

United States Department of Agriculture Sustainable Buildings Implementation Plan

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I. Executive Summary, Background, and Issues

Executive Summary

Facilities consume approximately 68 percent of the energy produced in electrical power plants in the United States, and even more of all energy obtained from burning fossil fuels. Natural resource inputs are required throughout, in a building's construction, operations and maintenance, and disposal phases. Buildings account for a large measure of that which leads to greenhouse gas emissions, and are the places where energy and water are expended, where green electronics, solid waste and recycling, and environmentally-preferred products are used. Beyond environmental integrity, human health depends upon positive indoor environmental quality. Because these issues depend upon building sustainability, it is essential that the Federal government lead in designing, constructing, and operating Sustainable Buildings.

The executive office directs that agencies achieve specific sustainability measures in designing, constructing and operating buildings. As a matter of policy, Federal agencies must increase energy efficiency, reduce greenhouse gas emissions, and operate Buildings in a sustainable manner. The recently-signed Executive Order (E.O.) 13514, "Federal Leadership in Environmental, Energy, and Economic Performance," requires that the Federal Government lead by example to create a clean energy economy, promote energy security, and safeguard the environment. Federal agencies must apply sustainable building strategies throughout their portfolio for all construction and major and minor renovations over 5,000 square feet in size, and for existing building operations as well. E.O. 13423, "Strengthening Federal Environmental, Energy, and Transportation Management," signed in early 2007, requires that the Federal government lead in these three distinct areas. OMB evaluates and tracks agency performance and progress, in three areas, using a scorecard.

The United States Department of Agriculture (USDA) agencies that hold government property include the Forest Service (FS), Agricultural Research Service (ARS), Natural Resources Conservation Service (NRCS), and the Animal and Plant Health Inspection Service (APHIS), and Grain Inspection, Packers and Stockyards Administration (GIPSA). These property holding USDA agencies are achieving sustainable building measures using strategies similar to those sought by other government agencies, and those encouraged by industry standards such as the U.S. Green Building Council's (USGBC's) Leadership in Energy and Environmental Design (LEED[®]) rating system. In FY 2010, the Department expanded the emphasis of the sustainable buildings program to reach out to agencies such as Agricultural Marketing Service (AMS), Farm Services Agency (FSA), and Foreign Agricultural Service (FAS). These agencies occupy government-leased buildings.

Background and issues

Building and operating facilities consume most of the fossil fuel energy produced in the United States. Buildings also require natural resources and other inputs. Exhibit 1 summarizes energy and natural resource usage for U.S. buildings.

Exhibit 1
Energy and Natural Resource Impacts of U.S. Buildings

Resource	Impact
Energy	37 percent of primary energy use
	68 percent of all electricity use
Materials Use	60 percent of non-food/fuel raw materials use
Waste	40 percent of non-industrial solid waste or 136 million tons of construction and demolition debris per year
	31 percent of mercury in municipal solid waste
Water	12 percent of potable water use
	36 billion gallons of water use per day
	20 percent loss of potable water in many urban systems due to leakage
Air Quality	35 percent of carbon dioxide emissions
	49 percent of sulfur dioxide emissions
	25 percent of nitrous oxide emissions
	10 percent of particulate matter emissions

Source: Office of the Federal Environmental Executive,
The Federal Commitment to Green Building: Experiences and Expectations

The Executive Order (E.O.) 13514, “Federal Leadership in Environmental, Energy, and Economic Performance,” of October 2009, mandates that Federal agencies apply sustainable strategies to all new buildings, major and minor renovations over 5,000 square feet in size.

The Executive Office of the President directs that agencies achieve specific sustainability measures in designing, constructing and operating buildings. E.O. 13514 requires that the Federal Government lead by example to create a clean energy economy, promote energy security, and safeguard the environment. The EO mandates that Federal agencies apply the five Guiding Principles for Federal Leadership in High Performance and Sustainable Buildings — the “*Guiding Principles*” — to all new building construction, and to major and minor renovations over 5,000 GSF. In leading by example, and in response to the EO 13514, USDA constructs, alters, operates and maintains buildings towards increasing levels of environmental sustainability.

As a matter of policy, Federal agencies must increase energy efficiency, reduce greenhouse gas emissions, and operate Buildings in a sustainable manner. E.O. 13423, “Strengthening Federal Environmental, Energy, and Transportation Management,” signed in 2007, requires that Federal government agencies leads in these three areas. OMB has recently developed an environmental sustainability scorecard system to evaluate and track agency progress.

II. Policy and Purpose

Policy

President Obama's sustainability E.O. 13514, "Federal Leadership in Environmental, Energy, and Economic Performance," establishes aggressive goals for Federal buildings. Both it and the earlier E.O. 13423 require that Federal agencies follow the *Guiding Principles* in constructing and renovating all Federal buildings. E.O. 13423 set specific goals and requirements in sustainable building actions, as well as in acquiring goods and services, in operating and maintaining facilities energy efficiently, in generating renewable energy, conserving water, reducing the acquisition, use, and disposal of toxics and hazardous chemicals, recycling, electronics stewardship, and operating fleets.

Additionally, the E.O. 13514 and 13423 goals are to measure as sustainable at least 15 percent of existing buildings 5,000 gross square feet or larger, by the end of fiscal year 2015. Federal agencies must demonstrate annual progress towards meeting the 15 percent goal to meet the OMB end-of-year reporting requirements. Therefore, the USDA is assessing its existing building inventory for buildings 5,000 gross square feet or greater, as required, to determine which facilities follow sustainable principles and practices, and to report progress to OMB.

The USDA is the steward of over 25,400 buildings with a total area of 58.9 million gross square feet (GSF). Within the USDA portfolio are 2,292 buildings over 5,000 GSF in size, totaling 30.8 million GSF. The Department continues to assess its inventory for sustainability, having assessed approximately 40 percent of these 2,292 buildings as of the end of FY 2010.

The USDA is following sustainability strategies in order to:

- 1) Ensure that all new facilities and major renovation projects implement design, construction, and operations and maintenance practices in support of the sustainable design/high-performance buildings goals of E.O. 13514 and 13423, as well as statutory requirements of the Energy Independence and Security Act (EISA) and Energy Policy Act 2005 (Epect); and
- 2) Make every effort to incorporate the sustainable building practices in the *Guiding Principles* and to achieve the 15 percent goal for its existing Federal capital asset building inventory.

Purpose

The Council on Environmental Quality issued "Instructions for Implementing E.O. 13423" on March 29, 2007. Agencies are required to submit an annual Sustainable Buildings Implementation Plan (SBIP) to the OMB. OMB, on June 29, 2007, issued the Sustainable Buildings Implementation Plan Guidance, with detailed objectives, requirements and guidance to agencies. That is the purpose for this plan. The 2011 SBIP seeks to update the 2010 SBIP, the first plan USDA developed, and to detail both past accomplishments and future goals.

III. USDA Goals and Objectives

The USDA seeks to build new buildings, and renovate, operate, and maintain existing buildings sustainably, with a view towards resource conservation and effective environmental land management. Sustainable Building strategies address the *Guiding Principles* in all building life cycle stages:

- Siting,
- Design,
- Construction,
- Operations and maintenance, and
- Disposal and deconstruction.

The USDA places a high priority on using integrated building concepts and high performance green building standards, enhancing occupant welfare, and protecting mission critical assets. USDA agencies enhance building condition through financial decisions weighted towards those that provide the greatest return on investment (ROI). Investment Decisions affect all Real Property over the Capital Asset Threshold¹. Initiatives to secure the greatest ROI on agency resources in sustainable buildings practices include:

- Using known data and characteristics to select potentially sustainable buildings, and creating a survey to evaluate and assess USDA existing buildings, and measure and validate the extent to which assessed buildings meet the *Guiding Principles*,
- Promoting and adhering to sustainable practices by writing solicitations to include the *Guiding Principles*, and
- Using a third-party certification system, such as the U.S. Green Building Council's LEED system and Green Globes, to measure sustainability.

IV. Sustainable Buildings Actions

The USDA furthered progress in measuring and reporting on building sustainability in FY 2010. The Environmental Management Division (EMD) continues to assess sustainability of all buildings in response to Executive Branch requirements, with agency-wide use of internal metrics. In FY 2010, USDA measures 5.5 percent as sustainable, after assessing a little less than half of all buildings over 5,000 gross square feet. At present, agencies are furthering the assessment process to benchmark and measure performance of existing buildings, and to verify meeting the *Guiding Principles*. In 2012 and 2013, USDA plans to continue to implement strategies to achieve its sustainable buildings goals. USDA agencies are researching and estimating the required resources to reach towards EO 13514 goals.

In 2011, the Department continues to move closer to reaching sustainable buildings goals and initiates goals in keeping with current priorities. These include recognizing and rewarding individual agencies' accomplishments, both in building innovations and in creating sustainability policies and strategies. USDA staff are achieving several sustainable buildings measures such as initiating a measurement and reporting system, and starting a USDA Sustainable Buildings SharePoint site, to share information and to raise awareness of Sustainable Building accomplishments, both within the Department, and to share agency achievements and challenges.

USDA uses numerous sustainable design and construction strategies, including to:

- “raise the bar” and strive to further agency sustainable buildings accomplishments, within the Facilities Work Group and Sustainable Buildings Work Group, by setting goals, sharing successes and lessons learned;
- follow green procurement methods and using green contract language in leasing, constructing, repairing, altering, and operating and maintaining facilities;
- use a third-party certification system, such as the LEED system and Green Globes, to measure sustainability levels for new buildings, where practicable; ensure that contract Architectural and Engineering firms design buildings to a minimum LEED Silver rating; and, for all new design and construction, meet criteria for LEED Silver certification;
- use a USDA-wide green leasing standard for all new leasing actions requiring that projects meet the criteria for LEED Silver and meet the *Guiding Principles*;
- raise performance in offices, laboratories, farm and forest buildings through increasing levels of sustainable design and energy and water conservation,
- refine internal systems to track sustainability characteristics, and develop new systems with increased capabilities,
- measure, recognize, and reward positive sustainable building performance within USDA, assessing and evaluating all USDA existing buildings, to measure and validate the extent to which buildings meet the *Guiding Principles*,
- share information and raise awareness of USDA sustainable building practices with training presentations and internet-based tools, such as the Sustainable Buildings SharePoint site;
- cooperate with energy conservation, Biopreferred, environmental management system (EMS), and green procurement programs to reach environmental objectives, such as showcasing Biopreferred products in USDA sustainable buildings and gathering facility environmental management data for sustainable building reports,
- form research and interest groups to pilot projects in sustainable sites/ sustainable land management, alternative energy, and water conservation and Low Impact Development (LID) technologies; and

- incorporate green materials and systems into the technical construction specifications to ensure that buildings meet the *Guiding Principles*, and where practicable meet criteria for the USGBC's LEED Silver Certification.; the Department is steward of 23 LEED Certified and LEED Silver buildings.

V. Performance Targets and Agency Accomplishments

USDA staff developed specific criteria for sustainable buildings, and provided a survey to evaluate and assess all USDA sustainable existing buildings, currently in use to measure 2010 and 2011 performance. Agency staff is formulating guidance and is responding to the annual data call on sustainable building performance. The ARS, Departmental Management's Office of Operations (OO), FS, APHIS, and NRCS, as well as FSA, GIPSA, and Rural Development, follow strategies to implement the *Guiding Principles*, and to incorporate them into design standards.

Specifically, appropriate sustainable design considerations are given in the siting, design, and construction of new facilities; new building construction projects are managed by integrated design teams and commissioning is integrated into design and construction phases. Also, indoor environmental quality specifications are included in the design of all new building construction. Furthermore, new construction contracts must include services to abate hazardous materials and hazardous substances, and give preference to the reuse or recycling of materials.

Agricultural Research Service

The CLF Building in Ames, Iowa, is one of two ARS LEED certified facilities. For existing buildings, ARS continues to assess facilities via a sustainability survey in 2011. The ARS Existing Building Survey, conducted in the field of all locations, to find those deemed the most sustainable so as to concentrate efforts on improving them. The survey, distributed with the annual energy report call for data, is based on LEED-EB, version 2.0. Currently ARS has a baseline, for all locations, focusing on the sustainable locations.



Exhibit 2
The CLF Building, in Ames, Iowa

ARS uses the survey results to identify and implement cost effective, affordable, sustainable practices, agency-wide. ARS currently has six percent of its existing buildings sustainable and is making progress.

Specific ARS' sustainability actions include:

- The ARS green cleaning initiative, launched in FY 2010, requires, for all Research, Education, and Economics mission area facilities, the exclusive use of green cleaning products in custodial contracts. This includes janitorial contracts, along with use of entrance mats, isolated cleaning closets, and cleaning equipment with a low environmental impact. The objective is to provide effective and cost competitive cleaning solutions, and to use biologically compatible, biodegradable and safe products, while improving indoor air quality and working conditions. ARS is publishing "Biobased Success Stories" about green cleaning product use.
- ARS performs regular outreach to energy managers, engineers, procurement specialists, facility managers and the EMS/safety community on sustainability and the agency's sustainability policy. A communication structure has been established, conference calls are held and an ARS energy management SharePoint website is maintained.
- ARS completes two LEED Certified sustainable buildings this year, at the Combined Laboratory Facility in Ames, Iowa.
- ARS incorporates sustainability requirements into all of its standards and design contracts. The five *Guiding Principles* are incorporated into new construction, where cost effective. ARS is partnered with Labs 21 and uses their methodology. Where practicable, major new construction projects follow the LEED methodology; however, they are not being submitted to USGBC.
- ARS engages the Environmental Management System (EMS) structure in the accomplishment of sustainability goals. EMS committees are trained on the five *Guiding Principles* and the elements of LEED EB, and are incorporating them into their EMS's.

Office of Operations

The South Building Modernization is a major USDA sustainable building initiative. This multi-phased modernization project is intended to raise the South Building's sustainability level to the LEED Gold standard. The modernization's many green features include:

- energy and water efficiency upgrades,
- environmentally positive construction materials, and
- aggressive recycling of construction and demolition debris.

In addition, the South Building features green housekeeping practices, a green cafeteria, green roof and cistern, and an aggressive waste minimization and recycling program.

Forest Service

Sustainable building design is inherent in the FS policy and practice. On June 1, 2011, the FS added a directive, No. 7309.11-2011-1, to its agency sustainable buildings policy, Forest Service Handbook 7309.11 – Buildings and Related Facilities Handbook, Chapter 70. This policy sets forth details on using both the *Guiding Principles* and sustainable practices when designing, constructing, or renovating certain types of FS administrative buildings:

- New building construction and major renovation projects where the project includes 2,500 gross square feet (GSF) or more in scope, or
- Any building or group of buildings that, by design, would have energy intensive activities, such as tree coolers, commercial kitchens, processing plants, and so forth. A general guideline for this criterion is whether the anticipated electric (or other appropriate energy) bill would exceed \$40,000 annually.

FS encourages green building certification as an efficient way to meet the *Guiding Principles* in new construction. Construction projects of or greater than 10,000 gross square feet (GSF) in size must be registered and certified under either the USGBC's LEED rating system, minimum Silver level, Green Globes, or other third-party certification system, for regional offices, supervisor's offices, district offices, visitor centers, and research offices or laboratories. All buildings must incorporate sustainable principles as appropriate to the building type and project scope.

FS also encourages construction project offices to use domestically harvested wood products ideally locally sourced and from National Forest System lands, wherever practicable and feasible.

In FY 2010, the FS completed the following sustainable construction projects:

- FS owned facilities:
 - Koen Federal Buildings Addition (new construction - LEED Gold)
 - Sandpoint RD Office (new construction - LEED Gold)
 - Watersmeet Admin Site (new construction – LEED Gold)
 - Bent Creek Forestry and Research Training Center (new construction - LEED Silver)
 - Cle Elum RD Office Addition (new construction – LEED registered¹)
 - McKenzie River RD Renovation (renovation – LEED registered)
 - Verde Admin Site (new construction – LEED registered)
 - Texas Supervisor's Office (new construction – LEED registered)
- FS leased facilities
 - Tucson Dispatch Center (new construction – LEED registered)
 - Santa Fe SO (new construction – LEED registered)

¹ LEED registered indicates that the project is registered with LEED, awaiting final analysis and sustainability rating.

The FS is achieving other sustainable building measures, which include:

- At the Sustainable Operations Western Collective, writing a collective work plan for sustainable practices, across Regions 1, 2, 3, 4, 6, and Rocky Mountain Research Station;
- Continuing to inventory greenhouse gas emissions at six National Forests in the Greater Yellowstone ecosystem;
- Using a micro-grant program, to implement energy, water, and resource conservation activities and an Energy Savings Performance Contract (ESPC) to complete energy and water conservation projects and to install renewable energy systems,
- Installing a pair of five kilowatt wind turbines at Arapaho and Roosevelt National Forests in Region 2, and building a ten-person bunk house in Montrose CO, using LEED for homes to measure accomplishments for which a minimum LEED silver rating is anticipated, and
- At the Forest Products (FP) Laboratory (FPL) Green-Built house in Madison, Wisconsin, FP constructed a Research Demonstration House (RDH,) built in 2001. The RDH provides an interpretive display of technology for all types of residential structures in which wood-based products are used as building components. The RDH display emphasizes the improved use of traditional wood products, and the use of recycled and engineered wood composites. It also demonstrates the use of BioPreferred products, positive indoor air quality, water conservation and recovery, and an improved living environment. The FPL received the Wisconsin ENERGY STAR rating for the RDH design, and RDH is certified as a Wisconsin Green Built Home.

FS Net-Zero Energy:

The FS continues to collaborate with the US Department of Energy's National Renewable Energy Lab (NREL) on a net-zero energy model for buildings and to partner with EPA on what net-zero waste means. FS is also building net-zero energy installations.



Exhibit 3
The San Dimas Technology and Development Center

Net-zero energy installations include:

- The San Dimas Technology and Development Center (SDTDC) in Southern California, where FS expects to accomplish zero net energy use soon. Using American Recovery and Reinvestment Act (ARRA) funds, the center recently installed 1,288 solar polycrystalline silicon panels (PV) rated at 235 Watts each for a total projected annual energy output of 594,091 kWh/yr. In addition to these new sources of renewable energy, SDTDC also completed numerous energy efficiency projects to reduce the facilities total energy demand. Projects included motor efficiency upgrades, HVAC system replacement, energy efficient lamps, installation of occupancy sensors for overhead lighting and the installation of plug-load sensor at each desk. Through the installation of PV and a decreased energy footprint, the SDTDC expects to become the FS’s first net-zero facility.
- A pilot study of Net Zero Energy on the Shoshone National Forest, including detailed facility energy consumption audits; working with DOE’s NREL, a plan was developed to optimize renewable energy technologies at each location in order to reach net zero energy consumption.
- The FS’s Western Collective is establishing a ranger district net zero energy implementation model.

LEED Rating	Forest Service Buildings
Gold	Chattooga River Ranger District Office, Chattahoochee NF, Region 8-Southern Region
	Koen Federal Buildings Addition
	Sandpoint Ranger District Office
	Watersmeet District Office, Region 9-Eastern Region
Silver	Savannah River Laboratory, Southern Research Station, Region 8-Southern Region
	Bessey Ranger District Office, Nebraska NF, Region 2-Rocky Mountain Region (shown in Exhibit 4)
	Kawishiwi Ranger Station, Superior NF, Region 9-Eastern Region
	Bent Creek Forestry and Research Training Center, Southern Research Station Experimental Forest
Certified	Lee Ranger District Office, George Washington-Jefferson NF, Region 8-Southern Region (geothermal heat pump shown in Exhibit 5)
	Sylamore Ranger District, Ozark-St. Francis NF, Region 8-Southern Region

Exhibit 4: the Forest Service’s LEED certified buildings



Exhibit 5
Bessey Ranger District Office, Nebraska National Forest, Rocky Mountain Region

Examples of projects currently under construction or design with LEED certification pending, as registered on the USGBC web site are:

- Bradford Ranger Station, Allegheny NF, Region 9-Eastern Region,
- Cle Elum Ranger District Office Addition, Region 6-Pacific Northwest Region,
- National Forests in Texas Supervisor's Office, Region 8-Southern Region,
- Sacramento Ranger Station, Region 3-Southwestern Region,
- Hidden Springs, Region 9-Eastern Region,
- Broken Bow Ranger Station, Region 8-Southern Region,
- Hell Canyon District Office Addition, Region 2-Rocky Mountain Region,
- Misty Fjords Admin Building, Region 10 – Alaska Region,
- Verde Ranger Station, Region 3-Southern Region (solar power interpretive display shown in Exhibit 6),
- Santa Clara-Mojave Rivers Ranger District, Region 5-Pacific Southwest Region,
- Truckee District Office, Region 5-Pacific Southwest Region,
- Appalachian Ranger District Office, Region 8-Southern Region,
- International Institute of Tropical Forestry Headquarters Renovation.



Exhibit 7
Verde Ranger Station, Region 3, Solar Power Interpretive Display

Buildings which hold potential for LEED certification, in planning or design phases, slated for future construction, include:

- Sandpoint Ranger District Office, Region 1-Northern Region,
- Big Piney Ranger District, Region 4-Intermountain Region,
- Rock Creek Barracks, Region 5-Pacific Southwest Region,
- Barlow Ranger District Office Addition, Region 6-Pacific Northwest Region,
- Francis Marion Ranger District, Region 8-Southern Region,
- White Mountain Administrative Site, Region 9-Eastern Region,
- Forest Products Lab Modernization, Research,
- Sisters Ranger District Office, Region 6,
- Bend-Fort Rock District Office, Region 6,
- Appalachian Ranger District Office, Region 8,
- Cheat-Potomac District Office, R-8,
- Vienna Ranger District Office, Shawnee NF, Region 9, and

Alterations to existing buildings with sustainable features include:

- Photovoltaic and Solar Hot Water System, Missoula Technology and Development Center,
- Energy Savings Performance Contract (retrofit all offices with energy/water conservation measures), Region 4-Intermountain Region, and
- Office Energy Reduction (3 District Ranger Stations), Region 1-Northern Region.



Exhibit 6
Lee Ranger District Office, George Washington-Jefferson NF, Southern Region
HVAC geothermal heat pump

The LEED certified, certification pending, and green buildings not yet registered, as listed above, represent approximately 494,000 square feet. The current total square feet of FS buildings is approximately 33.4 million square feet.

Animal Plant Health Inspection Service and GIPSA

APHIS and GIPSA incorporate the LEED principles into all solicitations for lease of the two agencies' build to suit projects. In 2009, APHIS achieved a LEED Gold rating for the recently completed Detector Dog Training Center in Newnan, Georgia. The center is the first LEED Gold new construction building that APHIS solicited and coordinated with the private sector. The building encompasses approximately 79,211 square feet, plus covered areas for a total of 123,737 square feet, and is a stunning example of incorporation of sustainable technologies in a highly technical building setting. APHIS renovated 14,500 square feet in its Gainesville, Florida' office under LEED for Commercial Interiors. The office was the first APHIS project under LEED for Commercial Interiors guidelines for energy and the project complies with three of the five *Guiding Principles*.

APHIS leads the way in setting a green leasing standard at USDA, incorporating the Green Products guidelines and LEED Requirements into solicitations for all leasing actions, regardless of size. The agency continues to incorporate sustainable guidelines for all leasing activities. New leases require that lessors with buildings over 5,000 GSF follow the *Guiding Principles* to meet USDA existing building sustainability requirements, and that build-to-suit lease projects meet criteria for LEED Silver. Furthermore, where leases may be renewed, APHIS is notifying lessors of the USDA sustainable buildings requirement, and of the criteria that must be met.

APHIS completed several energy alteration projects for energy conservation and green leasing activities, including the Butler Square Building. Butler Square is the first historical property in Minnesota with a LEED rating, holding an Energy Star Label since 2010, and a LEED Certified

historic property. APHIS completed a Los Angeles, CA Plant Inspection Station, an Energy Star Labeled building constructed towards LEED Silver.

Additional innovative and sustainable construction and landscaping technologies include:

- APHIS and ARS are collaborating on a sustainable courtyard project at their combined Laboratory in Ames, IA. This project includes rain recovery measures such as rain gardens to decrease stormwater run-off. Landscaping includes Iowa native plants, a pollinator garden, and trees planned to provide shade and air-conditioning load reduction;
- APHIS is improving their Newnan Training facility by incorporating an innovative and cost effective water recycling system that includes a 40,000 gallon underground cistern that collects rainwater from the roofs of the facility for re-use in flushing toilets and washing kennels. The system is expected to save 110,000 gallons of domestic water annually; and
- APHS is improving the San Juan, plant inspection station by installing desuperheated chillers. Because air handling units use must high volumes of outside air, over-cooling the supply air removes the moisture. The supply air is reheated in order to make the space comfortable. The desuperheaters use the rejected heat from the chillers to reheat the supply air, making the chillers efficient and using very little energy. In standard practice, the chillers reject their heat to the outside and reheating is accomplished by a boiler or water heater.



Exhibit 8: APHIS Detector Dog Training Center

Farm Services Agency

FSA is making significant Sustainable Buildings progress in 2010 – 2011. The agency, steward of 293 leased buildings 5,000 GSF or greater, is assessing the entire inventory, and identifying green buildings. FSA is leveraging the agency's influence to assess the sustainability of the space, ascertain the Government's intent to remain at the leased location and request sustainable improvements. From 2010 sustainability assessments, FSA finds that fifteen of the 293 buildings are sustainable. The agency's Realty Office has formed an FSA Sustainability Team, continues to measure progress and to define strategies for future year accomplishments.

Natural Resources Conservation Service (NRCS)

NRCS is organizing policy strategies and engineering field practices, to assess the building inventory, and ultimately to meet the SBIP milestones. NRCS constructed a new equipment storage and shop building in Bismarck, North Dakota. They wrote the solicitation for offers to direct sustainable building practices using the Sustainable Buildings Implementation Plan Guiding Principles. These influenced the building's envelope and indoor environmental quality. NRCS is reviewing the applicability of the survey form used by ARS as an initial action for evaluating sustainable buildings. NRCS continues to survey and assess its inventory.

VI. Continuing Progress

The new sustainability E.O. 13514, and E.O. 13423, require USDA to prove that the Department has achieved 15 percent sustainable buildings by 2015. The Department is studying current levels and projections to achieve the 15 percent goal. In FY 2011, USDA continues to assess the inventory, and is also developing an initial baseline projection of the percentage of buildings sustainable by 2015.

Although the Department is making every effort to meet the EO 13514 goal of having 15 percent of existing building inventory sustainable by 2015 as measured by building number, it presently appears impossible for USDA to achieve this goal. At this time, the Department does anticipate achieving an interim seven percent target in FY 2011. Exhibit 10, on the following page, depicts the USDA process and timetable relative to achieving the 15 percent goal. The Department is evaluating the time and funding resources required.

VII. Action Item Checklist and Milestones

Action Item	Responsibility	Target/actual Initiation Date	Target Completion Date	Actual Completion Date
Planning and Implementation				
Collaborate with Facilities Working Group and Sustainable Operations Council to set priorities, objectives, and incremental goals; share strategies and challenges in meeting EO 13514 mandates	USDA sustainable buildings work group	08/01/09	09/30/15	
USDA-wide policies and practices: guide and align the policies and practices of Forest Service, ARS, APHIS, FSA, and NRCS	USDA sustainable buildings work group	09/30/07	05/30/12, and recurring annually	
Define processes that raise sustainability levels; analyze and identify gaps in sustainable buildings programs, and take steps to fill gaps	USDA sustainable buildings work group	02/01/10	on-going	
Develop a sustainability strategy for existing building repairs, alterations, and operations and maintenance.	USDA sustainable buildings work group	05/30/09	on-going	
Schedule levels of progress in raising sustainability levels over future FY's, based upon analysis of required resources	USDA sustainable buildings work group	10/15/11	09/30/15	
Establish performance targets to meet the <i>Guiding Principles</i> over future FY's; and establish existing building sustainability baseline	USDA sustainable buildings work group	02/01/10	04/01/13, and on-going	
Identify specific building field data which helps for Sustainability reporting; create incentives and a means to collect the field data	EMD and sustainable buildings work group	02/01/10	08/31/11, and recurring annually	
Expand lines of communication to reach: 1) key players in building engineering and real property; 2) decision-makers in the programming, funding and acquisition process; and 3) chain of command holding management oversight and approval responsibilities	USDA sustainable buildings work group	02/28/10	on-going	
Create vehicles to educate and share information both internally and externally, such as websites and agency newsletters	EMD and sustainable buildings work group	04/30/10	09/30/11, and recurring annually	
Institute measurement, verification, and training to ensure continual improvement	EMD and Agency sustainable buildings and field staff	06/30/08	12/30/11, and recurring annually	
Develop corrective action plans for addressing shortcomings in implementation	EMD	6/30/08	recurring annually	
Establish agency policies that all new construction or major	EMD and sustainable	03/31/08	06/30/10, and recurring	

Action Item	Responsibility	Target/actual Initiation Date	Target Completion Date	Actual Completion Date
renovation projects include using a cross functional team with representation from sustainable design, energy, environment, commissioning, facilities, and other green building qualifications for the design, construction, and commissioning	buildings work group		annually	
Modify all pertinent agency policies to incorporate Guiding Principles and correct shortfalls identified in the gap analysis	Agency sustainable buildings staff	04/30/10	recurring annually	
Incorporate the <i>Guiding Principles</i> into criteria, specifications, and contract language for new construction and major renovations	Agency field staff	04/30/10	12/30/11, and recurring annually	
Agency Tracking and Reporting				
Assess sustainability levels, to measure performance of all existing capital assets over 5,000 square feet	Agency sustainable buildings and field staff	08/01/09	03/30/13, and recurring on a 3-year cycle	
Report upon all existing capital assets over 5,000 square feet that meet the five <i>Guiding Principles</i>	EMD and sustainable buildings work group	09/30/09	09/30/13, and recurring annually	
Identify existing buildings with greatest sustainability potential as targets of opportunity . Prioritize existing facilities for a continuous commissioning strategy, addressing key environmental aspects, including energy use and Indoor Environmental Quality	Agency sustainable buildings and field staff	03/30/10	09/30/13, and recurring annually	
Estimate costs to raise sustainability of targets of opportunity; determine required resources. Align schedule for sustainability improvements with required capital and repair and alteration improvements	Agency sustainable buildings staff	09/30/13	03/30/14, and recurring annually	
Establish timeline to raise sustainability of existing targets of opportunity	USDA Agencies	09/30/13	03/30/14, and recurring annually	
Upgrade existing targeted buildings' sustainability levels, reassess, and compare to baseline level	Agency sustainable buildings and field staff	03/30/14	09/30/14, and on-going	
Refine procedures to identify and track new construction and major renovation projects, and to report existing facilities continuous commissioning strategy success.	EMD and sustainable buildings work group	09/30/07	09/30/11, and recurring annually	
Refine semi-annual reporting system to track agency sustainable buildings progress throughout all building life cycle stages: Siting, Design, Construction, Operations & maintenance, and Disposal or Excessing	EMD and sustainable buildings work group	06/30/08	recurring annually	
Report all Sustainable Building accomplishments, as permitted, into the High Performance Buildings database	EMD and sustainable buildings work group	06/30/11	recurring annually	Still in progress

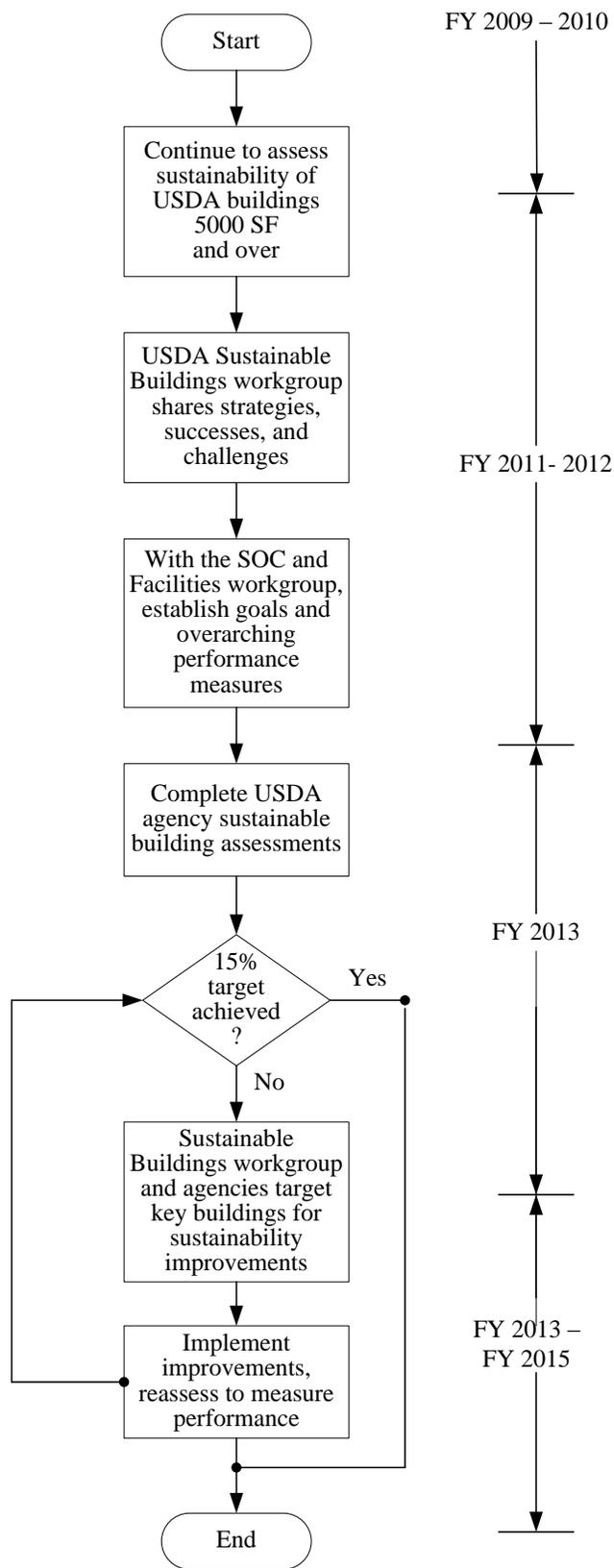


Exhibit 10
USDA Process to Achieve 15% Existing Building Sustainability Goal

VIII. Sustainable Building Resources

1. Whole Building Design Guide Sustainability at <http://www.wbdg.org/design/sustainable.php>
2. USDA's Greening and Sustainable Operations at <http://www.greening.usda.gov>
3. USDA's BiopREFERRED Program at <http://www.biopREFERRED.gov>
4. General Services Administration (GSA) GSA Sustainable Design webpage at <http://www.gsa.gov/portal/content/104462>
5. Department of Energy (DOE)
 - Roadmap for Integrating Sustainable Design into Site-Level Operations at <http://www.pnl.gov/doesustainabledesign>
 - Program, High Performance Buildings website at http://www1.eere.energy.gov/femp/program/sustainable_buildings.html
 - Greening Federal Facilities website at http://www.eere.energy.gov/femp/techassist/green_fed_facilities.html
 - Energy Star Sustainability program at <http://www.energystar.gov/>
 - DOE/FEMP's Interagency Sustainability Working Group four-page brochure on Federal Green Buildings: http://www1.eere.energy.gov/femp/pdfs/iswg_update_dec2009.pdf
 - DOE's High Performance Federal Buildings Database at www.eere.energy.gov/femp/highperformance/index.cfm
6. U.S. Environmental Protection Agency (EPA)
 - EPA's Sustainability program at <http://www.epa.gov/oppt/epp/>
 - EPA Green Building website: <http://www.epa.gov/greenbuilding>
 - Laboratories for the 21st Century: <http://www.epa.gov/labs21century>
 - Energy Star: <http://www.energystar.gov>
 - Environmentally Preferable Purchasing: <http://www.epa.gov/oppt/epp>

VIII. Sustainable Building Resources (cont'd)

- Non-point Source Pollution: <http://www.epa.gov/owow/nps/urban.html>
- Construction and Demolition (C&D) Debris: <http://www.epa.gov/epaoswer/non-hw/debris>
- Comprehensive Procurement Guidelines: <http://www.epa.gov/cpg>
- Comprehensive guidance, data, and tools for commercial buildings. <http://www.epa.gov/iaq/largebldgs/>
- Software to evaluate ventilation and humidity control performance of energy recovery ventilation systems and to calculate their cost effectiveness. at <http://www.epa.gov/iaq/schooldesign/saves.html>

7. U.S. Department of Defense (DOD)

- Defense Environmental Network and Information Exchange (DENIX): <https://www.denix.osd.mil/denix/Public/Library/Sustain/sustain.html>
- Pentagon Renovation and Construction Program Office (PENREN) sustainable design information at <http://www.whs.mil/PENREN/sustainabledesign.cfm>
- U.S. Air Force (USAF) AFCEE's Sustainable Development website at <http://www.afcee.brooks.af.mil/eq/programs/progpage.asp>
- Air Force Environmentally Responsible Resources Guides at <http://www.afcee.af.mil/resources>

8. U.S. Department of the Interior - National Park Service (DOI/NPS)

NPS has a climate friendly parks site at <http://www.nps.gov/climatefriendlyparks/> and a sustainability information site at <http://www.nps.gov/sustain>. Both contain extensive resources and case studies. The NPS periodical *Sustainability News* features information on sustainable National Park facilities and additional resources that parks can use.

9. National Aeronautics and Space Administration (NASA)

- NPG 8570.1, Energy Efficiency and Water Conservation Technologies and Practices: http://nodis3.gsfc.nasa.gov/library/displayDir.cfm?Internal_ID=N_PG_8570_0001_&page_name=main
- NPD 8820.3, Facility Sustainable Design: http://nodis3.gsfc.nasa.gov/displayDir.cfm?Internal_ID=N_PD_8820_002C_&page_name=main

VIII. Sustainable Building Resources (cont'd)

10. National Institute of Standards & Technology (NIST), Life Cycle Cost Assessment (LCCA):

- NIST, in 2003, developed the Building for Environmental and Economic Sustainability (BEES) LCCA tool, to analyze and compare the environmental impacts of each material or building component, in these 12 areas: Global Warming, Water Intake, Acidification, Criteria Air Pollutants, Eutrophication, Smog, Fossil Fuel Depletion, Ecotoxicity, Indoor Air Quality, Ozone Depletion, Habitat Alteration, and Human Health; the website is at <http://www.nist.gov/el/economics/BEESSoftware.cfm>

11. The ATHENA® Institute Impact Estimator for Buildings:

- The ATHENA® Institute, collaborating with Morrison Hershfield, creates a for-cost software tool designed to evaluate whole buildings and assemblies based on life cycle assessment (LCA) methodology; the website is at <http://www.athenasmi.org/tools/impactEstimator/>

12. Building Green sustainable buildings information at <http://www.buildinggreen.com/>

- **Building Green** publishes *Environmental Building News*, and maintains an online database of more than 1,600 screened and reviewed green building products with guideline specifications, called the GreenSpec Directory, available through subscription only.

13. The U S Green Building Council LEED® Rating System at <http://www.usgbc.org/DisplayPage.aspx?CategoryID=19>

14. The Green Globes environmental assessment system: <http://www.greenglobes.com/design/homeca.asp>

IX. Direction for 2012

USDA agencies are simultaneously working to measure progress and to improve sustainable practices at individual sites. The agency sustainability programs are advised and guided by the USDA Sustainable Operations Council (SOC), which is led and chaired by the USDA Senior Sustainability Officer (SSO), the Facilities Work Group FWG, and participate in the Sustainable Buildings Work Group. The Sustainable Buildings Work Group is led by the EMD Sustainable Buildings Program Manager.

Of particular note are the accomplishments by the land-holding agencies, ARS, OO, FS, NRCS, and APHIS/GIPSA. A USDA Existing Building Sustainability Ranking system, as incorporated into agency policy, is in use for the second year of reporting. It is currently being refined by FS and EMD staff. Many non-land-holding agencies, such as Rural Development, are also actively involved, participating to improve metering of utilities, energy usage reporting, recycling, and providing comments on proposed regulations.

The USDA is using specific strategies to decrease environmental impacts and reach space consolidation goals, while expanding agency service delivery, promoting the use of telework and other alternative workplace, and reducing the need for new building and field office space. USDA is currently right-sizing its real property inventory. As the USDA optimizes the size of its real property portfolio through consolidation and leasing actions and encourages telework, the department reaches space consolidation goals and moves closer to achieving its GHG reduction targets.

^{i i} Capital Asset Threshold definition: from DR 2200-002, December 24, 2003: “ This regulation revises Departmental Regulation 2200-002, Capitalization and Depreciation of Real and Personal Property, dated February 28, 1994. The Internal Use Software (IUS) capitalization threshold is \$100,000, effective fiscal year (FY) 2002 and forward. Effective FY 2003 and forward, personal property (other than IUS) shall be capitalized at \$25,000. Also, effective for FY 2003 and forward, the real property capitalization and accountability threshold is \$25,000.”