, cancer, vector borne diseases, infectious diseases, clinical treatments, hospital acquired infections, pharmaceuticals, food labeling, preventive health, tribal health, mental health and many other specific services and conditions are our primary business. We have access to data and scientific evidence that is vital in the development of cost models and criteria for health impact evaluation for all federal operations.

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

There are two types of deferred investments in the facilities O&M arena. 'Type A' has minimal to no impact on sustainability goals/performance, yet is still an ROI component; 'Type B' has a direct impact on sustainability goals. Examples of Type A deferred investments would be a section of old piping that is in need of replacement, or bearings that are squealing on a pump. The ROI impact of deferring the repair is a function of scheduled vs. unscheduled outage with associated risk, and costs and planning impacts of break/fix maintenance. The impact and cost is real, but has minimal or no impact with respect to sustainability. Examples of Type B deferred investments (i.e., those with impact on

sustainability) would be air filtration, steam traps, condensate units, strainers and controls. The ROI impact of repair of these items provides additional benefits for energy and/or water consumption, GHG, and other sustainability initiatives.

Type B deferred investments have two components involved in ROI. The more easily quantifiable numbers are the discrete values of the energy, water, or utilities saved and the costs to complete the repair task in question. The more difficult numbers to quantify are the values assigned to improvement in health or the environment as a whole. Since these values provide dual benefits, both economic and human/environmental, a premium presumed economic value should be added to the more common economic values of energy/water savings to maximize these items' ROI. The combined values should be sufficient to have them listed as top priority.

Overall, HHS does not currently calculate ROI for O&M projects. Nevertheless, these projects are prioritized using a scoring matrix that takes into account life/safety, mission and security factors.

f. Climate Change Risk and Vulnerability

The Intergovernmental Panel on Climate Change (IPCC, 2007) concludes that "impacts of climate change will vary regionally but, aggregated and discounted to the present, they are very likely to impose net annual costs which will increase over time as global temperatures increase." The IPCC estimates that for increases in global mean temperature of less than 1-3°C (1.8-5.4°F) above 1990 levels, some places and sectors will see beneficial impacts while others will experience harmful ones. Some low-latitude and polar regions are expected to experience net costs even for small increases in temperature. For increases in temperature greater than 2-3°C (3.6-5.4°F), the IPCC says it is very likely that all regions will experience either declines in net benefits or increases in net costs. "Taken as a whole," the IPCC concludes, "the range of published evidence indicates that the net damage costs of climate change are likely to be significant and to increase over time." USGCRP's assessment on the impact of climate change in the U.S. discusses the following areas and how they will be affected by climate change: health, agriculture and food supply, forests, ecosystems and biodiversity, coastal zones and sea level rise, water resources, energy production and use, public lands and recreation, U.S. regions, polar regions, international, extreme events, and adaptation.

HHS is aware of the dynamic relationship between global climate change and human health and well-being, and is taking a leadership role in efforts to respond and adapt to climate change. In fall 2009, HHS conducted an inventory of activities that are directly and indirectly related to climate change. HHS supports activities in the following areas: research and surveillance; community resiliency; and direct mitigation efforts. Future inventory updates can include assessment of risk and vulnerability to HHS programs and priorities.

HHS has taken steps to identify research needs related to the impact of climate change on human health. In April 2010, an NIH-led interdepartmental work group released a white paper that identified knowledge gaps related to the effects of climate change on health. This effort is expected to spark greater involvement of health scientists in climate change research. Future research, including cost and benefit models, will inform ROI development and refinement.

HHS has also begun to prepare the public health community for the impact of climate change, guided by our expertise in environmental health, infectious disease, and other fields. For example, CDC is facilitating the efforts of federal, state, and local public health agencies to prepare for the impact of climate change on public health.

Within the federal family, HHS leads or participates in a number of interdepartmental activities focused on climate change. Specifically, HHS is co-leading a new subcommittee on climate change and health within the USGCRP. HHS will participate in the USGCRP's next national assessment of climate change and its impacts, which is expected to include vulnerability and risk assessments. HHS is also participating in the Adaptation Task Force led by the Executive Office of the President.

g. Other, as defined by agency

HHS is committed to implementing programs, efforts and initiatives that demonstrate return on investment in every aspect of cost and benefit analysis. For many years, we have focused on specific social, environmental and health benefits. Following are some specific sustainability ROI considerations:

1. A challenge in implementing many sustainability features in building design and construction has been that they are removed during the so called "value engineering" reviews. HHS Value Engineering (VE) policy, HHS Facilities Program Manual (FPM), Volume 1, Section 3-8, requires consideration of life cycle costs, but sustainability features are often considered optional and deleted based on first cost. In addition to life cycle costs, consideration should be given to the indirect costs of not incorporating sustainability on energy, health, and productivity. Sustainability and VE policy will be updated to provide emphasis on life cycle costs; and to define minimum sustainability features and performance levels that are mandatory and cannot be eliminated by VE. We will evaluate the value of setting thresholds for adding features that exceed minimum sustainability requirements if they are cost-effective over the life cycle of the building.
2. It is possible that a carbon cap and trade system will be established before the target date for GHG reductions (2020) occurs. The costs of selling and purchasing carbon credits will positively affect the ROI for building features that reduce use of energy from fossil fuel sources. This will be a potentially significant but as yet undefined variable in ROI calculations.

3. ROI calculations typically focus on returns from energy and water savings. However, potential returns from indoor environmental quality improvements that directly impact health and productivity may be as much as ten times higher. The aforementioned peer reviewed study highlighted in an Institute of Medicine report confirmed the link between Green Buildings and productivity and health. As the Federal steward for health and human services, HHS must lead in researching and documenting these links and their cost implications. We must also be willing to develop our own capital plans in a way that recognizes these links and incorporates them into our own operational systems and environments. We will continue to explore methods to demonstrate the link between health and productivity and cost.

4. During recent drought conditions, an HHS agency designed and retrofitted its facilities with water saving features to help conserve water use and reduce irrigation demands. This strategy helped reduce water use below the regulatory requirements of the time, but this innovation threatens to penalize the agency due to the re-baselining of water reduction targets under EO 13514. Therefore, in the interest of fairness, these projects have been removed from the current reduction percentages mandated by the EO.

5. Due to regional non-compliance with EPA particulate limits, various agency locations have focused on reducing single occupancy vehicle commuting by working with the Clean Air Campaign and other reduction programs. CDC conducted an agency-wide transportation survey to gauge how employees were commuting to work, why those choices were being made, and what assistance CDC could provide to help make more sustainable choices. The survey yielded 6,000 responses that helped to shape agency efforts for a variety of transportation methods including biking, walking, carpooling, vanpooling and the use of public transit and telework. CDC has been recognized by Georgia's Clean Air Campaign as the public sector PACE award winner for its commute programs. CDC continues to promote commute choices through activities such as 'dump the pump' day and informational campaigns regarding vanpooling and the use of public transit. HHS will continue to focus on programs and environments that support reductions in single occupancy vehicle commuting and transportation.

6. In recognition of the fact that laboratories create a great deal of waste, CDC developed a pilot laboratory recycling program in the CDC Meningitis and Vaccine Preventable Diseases Branch (MVPDB) with the goal of diverting autoclavable plastics from landfills and to demonstrate that recycling is feasible in a laboratory setting. A laboratory recycling program is unique in that it must address the needs of hazardous material disposal including safe handling procedures. In accordance with regulations and federal mandates, laboratory equipment such as flasks, pipettes, and other containers that have held hazardous materials must be properly cleansed before they can be recycled. The CDC laboratory recycling program successfully navigated many safety concerns with regard to recycling these laboratory materials. The program serves as a green model for other federal, state, and local labs, and encourages the diversion of more materials from the waste stream. The recycling of animal bedding as compost is currently being studied and evaluated as a possible expansion of this program. Other labs would like to participate in the plastic recycling program and composting, however, organizational

silos with different goals and priorities provide a funding and operational challenge for the widespread expansion of the program. HHS will support the expansion of recycling and composting programs through increased cross-functional goal setting with regard to waste elimination goals.

V. Transparency

Communication and transparency of HHS' sustainability progress and results are key elements of this Plan. Through participation and collaboration, HHS will promote awareness and compliance.

- **Transparency -** The HHS intranet and internet Sustainability websites will be crucial to communicating a clear message to HHS employees and the public regarding how the Department is addressing the issues of sustainability. HHS is establishing a framework that creates goal tracking and progress tracking aimed at fostering accountability.

- **Participation-** HHS will actively promote widespread participation in sustainability efforts by explaining the link between health and sustainability. Partners, neighbors, community and tribal leaders, grantees, contractors and employees must all be engaged in sustainable behaviors and programs in order to meet our health mission. Outside parties will be included in the evaluation of sustainability progress, and will be requested to critique HHS. This could be accomplished through the ability of outside parties to comment and make suggestions on the topics and messages communicated through the internet and intranet websites.

- **Collaboration** – HHS will position itself as both leader and partner in widespread sustainability goals. Working with other agencies, community groups, industry groups, tribal, state and local governments and individuals to promote sustainability goals is a priority for HHS that will be supported with staff and resources. HHS looks to strengthen internal relations, coordination, communication and collaboration through continued use of a Department-wide steering group, various workgroups, and a web portal system for document and information sharing. HHS also looks to strengthen ties outside HHS to include interagency workgroups, panels, online collaboration, and other focus areas.

HHS will use various tools to continuously communicate the message of Sustainability. The list below indicates communication vehicles the agency *may* include in the upcoming years:

Web site – The foundation for communicating Sustainability as well as establishing a method of evaluating and accessing progress will be the HHS intranet and internet web sites. Not only will the internet contain the Plan (in a form that will easily allow the public to track progress and efforts), but it will also facilitate public comment and feedback. HHS will consider creating a centralized Web site to serve as a "one-stop shop" for information on HHS' Sustainability Plan. The site would be modeled after other comprehensive HHS Web sites, like Flu.gov, AIDS.gov, or healthreform.gov and would incorporate a simple mechanism for the public to communicate their ideas to HHS. Public comments provided

through the website will help guide tracking and evaluation activities to ensure they make sense, are logical and are easily understood by non-scientific individuals.

HHS programs – HHS programs will be important vehicles for communicating the sustainability message, especially when dealing with State, local and private entities. Program information posted online will contain appropriate links to the Sustainability plan, progress and specific results. Expectations of program participants will be clearly outlined and tracking measures defined.

Research and surveillance – HHS research and data will be clearly and simply translated into language that the public can easily understand and adopt in their efforts to be more sustainable and healthy. Literature reviews will be conducted and results shared to help the public understand the health effects of sustainability actions. Links between social benefits, environmental benefits, economic benefits and human health benefits will be clearly delineated for public knowledge.

Fact sheets, posters, and pamphlets – Fact sheets will be posted in HHS facilities, creating awareness of sustainability initiatives and highlighting the existence of the website and Plan. Fact sheets, posters and pamphlets will target HHS employees and our day-to-day operations. These materials will be clear and concise, reminding employees about important methods that are already in place with regard to sustainability, and presenting exciting new initiatives.

Point of Decision Prompts – Point of decision prompts have been proven to support behavior change and HHS will make use of signage, instructional signage, stickers and labels in our facilities to help staff understand new sustainability procedures and practices and change their behavior. Menu labeling, recycling stickers, stair use signage and no idling signage are already employed at many locations and will be expanded to assist staff and visitors in making sustainable behavior choices.

Social media – Online video, Facebook, Twitter, Web sites, and blogs such as iVillage.com may be used to promote sustainability. This will be coordinate in accordance to existing HHS policy. For instance, Twitter can be used and updated to track and communicate progress. Several HHS Operating Divisions have already had success with this channel. In addition, blog posts on the new HHS Web site can promote major events in the campaign. The intranet can be used to keep the communication going with HHS employees, partners, grantees, states, and other health stakeholders regarding sustainability.

Policies, Contracts and Agreements – All agreements, contracts, grants, policies, and written documents that represent the way HHS interacts with others shall reflect the sustainability values and goals of the Department. Clear expectations for actions, tracking, analysis and improvement will be outlined in applicable documents and inclusively promote sustainability with all HHS partners.

Office of Sustainability- A centralized HHS Office of Sustainability would facilitate the overall effort of communicating an enterprise message of sustainability. The responsibility to oversee goal tracking and metrics reassessment would also be housed in this central office. This office will serve as the hub of all sustainability communications as well as the facilitator for cross-Department initiatives.

The communication framework for the sustainability initiative has been developed for three major audiences – HHS leadership, HHS employees and the general public.

1. Targeting HHS leadership

Background: HHS is committed to keeping sustainability 'on the radar' of senior leaders across the Department.

Messaging: Messaging to HHS leadership has already begun. The exercise of putting together this Plan has highlighted the complexity and cross-cutting reach of the sustainability initiative. When the HHS 2010 sustainability goals are finalized on June 2, 2010, they will be communicated via the Internet to HHS managers at all levels. We will count on senior leadership to help managers define their individual and program roles and responsibilities to support the initiative. With a centralized office still in the conceptual phase, HHS will rely heavily on line managers engaging in self-study and proactively working with their respective operating division sustainability champions to help meet goals. Particularly, we will look to managers to help incorporate sustainability into policy and procedure documents at all levels – from Department level, to division level, to program level to individual team operating procedures. The critical planning tool outlined in section IV, Table 1 of our plan only scratches the surface of integration needs. As mentioned previously, a major cultural shift is needed. Leaders and managers across HHS must model sustainable behavior and actively promote change at all decision making levels.

Timeline/Frequency of Updates: At least twice per year, we will share our agency sustainability scorecard targets as well as highlight accomplishments in the previous performance cycle. Note that in subsequent years, we do look forward to having one consolidated OMB scorecard for sustainability. HHS will consider setting guidance that requires / recommends that leadership and manager performance plans include a critical element that will ensure meeting appropriate mandates.

2. Targeting HHS employees

Background: HHS is committed to educating and empowering all employees, providing them with tools they can use every day to contribute to sustainability objectives.

Messaging: Messaging to HHS employees will focus on their everyday lives. This includes educational pieces, awareness of policies and directives, and everyday tips for line employees. The goal of this messaging will be awareness, attempting to reach employees at a personal level. Some of the feedback we have received while drafting this Plan is that in the past, some employees have felt that their environmental or health-related efforts were in vain. Our messaging will look to target and disprove the "I am only one person" mentality. To do this, we must show that leadership is engaged, supportive and appreciative of employee 'grass-roots' efforts. Similarly, employees have felt that their environmental or health-related efforts were not supported by management and leadership. Engagement at all levels of the organization is vital to successful behavior change by employees.

One employee messaging venue will be the annual Green Champion recognition program. In a recent White House report on the President's *GreenGov Challenge*, HHS led all other agencies in contributions, submitting 23% of the more than 5,000 greening ideas. In an effort to better show our community what HHS is accomplishing in sustainability—as well as inspire new projects—this year we expanded the Green Champion award categories beyond Energy and Water Management to include Electronic Stewardship, Green Procurement, Sustainable Buildings and Transportation Management. Our goal is to have all HHS operating divisions submit award nominations that recognize their employees and reiterate their support for the sustainability initiative.

Timeline/Frequency of Updates: To keep employees engaged, we plan to provide monthly updates to them. HHS is also planning to incorporate a feedback loop where the public can interact with HHS employees, asking questions and making recommendations. HHS will consider setting guidance that requires / recommends that staff performance plans include a critical element that will ensure meeting appropriate mandates.

3. Targeting the General Public:

Background: HHS is committed to fully informing the public regarding its sustainability initiatives. The specific challenge when communicating with the public will be in presenting relevant information in a meaningful way.

Messaging: For 2010, HHS plans to publicize key milestones and goals established in this Plan, in addition to highlighting past accomplishments and future challenges. Metrics are likely to be communicated via a user-friendly, easily understood dashboard format. HHS is also planning to incorporate a feedback loop where the public can comment, ask questions and make recommendations.

Timeline/Frequency of Messaging: We commit to update the public at least annually. As we continue to develop our structure moving forward, we will look for opportunities to more actively engage with the public.

Performance Review and Annual Update

I. Summary of Accomplishments
II. Goal Performance Review

Section 2

I. Summary of Accomplishments

In the past year, HHS has made great strides in realizing its sustainability goals, most notably in the areas of green contract language—which has a bearing for *all* program areas—and fleet management. Some specific examples and initiatives are described below, based on the five basic goals described in Section I of this Plan. On June 10, 2010, HHS honors thirteen "Green Champions" for their outstanding achievements in FY09. Specific accomplishments will be posted at www.hhs.gov after the event.

Reducing Emissions

- The transportation management program focused its efforts on purchasing alternative-fuel/fuel-efficient vehicles while concurrently working to right-size the Department's entire fleet. Using American Recovery and Reinvestment Act (ARRA) funding, HHS gained more than 120 low-carbon-emitting vehicles. This initiative contributed to NIH exceeding their greenhouse gas (GHG) reduction goal for their fleet operations at the Bethesda, MD, campus. HHS is also moving toward making alternative fuel more available to such vehicles by retrofitting the NIH campuses in Bethesda and Poolesville, MD, to dispense E85. The Department's reduction efforts also culminated in a 29.6% reduction in petroleum use in 2009 (compared with 2008).

Conserving Resources

- After bringing on two procurement analysts to manage green initiatives, the procurement program has made great strides in both outreach/education as well as in green contract language. In 2009, the program rolled out an updated Affirmative Procurement Plan (APP), which laid out more stringent requirements for green purchasing and provided a wealth of resources that contract specialists, from office purchase cardholders to administrative-level officials across the Department, could use in both micro-purchasing and large-quantity acquisitions. Furthermore, they continued implementing green product and/or service requirements into contracts at the headquarters level (for Department-wide and OS-level actions), and their outreach efforts were realized in green language included in contracts at the OPDIVs as well. To support this effort, they also lobbied the HHS acquisitions data management system (DCIS) committee and were successful in adding green categorization elements to the system, which will boost green procurement tracking efforts. The acquisitions program also developed a checklist for and conducted three environmental reviews of contracts at three different OPDIV facilities in the Washington, DC, area in late 2009. Moving forward, the program will incorporate EO 13514 requirements into the APP and will promote these elements at an upcoming HHS-wide acquisitions symposium in May 2010.

- During a two-year process ending in September 2009, the NIH Library's Facility Team renovated and updated the NIH Library's Reading Room, created a new training room facility, redesigned offices and transformed the eye-level cement rooftop into a vegetative roof/green terrace. In all phases of the renovation and construction, the Facility Team promoted, educated and recommended vendors who had LEED certification, listed their products as recyclable, had a strong recycling program, shipped their products using recyclable materials and those who were located within 500 miles of the Bethesda campus.

Protecting and Promoting Human and Environmental Health

- After noting that a large volume of expanded polystyrene foam (EPS)—in the form of packaging materials—was entering the waste stream at its main campus, CDC purchased two Styrocyclers and placed them at locations where EPS was commonly stored and discarded. The Styrocycler compresses the EPS into blocks which are then recycled to create new EPS products, resulting in a closed-loop material cycle. Preliminary data from the CDC warehouse (where one Styrocycler is housed) demonstrate savings, including a halving of the number of dumpster pick-ups (resulting in savings of more than $4,000 within 4 months of purchase). Furthermore, the Styrocyclers have eliminated the need for removing computer packaging in a separate facility, thereby reducing commuting costs.

- CDC developed a procedure that would autoclave and sterilize the plastics found in lab equipment, so that they would no longer pose a biosafety threat to the waste stream and could be recycled. The program leaders worked with Emory Recycles partners to ensure that the recycling vendor would accept and be able to recycle the materials. A set of operating procedures was developed for the program, and it was successfully piloted in laboratories across CDC.

Maximizing Return on Investment

- One of the most notable accomplishments for the fleet management program is the completion of an electronic motor vehicle management information system (MVMIS), which will not only ease but also improve data collection across a department whose employees are widely dispersed across the 50 states and overseas. Initiation of this system, which is scheduled by the end of June 2010, will help the program develop specific performance metrics for its Scope 1 goals, as well as target areas in which GHG reductions can be easily realized.

- FDA has implemented a $14 million utility energy service contract (UESC) project with Washington Gas, with a payback period of 12 years, while experiencing no increase in its utility budget. Energy conservation projects performed under the Washington Gas/FDA partnership include the installation of more efficient steam sterilizers, water

reuse, upgraded fixtures, conversion of constant air volume handling systems to variable air volume operations, boiler replacements, pipe and valve insulation, installation of variable frequency drives on pumps, installation of occupancy sensors and solar projects.

Leading and Engaging the Community

- Comprising efforts in waste management and Environmental Management Systems (EMSs), the environmental program worked closely with the Office of the Environmental Executive in 2009 to more practically realign its existing EMSs and to supplement its overall EMS structure by introducing a higher-tier EMS at the Department level. In late 2009, HHS successfully completed the higher-tier EMS and rolled out a multi-site pilot EMS at the HHS Headquarters. HHS also worked with IHS—a highly decentralized agency, both geographically and administratively—to assist in that OPDIV's transition to a more streamlined EMS structure (comprising five organizational EMSs at each of the five IHS regional offices). One of the most repeated "best management practice" that the OPDIVs identified was the inclusion of green elements in their management's performance plans—the higher up, the more effective.

- The HHS Headquarters building in Washington, DC, inaugurated a "green" cafeteria with healthier menu choices and biodegradable food service items, eliminating the use of all Styrofoam products. To achieve this, the Environmental Manager developed a preliminary questionnaire for patrons, to quantify their response to likely price change, and used the feedback as justification for the inevitable costs of the more expensive—but more environmentally friendly—food service options. The Environmental Manager also worked with the vendor to provide a discount to patrons using refillable mugs, and the cafeteria vendor eventually also provided reusable plastic trays, to discourage the use of single-use disposable trays.

II. Goal Performance Review

GOAL 1: Scope 1 & 2 Greenhouse Gas Reduction

a. Goal Description

1. Emissions from Facilities: HHS will reduce its total scope 1 (stationary sources) & 2 greenhouse gas (GHG) emissions by 10.4% by 2020 through a combination of energy reduction efforts and the use of renewable energy. This reduction equates to a 22.9% reduction in energy intensity per square foot.

The overall 10.4% reduction goal is based on the assumption that our projected increase in facility space is currently in the portfolio while simultaneously decreasing energy consumption, resulting in a per Gross Square Foot (GSF) GHG sustained level. The actual total GHG reduction is 0% by 2020 (no change in emissions from our FY08 baseline year). By achieving this goal, HHS will be able to maintain current service output while reducing its average per-square-foot carbon impact. This is based on a projected increase in new space of 16.1% over the FY08 reportable space of 31,944,400 GSF. By OPDIV we expect the following changes in reportable space:

    NIH   0.5 M GSF
    CDC   1.4 M GSF
    IHS   3.5 M GSF

The changes in GHG emissions assume all HHS projected increases in square footage between 2010 and 2020 would be 30% more efficient on average than the OPDIVs 2008 baseline. For example, IHS is expected to add 3.5 M GSF new space. If their current average use is around 200,000 Btu/GSF/year, their new facilities energy use would be around 140,000 Btu/GSF/year with the inclusion of the 3.5 M GSF additional space.

Additional assumptions used to establish the goal broken down by OPDIV include:

- OS – Will reduce energy consumption by ½ the amount identified in the September 2008 audit.
  - PSC – No further reductions are anticipated.
- NIH – Energy and fuel use will be reduced an additional 4% and the campus will grow by 500,000 GSF.
- CDC – Supplied an internal spreadsheet showing a decrease in energy intensity and a 1.4 M GSF increase in space.

- IHS – Assumes a reduction in overall energy use of 25,000 mmBtu/year and a 3.5 M GSF increase in space.
- FDA – Expects a 20% decrease in energy use over their 2003 baseline.

HHS building utility consumption varies from year to year because the factors that cause different utility usage change as well. These factors include facility growth, equipment power use, weather fluctuations, patient load, HHS employee headcount fluctuations, mission changes, and emergency response operations. HHS is projecting an overall 22.9 % reduction in energy intensity by 2020 over the 2003 baseline.

2. Fleet Emissions: HHS is projecting a 3% reduction in scope 1 (mobile sources) GHG emissions (using FY08 as the baseline) by 2020. This number will be adjusted based on actual experience during the performance cycle 2010 through 2020. HHS will continue to make progress towards this goal by:

1)   Reducing petroleum use in fleet vehicles.
2)   Increasing use of alternative fuels in fleet AFVs.
3)   Optimize use of vehicles and right-size fleet.
4)   Increasing use of low emission and high fuel economy vehicles.

3. Fugitive Emissions: Currently HHS has not set goals for reducing fugitive emissions although we are in compliance with the requirements of the Clean Air Act.

b. Agency Lead

Overall Lead: **Assistant Secretary for Administration (ASA)**
Sub Goal Leads:
1. **Emissions from Facilities:** Assistant Secretary for Administration (ASA)/Office for Facilities Management and Policy (OFMP)
2. **Fleet Emissions:** Assistant Secretary for Administration (ASA)/Program Support Center (PSC)
3. **Fugitive Emissions:** Lead has not yet been identified

c. Implementation Methods

1**. Emissions from Facilities:** HHS will continue to reduce scope 1 (stationary sources) & 2 emissions by continuing with the well established programs described below:

- HHS has had a Department-wide energy program since 1994. The program consists of a combination of awareness, energy reduction strategies through audits of existing buildings and utility analysis. Design reviews are conducted at the OPDIV level to insure all new construction conforms to the statutory requirements. Section 3-3,

Volume 2 of the HHS Facilities Program Manuals contains more details of the program.

- HHS will continue to increase the use of non-polluting renewable energy sources.
- Multi-year agreements with different power suppliers are used to purchase renewable energy credits.
- Technical assistance for the HHS Operating Divisions (OPDIVs) on all energy and water conservation projects;
- Administrative, policy, and technical support to OPDIVs in meeting the requirements of EPAct 05, EOs 13423 & 13514, EISA and all other laws and regulations;
- Energy and water efficiency training (including Renewable Energy) for our component Energy Coordinators, acquisition personnel, engineers, building managers, and other employees and contractors involved in energy and water conservation;
- HHS Environmental, Energy and Water Management Awards Programs; Major awareness events for Earth Day and Energy Awareness Month;
- Promotion and facilitation of renewable energy, water conservation, and alternative financing projects;
- Employee energy and water conservation awareness newsletters; Biannual energy managers' technical newsletters;
- OPDIV energy measurement charts and scorecards;
- The Department has established Environmental Management Systems (EMS) at the appropriate facilities and negotiated with OFEE for the implementation of a Higher Tier EMS for headquarters and an additional multi-site organizational EMS for non-landholding OPDIVS and Regional Offices. Energy and transportation representatives are members of the EMS team. The expansion of the EMS supports sustainability goals in many ways including formation and coordination of green teams, training, outreach and awareness initiatives.

Most of the actual energy saving programs are implemented in the field. The current energy management function located in the central office provides technical support and Department-wide reporting only.

The most significant training gaps to achieving improved sustainability in the department include:
- Operations and maintenance personnel – personnel should be trained on better sustainable practices, such as decreasing energy usage during evening hours
- Occupants – awareness training needs to be provided to occupants of Department buildings so that they can better align their activities with sustainability efforts

The sustainable buildings program and electronic stewardship significantly impacts the overall energy use in the Department. Implementation of these programs will help reduce the energy intensity in the facilities.

2. Fleet Emissions: Continue the acquisition strategy of obtaining alternative fueled vehicles while simultaneously decreasing gasoline powered (carbon based units in the fleet).

"Right-size" the HHS fleet. Continue the current program initiative designed to formalize and implement an HHS nationwide Vehicle Allocation Method (VAM). This will be accomplished by continuing an existing partnership with the National Renewable Energy Laboratory (NREL) for an automated VAM system model.

Improve Fleet Management training, promotions and awards.

Lobby for universal road symbols to identify "alternative fuel", e.g., use bio-based fuel with plant symbol.

3. Fugitive Emissions: Clean Air Act (CAA) compliance with stratospheric ozone protection, as well as, overall environmental compliance is managed independently at each of the applicable OPDIVS (landholders) through dedicated environmental and engineering staff. At the Department level, guidance and requirements (including CAA) are contained in the HHS General Administration Manual Environmental (GAM) Part 30-00 through 30-90. Additional guidance and requirements to limit or eliminate the use of ozone depleting compounds are addressed in the "Affirmative Procurement Plan, Purchasing Environmentally Preferable Products and Services at the U.S. Department of Health and Human Services, 2007" and the "Department of Health and Human Services Sustainable Building Plan, 2008".

d. Planning Table:

	SCOPE 1&2 GHG TARGET	Unit	FY 10	FY 11	FY 12	FY 13	FY 14	FY 15	FY 16	....	FY 20
Buildings	Energy Intensity Reduction Goals (BTU/SF reduced from FY03 base year)	%	15%	18%	21%	24%	27%	30%	hold	....	hold
	Planned Energy Intensity Reduction (BTU/SF reduced from FY03 base year)	%	5.9	7.6	9.3	11.0	12.7	14.4	16.1	.....	22.9
	Renewable Electricity Goals (Percent of electricity from renewable sources)	%	5%	5%	5%	7.5%	hold	hold	hold	hold	hold
	Planned Renewable Electricity Use (Percent of electricity from renewable sources)	%	5.0	5.0	5.0	7.5	hold	hold	hold	hold	hold
Fleet	Petroleum Use Reduction Targets (Percent reduction from FY05 base year)	%	10%	12%	14%	16%	18%	20%	22%	....	30%
	Planned Petroleum Use Reduction (Percent reduction from FY05 base year)	%	29.6	30.0	30.0	30.0	30.0	30.0	30.0	.....	30.0
	Alt. Fuel Use in Fleet AFV Target (% increase from FY05 base year)	%	61%	77%	95%	114%	136%	159%	hold	.....	hold
	Planned Alt. Fuel Use in Fleet AFV (% increase from FY05 base year)	%	115	124	133	141	150	159	hold	.....	hold
	Other, as defined by agency	?									
	Scope 1 & 2 - Reduction Target (reduced from FY08 base year)	%	1.2	2.3	3.5	4.6	5.8	6.9	8.1	9.2	10.4

e. Agency Status:

Existing Programs/Initiatives:

In FY09, the HHS Energy Program was strengthened by:
- Targeted training on renewable energy in energy intensive facilities;
- Integration of the energy awards program with an environmental awards program;
- Using the Energy Star Benchmarking tool and the Labs21 benchmarking;
- Coordinating and reviewing green power procurement;
- Promoting renewable energy applications and enhancing renewable energy outreach materials for the OPDIVs;
- Coordinating energy management training for OPDIV sites;
- Developing a guidance document on re-commissioning and energy efficient operations and maintenance;
- Distributing several memorandums from the HHS Senior Energy Official on pertinent energy and/or water topics.
- HHS has a baseline Greenhouse Gas Inventory program to capture all scope 1 & 2 emissions except for fugitive emissions
- The NIH has developed the first inventory listing of High Global Warming (GWP) and Ozone Depleting Substances (ODS) that have specific uses in biomedical applications, the magnitude of their non-fugitive emissions and information on less damaging alternatives. While the amounts of these substances used in biomedical applications and released to the environment tend to be small relative to carbon dioxide emissions from other sources many of them are persistent and have extremely high GWP and ODS factors relative to carbon dioxide. The inventory information will be useful in development of Scope 1 and 3 estimates of non-fugitive emissions and reduction strategies for the biomedical research and health care sectors.
- In FY09 HHS acquired 107 alternate fuel and/or high efficiency (mpg) configured vehicles. This represented 2.43 % of the HHS fleet using American Recovery and Reinvestment Act (ARRA) resources. (Macro fleet size = 4,395 units).
- In FY10, HHS also acquired an additional 169 Ford Fusion Hybrid units. Now the combined current total of alternatively configured/greater efficiency (mpg) vehicle count is 276 units or roughly 6.28% of the entire fleet.
- By 2015, the HHS alternative configured fleet profile will be 1,375 units (or 31.28%) and
- By 2020, the HHS alternative fuel configured vehicle profile will reach 1,924 or approximately 44% of the entire fleet.
- Transportation management has been included in the awards program
- Incorporation of transportation and energy aspects in the Environmental Management System
- The National Institutes of Health has been actively working with DOE, EPA, the World Resources Institute (WRI) and other stakeholders in The Greenhouse Protocol Initiative to develop the Public Sector Standard (PSS), a protocol for greenhouse gas accounting by government agencies. In 2009, these activities included a first "Road Test"

application and testing of the draft PSS using the main NIH Campus at Bethesda, Maryland as a model.   Following completion of the Road Test, the NIH released test data and provided extensive comments on performance the draft PSS to assist the Initiative in refining the protocol. Data from the Road Test was also extrapolated to develop a GHG emissions estimate and reduction target for all NIH facilities. Lessons learned from the Road Test may be applied to development of the comprehensive assessment of emissions due in January 2011.

Potential Challenges/Issues:

- A large percentage of the HHS overall energy usage is dedicated to laboratory environments where safety considerations preclude many common reduction strategies. A significant percentage of the total energy demand of our facilities is associated with process loads and specialized laboratory and health care equipment. These uses may not be subject to energy reduction requirements and in many cases energy efficient models of this equipment have not been developed or rated by Energy Star to identify products for preferential procurement.
- Much of the "low hanging fruit" has been completed. Multiple resetting of the baseline year for comparison has resulted in previous improvements not being reflected in current reports. Most remaining proposed projects have poor LCCA results. In addition, the costs associated with carbon emissions must be considered in cost effectiveness calculations. Metrics and methods for estimating these costs are not available and will be determined by pending climate change legislation. There are few opportunities on HHS held assets to achieve significant carbon sequestration.
- There is no provision to adjust GHG reporting based on square footage. Even if efficiency improves an increase in building space operated will offset reductions in GHG generation intensity and could lead to an overall increase in absolute emissions.
- Tracking and reporting of high GWP chemicals that are fugitive Scope I emissions presents a challenge since only select compounds are currently being tracked.
- An emergency response incident could easily wipe out any savings. For example, running generators to continue operations in the event of an extended power outage, or long periods of extended hours of operation as seen in the H1N1 response. One would also expect increased transportation costs in this scenario.
- Renewable energy costs are significantly higher than fossil fuel generated energy. Renewable energy resources of sufficient capacity to meet the needs of areas such as Washington DC where large facilities are concentrated are not available or planned.

GOAL 2: Scope 3 Greenhouse Gas Reduction

a. Goal description

HHS has set a scope 3 reduction target of 3.3% by FY20. The following are FY20 reduction targets for the subcategories:

- 7.5% for transmission and distribution (T&D) losses from purchased electricity
- 1% for federal employee travel
- 14.5% for contract waste and wastewater treatment

b. Agency lead for goal

Assistant Secretary for Administration (ASA)

c. Implementation methods

The Department has established Environmental Management Systems (EMS) to identify, plan and track environment related improvements throughout all operations. Reducing Scope 3 Greenhouse Gases is the responsibility of every single employee who travels, commutes, or disposes of waste in any operational units across the Department with special responsibility for the systems for transportation, energy and waste management by human resources, transportation, facilities and health and safety professionals. Each of these disparate groups will implement programs, educational efforts, policy improvements and organizational structures and systems to improve the environment and culture that effects transportation, energy and waste disposal choices. The EMS supports sustainability goals through focused planning, improvement and tracking activities which may include the formation and coordination of green teams, training, outreach, and awareness initiatives. The following will identify and describe the method for implementation of the cost, schedule, and performance towards achieving the scope 3 subcategory reduction targets.

I. **T&D losses from purchased electricity**: The reduction of electrical T&D losses will closely mirror the reduction of scope 2 emissions attributed to purchased electricity. HHS numbers vary from year to year because the factors of influence are constantly changing. These factors include facility growth, equipment power use, the weather, patient load, fluctuations in the number of HHS employees, mission changes and emergency response operations.

Of all the assessed scope 3 T&D losses reduction methods considered, increasing the use of renewable energy is the only measurable way HHS can currently project a reduction in scope 3 T&D losses. The goal is to meet the statutory requirements of the Energy Policy

Act of 2005 (EPAct 2005) reflected in the table. HHS plans to meet the scope 3 T&D reduction targets through the purchase of renewable energy. This aligns with the scope 1&2 implementation method described earlier.

HHS plans to explore the following strategies to reduce scope 3 emissions from T&D losses and:

1. Reducing electrical energy use will proportionally reduce electrical T&D losses;
2. Reducing the distribution distance by selecting power sources closer to the point of use or utilizing on-site power generation;
3. Selecting sources that have more efficient transmission and distribution systems (e.g., Smart Grid, two-way flow and communication);
4. Increasing use of non-polluting renewable energy and/or low pollution sources (such as wind) where losses have minimal impact on GHG emissions.

II. **Federal employee travel:** Federal employee commuting constitutes 97% of the emissions for this category. While 1% reductions in business air and ground travel will reduce emissions, HHS must reduce the number of daily commuters as well as increase the use of public transportation to achieve a 1% reduction in mtCO2e (Metric Ton Carbon Dioxide Equivalent, standard measure for the amount of CO2 emissions reduced or secluded from our environment). The reduction target is based on increasing participation in the Transhare public transportation subsidy program by 2%; encouraging steady increases in teleworking and alternative schedule options for eligible employees; and substituting teleconferencing and live virtual meetings for in-person meetings, when practical.

Increasing the percentage of Teleworking employees promotes the goals of the EO in several ways. Telework reduces the vehicle miles traveled which reduces pollutants in our air, soil and water which can be harmful to human health. Typical commuting causes employee stress and decreases the amount of time employees can devote to other healthy activities such as physical activity, planning and preparing healthy meals and developing social capital by spending time with family or in the community. Widespread telework coupled with office sharing and swing space can reduce overall facilities costs in rents, waste removal, waste-water treatment and energy use. In order to meet this reduction target in FY20, HHS plans to exceed the standards set forth by the Telework Improvement Act of 2009, HR-1722, that requires agencies to authorize employees to telework as much as possible without harming operations or performance, and permit employees to telework at least 20 percent of the hours worked in every two-week period. HHS' current telework policy aligns with HR-1722. Currently, 14% of HHS employees' telework 20% of the hours worked in a pay period. Establishing either a goal for increasing the total number of teleworkers or increasing the telework percentage from 20% to 40% would motivate managers to promote the program with their own staff. Only by increasing participation significantly can HHS begin to take advantage of the operational efficiencies of office sharing and swing space. At current levels, benefits still

accrue to employees but are not widespread enough to constitute significant operational cultural change with respect to space and energy savings. This provides HHS with an opportunity to maximize the use of telework as a means to make significant reductions in employee commuting emissions while simultaneously helping meet employee health and stress reduction goals and reducing operational costs. A process is in place to collect data on employee participation in telework and alternate work schedule programs. In the future, HHS will align data collection processes for this category with EMS.

Teleconferencing, file sharing, videoconferencing and interactive web infrastructure is currently inadequate to meet the meeting and collaboration needs of the Department. Investments in this infrastructure will allow fewer face-to-face meeting to be required in order for communication and data exchange to take place.

III. **Contracted waste and wastewater treatment:** Contributing factors to the achievement of Scope 3 Green House Gas Reduction goals include:

- The above emission calculation,

- The above listed reduction target

- Implementation programs described in Goal 7 Pollution Prevention and Water Minimization and Goal 9 Electronic Stewardship and Data Centers sections.

The total emissions for this category are 18,806.796 mtCO2e and the overall reduction target for FY20 is 14.5%. In order to meet this reduction target, HHS will increase recycling rates and decrease waste generation through sustainable practices such as reducing paper consumption by double side printing, promoting printing only when necessary and increased emphasis on the use of paperless office procedures, electronic documents for conferences, and electronic records technology. As part of the sustainability effort, HHS will seek to consolidate and improve the data collection, tracking, and trending systems for all waste management systems. HHS has already created a draft report that itemizes all types of waste and operational units are evaluating the systems in place and needed to consistently account for and report these metrics. HHS efforts at measuring and reporting waste data could be improved by interagency discussion including GSA, EPA and OFEE at a minimum and the development of standard guidance on measurement and collection.

IV. **Other, as defined by Agency:** HHS is not reporting additional Scope 3 emissions at this time.

V. **Discuss any planned agency activity or policy implementation to improve data accuracy and overall data collection and analysis methods related to Scope 3 GHG emissions:** Currently, individual operational divisions are collecting different portions of the needed

data in various disconnected systems using different methods of measurement and analysis.

d. Planning Table

SCOPE 3 GHG TARGET	Units[i]	FY 10	FY 11	FY 12	FY 13	FY 14	….	FY 20
Overall Agency Scope 3 Reduction Target (reduced from FY08 base year)[ii]	%	0.5	1	1.5	2	2.5		3.3
Sub-Target for Federal Employee Travel	%	0.1	0.1	0.2	0.3	0.4	….	1.0
Sub-Target for Contracted Waste Disposal	%	5	6	7	8	9	….	15
Sub-Target for Transmission and Distribution Losses from Purchased Energy	%	5	5	5	7.5	7.5	….	7.5
Other, as defined by agency	%	0	0	0	0	0	….	0

e. Agency status

HHS has a number of programs and initiatives throughout the Department that reduce scope 3 emissions while promoting health. For example, alternatives to driving cars such as use of mass transportation are encouraged and subsidized through the Department's robust Transhare subsidy program. Approximately 19% of HHS employees receive this subsidy and use public transportation. The NIH and CDC have commuter clubs that encourage walking and bike riding, which are more than alternate forms of transportation; they are steps to healthier lives. The NIH currently has 1,000 (5%) employees that bike or walk to work. Decreases in the Scope 3 emissions are not the only health benefits of alternative transportation. Walking and bike riding are both effective forms of exercise, which helps to prevent overweight and obesity, as well as the health associated conditions such as diabetes and cardiovascular disease. Transit riders have been shown to get additional physical activity during their commute by walking or riding to transit locations and between modes of transit. Decreasing exposure to heavy traffic and long commutes may also contribute to mental wellbeing, especially when the alternative involves walking, biking in green outdoor settings or other relaxing activities such as reading or meditating while riding a train or bus. Furthermore, taking vehicles off the roads through telework programs, flexible schedules, transit subsidies, rideshare incentives and infrastructure support for biking and walking all reduce the amount of pollutants in our air and that has a drastic impact on respiratory health as well as cardiovascular health. Lastly, many offices within HHS have recycling and energy efficiency programs that not only conserve limited resources so that they can be used where most needed, but reduce the overall consumption of materials and limit the

amount of waste. The Program Support Center recycles nearly half of its disposed solid waste and the NIH recycles one-third.

GOAL 3: Develop and Maintain Agency Comprehensive Greenhouse Gas Inventory

The CDC and NIH are spearheading the development and maintenance of the comprehensive GHG inventory for HHS. We have been actively working with Department of Energy, Environmental Protection Agency, the World Resources Institute (WRI) and other stakeholders in the Greenhouse Protocol Initiative to develop the Public Sector Standard (PSS), a protocol for greenhouse gas accounting by government agencies. In 2009, these activities included a first "Road Test" application and testing of the draft PSS using the main NIH Campus at Bethesda, Maryland as a model. Following completion of the Road Test, the NIH released test data and provided extensive comments on performance the draft PSS to assist the Initiative in refining the protocol. Data from the Road Test also was extrapolated to develop a GHG emissions estimate and reduction target for all NIH facilities. Lessons learned from the Road Test may be applied to development of the comprehensive assessment of emissions due in January 2011.

In addition, the NIH has developed the first inventory listing of High Global Warming (GWP) and Ozone Depleting Substances (ODS) that have specific uses in biomedical applications, the magnitude of their non-fugitive emissions and information on less damaging alternatives. While the amounts of these substances used in biomedical applications and released to the environment tend to be small relative to carbon dioxide emissions from other sources many of them are persistent and have extremely high GWP and ODS factors relative to carbon dioxide. The inventory information will be useful in development of Scope 1 and 3 estimates of non-fugitive emissions and reduction strategies for HHS as well as the biomedical research and health care sectors.

GOAL 4: High-Performance Sustainable Design / Green Buildings

a. Goal Description

The largest environmental impacts from HHS mission activities are associated with site selection, construction and operation of building assets. Subsequent to signing the Memorandum of Understanding (MOU) for High Performance and Sustainable Buildings in January 2006, HHS issued the Facilities Program Manual, Volume 1, which included a section referencing the MOU and guidance for incorporating sustainable design into HHS buildings. The Department issued its formal HHS Policy for Sustainable and High Performance Buildings in September 2006. The policy was followed by the initial Sustainable Buildings Implementation Plan (SBIP) in December 2006. The latest update of the plan was issued in December 2008 and reflected the Interagency Sustainability Working Group (ISWG) Technical Guidance dated December 1, 2008. The annual review and update in December 2009 was delayed to allow coordination with the pending HHS Strategic Sustainability Performance Plan required by the new E.O. 13514. Attainment of the goals and targets in the SBIP will significantly reduce energy, water and materials use, greenhouse gas emissions and waste generation, which are additional goals of this plan. HHS is committed to reducing GHG emissions through improving the performance of our buildings. Additionally, meeting the indoor environmental quality (IEQ) criteria of the Guiding Principles for Sustainable Buildings will improve the health, well being and productivity of occupants, which supports the health-sustainability policy statement of the plan. Each sub-goal below includes a description of current SBIP targets and/or focus along with gaps the Department intends to address concurrent with the 2010 update of the SBIP.

(a) Beginning in FY20, all new Federal buildings are designed to achieve zero-net energy by FY30. The current SBIP requires compliance with EISA 2007 including Section 433 to reduce by 100% overall fossil fuel-generated energy consumption in new buildings and major renovations by 2030. The definition of zero-net energy buildings is not included in the current HHS SBIP. The 2010 update will include the definition of zero-net energy buildings; and interim targets (based on EISA) for increasing level of energy efficiency and fossil fuel-generated energy reductions. The initial focus will be for all new construction projects to maximize energy efficiency, to include on-site renewable energy and/or to purchase Green-e certified power. New construction projects are defined as federally-owned buildings or build-to-suit-leases on which planning is initiated after June 2, 2010. HHS is in the process of assessing its existing facilities for sustainability including the capacity to generate on-site renewable energy. As assessments are completed, HHS will establish targets for existing buildings consistent with GHG reduction goals. HHS has identified several gaps that we will need to address as we develop specific milestones: 1) at this time not all areas

of the country may have access to sufficient quantities of zero carbon emissions generated power, either in the form of source or technology; 2) ability of federal sector to participate in cap-and-trade may impact project economics; 3) the O&M impact to maintain renewable energy systems has not been quantified; 4) there is a lack of sustainable technology and space to generate sufficient quantities of renewable energy on-site for operation of high-energy intensive laboratories and health care facilities; and 5) return on investment (ROI) for available renewable energy technology has been a challenge in geographic areas with relatively low costs for non-renewable energy sources.

(b)   All new construction, major renovation or repair and alteration of federal buildings complies with, "Guiding Principles for Federal Leadership in High Performance and Sustainable Buildings (Guiding Principles)."   The current SBIP requires compliance with the Guiding Principles on all new construction, improvement, repair and maintenance projects. Construction and improvement projects with a total project value equal to or greater than $10 million; and improvement projects impacting 40% or more of the overall floor area are also required to obtain a third party certification through a green building standard or rating system developed by an ANSI-accredited organization. Some HHS components have defined within their AE design guidance the minimum LEED credits required and equivalent to the Guiding Principles. All requests for waivers to any specific sustainability requirement of a Guiding Principle based on life-cycle costs, operational feasibility or technical application, are submitted with the project documentation to the Senior Real Property Officer (SRPO) for consideration. The rationale for exclusion of specific sustainability measures must be submitted in writing and include detailed information on the specifics as to why the measure cannot be achieved. The HHS SBIP update will include more detailed language on the waiver process.

(c)   At least 15% of agency's existing buildings and building leases meet Guiding Principles by FY15 [5,000 GSF threshold for existing buildings and building leases]. The current HHS SBIP requires that by 2015, 15% of the HHS building inventory is in compliance with the Guiding Principles and 100% of all buildings will be assessed against the Guiding Principles. In terms of its existing inventory, HHS has focused on incorporating the Guiding Principles into larger, more complex facilities with the potential for the greatest environmental impact. The SBIP identifies as the priority buildings in the HHS existing inventory for incorporation of the Guiding Principles will be owned assets 5,000 square feet or more, excluding housing units. Annually HHS updates its baseline inventory for measuring compliance based on the latest upload to the Federal Real Property Profile (FRPP); and updates the Exhibit I.B.2 to reflect assessment and compliance milestones. Progress is tracked by both square footage and number of buildings.   HHS identified two gaps that create challenges: 1) measuring performance based on number of buildings versus square footage; and 2) limited new construction opportunities to fully incorporate the Guiding Principles being completed by FY15. HHS anticipates goals will be met on the basis of total square footage, but will not be met based on total number of buildings. The current

HHS SBIP needs to be updated to reflect the current baseline (as defined by OMB) as all owned and direct leased buildings over 5,000 square feet; and Exhibit I.B.2 modified accordingly.

(d) Demonstrate annual progress toward 100% conformance with Guiding Principles for entire building inventory. The current HHS SBIP defines milestones for compliance of the baseline inventory as well as entire inventory (based on FRPP). As noted above Exhibit I.B.2 will be updated to reflect the current baseline inventory as defined by OMB. Milestones will need to be updated to reflect long term strategy once all existing facilities have been assessed for compliance with the Guiding Principles. HHS has identified that there are certain types of facilities that we will aim to achieve substantial compliance with the Guiding Principles, but may never achieve 100% compliance: 1) historic properties; and 2) certain laboratories. There are also certain situations where waivers from specific sustainable elements may be necessary for other mission related reasons, for example daylighting in radiology suites. As noted above, current HHS policy allows waivers on a case-by-case basis.

(e) Demonstrate use of cost-effective, innovative building strategies to minimize energy, water and materials consumption. HHS policy demonstrates cost-effective, innovative building strategies to minimize energy, water and material consumption through sustainable design practices and requirements. HHS policy mandates the use of an integrated project team (IPT) which establishes performance goals in accordance with the MOU in regards to energy, water and material use reduction. Performance goals aligned with the Guiding Principles are captured in a Sustainable Buildings Checklist, Exhibit II.B.1 (for Projects) and Exhibit II.B.2 (for Lease Actions) of the HHS SBIP. The goals must be consistent with the requirements of EPAct 2005, Executive Orders 13423 and 13514, and EISA 2007. As part of the HHS SBIP update, the Sustainable Building Checklists will be updated to reflect the requirements of E.O. 13514, including capturing innovative building strategies where applicable.

With decreasing budgets and mandates to reduce energy and water consumption, HHS encourages all OPDIVs to consider the use of Utility Energy Service Contracts (UESCs) and Energy Savings Performance Contracts (ESPCs) as a cost effective and innovative building strategy for energy and water reduction projects. Both methods allow agencies to enter into procurements without the need of direct appropriations. In times of limited funding this type of contracting allows HHS greater flexibility in developing energy conservation, water conservation and renewable energy projects, while assisting the agency in meeting the energy reduction goals.

(f) Manage existing building systems to reduce energy, water and materials consumption in a manner that achieves a net reduction in agency deferred maintenance costs. It is the policy of the HHS to reduce the consumption of energy, water, and materials through the sustainable management and maintenance of existing buildings systems. To ensure the benefits of sustainability carry-on throughout the life-cycle of the facility, HHS has provided guidance on *Operations and Maintenance (O&M) Sustainability Practices* for buildings and *Integration of Sustainable*

Practices into Environmental Management Systems (EMS) within its SBIP. Incorporated into the HHS SBIP is an O&M Checklist, Exhibit III.A.1, for Facility Managers to use in assessing sustainable practices. The checklist evaluates O&M practices against the Guiding Principles and Industry 'Best Practices'; and it assists field personnel in assessing and/or improving their practices or those of their O&M contractors. As part of the HHS SBIP update, greater emphasis will be placed on integration of O&M practices and EMS into to ensure alignment with E.O. 13514.

Several 'Best Management Practices' (BMPs) in operations and maintenance include performance-based contracting at the Hubert H. Humphrey Building, predictive testing and inspection at the NIH Bethesda campus and the use of lap tops for automatic control functions by maintenance personnel at CDC NIOSH-Cincinnati campus.

HHS is also committed to alternatives to renovation that reduce existing assets' deferred maintenance costs, through the implementation of sustainable maintenance of the building systems. HHS encourages the implementation of Reliability Centered Maintenance (RCM) concepts and programs to increase the probability of facility components functioning across their designed life cycle with the minimum of maintenance. This is summarized in HHS Facilities Program Manual, Volume 2, Section 4-8. HHS is considering development of an HHS-wide system Sustainable Maintenance Policy and Annual Sustainable Maintenance Assessment report. This policy would reinforce the current HHS guidance on prompt and timely preventative maintenance procedures and on renovation and/or recapitalization to reduce maintenance and mechanical failures. It would be the intent of this policy to minimize the replacement of equipment and items and extend the productive lifespan of those products, resulting in reduced operational costs and environmental impacts. The Annual Maintenance Assessment report would capture the levels and progress to which we are successfully performing the maintenance in our buildings. The assessment report could include a scoring index, detailing rates of both ongoing maintenance (OM) and preventative maintenance (PM).

The consequences of a large BMAR, besides poor facility condition, are high equipment failure rates and higher energy and water consumption rates. Examples of these include:

- Dirty filters or inadequate motor bearing lubrication result in higher energy use of a supply air fan motor
- Jumped out controls require manual operation instead of the more efficient automatic operational mode
- A leaking roof causes insulation to get wet and lose its insulating value
- Valves and piping systems leak due to lack of maintenance

While it is generally understood a large BMAR drives up energy and maintenance costs, it is very difficult to accurately quantify these costs.

(g)   Optimize performance of the agency's real property portfolio – examine opportunities to decrease environmental impact through consolidation, reuse and disposal of existing assets prior to adding new assets. HHS policy (HHS Facilities Program Manual, Volume 2, Chapter 5) requires consideration of opportunities to decrease environmental impacts through consolidation, reuse and/or disposal in lieu of constructing new assets. Each HHS component performs the necessary planning to determine the most effective means to reduce environmental impacts through the use of various tools such as: master planning, project development studies, economic analysis, housing plans, real property surveys, building condition assessments, business plans, sustainability assessments, as well as the Performance Assessment Tool. HHS has a screening process for real property assets being considered for disposal to determine if other agency needs can be met through reuse of the asset. (IHS assets.) A reference to the existing policy will be added to the 2010 update of the SBIP to emphasize consideration of opportunities to reduce environmental impacts.

(h)   Ensure use of best practices and technology in rehabilitation of historic Federal properties. HHS policy (HHS Facilities Program Manual, Volume 1, Section 3-3) mandates the requirements set forth in the National Historic Preservation Act (NHPA) and Executive Order 13287, Preserve America. HHS applies these regulations to all federal undertakings including construction, renovation, repair, grant and leasing programs. In addition, the HHS policy provides guidance on real property disposal (HHS Facilities Program Manual, Volume 2, Section 5-1), which includes adaptive reuse and the evaluation of disposal properties for HHS reuse. HHS integrates the Guiding Principles into historic properties where possible, provided the modifications meet the Secretary of Interior's Standards for the Treatment of Historic Properties (and Rehabilitation), 36 CFR 68 and 36 CFR 67 respectively. A reference to the existing policy will be added to the 2010 update of the SBIP to emphasize adaptive reuse, where appropriate.

One commonly utilized process for integrating sustainability into historic buildings is by retrofitting facilities with more efficient equipment and by retrofitting in a manner that does not alter the historic nature of the facility. Examples would be the lighting retrofit of Hubert H. Humphrey Building and the renovation of Building 3 at the NIH Bethesda Campus.

National Environmental Policy Act (NEPA) policy and procedures are established in the HHS General Administrative Manual (GAM) Part 30 and additional guidance is contained in the HHS Facilities Program Manual, Volume 1, Section 3-2. The HHS SBIP requires NEPA compliance documentation during project planning and NEPA review is a best management practice and standard tool when conducting facility Master Planning efforts. With the Department's commitment to the SBIP, incorporation of

sustainability in environmental assessments and impact statements can be a mitigating factor in the determination of a selected or preferred alternative.

Both the Indian Health Service (IHS) and the National Institutes of Health (NIH) have promulgated supplemental NEPA procedures. The Agency for Children and Families (ACF) has programmatic environmental assessment procedures governing Head Start and related construction grant programs and the Health Resources and Services Administration (HRSA) is developing NEPA procedures to provide programmatic coverage for grant programs.

In addition to the 8 sub-goals above included under the High Performance Sustainable Design, other sub-goals are or will be included in the HHS Sustainable Buildings Implementation Plan: 6(b) Reduce industrial, landscaping, and agricultural water use by at least 20% by FY20; 6(d) Achieve objectives established by EPA in Stormwater Guidance for Federal Facilities; and 7(c) <u>Divert at least 50% C&D materials and debris by 2015</u>.

6(b)   <u>Reduce industrial, landscaping, and agricultural water use by at least 20% by FY20</u>. The current HHS SBIP requires all new construction and major renovation products to set targets for reducing water use by a minimum of 20%. Similar reductions for existing facilities are also required by the Guiding Principles for Existing Buildings and for certification under the LEED® for Existing Buildings Operation + Maintenance (EBOM) program.

HHS has identified the following gaps that need to be considered in developing milestones for reductions in industrial and landscaping water use: 1) existing health care facilities with landscaping amenities may result in a negative health impact if deleted, strategy could be replacement with rainwater capture system; 2) separate metering is currently not available to track outdoor versus indoor water use; 3) need to determine baselines, but cannot create projections back until after metering is in place; and 4) reuse of water has potential treatment requirements that must be considered.

There are no significant agricultural uses of water at HHS facilities and some major facilities do not irrigate landscaping. For the remaining uses HHS faces several obstacles in meeting these requirements and demonstrating compliance on an agency wide basis. To establish baseline usage and track progress in meeting quantitative reduction targets water used for industrial and landscaping purposes must be metered and monitored separately from other uses. In virtually all HHS facilities these uses occur within buildings or are supplied by building water systems and separate metering is not available. Improving rates of water recycling and reuse may require development of new distribution and treatment systems in existing facilities, which may not be feasible or cost effective. In some cases, limitations of current treatment technology, cross connection concerns and regulatory restrictions may prevent installation of recycling and reuse

systems. Where the life cycle cost effectiveness or water availability concerns justify expenditures for such systems, UESCs or other similar mechanisms will be considered for funding submetering, system installation and operation.

Development and implementation of leak detection and repair programs will be a primary method used by HHS to meet the intent and reduction requirements. Most HHS facilities do not have robust leak detection and repair programs. HHS will update O&M policy to address. Even in municipal systems with well established programs losses of water from distribution systems typically are in the range of 10-20%. In systems lacking such programs leakage rates may significantly exceed this range. With implementation of effective programs and the application of new technologies for leak detection losses can be reduced to less than 10%, a reduction in water use potentially exceeding the 20% reduction target.

6(d) Achieve objectives established by EPA in Stormwater Guidance for Federal Facilities. Green infrastructure and low impact development are the major tenets for compliance with EISA Section 438. The current HHS SBIP requires compliance with EISA 2007 and is proactive in addressing stormwater management as a compliance requirement under the Guiding Principles. The HHS SBIP addresses landscaping and irrigation strategies, as well the employment of design and construction strategies that reduce stormwater runoff and polluted site water runoff. While EISA 2007 is cited in the current SBIP, the technical guidance on implementing EISA Section 438 was not issued until December 2009. The full EPA guidance will be incorporated by reference in the 2010 update of the SBIP. The Sustainable Buildings Checklists and the Existing Building Assessment Tool will also be updated to reflect the technical Guidance.

Construction projects are also required to comply with requirements of the National Pollutant Discharge Elimination System (NPDES) storm water management. This compliance includes the application of Best Management Practices (BMPs) and Low Impact Development (LID) strategies for both sediment and erosion control during construction and post construction stormwater management. The CDC, NIH, and IHS among others represent progressive application of BMPs and LID strategies and include monitoring of adjacent streams when applicable. Other features include green roofs, retention ponds, bio-filters, underground storage, cisterns, rain garden, reforestation, open grid paving (pervious), vegetated buffers, impervious area conversion to green space, open channel swales, overland sheet flow methods (e.g. curbless streets) and tree box filters, storm interceptors and a variety of other pre-manufactured stormwater management devices.

7(c) Divert at least 50% C&D materials and debris by 2015. The current HHS SBIP requires all new construction and major renovation products to set targets for reducing generation of C&D materials and debris by a minimum of 50%. Similar

reductions for C&D waste generation at existing facilities are required for certification under the LEED® for Existing Buildings Operation + Maintenance (LEED-EBOM) program and the Guiding Principles for Existing Buildings. Some major HHS facilities are already significantly exceeding the 50% reduction requirement. These include the main campus of the NIH at Bethesda, which currently recycles more than 95% of C&D materials and waste.

There are several impediments to meeting the reduction requirements on a HHS-wide basis. Waste accounting systems vary among the facilities. Smaller components and leased facilities do not collect and account for C&D materials and debris separately from other waste streams. As a consequence no generation baselines are available for many facilities and it is not possible to track progress in meeting goals. Some components of HHS, particularly the IHS also have many facilities located in isolated areas where transportation and processing systems and markets for recycling of C&D wastes are limited, unavailable or uneconomical. At laboratory and health care facilities it is critical to ensure that C&D materials offered for recycling are not contaminated with hazardous substances. The lack of such rapid screening procedures for contaminants in debris and standards for free release of materials has reduced the amount of materials that can be recycled.

Improved waste segregation and accounting systems are currently being developed by HHS to meet the requirements of LEED certification and tracking compliance with the Guiding Principles and other greenhouse gas and waste reduction mandates. Further reductions in C&D generation will be attained as current waste management contracts expire and are replaced with new contracts requiring C&D waste accounting and greater diversion of materials to recycling. Implementation of decommissioning and sustainable deconstruction processes developed by NIH across HHS will also facilitate the assessment and sorting of debris, and release of more materials for recycling.

b.   Agency lead for goal

Assistant Secretary for Administration (ASA)/Office for Facilities Management and Policy (OFMP)

c.   Implementation methods

All HHS components as a minimum are following the current HHS SBIP. As referenced in Agency Status, some components have key programs, initiatives or other efforts they are undertaking beyond the requirements within the Guiding Principles and the Executive Orders. The primary focus in implementing the HHS Sustainable Buildings Program is owned buildings; and although direct leases are also being assessed to determine the appropriateness of implementing sustainable practices. With the exception of 3 direct leases for HRSA; all other owned and direct leased buildings are

managed by the landholding Operating Divisions: CDC, FDA, IHS, and NIH. Under the current SBIP Exhibit IV.A.1 is used to semi-annually capture the status of implementation of the Guiding Principles into the programs of these four Operating Divisions. Most of our direct leases are smaller facilities in remote locations leased directly from Tribes to support the delivery of healthcare services for Native Americans and Alaska Natives. Implementation on individual projects is captured in a formal Sustainable Building Checklist as part of the project documentation. A similar checklist was developed for Lease Actions; but on lease actions we accomplish through GSA we have been unable to secure a completed checklist and accurately categorize the sustainability status of these buildings. HHS also developed an assessment tool for existing buildings and a scoring matrix to assist in prioritizing buildings for incorporating the Guiding Principles. The Department's Higher Tier and multi-site organizational and facility EMS integrates cross-functional team representation from subject matter experts in sustainable buildings, energy, electronics stewardship, procurement and transportation and serves to ensure coordination across the programs.   HHS also incorporates multi-site organizational and facility EMS at the Headquarters and across the OPDIVS.   The EMS serves to bolster existing and identify and promote new sustainability initiatives. The HHS SBIP describes the HHS EMS structure and incorporates the EMS development goals, targets and controls in the project planning and completion checklists.

Implementation of Sustainable Buildings within the landholding Operating Divisions: CDC continues to implement a High Performance Sustainable Buildings program supported by the CDC Design and Construction Standards and the CDC Sustainable Design Policy. The CDC Sustainable Design Policy, at a minimum, incorporates the requirements of the MOU, EISA, EPAct 2005, E.O. 13423, E.O. 13514 and is structured to include sustainable buildings policy and regulatory requirements, sustainable buildings design and construction criteria as well as sustainable buildings operations and management criteria. The High Performance Sustainable Buildings program is implemented from master planning, pre-project planning through design, construction, operations, decommissioning and disposal. All design and construction projects are assigned an integrated project team and are reviewed by the Sustainable Buildings Coordinator. All projects meeting HHS thresholds complete HHS Exhibit II.B.1 "Sustainable Buildings Checklist for Projects" at project planning and end of construction.

The 2007 IHS AE Design Guide includes a new Sustainability Chapter organized to correspond with the Guiding Principles. LEED Certification is required and specific credits that are aligned with the Guiding Principles are identified as the highest priority. Non-compliance with these specific credits requires substantial written justification based upon initial and life-cycle costs. A 2010 update will be issued this year with clarified guidance for solar water heating, on-site renewable energy, and fossil fuel reduction strategies. Also, a Technical Handbook Chapter broadly addressing sustainability implementation in New Construction, Existing Facilities, and Leased Facilities is in final draft form and will be issued this year.

NIH has incorporated the Guiding Principles into its new NIH Design Requirements Manual (DRM). A newly revised NIH Guidance Manual for New Construction, which provides guidance on meeting the Guiding Principles, has also been released. Training is being developed on the NIH Guidance Manual for Existing Buildings, which will be released later this year. Future guidance manuals will be developed for Leased Facilities and Grant Funded Facilities. NIH commissioning requirements for laboratories and vivaria have been revised and published. Commissioning requirements have been integrated into the updated DRM. NIH has also created a commissioning committee, to oversee and verify the commissioning process for the larger projects. This team will assist the project officers in insuring that the projects are properly commissioned, and that the process is verified and documented. This team will also assist the project officers on the smaller projects as needed. NIH has implemented a utility data analysis system to gather, sort, and meter the utilities usage for each building. This system accrues information from the building's utility meters to determine measured energy use baselines, as well as measuring future energy usage to compare against the buildings baseline. This system has just been commissioned to verify the accuracy of the utility data. The NIH will be utilizing the EPA Energy Star database program, Portfolio Manager, to assist with tracking the progress of meeting the Guiding Principles. In addition, all NIH buildings that meet the EPA defined criteria to utilize the EPA Energy Star benchmarking tool and scoring system, will apply for an Energy Star score. For NIH facilities that do not qualify for an Energy Star score due to the building type and function, an alternate baseline for energy use intensity data will be compiled using the Labs21 benchmarking toolkit and data in the GIS database. The NIH GIS database is still being developed in phases, with some features of the database currently in operations.

In addition to updating the current SBIP to reflect the EO 13514 requirements and address gaps in the plan or policy as noted above under the individual goals, HHS has determined the following next steps are needed:

- Evaluate specific milestones by sub-goal. Milestones for sub-goal 4(c) are established through 2015 based on priority buildings, but until assessments of the existing inventory are complete, development of a plan to incorporate sustainability into the remaining inventory, sub-goal 4(d,) will be difficult. The feasibility of incorporating the Guiding Principles in each and every building will most likely require a combined strategy for recapitalization and replacement of older, less efficient facilities.

- Consider as a strategy consolidation to improve overall sustainability such as when we have multiple small, old and inefficient buildings that could be replaced with a single sustainable building.

- Consider the viability of an inter-Operating Division project for developing renewable energy.

- Evaluate some means or tools to capture progress in implementing individual goals and milestones (by building).

- Develop training and communications plan to support Sustainable Buildings Program including 1) for O&M staff on sustainable practices; 2) for occupants to increase awareness, link to EMS, and encourage incentives for reduced energy, and water use; 3) to develop expertise in managing technologically complex systems.

- There is also a need for more risk-based analysis (research) and reevaluating current standards and practice, such as air change requirements. Scientists often drive higher standards when they may not be required. The application of reduced standards, when compatible with health, safety, environmental and research requirements may result in significant reductions in energy and water use intensity.

d.   Planning table

SUSTAINABLE HIGH PERFORMANCE BUILDINGS (Buildings Meeting Guiding Principles)	Units	FY 10	FY 11	FY 12	FY 13	FY 14	FY 15
Owned Facilities Targets	%	3%	4%	10%	16%	19%	23%
Leased Facilities Targets	%	0	0	0	0	0	0
Total Facility Targets	%	3%	4%	10%	16%	19%	23%
Other, as defined by agency	0	0	0	0	0	0	0

Targets are calculated on the adjusted 2015 baseline inventory of 610 assets totaling 32,314,792 square feet. HHS currently projects 37 assets (6%) totaling 7,749,721 square feet (23%) will meet the Guiding Principles as defined in the Technical Guidance issued December 1, 2008. If calculations are based on the number of buildings incorporating the Guiding Principles by 2015, HHS cannot achieve the goal based on construction funding. Annually HHS evaluates the baseline inventory based on the most recent EOY upload to the FRPP and adjusts the baseline inventory as appropriate.

e. Agency status

HHS semi-annually captures and reports performance in implementation of the Guiding Principles into its inventory through update of SBIP Exhibits IV.A.1 *Current Status of Implementation with Landholding OPDIVs* and IV.B.1 *HHS Sustainable Buildings Program Progress Report*. Annually the baseline inventory is evaluated to capture the most

current data after the FRPP upload (SBIP Exhibit I.B.1 *HHS Summary of Owned and Leased Buildings*).

Planned programs, efforts and initiatives within HHS components to achieve agency targets:
CDC continues to implement a High Performance Sustainable Buildings design and construction program supported by a third party green building certification program. Larger capital projects meeting the HHS threshold limits are certified by an ANSI approved green building certification system. CDC currently has three U.S. Green Building Council (USGBC) LEED certified buildings in its inventory and two additional building projects registered with the goal of LEED certification. CDC's LEED certified buildings include one silver certified building and two gold certified buildings which includes Building 110, one of the first laboratory buildings to achieve LEED gold certification in the HHS inventory. The CDC Buildings and Facilities Office continues to increase the number of personnel with green building professional credentials to include at present 10 LEED AP professional credential holders. CDC currently exceeds the 15% target for building inventory meeting the Guiding Principles of the MOU by 2015, with 19.4 % in compliance to date. CDC chose to focus its efforts on building square feet instead of numbers of buildings, due to the large size of its facilities and the overall impacted results in sustainability, energy and water conservation. In other words, focus on square feet has allowed for: greater returns on investment; savings in energy and water consumption; reduction of greenhouse gases; and health benefits. CDC continues to meet the EISA and E.O. 13423 energy and water conservation targets. CDC is ahead of schedule with the existing building assessments with over 50% of its owned inventory assessed. Each building is evaluated to determine the level of performance in meeting the Guiding Principles of the MOU and in accordance with HHS Exhibit II.C.1 "Existing Building Assessment Tool". Strong emphasis on energy and water conservation potential has been placed on the assessments due to increasing energy and water conservation challenges required by EISA, E.O. 13423 and 13514. Project lists generated by the assessments are incorporated into the annual business plans for implementation. The assessment projects are prioritized by implementation time, the ROI, and health benefits for the building occupants. An analysis of potential on-site renewable energy systems and incorporation of innovative building strategies is included as part of the existing building assessments.

FDA has aggressively implemented the use of UESC projects to complete energy conservation projects and at the same time significantly reduce the backlog of deferred maintenance. To date FDA has entered into two (2) UESCs, one (1) at their Muirkirk Road Complex in Laurel, MD and another (Direct Leased Facility) in Atlanta, GA, with a total project value of $15.2M and a reduction in BMAR of $1.6M. The Muirkirk UESC has an estimated, combined energy and water cost savings of $1.4M annually. FDA is in the process of initiating a Phase II UESC at Muirkirk with an estimated project value of $2.0M and projected Energy and Water Savings of $358,091 within a five and a half year period. FDA is also initiating another UESC at their Pacific Laboratory and District Office, located

in Irvine CA. Total project value energy savings are not known, however the emphasis will be on the installation of renewable energy, specifically, Photovoltaic's. FDA has assessed all of its existing inventory 5,000 sf or more, and the remaining buildings ill be assessed by the end of 2011.

IHS has three health centers underway that are designed to achieve LEED certification. Construction has started on the Kayenta Health Center in Arizona; the building has been designed to achieve a LEED Silver certification. Design is complete on the Ft. Yuma Health Center in California and construction is pending funding; the building has been designed to achieve a LEED certification. Phoenix Indian Medical Center – Southeast Ambulatory Care Center is in schematic design and is being designed to achieve a LEED certification. Completion of all 3 projects by 2015 is subject to availability of construction funding.

Using the alternate route for demonstrating compliance with sustainability requirements allowed by the ISWG Technical Guidance, in September 2008 NIH registered 36 existing buildings under the USGBC's Existing Building Operations and Maintenance (EBOM) certification system. These buildings comprise 6,698,368 gross square feet or about 73% of the total built space of NIH owned buildings. The registered buildings are now being assessed for compliance with the Guiding Principles and to determine current and potential LEED EBOM certification credits that could be obtained by planned sustainability improvements. This process will take approximately two years. Data from the assessments will be used to prioritize improvements and compare the utility and effectiveness of the Guiding Principles and third party certification systems in meeting sustainability objectives.

One of the challenges in implementing the alternate third party certification strategy is differences between GP and LEED sustainability criteria require all buildings to be assessed and scored under both systems. This adds assessment costs and complexity. Another challenge is the total time required for attaining certification may be lengthened because of the performance periods required to obtain some credits and it may be very difficult to meet energy prerequisites in some building types with high energy requirements.   At this time certification systems for laboratories are not currently available. NIH is working with the USGBC on improving the LEED EBOM system and its applications to laboratories.

HHS is an advocate with GSA for smart design and construction of buildings to create healthy and productive work environments for Federal tenants in our leased facilities. Our ongoing challenge is we have been unsuccessful in incorporating more sustainable building features than what is currently in typical GSA lease solicitations and capitol building upgrades. However, we do occupy a number of leased buildings with either Energy Star or LEED ratings.

Most significant is the GSA development of the new consolidated FDA Headquarters on the White Oak campus in Silver Spring, MD. The adaptation of the historic Building One

on the White Oak campus is the first renovation project in the National Capital Region to achieve a LEED Gold-NC certification.   Originally designed to meet the requirements of LEED Silver, through collaboration with the design and construction team, the project achieved LEED Gold at no additional cost. Many of the new and renovated buildings on the White Oak campus have been designed to achieve LEED Silver or Gold ratings. In other locations, ASPR has space in Patriots Plaza II in Washington, DC that was recently certified LEED Gold (Core and Shell). The HHS Regional Office in San Francisco, CA is located in the new Federal Building completed in 2007 that was certified as LEED Silver and specifically emphasized Indoor Environmental Quality. The building incorporates high-efficiency mechanical systems to reduce energy consumption and state of the art computerized Building Automation System (BAS). This controls and monitors all of the building's mechanical equipment including devices that are used to maintain internal environmental conditions and lighting levels. Lighting is typically the largest energy cost for an office building; in the San Francisco Federal Building 85 percent of the workspace is illuminated with natural light.

In addition to responsibility for our Regional Offices, PSC has been delegated responsibility for building operations and lease administration in two Energy Star rated buildings: the PSC Warehouse, Gaithersburg, MD, and the Parklawn Office Building, Rockville, MD. The HHS Regional Office in New York is located in the Jacob K. Javits Federal Building an Energy Star building, as well as the HHS Regional Office in Seattle, WA located in the Blanchard Plaza. ASPR and CDC are also located in the Patriots Plaza I in Washington, DC, which achieved an Energy Star rating in 2009; and SAMHSA's Headquarters in Rockville, MD also achieved an Energy Star rating in 2009.

There are a number of GSA funded ARRA Projects currently underway at CMS Main Campus in Woodlawn, MD:
- Installation of solar photovoltaic cells on roof – on a sunny day the cells will generate approximately 1 megawatt, roughly equivalent to 20% of CMS' peak electrical demand. This renewable energy source reduces greenhouse gas emissions
- Lighting Retrofit – T5 high output ballast 24 watts results in a lighting load projection of approximately 0.5 megawatt, reducing lighting load by roughly 44%.
- Replacement of less efficient heating and cooling equipment – eliminates ozone depleting refrigerants in accordance with EPA protocol; and reduces energy needed for air conditioning equipment at CMS by 25 to 40% depending on weather and building load conditions.

In addition CMS has expanded their recycling program to include glass and plastic bottles, aluminum cans, paper and cardboard. In 2009, CMS recycled 244 lbs of glass and plastic bottles, 15 tons of aluminum cans, 231 tons of paper and 34 tons of cardboard. The CMS Café has also eliminated the use of styrofoam products and introduced eco-friendly products and practices which minimize trash, discourage waste and provide biodegradable packaging.

HHS components also incorporate sustainable building practices into extramural construction grant programs. For example, HRSA provides grant financing to Community Health Centers and other Health Facilities for projects involving construction, renovation and equipment purchase. As part of the application process, HRSA strongly encourages green/sustainable design and purchase practices. Grant guidance references the USGBC LEED building rating system, as well as the Green Guide for Health Care. Applicants are further encouraged to employ the standards established by either the Electronic Product Environmental Assessment Tool (EPEAT) or Energy Star in their procurement of equipment. Design costs relating to green/sustainable design practices are allowable costs in these programs.

GOAL 5: Regional and Local Planning

a. Goal description

HHS will advance regional and local integrated planning goals by:
1. Participating in regional transportation planning and recognizing existing community transportation infrastructure when locating space for its operations;
2. Working with GSA and EPA in aligning HHS policies and outreach to increase the effectiveness of local planning for energy choices such as locally generated renewable energy;
3. Working with GSA and EPA in ensuring that planning for new Federal facilities or new leases includes consideration of sites that are pedestrian friendly, near existing employment centers, and accessible to public transit, and emphasizes existing central cities and, in rural communities, existing or planned town centers, in accordance with all applicable statutes, regulations and policies.;
4. Identifying and analyzing impacts from energy usage and alternative energy sources in all Environmental Impact Statements and Environmental Assessments for proposals for new or expanded Federal facilities under the National Environmental Policy Act of 1969, as amended (42 U.S.C. 4321 *et seq.*); and
5. Coordinating with regional programs for Federal, State, tribal, and local ecosystem, watershed, and environmental management.

b. Agency lead for goal

Assistant Secretary for Administration (ASA) and Office of Intergovernmental Affairs (IGA)

c. Implementation methods

1. The Program Support Center (PSC) will work with other HHS transhare providers to enhance the promotional program targeted to increasing Transhare enrollment. Percentage increase goals will be established in each region and OPDIV, resulting in measurable outcomes. Where community transportation infrastructure is not conducive to Transhare, program focus would shift to promoting alternative work arrangements such as teleworking. The promotional campaign would include posters, emails, websites, etc. that would both educate managers and employees and encourage enrollment. Costs are expected to be minimal for promotional materials.

2. Regional Directors will develop a region-wide network of Sustainability minded community groups and organizations to promote the commitment HHS is making to this interest and the obvious health benefits associated with the program. IGA will

work with the OPDIVs and OFMP to establish training for regional office leadership, as well as standard talking points and best practices to facilitate HHS relationships with local and state entities.

3. Headquarters (OFMP) will provide guidance to OPDIVs regarding sustainability requirements to be included in Government-owned and leased space contracts. They will also continue efforts with GSA to ensure HHS lease requirements are implemented.

4. Headquarters (OFMP) will continue to track OPDIV and STAFFDIV performance in incorporating sustainable building requirements through the Automated Real Property Inventory Database (ARIS), which includes leased facilities. An assessment of all HHS owned and direct leased facilities in projected to be complete by FY 2015, which will help inform strategic sustainability planning.

5. The agency will explore options to integrate the Federal Executive Boards, Excellence In Government activities, and HHS Sustainability awards programs to better capture success and best practices in the regions.

d. Planning table

PSC would have the current funding levels for each agency and regional office. Once Agency funding levels and employee enrollment numbers are clear, a minimum 2% increase of enrollment would be proposed by each region. Transhare is distributed quarterly and enrollment tracking would follow the dates.

Once the HHS Sustainability Plan is approved, briefing Regional Directors on the elements will occur along with goals and strategies to promote the plan within Regions. Linking of the Sustainability Plan to the HHS Mission will be stressed throughout.

Generating Regional lease listings by renewal dates is the next step. Generating a letter of intent that explains the HHS Sustainability Plan and the *sustainability clause* targeted at building owners managed by GSA or PSC will also occur. Developing a 10 year timeline for all GSA and PSC managed buildings to comply as leases are renewed or established will follow.

Costs relative to the Environmental Impact Statements and Environmental Assessments required under the National Environmental Policy Act (NEPA) are unknown in the Regional Offices. Year 1 will focus on the standards and will identify measurements necessary to meet them in the Regions. Should the Regional HHS offices be located in a federal building it is strongly suggested that the various Departments and agencies partner to address the Goal.

Regional Executive Officers will meet with local FEB leadership to see what steps are necessary to have the Healthy-Sustainability Award established. Since eligibility would be open to all federal Agencies/employees, general Headquarters' support might be necessary.

e.   Agency status

The focus of sub goal a) is to promote alternative commuting options to employees and/or to reduce GHG emissions relating to commuting. Currently, there are tracking tools in place for PCS to monitor the Transhare enrollments. In order to create a robust telework program, the support of central offices is needed to directly link telework to the Sustainability Plan.

Sub goal b) would be a new initiative for Regional Directors and be included on their HHS Performance Plans. Regional Directors would seek opportunities to leverage their leadership in order to positively affect community energy saving goals.

Sub goal c) would require GSA and PSC to develop the sustainability clause and to work with RAMs in the regional offices to modify the process.
Executive Officers will plan to discuss this at the next Conference call. Executive Officers will also investigate establishing a Sustainability Committee within the FEB that would support the Best Practices action described in Goal 4.

GOAL 6: Water Use Efficiency and Management

a. Goal Description

Potable Water Use

EO 13514 requires federal agencies to reduce potable water use intensity by at least 26% by FY20. HHS is projecting a 5.7% reduction in potable water use intensity by 2020. This shortfall is largely due to the 2007 baseline year since most of our potable water reduction efforts took place prior to FY07. In addition, some of our reported numbers are still calculated since our potable water is not 100 % metered.

Industrial/Agricultural Water Use

EO 13514 requires federal agencies to reduce industrial/agricultural water use intensity by at least 20% by FY20. HHS is projecting a 5.7% reduction in industrial/agricultural water use intensity by 2020. The HHS reduction estimates are based on two assumptions; 1) HHS uses very little or no water for agricultural use and 2) almost all industrial water use (if not all) is from a potable water source which is typically managed by the OPDIV energy coordinator. This shortfall is largely due to the 2007 baseline year since most of our potable water reduction efforts took place prior to FY07.

Storm Water Reduction

EISA Section 438 requires federal agencies to develop and redevelop facilities with a foot print that exceeds 5000 SF in a manner that maintains or restores the pre-development site hydrology to the maximum extent technically feasible. This can be accomplished one of two ways:

Option 1 (retaining the 95th percentile rainfall event) calls upon site designers to design, construct, and maintain stormwater management practices that manage rainfall on-site, and prevent the off-site discharge of stormwater from all rainfall events less than or equal to the 95th percentile rainfall event.

Option 2 (site-specific hydrologic analysis) provides site designers with a process to design, construct, and maintain stormwater management practices using a site-specific hydrologic analysis to determine pre-development runoff conditions instead of using the estimated volume approach of Option 1. Under Option 2, pre-development hydrology would be determined based on site-specific conditions and local meteorology by using continuous simulation modeling techniques, published data, studies, or other established tools.

The current HHS SBIP requires compliance with EISA 2007 and is proactive in addressing stormwater management as a compliance requirement under the Guiding Principles. The HHS SBIP addresses landscaping and irrigation strategies, as well the employment of design and construction strategies that reduce stormwater runoff and polluted site water runoff.

b. Agency Lead

Assistant Secretary for Administration (ASA)/Office for Facilities Management and Policy (OFMP)

c. Implementation Methods

Potable Water

HHS has three major water projects on the horizon: NIH is planning to implement two projects that would save an additional 105 million gallons at the central plant in 2011/2012 time frame and OS is planning to install low flow urinals in 2011. All other planned water efficiency projects will be small by comparison. As noted earlier, most of the HHS potable water reduction efforts occurred prior to 2007 and additional potable water savings are not expected to exceed 500,000 gallons/year.

Additional efforts include:
- By attempting to meet the requirements of Section 432 of EISA, HHS will be conducting audits of all covered facilities every 4 years.
- HHS is sponsoring water efficiency training before the end of FY10.
- HHS is working on leak detection guidance.

The water efficiency goals are reiterated in the Sustainable Buildings Implementation Plan and the HHS Facilities Program Manual Volume II, Section 3-3. The HHS Environmental Management Systems support water efficiency and other sustainability goals in a variety of ways, including formation and coordination of green teams, training, outreach and awareness initiatives.

Industrial/Agricultural Water Use

There are no significant agricultural uses of water at HHS facilities and as a standard practice, most major facilities do not irrigate mature landscaping. For the remaining uses HHS faces several obstacles in meeting these requirements and demonstrating compliance on an agency wide basis. To establish baseline usage and track progress in meeting quantitative reduction targets water used for industrial and landscaping purposes must be metered and monitored separately from other uses. In virtually all HHS facilities these uses occur within buildings or are supplied by building water systems and separate metering is not available. Improving rates of water recycling and reuse may require development of new distribution and treatment systems in existing facilities, which may not be feasible or

cost effective. In some cases, limitations of current treatment technology, cross connection concerns and regulatory restrictions may prevent installation of recycling and reuse systems. Where the life cycle cost effectiveness or water availability concerns justify expenditures for such systems, UESCs or other similar mechanisms will be considered for funding submetering, system installation and operation.

Development and implementation of leak detection and repair programs will be a primary method used by HHS to meet the intent and reduction requirements. Most HHS facilities do not have robust leak detection and repair programs. HHS will update O&M policy to address. Even in municipal systems with well established programs losses of water from distribution systems typically are in the range of 10-20%. In systems lacking such programs leakage rates may significantly exceed this range. With implementation of effective programs and the application of new technologies for leak detection losses can be reduced to less than 10%, a reduction in water use potentially exceeding the 20% reduction target.

Storm Water Reduction

While EISA 2007 is cited in the current SBIP, the technical guidance on implementing EISA Section 438 was not issued until December 2009. The full EPA guidance will be incorporated by reference in the 2010 update of the SBIP. The Sustainable Buildings Checklists and the Existing Building Assessment Tool will also be updated to reflect the technical Guidance. Construction projects are also required to comply with requirements of the National Pollutant Discharge Elimination System (NPDES) storm water management. This compliance includes the application of Best Management Practices (BMPs) and Low Impact Development (LID) strategies for both sediment and erosion control during construction and post construction stormwater management. The CDC and NIH among others represent progressive application of BMPs and LID strategies and include monitoring of adjacent streams when applicable. Other features include green roofs, retention ponds, bio-filters, underground storage, cisterns, rain garden, reforestation, open grid paving (pervious), vegetated buffers, impervious area conversion to green space, open channel swales, overland sheet flow methods (e.g. curbless streets) and tree box filters, storm interceptors and a variety of other pre-manufactured stormwater management devices.

d. Planning Table:

WATER USE EFFICIENCY & MGMT	Units	FY10	FY11	FY12	FY13	FY14	FY15	….	FY20
Potable Water Reduction Targets (gal/SF reduced from FY07 base year)	%	6%	8%	10%	12%	14%	16%	….	26%
Planned Potable Water Reduction (gal/SF reduced from FY07 base year)	%	0.0	1.1	5.4	5.4	5.4	5.5	….	5.7
Industrial, Landscaping, and Agricultural Water Reduction Targets (gal reduced from FY10 base year)	%	-	2%	4%	6%	8%	10%	….	20%
Planned Industrial, Landscaping, and Agricultural Water Reduction (gal reduced from FY10 base year)	%	0.0	1.1	5.4	5.4	5.4	5.5	….	5.7
Other, as defined by agency	?								

Table notes:
1. NIH, PSC and FDA retrofitted almost all indoor fixtures prior to the baseline year (2007).
2. Leveraged and alternative investment numbers for potable water are included in the scope 1 & 2 table since energy and potable water is often combined into one project.
3. Assumed 500,000 gallons/year saved from FY13 on.
4. Three large projects are planned for FY11 and FY12.

e. Agency Status

Potable Water

Existing Programs/Initiatives:

- HHS has an established potable water conservation program which is housed within the energy program. Like the energy program, water saving projects are identified and implemented and there is an awareness component of the program.
- The CDC energy program continues efforts to improve water use intensity in existing buildings as well as designing new efficient buildings.
- CDC was the first Federal agency to become a Partner in EPA's *Watersense* Program.
- General requirements to follow all Guiding Principles, including conservation and protection of water have been placed in the updated NIH Design Requirements Manual.
- The Division of Environmental Protection has developed specific guidance for project officers in a NIH Guidance Manual to be published on the NIH EMS Website.

- An assessment tool was developed to assess the baseline water use intensity for NIH laboratory and office buildings. The data provided from a pilot test of the tool will be used to set project specific water use reduction goals for each building.
- The NIH Animal Center, which has its own public water supply and waste water treatment plant, reuses treated waste water (grey water) for power plant and animal husbandry applications.
- For all NIH facilities the water intensity per square foot was reduced from 66.4 to 65.7 in FY08, which is a reduction of 1.0%, slightly behind the 2% annual goal.
- The IHS has draft guidelines, which includes the provisions of the Energy Policy Act of 1992. The 2007 IHS A/E Design Guide requires designs to earn LEED credit WE 3.1.
- The FDA is including in its design guidelines the strategy to install fixtures (low flow faucet aerators, no water urinals, toilets, ultra low flow shower heads, etc.) that minimize potable water use to reduce the water consumption intensity to meet the E.O. 13423 requirements. The FDA guidelines shall include the requirement to use Energy Star and/or FEMP designated fixtures. The current sustainability assessment underway at the FDA will determine the necessary indoor water conservation measures to be installed and adopted into the FDA's design requirements manual.
- The current CDC design and construction guidelines require compliance with the MOU, EPAct 2005 and EO 13423.
- The current CDC guidelines also include: 1) Conduct distribution system audits, leak detection and repair. 2) Post water awareness information to encourage conservation from building occupants. 3) Use low flow faucets with aerators or flow restrictors. 4) Use low flow shower heads, toilets and urinals. 5) Re-circulate process cooling water. 6) Install an automatic boiler/steam blow down system based on water quality to better manage the treatment of boiler make-up water. 7) Capture air handling unit condensate water for irrigation or cooling tower makeup water.
- The CDC also posts work site water saving, awareness information on the CDC intranet.
- CDC has also developed water use baseline, water use reduction plan and incorporated BMPs.

Potential Challenges/Issues:

- There are large gaps in our water use data due to the lack of meters (All OPDIV's including non-landholders).
- Many of CDC's major buildings were constructed in the last ten years and already incorporate high efficiency plumbing fixtures. Obtaining significant improvement in those buildings will prove difficult.
- Use of 2007 as a baseline year masks significant improvements made previous to that time.
- Some of our facilities are vivariums and it will be extremely difficult to reduce water usage and waste from a facility infrastructure standpoint in these types of facilities. It would require a change in protocol and procedures that could only be initiated by

the program and the vets. Additionally, reduction in laboratory facilities would pose similar issues. Simple measures such as low flow toilets and waterless urinals can be instituted, but the savings from instituting these measures is very limited.

Industrial/Agricultural Water Use

Existing Programs/Initiatives:

The current CDC guidelines also include:
- Use low maintenance plant material, climate appropriate and drought resistant.
- Use of potable water for irrigation is prohibited. Provide collection and storage of rainwater and non laboratory building grey water for irrigation if required.
- Collect and store cooling condensate for cooling tower make-up or irrigation
- The CDC posts work site water saving awareness information on the CDC intranet and has developed water use baseline, water use reduction plan and incorporated BMPs.
- The FDA guidelines shall include provisions to use low maintenance plant species (native turf and wildflowers). Analyze the use of rain water collection systems for use in lawn irrigation systems. FDA is currently considering the feasibility of a gray water use system at its Jefferson Laboratories Complex. Sustainability Assessments ongoing at FDA facilities will determine the current state of outdoor water and determine the necessary guidelines to incorporate performance targets consistent with the MOU, Epact 2005 and EO 13423.
- The IHS has a policy to use native plants and no outside irrigation. The 2007 IHS A/E design Guide requires designs to earn LEED credit WE 1.1 and where practicable, WE 1.2.
- This guiding principle is largely met by NIH current strategies for installation and maintenance of landscaping, control of grading and runoff from construction sites and increasing use of other low impact development practices. Except in small courtyard areas and healing gardens no permanent irrigation systems are used, and 50 percent of these were eliminated in 2007. A gray water reuse system has been installed at the NIH Animal Center in Poolesville to reduce domestic water use.

Potential Challenges/Issues:

- HHS has identified the following gaps that need to be considered in developing milestones for reductions in industrial and landscaping water use: 1) existing health care facilities with landscaping amenities may result in a negative health impact if deleted, strategy could be replacement with rainwater capture system; 2) separate metering is currently not available to track outdoor versus indoor water use; 3) need to determine baselines, but cannot create projections back until after metering is in place; and 4) reuse of water has potential treatment requirements that must be considered.

Storm Water Reduction

Existing Programs/Initiatives:

- CDC has incorporated EISA 2007 requirements to the design and construction standards for inclusion of the following: "where feasible maintain or restore the predevelopment hydrology of the site with regard to temperature, rate, volume, and duration of flow."
- Implementation of the NIH Urban Forest Conservation Plan is increasing no-mow and forest duff covered areas, planting of native plants that do not require irrigation and installation of storm water buffers. NIH compliance with rigorous state storm water and sediment erosion control permit requirements assures reduction of water runoff and pollution.

Potential Challenges/Issues:

- Meeting the Section 438 requirements requires the use of green roofs for all new construct which may not be cost effective in all cases.

Beneficial Health Impacts of Safe Water Use

Water is a finite resource that is essential for the survival of all living organisms. Water conservation ensures the continued availability of clean water so future generations have access to this essential resource. All forms of water pollution ultimately affect humans as we are at the top of the food chain and as consumers we are dependent on the health of the ecological systems.

Water pollutants can easily be introduced into our fresh water supplies, which ultimately reach our oceans. Despite the great capacity that salt water marshes and wetlands have to degrade and absorb many of the pollutants that are constantly being dumped into our rivers, the buffering capacity of this natural habitat is being degraded by urban sprawl and increased pollutants that exceed their natural degradation potential. In a developed urban area it is estimated that 55% of the rain fall becomes run-off which can carry all the pesticides, fertilizers and toxic substances (acid rain from air pollution) to nearby streams, lakes and ponds. In contrast, a rural setting has only 10% runoff, which allows for water to be filtered naturally improving its quality through natural biodegradation processes. Many pollutants from urban areas make their way into the oceans resulting in algae blooms, fish kills and coral reef destruction. Since we are dependent on a clean water supply, it is essential that we preserve our water supply and reduce or avoid the use contaminants that could pollute this valuable resource. Modifications to landscape and urban architecture can allow for the increase in water retention through shallow and deep infiltration and the reduction of polluted runoff.

Water pollutants can be either in solution or in suspension. Water treatment plants can eliminate suspended particles and microbiological contaminants; however chemicals in solution that have not completely degraded during the sedimentation and filtration steps and can continue to be present in our water supply. Recently attention has been placed to the number of pharmaceutical products that can be found in our drinking water supply. Chemicals that are bio-accumulative, pesticides, heavy metals and non-biodegradable have been shown to remain in the water supply and make their way back into our bodies causing harmful effects, such as neurological and teratogenic defects in the unborn. The concept of cradle-to-cradle stewardship of toxic substances and chemicals ensures that our water supplies are maintained free of pollutants. Strict control on the generation and disposal of chemical wastes into water sources ensures that clean water sources are conserved for our future generations.

The average person utilizes a total of 80-100 gallons of clean water per day. Most of it is used in bathing and flushing toilets. Judicious use of water and prevention of water pollution can be achieved through the education of our communities and the control measures that are dictated and enforced through legislation like the Clean Water Act of 1972, amended in 1977 and modified to include the pollution control act in November 27, 2002. As we continue to use our water resources to meet our needs, it must be accomplished without waste and pollution to better our health and the health of future generations.

GOAL 7: Pollution Prevention and Waste Elimination

a. Goal Description

Primary Goals: Goal 7 has two primary goals with specific metrics and these include:

Goal 7b   Divert at least 50% non-hazardous solid waste by 2015
Goal 7c   Divert at least 50% Construction and Demolition (C&D) materials and debris by FY 15

Secondary Goals: In addition to the primary goals, there are the following nine secondary:

Goal 7a   Increase source reduction of pollutants and waste:
Goal 7d   Reduce Printing Paper Use,
Goal 7e   Increase use of uncoated printing and writing paper containing at least 30% post-consumer fiber;
Goal 7f   Reduce and minimize the acquisition, use and disposal of hazardous chemicals and materials;
Goal 7g   Increase diversion of compostables and organic materials from the waste stream ;
Goal 7h   Implement integrated pest management and landscape management practices to reduce and eliminate the use of toxic and hazardous chemicals and materials;
Goal 7i   Increase use of acceptable alternative chemicals and processes;
Goal 7j   Decrease agency use of chemicals to assist agency in achieving FY 2020 GHG reduction targets; and
Goal 7k   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

Assistant Secretary for Administration (ASA)/Office for Facilities Management and Policy (OFMP)

c. Implementation Methods

HHS has a variety of policies and programs in place to assist with addressing pollution prevention and waste elimination goals, these include:

- HHS General Administration Manual (GAM 30), Environmental Protection (GAM 30)

- HHS Facilities Program Manual Volume I *(FPMV)*
- Sustainable Building Implementation Plan (SBIP)
- Affirmative Procurement Plan (APP)
- Electronic Stewardship Plan (ESP)
- Environmental Management System (EMS)
- Strategic Sustainability Performance Plan (SSPP)

The following table provides a cross walk of these policies as they relate to Goal 7.

HHS Policies Addressing Goal 7 Pollution Prevention and Waste Eliminination							
GOAL	GAM 30	FPMV	SBIP	APP	ESP	EMS	SSPP
Goal 7a Increase source reduction of pollutants and waste:	X	X				X	
Goal 7b Divert at least 50% non-hazardous solid waste by 2015							X
Goal 7c Divert at least 50% Construction and Demolition (C&D) materials and debris by FY 2015			X				X
Goal 7d Reduce Printing Paper Use,					X		
Goal 7e Increase use of uncoated printing and writing paper containing at least 30% post-consumer fiber;				X			
Goal 7f Reduce and minimize the acquisition, use and disposal of hazardous chemicals and materials;	X	X					
Goal 7g Increase diversion of compostables and organic materials from the waste stream ;							
Goal 7h Implement integrated pest management and landscape management practices to reduce and eliminate the use of toxic and hazardous chemicals and materials;	X	X	X				
Goal 7i Increase use of acceptable alternative chemicals and processes;	X	X		X		X	
Goal 7j Decrease agency use of chemicals to assist agency in achieving FY 2020 GHG reduction targets; and	X	X		X			
Goal 7k Report in accordance with Sections (301-313) of the Emergency Planning and Community Right-to-Know Act (EPCRA) of 1986	X						

The existing HHS policies, plans and procedures are updated as needed and form a strong basis for addressing these and other sustainability goals. Additional goal implementation will be pursued through updates and guidance documents to reflect the latest Executive Orders and data call requirements. Goals '7d-reduce printing paper use' and '7g-'increase composting' are not yet formalized however steps are being implemented to address these goals. As an example many HHS cafeterias are making the switch from petroleum based food service items to biodegrables items that are amendable to the compost process. Additionally, 'double sided printing' is encouraged and some OPDIVs have progressed to default printer settings, while others are still addressing technology challenges.

Because the achievement of waste reduction goals relies on many stakeholders, a large part of implementation across an agency as large and dispersed as HHS involves significant outreach and education efforts. This is a defining principle of EO 13423, which requires

extensive communications plans and award ceremonies, not only to raise awareness of environmental issues but also to effect behavior change. As a result of this EO, many of the HHS OPDIVs developed program-spanning "green" initiatives (e.g., CDC's *Go Green, Get Healthy*, the HHS/OS *Go Green HHS*, the collective efforts of NIH's Environmental Management System [NEMS]) that encourage behaviors such as paper reduction, duplex printing and multi-media recycling. The Environmental Manager will continue to work with environmental managers across the Department to ensure they are able to incorporate EO 13514 directives into existing and planned EMSs.

However, individual "green" behaviors must be supplemented and made easier by institutional leadership. Thus, HHS has identified the following four ways in which it can best address waste reduction over the next 10 years.

1) <u>Diversion of non-hazardous solid waste</u>: After realizing the significant gaps that were present in the Department's waste management data, the Environmental Manager disseminated a waste audit in April 2010 to characterize the type, amount and destination of HHS non-hazardous (and hazardous) solid waste in FY09. Results and feedback from this preliminary assessment will inform the development of a solid waste survey that will initially capture the Department's baseline data (FY10) and then serve as an annual data call to track progress toward HHS' waste reduction goal. Beginning in FY11, these data will also be used to identify specific actions that HHS can undertake to reach this goal. Finally, data from this survey can inform other sustainability goals outlined in this plan.

2) <u>Reduction of paper printing</u>: The Office for Facilities Management and Policy is working with the Chief Information Officer and the Program Support Center (PSC) to (1) develop an HHS-wide policy on double-sided printing and (2) set all new PSC-operated machines to default duplex printing. HHS will also look to model CDC's efforts, which in April 2010 culminated in the reconfiguring all CDC's North American network-connected printers capable of duplex printing to print two-sided by default.

3) <u>Diversion of compostable and organic material</u>: The widespread practice of composting will rely heavily on the availability of improved, cost-effective technology, as well as the availability of composting sites near HHS facilities. The waste audit referenced in the preceding section identified 24 facilities that compost organic materials (mostly yard debris); we will rely heavily on feedback from the FY10 waste assessment to identify achievable methods for increasing this rate in the years to come. We will also use data from that assessment to define milestones and specific targets. Currently, HHS is working with the General Services Administration (GSA) at several sites (e.g., the HHS Headquarters building) to overcome the barriers to composting at these facilities.

4) <u>Decrease in chemical use to achieve GHG goals</u>: Many of the larger HHS OPDIVs are implementing recognized, effective toxics reductions programs (e.g., NIH's Mercury Reduction Policy, CDC's lab recycling of autoclaved plastics, FDA's Cispro Chemical Inventory program); however, many of the smaller OPDIVs are unaware

that these standardized practices exist. In line with the spirit of information sharing inherent to the SSPP, HHS will review and share these best management practices across the Department via an (in-development) HHS Sustainability website (projected publication date: May 14, 2010). In the coming months, the Department will examine how to best track—and develop milestones/metrics for—the reduction of chemical use across the agency.

d. Planning Table

POLLUTION PREVENTION & WASTE ELIMINATION	Units	FY 10	FY 11	FY 12	FY 13	FY 14	FY 15
Non-Hazardous Solid Waste Diversion Targets (non C&D)	%	20	25	30	35	40	50%
C&D Material & Debris Diversion Targets	%	5	10	20	30	40	50%

e. Agency Status

Overall, HHS' efforts to prevent pollution and improve waste management have focused on employee education and awareness activities. Many success stories have come from these efforts: For example, he preliminary waste audit (see Section VII.c.1) revealed that more than 90% of responding facilities (115 total) implemented some degree of solid waste recycling. Furthermore, the HHS SBIP has required for several years that, at a minimum, 50% of C&D materials be recycled. An outstanding example of such efforts is NIH's lab decommissioning protocol, which won a White House Closing the Circle award last year. Additional discussion of C&D management is found under Goal 4.

Great strides have also been made in the area of green acquisition, with the HHS APP laying out a Department-wide mandate to purchase (at least) 30% post-consumer paper, to increase the use of alternative chemicals and to reduce the acquisition of hazardous materials. This latter initiative is also called out in the HHS ESP, which calls for improved end-of-life management for electronics, as well as the purchase of EnergyStar and EPEAT-compliant machines. Please see Goals 8 and 9 for more detailed discussion of green purchasing and electronic stewardship, respectively.

As referenced earlier, HHS has also already implemented many of the pollution prevention/waste elimination goals. For example, integrated pest management and landscape management practices have been a part of the HHS SBIP and have been standard at HHS facilities for several years. Furthermore, after EO 13423 was signed into law, HHS ensured that EPCRA reporting is a standard practice at all applicable facilities; Chapter 30 ("Environmental Policy") of the HHS General Administration Manual fully addresses EPCRA and other statutory compliance requirements.

Areas that HHS has identified for development are increasing agency use of acceptable alternative chemicals as well as decreasing use of certain chemicals to assist in achieving FY20 GHG reduction targets. HHS is also committed to working toward adopting composting as standard practice at all HHS facilities, as technology and composting sites become available.

GOAL 8: Sustainable Acquisitions

a. Goal Description:

- 90% in FY10 and 95% in FY11
- We plan to update the HHS Affirmative Procurement Plan (APP) by October 1, 2010, to reflect the latest Executive Order throughout and include a sample Environmental Sustainability Plan as part of a larger Management Plan for solicitations. We will encourage use of the plan as an integral part of the proposal technical or management evaluation. We also plan to recommend consideration of a requirement for environmental compliance and/or identification of salient environmental features of the goods and services in Section C – Statement of Work. We expect these efforts will be continuously reviewed and updated and shared with the acquisition community. Target date for update is October 1, 2010.

b. Agency Lead

Assistant Secretary for Financial Resources (ASFR), Office of Grants & Acquisition Policy and Accountability (OGAPA)

c. Implementation Method

Although our goal is to meet the 95% goal and we have policy in place to support these initiatives, we do not currently have reporting mechanisms in place to account for measuring the universe of relevant acquisitions, much less to the specificity of the different categories listed. We have worked with our reporting system's (DCIS) configuration board and they have agreed to set aside 2 blocks to report the above categories and commensurate spend. This configuration change will be effective with the next software update scheduled for October 1, 2010. Prior to the release we will work to educate and train the acquisition workforce as to the criticality of properly filling out the DCIS blocks. We will continue to expand our existing EMS and green purchasing plans. We will refine our environmental surveys and environmental reviews. We will also continue to emphasize formal and ad hoc green training, webinars and outreach efforts to ensure the HHS acquisition workforce is educated and aware of the green purchasing requirements included in the APP. Goals for greening contracts will support our Departmental goals for compliance with federal regulations and Executive Orders, improve the environment, facilitate and steer vendors in the direction of selling green products, and develop easy to use purchasing procedures which clearly delineate whether products actually meet environmental requirements.

Regarding the APP, we have posted the document on the portal and shared via e-mail with the OPDIVs. These efforts will be supported by Procurement Management

Reviews (PMRs), environmental surveys, environmental review and outreach and training (Webinar). Benefit is a more educated workforce and a greener world.

d. Planning Table

SUSTAINABLE ACQUISITION	Units	FY 10	FY 11	FY 12	….	FY 20
New Contract Actions Meeting Sustainable Acquisition Requirements	%	90%	95%	hold	hold	hold
Energy Efficient Products (Energy Star, FEMP-designated, and low standby power devices)	%	90%	95%	95%	hold	hold
Water Efficient Products	%	90%	95%	95%	hold	hold
Biobased Products	%	90%	95%	95%	hold	hold
Recycled Content Products	%	90%	95%	95%	hold	hold
Environmentally Preferable Products/Services (excluding EPEAT)	%	90%	95%	95%	hold	hold
SNAP/non-ozone depleting substances	%	90%	95%	95%	hold	hold
Other, as defined by agency	?					

e. Agency Status

In April 2009, we updated the APP to reflect E.O. 13423, we established checklists, surveys and criteria for environmental reviews and conducted three reviews, we participated in many training and outreach sessions to educate and inform the acquisition community, we went before the DCIS board to obtain approval to include data blocks to reflect environmental spend for the environmental categories listed. We provided 10 sample contracts with green requirements in response to OFEEs request. We are in the process of updating the APP to incorporate E.O. 13514.

GOAL 9: Electronic Stewardship and Data Centers

a. Goal Description

The Electronic Stewardship and Data Center Consolidation [1] program area addresses the life-cycle management of electronics from procurement to disposal. Both Executive Order (EO) 13423 and EO 13514 include goals and objectives applicable to Electronics Stewardship which follow:
- Advance sustainable acquisition to ensure 95 percent of new contract actions including task and delivery orders, for products and services are energy-efficient (e.g., Energy Star, Federal Energy Management Program (FEMP) or Electronic Product Environmental Assessment Tool (EPEAT) certified);
- Use environmentally sound practices with respect to disposition of all agency excess or surplus electronic products;
- Enable the Energy Star feature on agency computers and monitors, establish and implement policies to extend the useful life of agency electronic equipment;
- Ensure procurement preference for EPEAT-registered electronic products;
- Establishing and implementing policies to enable power management, duplex printing, and other energy-efficient or environmentally preferable features on all eligible agency electronic products; and
- Implement best management practices for energy-efficient management of servers and federal data centers.

EO 13423 Section 9 and EO 13514, Section 19 provide the following definitions applicable to this Program Area:

Life-Cycle Cost-Effective - the life-cycle costs of a product, project, or measure are estimated to be equal to or less than the base case (i.e. current or standard practice or product) (EO 13423, Section 9).

Sustainability and Sustainable - to create and maintain conditions, under which humans and nature can exist in productive harmony, that permit fulfilling the social, economic, and other requirement of present and future generations of Americans (EO 13423, Section 9 and EO 13514, Section 19(l)).

b. Agency lead for goal

Assistant Secretary for Administration (ASA)/Office of the Chief Information Officer (OCIO)

c. Implementation Method for Sub-Goals (Addressing Sub-goals 1, 2, 3)

1. 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.
2. Update agency policy to reflect environmentally sound practices for disposition of all agency excess or surplus electronic products.
3. Discuss how the agency will increase the quantity of electronic assets disposed through sound disposition practices. Include in the discussion how your agency is using or plans to use programs such as disposal through GSA Xcess, recycling through Unicor, donation through GSA's Computer for Learning (CFL) or other non-profit organizations, and/or recycling through a private recycler certified under the Responsible Recyclers (R2) guidance or equivalent.

Implementation Method
The Department has had mixed success in implementing power management on all personal computers but is aggressively pursuing technical solutions. The OCIO will work with the appropriate Council (such as the CIO Council and CTO Council) to ensure implementation and will develop tracking methods for the ES Plan. The HHS Electronic Stewardship Plan (ESP) and the Affirmative Procurement Plan (APP) specifically address sub-goals 1-3. The Department is in the process of updating both documents to include the requirements put forth by EO 13514.

The ESP provides the Department with specific guidance to ensure the use of power management, duplex printing and other energy efficient/environmentally preferred options and features on all eligible agency electronic products, as well as environmentally sound practices for disposition of all agency excess or surplus electronic products. The plan includes agency use of Energy Star qualified products and the Electronic Product Environmental Assessment Tool (EPEAT) for the acquisition and operations/maintenance phases of the IT life cycle. The ESP also includes directions for using programs such as Unicor, GSA's Computer for Learning (CFL) and other certified sources using the Responsible Recyclers (R2) guidance for sound disposition practices.

Schedule:
In accordance with EO 13423, the HHS Environmental Management System (EMS) includes a representative from the Office of the Chief Information Officer (OCIO) and the Electronic Stewardship and Data Consolidation Working Group. This representative will assist in the implementation of the EMS plan and coordination, outreach, and training.

The Department, through the OCIO, is also a member of the Federal Electronic Stewardship Workgroup (FESWG) that is chaired by the Office of the Federal Environmental Executive (OFEE) and is constantly making efforts to making improvement in the area electronic stewardship for the Department. The Department has also established a Data Center Consolidation and Cloud Computing Working Group to facilitate the transition data centers to the cloud.

Training and Education:
HHS will promote participation in the GreenGov Symposium, as well as research available and/or develop training/educational curriculum on Electronic Stewardship & Data Center Consolidation and will establish a policy to ensure appropriate personnel are versed on Electronic Stewardship and Data Center Consolidation, to include acquisition of Energy Star, EPEAT and FEMP designated products, HHS will look for partnering and guidance opportunities from the federal community such as the National Data Center Energy Efficiency Information Program on training topics such as best energy management practices and best available technologies for processing digital information, deliver and condition of electrical power supply to computers/data centers and energy efficient removal of heat rejected from data center IT equipment.

References:
- The Electronic Stewardship Plan (ESP) for HHS (May 2007)
- The Affirmative Procurement Plan (APP), Purchasing Environmentally Preferred Product and Services at HHS (April 2009).
- Sustainable Building Implementation Plan (SBIP)
- Environmental Management System (EMS)

Note:
Because HHS has several OPDIVs and STAFFDIVs dispersed across the United States, the ability to implement and achieve targets may be affected because each OPDIV and/or STAFFDIV has its own funding and authorities. The Department has had mixed success among the OPDIVs in implementing power management on all personal computers but is aggressively pursuing technical solutions.

HHS will consider setting guidance that requires / recommends that Area Directors' performance plans include a critical element that will ensure meeting appropriate mandates.

Energy savings from Electronic Stewardship and Data Center Consolidation will reduce operating costs and emissions from electrical generation including green house gas (GHG). Reducing GHG is a major goal of the Department. Paper purchases and resultant wastes are expected to be reduced by increased use of double sided printing and movement to paperless offices, meetings and events. The elements of the ES regarding acquisition of EPEAT and similar goals are integrated with and supported in the Affirmative Procurement plan. ES is an active component of the HHS higher tier EMS which supports and assists promotion of all sustainability goals.

Implementation Method for Sub-Goals (Addressing Sub-goal 4)

Update agency policy to ensure implementation of best management practices for energy efficient management of servers and Federal data centers.

Implementation Method

HHS has a Data Center Consolidation and Cloud Computing Initiative (DCCI/CCI) working group tasked to develop an Agency-wide plan to reduce the cost and improve the efficiency of the data centers within HHS. The DCCI/CCI working group has gathered data on the facilities, hardware/software (HW/SW) assets, and power consumption associated with all of the HHS data centers. This data will be analyzed to determine if a data center (or an asset within a data center) is a candidate for decommissioning, centralization/consolidation, virtualization, or cloud computing. After the data has been thoroughly analyzed a plan will be developed that will describe in detail the Agency's targets for improved data center efficiency, the tasks required to achieve the improved efficiency, and policies that must be developed and implemented to maintain the desired level of data center efficiency. The policies and standards developed as part of data center consolidation plan will be incorporated in the existing HHS Electronic Stewardship Plan (ESP).

Cost to implement:
The data center usage policies have not been developed, therefore, implementation and maintenance costs for the policies are not known at this time. However, all costs associated with the data center consolidation efforts will be incorporated into fiscal year budgets as appropriate.

Schedule:
The HHS Data Center Consolidation plan will be developed by HHS and approved by OMB by Jan 2011. The plan is scheduled for full implementation by 4Q FY12.

Implementation Method for Sub-Goals (Addressing Sub-goal 5)

Implementation Method

HHS has a Data Center Consolidation and Cloud Computing Initiative (DCCI/CCI) working group (comprised of members from all HHS operating divisions: NIH, CDC, FDA, etc) tasked to develop an Agency-wide plan to reduce the cost and improve the efficiency of the data centers within HHS. The DCCI/CCI working group has gathered data on the facilities, HW/SW assets, and power consumption associated with of all of the HHS data centers. This data will be analyzed to determine if a data center (or an asset within a data center) is a candidate for decommissioning, centralization/consolidation, virtualization, or cloud computing. After the data has been thoroughly analyzed a plan will be developed that will describe in detail the Agency's targets for improved data center efficiency and the tasks required to achieve the target efficiencies. The plan will be reviewed and approved at the highest levels within HHS and all HHS operating divisions will be bound by it.

Some of the anticipated metrics and targets are:

Utilization Metrics	Target Results
Average Virtualization (%)	30%
Average Virtual OS per Host (#)	15
Average Server Utilization	60%
Average Rack Space Utilization	80%
Power Usage / Sq foot (W/Sq Ft)	150 W/Sq Ft
Power Usage Efficiency (PUE)	1.6

Note: These are anticipated target results. The actual metrics and target results will be established when the analysis is complete and the Data Center Consolidation plan is developed and approved.

The target for rack space utilization should ensure that power and cooling capacities are reached before rack space is consumed. Targeting 80% rack utilization will leave no room for growth which will limit future options for system deployment. To reach 150W/Sq Ft, additional cooling and power capacity would have to be added to most Data Centers, which may not be cost effective. The PUE number will be limited by what best practices can achieve for a given Data Center with the existing facility infrastructure. Given the time it takes to design, fund, approve, and contract out facility projects it may not be feasible to retrofit existing Data Centers in the FY12 time frame.

Cost to implement:
The HHS Data Center Consolidation plan has not been developed, therefore, implementation and maintenance costs are not known at this time. However, all costs associated with the data center consolidation efforts will be incorporated into fiscal year budgets as appropriate.

Implementation Method for Sub-Goals (Addressing Sub-goal 6)

Discuss how the agency is planning on meeting the technology energy reduction goals in data centers. Include details on the investment plan, covered vs. non-covered facilities, and how the agency identified the covered facilities.

Implementation Method
The HHS Data Center Consolidation and Cloud Computing Initiative (DCCI/CCI) working group (comprised of members from all HHS operating divisions: NIH, CDC, FDA, etc.) developed the HHS data center definition. The data center definition includes all HHS data centers whether they are located in covered or non-covered facilities. See below for definitions of a covered facility as well as an HHS data center.

The DCCI/CCI working group is tasked to develop an Agency-wide plan to reduce the cost and improve the efficiency of the data centers within HHS. The energy reduction targets of

the plan are discussed in sub-goal "5" above. HHS will reach its energy reduction targets by focusing on these four reduction methods: decommissioning, centralization/consolidation, virtualization, and cloud computing. The DCCI/CCI working group has established sub-groups for each of the four primary energy reduction methods. The sub-groups will evaluate every HHS data center to determine the appropriate energy reduction method(s) and strategy required to improve their energy efficiency.

HHS Covered Facilities:
HHS covered facilities are facilities that are responsible for 75% of HHS' total energy usage. Most HHS operating divisions identified their covered facilities by building. CDC and NIH, however, identified their covered facilities by campus. Energy usage for covered facilities must be monitored regularly and energy audit reports must be delivered to OMB every four years.

Data Center Definition:
 Agency Data Center - A data center is a repository (room or building) for the storage, management, and dissemination of data and information. This repository houses computer systems and associated components, such as telecommunications and storage systems. It generally includes redundant or backup power supplies, redundant data communications connections, environmental controls (air conditioning, fire suppression, etc.), and special security devices housed in leased, owned, collocated, or standalone facilities.

In the context of modernization, an agency data center is defined as any automated information processing and data storage operation that performs one or more of the following functions: processes agency-approved automated applications systems, affords time-sharing services to agency personnel, provides office automation and records management services through a centralized processor, and contains three or more servers.

Data center Tier classification:
Tier I: composed of a single path for power and cooling distribution, without redundant components, providing 99.671% availability.

Tier II: composed of a single path for power and cooling distribution, with redundant components, providing 99.741% availability

Tier III: composed of multiple active power and cooling distribution paths, but only one path active, has redundant components, and is concurrently maintainable, providing 99.982% availability

Tier IV: composed of multiple active power and cooling distribution paths, has redundant components, and is fault tolerant, providing 99.995% availability.

Cost to implement:

The HHS Data Center Consolidation plan has not been developed, therefore, implementation and maintenance costs are not known at this time. However, all costs associated with the data center consolidation efforts will be incorporated into fiscal year budgets as appropriate.

d. Planning table

The items highlighted in green are based on data collected by the DCCI/CCI Workgroup.

ELECTRONIC STEWARDHIP & DATA CENTERS	Units	FY 10	FY 11	FY 12	FY 13	Sub-Goal
% of device types covered by current Energy Star specifications that must be energy-star qualified[xiv]	%	80%	90%	95%	hold	1
% of electronic assets covered by sound disposition practices[xv]	%	80%	90%	95%	hold	2, 3
% of cloud activity hosted in a data center	%	5%	30%	60%	hold	4, 5, 6
% of agency data centers independently metered or advanced metered and monitored on a weekly basis	%	10%	90%	100%	hold	5, 6
Reduction in the number of agency data centers	%	3%	20%	40%	hold	4, 5, 6
% of agency, eligible electronic products with power management and other energy-environmentally preferable features (duplexing) actively implemented and in use	%	32%	75%	100%	hold	1
% of agency data centers operating with an average CPU utilization of 60-70%	%	4%	50%	75%	hold	4
% of agency data centers operating at a PUE range of 1.3 – 1.6	%	9%	25%	50%	hold	4
% of covered electronic product acquisitions that are EPEAT-registered	%	80%	95%	95%	hold	1
% of agency data center activity implemented via virtualization	%	5%	30%	40%	hold	6

Cloud Activity percentage presumes an HHS owned Private Cloud with a usage based cost model and agile, scalable capacity.

Data Center Metering: The cost for adding accurate energy metering will be significant. Metering projects may require shutdowns to implement, and involve facility modifications that require long lead times to implement. Projects to retrofit metering should be limited to sites where metering will allow significant gains to be documented.

Data Center reduction metrics that start in FY10 do not measure the impact of consolidation projects completed in prior years. CDC closed 31 data center rooms via consolidation in a 5 year project begun in 2004.

Average CPU utilization target: Presuming this is a 24 hour, 7 day average Data Centers that are not batch processing or HPC oriented will not be able to reach 75% processor utilization. Average CPU utilization fails to consider peak utilization and surge requirements during events that drive traffic or utilization spikes, or redundant architectures capable of operating successfully during a failure. Utilization spikes can cause failures when unanticipated loads exceed design parameters.

PUE Target: The PUE number is dictated not by the IT equipment but by the facility equipment providing power and cooling. Achieving a PUE of 1.3 to 1.6 may not be possible without major facility renovations requiring the installation of new UPS systems, chiller and or economizers, air handlers, and best practices with regards to rack layouts. These changes are outside the normal IT budget and involve large capital expenditures that are typically driven by equipment lifecycle.   The local climate will also impact the PUE that a best practices design can achieve with a given infrastructure.

e. Agency status

Purchasing EPEAT Products at 95%	Most, if not all, of HHS' IT contracts include EPEAT clauses. In addition, of the information that was reported, 93.3% of monitors and laptops were purchased in FY09 are EPEAT compliant.
Power Management Enable in 100% Computers, Laptops and Monitors	Power Management at HHS has not been enabling on 100% of Computers, Laptops and Monitors because it poses a security risk when used in conjunction with Checkpoint Endpoint Security. HHS is seeking alternative methods to overcome this dilemma, the current implementation rate for desktops and laptops is approximately 32% while monitors is approximately 100%
Using Environmentally Sound Management Practices at End-of-Life	HHS continues to make progress towards using environmentally sound disposal practices. Since some computers at HHS are leased, appropriate language has been incorporated in the OS IT Contract with Lockheed Martin to use environmentally sound management practices at End-of-Life. Serviceable electronic equipment is disposed of thru direct transfers to other federal agencies and / or eligible institutions. Each recipient agrees to and receives a "Fact Sheet" created by the Federal Electronics Challenge Program that outlines disposal and environmental considerations that must be adhered to when this equipment reaches its end-of-life cycle. Unserviceable equipment, once declared as "scrap", is disposed of by a federally approved recycler that ensure proper environmental considerations are met during disposal.
Actions taken since July 09 Reporting Cycle	HHS buys and leases IT equipment. For equipment that is leased, appropriate language has been incorporated into the contract(s) to ensure equipment is compliant with EO 13423. Other purchase contracts have been adjusted to ensure all new electronics equipment is EPEAT compliant. The Department is also making efforts to implement wake-on-LAN Power Management technology. In addition, HHS has completed a technical study of its data centers and is devising a plan to virtualize servers, consolidate data centers, and migrate to the cloud.
Planned Actions for Jul 10 Reporting Cycle	HHS expects to begin revising the ES Plan. The ES Plan will incorporate policies and also implementation plans to meet ES-related goals.

GOAL 10: Agency Innovation

1. In 2009, President Obama requested the Office of Personnel Management (OPM), Office of Management and Budget (OMB), National Economic Council (NEC), and the Department of
Health and Human Services (HHS) explore the development of initiatives for improving employee health via worksite wellness programs to include incentive programs and other innovations. In October 2009, HHS launched its Fed*Strive* program which included enhancements to existing Federal Occupational Health (FOH) services: Clinical, Employee Assistance Program (EAP), Work/Life and Environmental Health. Since then, FedStrive has soared, forming an umbrella of healthy initiatives – focusing not only on the health of our people but also the health of our planet. As described in section one of this Plan, consistently messaging the connection sustainability to the HHS mission will ensure the long term success of this program, as well as the positive effect on our planet and people. Our individual operating divisions have also been leading the way on this initiative. CDC's *Go Green, Get Healthy* initiative includes a number of programs and efforts aimed at making employee work life healthier, happier and more environmentally responsible. Since 2008, the *Go Green, Get Healthy* initiative, led by the CDC's Office of Sustainability, has launched more than 200 policies, practices, events, trainings, and opportunities to further sustainability, and thus, public health goals. Focused on 8 critical sectors including: Recycling, Electronics Management, Food, Facilities and Greenspace, Worksite Wellness, Green Purchasing, Green Meetings and Transportation, this collective endeavor is the result of strategic planning and actions by CDC/ATSDR leadership, offices, 10 volunteer workgroups and individual staff dedicated to increasing sustainable awareness and behavior across the Agency. Similarly, the National Institutes of Health Environmental Management System (NEMS) has undertaken to integrate wellness with environmental health and sustainability efforts.   The recently formed NIH Health and Wellness Council (HWC) promotes a culture of wellness in which healthy behaviors are the norm and are buttressed by wellness as a shared value, peer support, policies, and initiatives. In pursuit of this NIH-wide mission across the ICs, the HWC advises the NIH Director regarding health and wellness programs and issues. The primary purpose of the NIH Health and Wellness Council is to provide advocacy, leadership, and support to protect and improve the health of all NIH employees."

For more information on these programs that make the critical link between health and sustainability, please visit www.FedStrive.com and
http://www.cdc.gov/about/stateofcdc/html/2008/About05Green.htm and
http://www.nems.nih.gov/home/aboutnems.cfm

2. In March 2010, the Secretary also launched an Agency Innovation Program that recognizes and encourages innovative efforts across the Department of Health and Human Services. Twice a year, up to six awards will be issued to innovators and teams of innovators who

have either (1) generated the most significant innovation successes (Adoption Ready Innovations), or (2) developed exploratory innovations that did not yet achieve the expected target outcomes, but yielded significant new knowledge and organizational learning (Explorative Innovations). While this does not directly relate to sustainability, if opens the door to the kind of creative, "out of the box" thinking that will be required to meet the HHS sustainability goals.

Acronyms and Abbreviations

Appendix

A.

ACF: Agency for Children and Families
AFV: Alternative Fuel Vehicle
AIDS: Acquired Immune Deficiency Syndrome
ANSI: American National Standards Institute
APP: Affirmative Procurement Plan
ARRA: American Recovery and Reinvestment Act
ASA: Assistant Secretary for Administration
ASFR: Assistant Secretary for Financial Resources
ASPR: Office of the Assistant Secretary for Preparedness and Response

B.

BAS: Building Automation System
BMAR: Backlog of Maintenance and Repair
BMP: Best Management Practices
BTU: British Thermal Unit

C.

C&D: Construction and Demolition
CAA: Clean Air Act
CCI: Cloud Computing Infrastructure
CDC: Center for Disease Control and Prevention
CIO: Chief Information Officer
CMS: Centers for Medicare and Medicaid Services
CPU: Central Processing Unit
CTO: Chief Technology Officer

D.

DCCI: Data Center Consolidation
DCIS: Data Center Infrastructure Solutions
DOE: Department of Energy
DOL: Department of Labor
DRM: Design Requirements Manual

E.

EBOM: Existing Buildings Operation and Maintenance

EISA: Energy Independence and Security Act
EMS: Environmental Management Systems
EO: Executive Order
EPA: Environmental Protection Agency
EPCRA: Emergency Planning and Community Right-to-Know Act
EPEAT: Electronic Product Environmental Assessment Tool
ES: Electronic Stewardship
ESP: Electronic Stewardship Plan
ESPC: Energy Savings Performance Contract
EUL: Enhanced Use Lease

F.

FDA: Food and Drug Administration
FEB: Federal Executive Board
FEMP: Federal Energy Management Program
FESW: Federal Electronic Stewardship Workgroup
FPM: Facilities Program Manual
FRPP: Federal Real Property Profile
FTE: Full-Time Equivalent
FY: Fiscal Year

G.

GAM: General Administration Manual
GHG: Greenhouse Gases
GIS: Geographic Information System
GOV: Government
GPRA: Government Performance Results Act
GSA: General Services Administration
GSF: Gross Square Feet
GWP: Global Warming Potential

H.

H1N1: Influenza A virus
HHS: The Department of Health and Human Services
HPC: High Performance Computing
HQ: Headquarters
HRSA: Health Resources and Services Administration
HUD: Department of Housing and Urban Development
HW: Hardware

I.

IEQ: Indoor Environmental Quality
IFMA: International Facilities Management Association
IGA: Office of Intergovernmental Affairs
IHS: Indian Health Service
IPCC: Intergovernmental Panel on Climate Change
IPT: Integrated Project Team
ISWG: Interagency Sustainability Working Group
IT: Information Technology

L.

LAN: Local Area Network
LCCA: Life-Cycle Cost Analysis
LEED: Leadership in Energy and Environmental Design
LID: Low Input Development

M.

MOU: Memorandum of Understanding
MVPDB: Meningitis and Vaccine Preventable Diseases Branch

N.

NEPA: National Environmental Policy Act
NIH: National Institutes of Health
NIOSH: National Institute for Occupational Safety and Health
NPDES: National Pollutant Discharge Elimination System
NREL: National Renewable Energy Laboratory

O.

O&M: Operations and Maintenance
OCIO: Office of the Chief Information Officer
ODS: Ozone Depleting Substances
OFEE: Office of the Federal Environmental Executive
OFMP: Office for Facilities Management and Policy
OGAPA: Office of Grants and Acquisitions Policy and Accountability
OM: Ongoing Maintenance
OMB: Office of Management and Budget

OPDIV: Operating Division
OPM: Office of Personnel Management
OS: Office of The Secretary

P.

PM: Preventative Maintenance
PMR: Procurement Management Reviews
POC: Point of Contact
PPA: Power Purchase Agreement
PSC: Program Support Center
PSS: Public Sector Standards
PUE: Power Usage Effectiveness

R.

RCM: Reliability Centered Maintenance
ROI: Return on Investment

S.

SAMHSA: Substance Abuse and Mental Health Services Administration
SBIP: Sustainable Building Implementation Plan
SF: Square Feet
SRPO: Senior Real Property
SSPP: Strategic Sustainability Performance Plan
STAFFDIV: Staff Division
SW: Software

T.

T&D: Transmission and Distribution

U.

UESC: Utility Energy Service Contract
UPS: Uninterruptible Power Supply
USGBC: US Green Building Council
USGCRP: US Global Change Research Program

V.

VAM: Vehicle Allocation Method
VE: Value Engineering

W.

WRI: World Resources Institute