United States Department of Agriculture
Research, Education, and Economics

ARS □ NIFA □ ERS □ NASS

Policy &Procedures

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This P&P provides the Agency's plan to implement the goals and requirements of the Energy Policy Act of 2005 (EPACT 2005), Executive Order (EO) 13423 – "Strengthening Federal Environmental, Energy, and Transportation Management," the Energy Independence and Security Act of 2007, and EO 13514 – "Federal Leadership in Environmental, Energy, and Economic Performance."

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Energy, Water, and Sustainability Policy

1. Purpose

The Energy Policy Act of 2005 (EPACT 2005), Executive Order (EO) 13423 – "Strengthening Federal Environmental, Energy, and Transportation Management**,**" the Energy Independence and Security Act (EISA) of 2007, and EO 13514 – "Federal Leadership in Environmental, Energy, and Economic Performance" require executive departments and Federal agencies to conserve energy and water; to design, construct, and maintain sustainable facilities; reduce greenhouse gas emissions, and procure environmentally preferable products. They set mandatory goals. The Department of Energy (DOE) has issued implementing instructions for each. This Policy & Procedure (P&P) provides a plan for the Research, Education, and Economics (REE) Mission Area to implement these requirements. It applies to all of REE.

2. Background

Reducing operating costs is a top priority for REE. The Federal government is the largest consumer of energy in the country. Congress and the President have charged Federal agencies to lead by example by making significant efforts in conservation of energy and water, good stewardship of resources, and by creating sustainable facilities. Meeting this challenge is mandatory.

REE has over 3,200 buildings in over 100 locations nation-wide and internationally. They include laboratories, offices, greenhouses, agricultural buildings, and bio-containment facilities. Many of these facilities are very energy intensive. About 85 percent of the total cost of ownership of a facility is in operation and maintenance (O&M), and about 40 percent of that (or about 1/3 of the total O&M cost) is utilities. REE also has over 3,600 vehicles. This represents a significant energy expense and an opportunity to save money.

3. Policy

Consistent with REE's mission and without compromising health and safety, it is REE policy to give energy and water conservation as well as sustainability, prime consideration in the acquisition, use, and disposal of all property and in the performance of all functions. This action will reduce the impact of our activities on the environment and help conserve resources. Efficiency and conservation shall be integrated into the core activities of the Agency. It shall be every employee's responsibility to ensure that

every reasonable effort is made to reduce operating costs and conserve energy, water, and resources.

4. Responsibilities

Responsibility for carrying out the requirements of EPACT 2005, EO 13423, EISA, and EO 13514 falls on the entire mission area. For more detailed responsibilities see Appendix 1.

4.1 Facilities Division (FD)

FD will be responsible for creating and overseeing policy for the implementation of EPACT 2005, EO 13423, EISA, and EO 13514 as it relates to Facilities. The Director of FD shall be responsible for Facilities Division's duties under this policy.

4.2 Excluded Facilities

This P&P does not apply to the following facilities:

a. REE facilities that have minimal energy usage per square foot (e.g., sheds, and barns that are not climate controlled).

b. United States Department of Agriculture (USDA) leased facilities where the landlord is responsible for paying the utility bills.

c. General Services Administration (GSA) - controlled space assigned to REE where REE does not directly pay for utilities.

d. Shared and/or free space provided to REE where REE does not directly pay utility costs.

Occupants of these excluded facilities should still conserve energy, water, and resources in any ways available to them and encourage their landlords to do so.

4.3 The Safety, Health, and Environmental Management Branch (SHEMB) will be responsible for implementing and coordinating the requirements for non-facility ozone depleting compounds and hazardous chemicals and for coordinating the expansion of the Energy Management System (EMS) program to include EPACT 2005, EO 13423, EISA, and EO 13514.

4.4 The Real Property Management Branch (RPMB) will be responsible for maintaining the Corporate Property Automated Information System (CPAIS) and sustainable leasing, acquisition, and disposal of real property.

4.5 The ARS Facilities Energy Manager (FEM) /Sustainable Program Manager will be responsible for the overall implementation and management of the Energy, Water, and Sustainability Plan.

4.6 Acquisition and Property Division (APD)

APD is composed of the Acquisition Programs and Oversight Branch and the Property and Support Services Branch. APD will be responsible for procurement policy including green purchasing, fleet transportation, electronics stewardship, and purchase cards. Procurement policy will include non-facility bio-based products, recycling and recycled products, Energy Star® and other energy efficient, environmentally preferable products and water consumption reducing products, Property and Support Services Branch, APD, is responsible for Fleet Transportation relative to petroleum use, renewable, alternative, and flexible fuels, hybrid vehicles, and maintenance of the Federal Automotive Statistical Tool (FAST) system. APD will be responsible for ensuring compliance with green procurement requirements for Information Technology (IT) acquisitions that are specified by the Office of the Chief Information Officer (OCIO) using the EPEAT, Energy Star®, and EO 13221 – "Energy Efficient Standby Power Devices." APD will develop and implement a comprehensive green purchasing plan and a fleet fuel efficiency plan. The Director of the Acquisition and Property Division shall be responsible for APD's responsibilities under this policy.

4.7 Business Service Centers (BSC)

BSCs include the Eastern Business Service Center (EBSC), the Western Business Service Center (WBSC), and the National Capital Region Business Service Center (NCRBSC). Beltsville Area and NAL responsibilities:

Location	Engineering	Contracting	Real Property
BARC including Presque Isle ME and USNA	Small-BARC, Large-EBSC, B&F by FD	EBSC	BARC with functional support by FD
NAL	Small-NAL, Large-EBSC, B&F by FD	NCRBSC all except A-E and construction by EBSC	FD

The BSCs will be responsible for energy and water conservation, reducing use of ozone depleting compounds, renewable energy, reducing petroleum and increasing use of alternative fuels, environmentally preferable products, Utility Energy Service Contracts (UESC), Energy Savings Performance Contracts (ESPC), and sustainable design."This includes the incorporation of the Five Guiding Principles of Sustainable High Performance Buildings into all new and remodeled major buildings, repair and maintenance (R&M) projects and other building projects. The Five Guiding Principles for new construction are:

1. Use integrated design and commissioning
2. Optimize energy efficiency using measurement and verification
3. Protect and conserve water

4. Enhance indoor environmental quality
5. Reduce the environmental impact of materials in Federal buildings

Through policy and operations respectively, all of FD, APD, BSCs, Areas, and locations will be responsible for maintaining sustainability based on the Five Guiding Principles, and building O&M policy and guidance. See APPENDIX 4 for more information on the Five Guiding Principles.

BSCs are responsible for compliance with EISA section 432 which includes covered facilities; energy managers; energy, water and re-/retro commissioning surveys; and posting to the Compliance Tracking System (CTS) and Energy Star Portfolio Manager®.

BSCs are responsible for data collection and reporting to FD associated with the requirements of EPACT 2005, EO 13423, EISA, and EO 13514.

BSCs are responsible for Information Technology (IT) acquisitions that are specified by the Office of the Chief Information Officer (OCIO) using the EPEAT, Energy Star®, and EO 13221 – "Energy Efficient Standby Power Devices."
BSC Directors shall be responsible for BSCs' duties under this policy

4.8 NASS, ERS and NIFA

NASS, ERS and NIFA activities are largely office oriented and conducted in leased space where utilities are included in lease payments. All occupants of these spaces should conserve energy, water and resources in any manner available to them and encourage landlords to do so as well. Vehicle and electronics use shall also conform to this policy. The Administrators of NASS, ERS and NIFA are responsible for their respective agencies' duties under this policy.

4.9 ARS Areas and locations

Areas and locations will be responsible for conforming to this policy in R&M projects, and building authority projects within their delegated authority, use of purchase cards, the National Environmental Policy Act (NEPA) documentation related to facilities, O&M of facilities, record keeping, and reporting. The primary responsibility for green or environmentally preferable purchasing such as Bio-based, Recycled, Energy Star®, FEMP designated, WaterSense products, etc., lies on the program offices. Vehicle use shall also conform to this policy. The Area Director shall be responsible for energy and water conservation and sustainability actions of the employees and programs they supervise and control.

4.10 Office of the Chief Information Officer (OCIO) and Information Technology Specialists (ITS)

OCIO/ITS will practice good electronics stewardship by utilizing Electronic Product Environmental Assessment Tool (EPEAT) and Energy Star® products, and implementing

IT practices designed to conserve energy and resources. The Chief Information Officer (CIO) shall be responsible for electronics stewardship. The CIO will have primary responsibility for IT acquisition compliance.

5. Authorities

The Energy Policy Act of 2005 (EPACT 2005)

EO 13423 – "Strengthening Federal Environmental, Energy, and Transportation Management"

The Energy Independence and Security Act (EISA) of 2007

EO 13514 – "Federal Leadership in Environmental, Energy, and Economic Performance."

EO 13221 – "Energy Efficient Standby Power Devices."

6. Definitions

Alternative fuel includes renewable fuel, natural gas, liquid propane, hydrogen, coal-derived liquid fuel, and electricity. Alternative fuel is fuel that is substantially not petroleum (oil). Renewable fuel is produced from biomass or bio-based oils. Biodiesel (in a 20 percent or higher blend), 85 percent ethanol/15 percent gasoline (E85), compressed natural gas (CNG), Liquefied Natural Gas (LNG), and Liquid Propane Gas (LPG) are alternative fuels.

A biobased or BioPreferred® product is a product determined by the USDA to be a commercial or industrial product (other than food or feed) that is composed in whole or in significant part, of biological products including renewable, domestic agricultural materials including plant, animal, marine, or forestry materials. There is a Federal procurement preference for biobased products if they are comparable in price, performance, and availability to non-biobased products.

Electronic Product Environmental Assessment Tool (EPEAT) is a mandatory on-line system to help purchasers in the public and private sectors evaluate, compare, and select desktop computers, notebooks, and monitors based on their environmental attributes.

Electronics stewardship involves purchasing, using, and disposing of computers responsibly.

An Energy Saving Performance Contract (ESPC) is a performance contract between an Energy Service Company (ESCO) and a Federal customer. A Utility Energy Service Contract (UESC) is a similar arrangement with a utility. With ESPCs and UESCs,

agencies can take advantage of private sector capital to fund energy and water saving equipment and renewable energy systems at Federal facilities. The cost of improvements is paid from the energy savings. Agencies can combine funds, obtain state or utility-sponsored rebates for energy-efficient improvements, and can apply for public benefits funds set aside to promote energy efficiency.

An Environmental Management System (EMS) framework is a continual cycle of planning, implementing, reviewing, and improving to allow an organization to consistently address the effects its operations may have on the environment and support continual improvement. Aspects are examined for their impacts. It is a continuous cycle of improvement which consists of four steps: Plan, Do, Check, and Act.

Environmentally preferable products are products and services that have a lesser or reduced effect on human health and the environment when compared with competing products or services that serve the same purpose. This comparison may consider raw materials acquisition, product manufacturing, packaging, distribution, reuse, operation, maintenance, and disposal. Bio-based, recycled, energy and water efficient, sustainably harvested, low toxicity, and rapidly renewable products are examples of environmentally preferable products.

A facility means any building, installation, structure, or other property owned or operated by, constructed for, or leased to the Federal Government. This includes a group of facilities at a single location or multiple locations managed as an integrated operation, and Contractor-operated facilities owned by the Federal Government. It may be a group of buildings or structures that share the same servicing energy and water utilities so that utility data can be aggregated easily. A covered facility is one in the top 75 percent of energy consumers.

A Flexible Fuel Vehicle is specially manufactured to run on any combination of E-85 and gasoline.

Greenhouse Gases (GHG) include CO_2, CH_4, SF_6, N_2O, HFCs, PFCs and other natural or man-made gases in the atmosphere that absorb and emit radiation within the thermal infrared range.

A hybrid vehicle is a vehicle that uses two or more distinct power sources to move the vehicle, usually an internal combustion engine and an electric motor.

A recycled product is one whose content comes in whole or in part from a product that has served its intended use and has been discarded for disposal by the final user.

Renewable Energy means energy produced by solar, wind, biomass, landfill gas, hydrokinetic, ocean (including tidal, wave, current, and thermal), or geothermal resources.

Sustainability is defined as the ability to meet present needs without compromising those of future generations. Sustainability also means incorporating the Five Guiding Principles as noted earlier. The Five Guiding Principles are explained in APPENDIX 4.

7. Acronyms

A list of acronyms is provided in Appendix 2.

8. Procedures

Facilities Division (FD) will issue the REE Energy, Water, and Sustainability Plan, and Implementation Strategies in which the actions to be taken and the Agency roles and responsibilities will be defined in more detail in Appendix 1. A list of low or no cost actions is included in Appendix 3.

Signature for approval:	Date of approval:
/ s /	11/12/2013
_____	_____

Joon Park
Deputy Administrator
Administrative and Financial Management

Appendix 1
Action Plan
REE Energy Water and Sustainability Plan and Implementation Strategies

1. Management Plan Framework

As directed by EO 13423, the overarching framework of the energy, water, and sustainability plan will be an EMS. Locations will incorporate their responsibilities into their existing EMS. Offices will develop an office EMS. A second level EMS will be implemented at headquarters (HQ). An EMS is a framework that allows an organization to consistently address the effects its operations may have on the environment. It is a continual cycle of planning (plan), implementing (do), reviewing (check), and improving (act) a process. It is based on an examination of cause and effect at each facility where activities may have an impact on the environment.

The consumption of energy and water are additional impacts that can be tracked by the existing EMS framework. Expanding the scope of EMS to incorporate the requirements of EO 13423 is the stated intent of the Office of the Federal Environmental Executive (OFEE) and the Interagency EMS Working Group. This will enhance REE's overall goal of complying with the EOs and other laws.

2. Authorities

2.1 Acts, Executive Orders, and Presidential Memoranda

2.1.1 EPACT 2005 requires Agencies to:

a.) Ensure all Federal buildings have advanced electric meters, where cost effective (10,000 Square Feet (SF) or larger and energy intensive is USDA's working assumption for cost effectiveness), by the end of FY 2012.

b.) Ensure all new building designs will be 30 percent more energy efficient than American Society of Heating, Refrigeration, and Air-Conditioning Engineers (ASHRAE) 90.1-2004.

c.) Routinely use alternative fuel in dual-fueled alternative fuel vehicles (AFVs) unless an alternative fueling station is too far away or too expensive, and there is an Agency waiver from DOE.

2.1.2 EO 13423 requires Agencies to:

a.) Reduce energy intensity by 3 percent per year through FY 2015 based on

FY 2003 consumption levels.

b.) Reduce GHG emissions by 3 percent annually or 30 percent through FY 2015 based on FY 2003 levels through reduction of energy intensity.

c.) Reduce potable water consumption associated with buildings by 2 percent per year based on FY 2007 consumption levels through FY 2015.

d.) Purchase or produce renewable energy as a percentage of the current year's electrical consumption in the amount of 3 percent in FY 2007-2009, 5 percent in FY 2010-2012, and 7.5 percent from FY 2013 on.

e.) Have 15 percent of the building inventory sustainable by FY 2015.

f.) Reduce use of petroleum consumption, increase use of alternative fuels, and purchase alternative fuel hybrid and plug-in hybrid vehicles when commercially available.

g.) Increase AFV use at least 10 percent annually.

h.) Reduce total fleet petroleum consumption by 2 percent annually through the end of FY 2015 based on the FY 2005 baseline.

i.) Recycle and purchase recycled products.

j.) Purchase Energy Star® or Federal Energy Management Program (FEMP) designated energy efficient products.

k.) Purchase 95 percent of electronics using EPEAT and enable Energy Star® features on 100 percent of computers.

l.) Purchase bio-based products.

m.) Purchase environmentally preferable products

n.) Use paper of at least 30 percent postconsumer fiber content

o.) Reduce ozone depleting compounds.

p.) Reduce hazardous chemicals.

q.) Increase the use of EMS.

r.) Incorporate sustainability into lease provisions.

s.) Incorporate The Five Guiding Principles into all new designs. They are:

1. Use integrated design and commissioning
2. Optimize energy efficiency using measurement and verification
3. Protect and conserve water
4. Enhance indoor environmental quality
5. Reduce the environmental impact of materials in Federal buildings

2.1.3 EISA requires Agencies to:

a.) Reduce vehicle fuel consumption. Reduce petroleum consumption by 20 percent by 10/1/2015 from a FY 2005 baseline.

b.) Increase vehicle alternative fuel use by 10 percent by 10/1/2015 from a FY 2005 baseline.

c.) Increase use of hybrids, Neighborhood Electric Vehicles (NEVs), and more fuel efficient vehicles.

d.) Have at least one renewable fuel pump at each Federal fueling center.

e.) Include energy efficiency and renewable energy in lease language.

f.) Use energy efficient new and replacement lighting and bulbs.
g.) Reduce energy consumption in buildings by 30 percent by FY 2015 based on FY 2003.
h.) Have an energy manager for each facility.
i.) Perform facility energy audits, water surveys and re-commissioning surveys of facilities every four years, and implement energy efficiency improvements within 2 years.
j.) Reduce fossil fuel generated energy consumption in new facilities and major renovations starting design in 2010 – 55 percent, 2015 – 65 percent, 2020 – 80 percent, 2025 – 90 percent, and 2030 – 100 percent.
k.) Use a green building certification system.
l.) Use energy efficient equipment for replacements.
m.) Install advanced metering of natural gas and steam by the end of FY 2016 where cost effective.
n.) Lease only Energy Star® buildings when over 10,000 SF.
o.) Provide solar hot water heaters for 30 percent of hot water demand in new buildings.
p.) Purchase appliances requiring less than 1 watt of standby power.
q.) Purchase Energy Star® or FEMP designated energy-efficient products.
r.) Prohibits Federal agencies from acquiring "light-duty motor vehicles Gross Vehicle Weight Rating (GVWR) 8,500 or under and medium duty passenger vehicles (MDPVs, GVWR between 8,500 and 10,000) that are not low GHG-emitting vehicles."

2.1.4 EO 13514 requires Federal Agencies to:

a.) Measure, report, and reduce GHG emissions from direct and indirect activities.
b.) Conserve and protect water through efficiency, reuse, and storm water management.
c.) Reduce potable water consumption intensity by 2 per cent per year through FY 2020 or 26 per cent by the end of FY 2020 from a FY 2007 baseline. Implement water management strategies including water-efficient and low-flow fixtures and efficient cooling towers.
d.) Reduce industrial, landscaping, and agricultural water consumption by 2 per cent annually or 20 per cent by the end of FY 2020 from a baseline of FY 2010.
e.) Consistent with State law, identify, promote, and implement water reuse strategies that reduce potable water consumption.
f.) Eliminate waste, recycle, and prevent pollution.
g.) Divert at least 50 per cent of non-hazardous solid waste including construction waste and demolition debris by the end of FY 2015.
h.) Ninety five per cent of new contract actions for products and services should use energy efficient, water efficient, bio-based, environmentally preferable, EPEAT certified, non-ozone depleting, recycled content, and non-toxic/less toxic alternatives.

i.) Promote electronics stewardship.
j.) Beginning in FY 2020, design all buildings to be zero-net-energy by FY 2030.
k.) Strengthen viability and livability of communities in which federal facilities are located.
l.) Consider energy impacts and alternative energy in National Environmental Policy Act (NEPA) Environmental Assessments.

2.1.5 EO 13221 requires Federal Agencies to:

Purchase electronics and appliances requiring less than 1 watt of standby power or the lowest standby mode power consumption available.

2.1.6 Presidential Memorandum -- Implementation of Energy Savings Projects and Performance-Based Contracting for energy savings – December 2, 2011

Implement and prioritize Energy Conservation Measures (ECM) utilizing performance based contracts (ESPCs and UESCs), complete required energy and water evaluations, and provide transparency and accountability in energy management systems.

2.1.7 Presidential Memorandum -- Driving Innovation and Creating Jobs in Rural America through Bio-based and Sustainable Product Procurement – February 21, 2012

Ensure that executive departments and agencies effectively execute Federal procurement requirements for biobased products, including those requirements identified in EO 13514 and prescribed in the 2002 Farm Bill, as amended by the 2008 Farm Bill.

2.2 Guidance

2.2.1 ARS adopts the measures stated in the guidance listed below:

2.2.2 *Implementing Instructions: Federal Agency Implementation of Water Efficiency and Management Provisions of EO 13514* - http://www.whitehouse.gov/sites/default/files/water_implementing_instructions.pdf

2.2.3 *Technical Guidance on Implementing the Stormwater Runoff Requirements for Federal Projects under Section 438 of the Energy Independence and Security Act*. http://www.epa.gov/owow/NPS/lid/section438/pdf/final_sec438_eisa.pdf

2.2.4 *Establishing Baseline and Meeting Water Conservation Goals of Executive Order 13423* http://www1.eere.energy.gov/femp/pdfs/water_guidance.pdf

2.2.5 *Guidance for the Implementation and Follow-up of Identified Energy and Water Efficiency Measures in Covered Facilities* - http://www1.eere.energy.gov/femp/regulations/facility_cts.html and http://www1.eere.energy.gov/femp/pdfs/eisa_project_guidance.pdf.

2.2.6 *Facility Energy Management Guidelines and Criteria for Energy and Water Evaluations in Covered Facilities –* http://www1.eere.energy.gov/femp/pdfs/eisa_s432_guidelines.pdf

2.2.7 *Federal Greenhouse Gas Accounting and Reporting Guidance* – http://www.whitehouse.gov/sites/default/files/microsites/ceq/revised_federal_greenhouse_gas_accounting_and_reporting_guidance_060412.pdf

2.2.8 *[GHG] Technical Support Document* - http://www.whitehouse.gov/sites/default/files/microsites/ceq/technical_support_document_1.pdf

2.2.9 *Five Guiding Principles* - http://www.wbdg.org/pdfs/hpsb_guidance.pdf (Six Guiding Principles Currently in Draft)

2.2.10 *Instructions for Implementing Executive Order 13423* - http://www.fedcenter.gov/_kd/go.cfm?destination=ShowItem&Item_ID=6825

2.2.11 *Operations & Maintenance Best Practices Release 3.0* – (Contains RCx, Metering and O&M) http://www1.eere.energy.gov/femp/pdfs/omguide_complete.pdf

2.2.12 Implementing Instructions – Sustainable Locations for Federal Facilities - http://www.whitehouse.gov/sites/default/files/microsites/ceq/implementing_instructions_-_sustainable_locations_for_federal_facilities_9152011.pdf

2.3 Alerts, Bulletins, and P&Ps

The following Alerts, Bulletins, and P&Ps shall remain in force until replaced or rescinded:

2.3.1 ARS Facilities Design Standards 242.1 – http://www.afm.ars.usda.gov/ppweb/PDF/242-01M.pdf

2.3.2 ARS Facilities Operation and Maintenance 242.8 - http://www.afm.ars.usda.gov/ppweb/PDF/242-8.pdf

2.3.3 Energy Efficient Light Bulbs 11-156.0-ARS – http://www.afm.ars.usda.gov/ppweb/Bulletins/2011/11-156-0%20Energy%20Efficient%20lights.pdf

2.3.4 Accepting Utility Rebates and Recycling Proceeds (ARS Specific) 11-160.0-ARS – http://www.afm.ars.usda.gov/ppweb/Bulletins/2011/11-160-ARS.pdf

2.3.5 Use TUMS for Utility Payments 11-303 – [This will be edited when AXIS replaces TUMS] http://www.afm.ars.usda.gov/ppweb/Bulletins/2011/11-303.pdf

2.3.6 Electronics Stewardship 10-100.3-ARS – http://www.afm.ars.usda.gov/ppweb/Bulletins/10-100-3.pdf

2.3.7 Capturing Operation and Maintenance Costs http://www.afm.ars.usda.gov/ppweb/Bulletins/2012/12-302.pdf

2.3.8 Biobased Product Procurement Preference Program DR 5023-002 - http://www.ocio.usda.gov/directives/doc/DR5023-002.pdf

2.3.9 APD Alert - Biobased Label and Solicitation Synopsis Biobased Language Requirement – http://www.afm.ars.usda.gov/acquisitions/pdffiles/APDAlert2011-10.pdf

2.3.10 APD Alert - Electronics Procurement – http://www.afm.ars.usda.gov/acquisitions/pdffiles/APDALERT2011-02.pdf

2.3.11 APD Alert – Refrigerants – http://www.afm.ars.usda.gov/acquisitions/pdffiles/APDAlert2010-09.pdf

2.3.12 APD Alert - Vehicle Allocation Methodology (VAM), Vehicle Replacement Plan - http://www.afm.ars.usda.gov/acquisitions/pdffiles/APDALERT2013-P01P.pdf

2.3.13 APD Alert – Mandatory Use of E85 Fuel http://www.afm.ars.usda.gov/acquisitions/pdffiles/APDALERT2013P2.pdf

2.3.14 APD Alert – Utility Procurement – [This will be edited when AXIS replaces TUMS] http://www.afm.ars.usda.gov/acquisitions/pdffiles/APDAlert2013-01.pdf

2.3.15 APD Alert – Sustainable Acquisition - http://www.afm.ars.usda.gov/acquisitions/pdffiles/APDAlert2012-17.pdf

2.3.16 Federal Buildings Personnel Training Act (FBPTA) – (Policy under development)

2.3.17 APD Alert 2013-13 ESPC - http://www.afm.ars.usda.gov/acquisitions/pdffiles/APDAlert2013-13.pdf

3. Roles and Responsibilities

3.1 NASS, ERS and NIFA

NASS, ERS and NIFA will develop an Office EMS. All occupants of leased spaces should conserve energy water and resources in any manner available to them whether or not utilities are paid for as part of the lease payment. Agencies using motor vehicles should purchase, lease, and operate them in accordance with this policy and EPACT 2005, EO 13423, EISA, and EO 13514.

3.2 ARS FD

FD will:

Develop and implement policies and procedures to incorporate the requirements of EPACT 2005, EO 13423, EISA, and EO 13514 into all new and existing facilities.

Expand the EMS framework to include all aspects of EO 13423.

Specifically:

3.2.1 Safety, Health, and Environmental Management Branch (SHEMB) will:

a.) Develop and implement policies to reduce the use of hazardous chemicals and promote the purchase of lower risk chemicals and toxic materials from a priority list they establish.

b.) Promote the reduction and prohibition of the use of ozone depleting compounds in consumer and laboratory goods unless another non-ozone depleting compound will not accomplish the Agency's mission.

c.) Coordinate the expansion of the EMS framework to include all aspects of EPACT 2005, EO 13423, EISA, and EO 13514.

3.2.2 Real Property Management Branch (RPMB) will:

a.) Incorporate requirements for energy and water conservation, sustainability, and renewable energy into all leases.

b.) Ensure that existing facilities conform to, or are brought into conformance with, the requirements of EPACT 2005, EO 13423, EISA, and EO 13514. Sustainability of the facility inventory will be maximized and documented.

c.) Dispose of assets in a manner that will optimize energy, water, and resource conservation.

d.) Ensure that all newly leased buildings of 10,000 SF or over have achieved an Energy Star® rating within the most recent year.

e.) Ensure that each prospectus for a new project includes energy and water conservation and renewable energy.

f.) Include language in leases about identification of hazards, reducing hazardous chemicals, and not releasing ozone depleting chemicals.

g.) Track sustainable buildings in the Corporate Property Automated Information System (CPAIS).

3.2.3 Capital Investment Asset Management Branch (CIAMB) will:

a.) Manage assets in a manner that will optimize energy, water, and resource conservation.
b.) Develop policy to require that facilities have an operation and maintenance plan, and perform preventive maintenance to ensure that equipment and systems perform efficiently and economically for their planned useful life.
c.) In accordance with Public Law 111-308, The Federal Buildings Personnel Training Act, assure that the core competencies identified by GSA for personnel performing building operations and maintenance, energy management, safety, and design functions are demonstrated and include competencies relating to building operations and maintenance, energy management, sustainability, water efficiency, safety (including electrical safety) and building performance measures.

3.2.4 The Facilities Energy Manager (FEM) /Sustainability Program Manager will:

a.) Be responsible for the overall implementation and management of this plan.
b.) Champion, develop, and implement policies, programs and initiatives to encourage and effect measurable improvements in energy and water conservation, and sustainability;
c.) Interpret this plan against the requirements of EPACT 2005, EO 13423, EISA, and EO 13514.
d.) Monitor related reporting needs and calls for data in order to report to the Department or other Agencies in accordance with established reporting deadlines.
e.) Coordinate the activities of FD in carrying out this plan.
f.) Disseminate energy and water conservation and sustainability information to the Agency.
h.) Coordinate utility procurement and alternative utility procurement.

3.3 Acquisition and Property Division (APD)

3.3.1 APD Acquisition Programs and Oversight Branch (APOB) will:

a.) Develop, promulgate, and maintain green purchasing policies.
The green purchasing policies will include procurement preference for bio-based products, recycled products, Energy Star®, FEMP designated and other energy-efficient products, products with low standby power consumption, EPEAT and water saving products including WaterSense

products, low toxicity products, non-ozone depleting compounds, and other environmentally preferable products. The green purchasing policies will include training of Contracting Officers (CO), CO's representatives, and purchase card holders through the use of memos, bulletins, policy guidance or classes, and maintain a record keeping system that will document and quantify program compliance.

b.) Inform card holders of policies for use of purchase cards to comply with APD green procurement policies for environmentally preferable products, recycled and biobased products, WaterSense and Energy Star®, FEMP designated or other energy-efficient products.

c.) Develop policy to procure electronics using specifications created by Office of the Chief Information Officer (OCIO) that conform to the electronics stewardship and energy conservation requirements of EO 13423, EO 13221, and the green purchasing program with electronics disposal done according to the existing Federal Management policy.

d.) Create policy on utility procurement.

3.3.2 APD Property and Support Services Branch (PSSB) will:

a.) Develop and implement policies for meeting the goals of EPACT 2005, EO1342, EISA, and EO 13514, addressing alternative fuels, vehicles with increased fuel economy, hybrid vehicles, NEVs, and plug in hybrid vehicles when fleet purchases are justified and when such vehicles meet the mission requirements; substitution of cars for light trucks, increased vehicle load factors, decreased vehicle miles traveled, and decreased fleet size.

b.) Be responsible for documenting, collecting, and entering data into the FAST system. APD will ensure that the vehicle fuel type, consumption and cost records are maintained for fleet vehicles captured in the FAST system.

c.) Train specifiers, purchasers, and users of vehicles on the use and availability of vehicles and alternative fuels, and on record keeping requirements.

d.) Provide reports to FD for the annual GHG and sustainability report and other calls for data.

e.) Provide oversight of vehicle acquisitions, disposals, and reporting as requested.

3.4 Business Service Centers (BSCs)

BSCs will:

3.4.1 Incorporate the requirements of EPACT 2005, EO 13423, EISA, and EO 13514 into all new major construction and modernization projects.

3.4.2 Comply with Design Manual 242.1.

3.4.3 Promote the reduction and prohibition of the use of ozone depleting compounds for refrigeration, fire suppression, and other uses except where it is not cost effective to replace equipment or if another non-ozone depleting compound will not accomplish the Agency's mission.

3.4.4 Design all construction projects to be sustainable and incorporate the Five Guiding Principles of the Sustainable High Performance Buildings Memorandum of Understanding. The Five Guiding Principles are:

1. Use integrated design and commissioning
2. Optimize energy efficiency using measurement and verification
3. Protect and conserve water
4. Enhance indoor environmental quality
5. Reduce the environmental impact of materials in Federal buildings

3.4.5 For designs starting on or after August 10, 2012, all new designs shall meet ASHRAE 90.1-2007. For designs starting before August 10, 2012, design all new facilities to achieve energy consumption levels that are at least 30 percent below ASHRAE 90.1-2004, if life cycle cost effective, subject to 71 Federal Register (FR)70275 or the State Energy Code whichever is more stringent. Energy modeling is recommended.

3.4.6 Design all new projects to incorporate all cost effective water conservation measures available. Cost effectiveness is based on a payback period of 10 years or less. Building life is considered to be 40 years.

3.4.7 Consider energy, water conservation, and sustainability in preparing environmental assessments.

3.4.8 Use energy-efficient new and replacement lighting and bulbs in all designs.

3.4.9 Design all new buildings and major renovations to reduce fossil fuel generated energy consumption in 2010 – 55 percent, 2015 – 65 percent, 2020 – 80 percent, 2025 – 90 percent, and 2030 – 100 percent.

3.4.10 Design all new buildings and major renovations to provide solar hot water heaters for 30 percent of hot water demand where cost effective.

3.4.11 Commission all new construction and modernization projects.

3.4.12 Meter all utilities at each building where practicable. All electric, natural gas, steam and water meters will be advanced (smart) meters where cost effective. It is presumed to be cost effective to install advanced electric meters in energy intensive buildings 10,000 SF or over. Advanced meters will be connected to the Internet not the building management system. To the greatest extent possible, the meters for all utilities will be connected to the advanced electric meter. Cyber-security and virus protection measures will be provided in the metering network. Advanced meters shall be networked nationwide.

3.4.13 Design all construction projects to provide for indoor environmental quality including thermal comfort with personal control, sound absorbing materials and isolation, preventing bacteria, mold and fungi, controlling odors and contaminants, integrating natural and artificial light, providing water quality, high performance windows and natural ventilation,

protecting buildings during construction, protecting air intakes, monitoring air quality, avoiding products containing formaldehyde, volatile organic compounds (VOCs), and other harmful off-gassing or sources of exposure.

3.4.14 Require in all contracts for design and construction,, energy and water efficient, recycled, bio-based, sustainably harvested products, rapidly renewable, and other environmentally preferable products; to the greatest extent possible reduce and divert waste, recycle, reduce hazardous chemicals, and prohibit ozone depleting compounds. Divert 50 percent of non-hazardous solid waste by FY 2015.

3.4.15 Incorporate beneficial landscaping into all projects.

3.4.16 Follow an accepted methodology for establishing the sustainability of a building such as Leadership in Energy and Environmental Design (LEED), Green Globes, Energy Star® or Labs 21. Achieve the equivalent of LEED silver.

3.4.17 Establish, support, and administer ESPCs and UESCs. Review Measurement and Verification (M&V) reports and process annual payments.

3.4.18 Locations, Area Offices and BSCs will coordinate with the Facilities Energy Manager before making any early buy down on an ESPC.

3.4.19 Ensure that all new designs for construction or major renovations include renewable energy where cost effective.

3.4.20 Engineers and Contracting Officers (COs) shall ensure that appropriate clauses are included in all construction and architect-engineering (A-E) service contracts and specifications regarding this policy.

3.4.21 Structure contracts and statements of work to reduce GHG.

3.4.22 BSCs are responsible for compliance with EISA section 432 which includes covered facilities; energy managers; energy, water and re-/retro commissioning surveys; and posting to the Compliance Tracking System (CTS) and Energy Star Portfolio Manager®. Covered facilities shall be identified. Each covered facility shall have a qualified energy manager. Energy managers shall conduct an energy audit, water survey and re-/retro-commissioning survey of 25 per cent of the covered facilities annually so that 100 percent of covered facilities are assessed annually. Energy managers shall post annual footprint data, assessment data, energy conservation measures, projects, and measurement and verification data in the CTS. Energy managers shall post monthly utility consumption benchmarking data in Energy Star Portfolio Manager® for each individually metered building at covered facilities for which complete building level energy consumption can be measured or accurately estimated. The energy manager may be a full time, shared, collateral duty employee or a contractor. The energy manager may cover a location, an area, or multiple areas . The energy manager will participate in the EMS committees for their facilities. Energy managers will provide initiative and disseminate energy and water conservation and sustainability information. For more information on these requirements see the matrix on pages 4 through 7 of *Guidance for the Implementation and Follow-up*

of Identified Energy and Water Efficiency Measures in Covered Facilities at http://www1.eere.energy.gov/femp/regulations/facility_cts.html.

3.4.23 BSCs are responsible for data collection and reporting to FD associated with the requirements of EPACT 2005, EO 13423, EISA, and EO 13514. Among other things, collect annual data on cost and consumption for each utility fuel used by each location, potable and non-potable water, renewable energy, non-FAST vehicles and equipment fuel, refrigerants, certain tank gasses, waste disposal, new designs and ESPCs and UESCs for the annual GHG and sustainability report.

3.4.24 Support utility procurement and alternative or third party utility procurement.

3.4.25 BSCs will disseminate information to their staff, Areas and locations. It is expected that the Facilities, Propertyand Safety Branch Chief, the Acquisition Branch Chief, and Energy Managers will play an important role.

3.4.26 Engineers and COs will ensure that appropriate clauses to carry out this policy are included in all maintenance, construction, A-E, and other service contracts and specifications.

3.4.27 BSCs are responsible for documenting and collecting data to be entered into the FAST system, ensuring that fuel use and cost for all on-site government fuel pumps to vehicle operations module of USDAs property/fleet system. They will ensure that the vehicle fuel type, consumption, and cost records are maintained for both fleet vehicles captured in the FAST system (updated by APD)

3.4.28 BSCs are responsible for approving Vehicle Allocation Methodology (VAM) for all vehicle requests, ensuring compliance with Agency and Federal fleet policies.

3.4.29 BSCs are responsible for notifying locations of mandated E85 use (vehicles that do not have a waiver) and monitoring E85 fuel use in agency vehicles that do not have a waiver from using E85 fuel • Ensure that facilities have an O&M plan in accordance with P&P 242.8, and perform preventive maintenance to ensure that equipment and systems perform efficiently and economically for their planned useful life.

3.4.30 In accordance with Public Law 111-308, The Federal Buildings Personnel Training Act (FBPTA), in cooperation with FD, insure that the core competencies identified by GSA for personnel performing building O&M, energy management, safety, and design functions are demonstrated and include competencies relating to building O&M, energy management, sustainability, water efficiency, safety (including electrical safety) and building performance measures.

3.4.31 Design facilities to be resilient and adapted to the effects of climate change and ensure that climate risk-management considerations are fully integrated into federal infrastructure, according to the President's Climate Action Plan of June 2013.

3.5 Responsibilities of Areas

3.5.1 Area Directors (ADs) working with BSCs and FD will be accountable for energy and water management and sustainability of functional areas under their supervision in their Areas.

3.5.2 Areas working with BSCs and FD will perform all R&M and construct projects within their authority in a manner that will optimize their energy and water conservation and sustainability. Incorporate the applicable portions of the Five Guiding Principles of the Sustainable High Performance Buildings into all projects as noted earlier.

3.5.3 Areas will conduct their programs and activities to minimize their impact on the environment and conserve resources.

3.5.4 The primary responsibility for green or environmentally preferable, energy and water efficient purchasing such as Bio-based, Recycled, Energy Star, FEMP designated, WaterSense products, etc., lies on the program offices.

3.5.5 Energy and water conservation and sustainability will be a consideration in the Area's NEPA process.

3.5.6 Area purchase card holders will be aware of the requirements for sustainability, energy and water efficiency, and environmentally preferable products and give them procurement preference.

3.5.7 Areas will assure, through training and verification, that all area and location employees under their direction are knowledgeable regarding energy and water conservation, and sustainability requirements, even if they are not covered by the FBPTA.

3.5.8 Areas will practice responsible electronics stewardship.

3.5.9 Areas are responsible for reaching the goals set forth in EPACT 2005, EO 13423, EISA, and EO 13514 within their Areas.

3.5.10 Areas will recommend actions and request adequate funds in budgets under their jurisdiction to implement the requirements of this plan.

3.5.11 Areas will identify and allocate necessary and qualified staff to carry out the requirements of this plan.

3.5.12 Areas will ensure that EMS committees disseminate information, provide initiative, guidance and assistance, and coordinate energy and water efficiency improvements and sustainability.

3.5.13 Areas and locations forward vehicle data to BSCs and that data is, in turn, sent to APD by BSCs to be entered into the FAST system. Areas and locations will be responsible for documenting and collecting data to be entered into the FAST system for their respective vehicles, ensuring that fuel use and cost for all on-site government fuel pumps is completely and accurately reported for the vehicle operations module of USDA's property/fleet system. They will ensure that the vehicle fuel type, consumption, and cost records are maintained for both fleet vehicles captured in the FAST system (updated by APD) and non-fleet vehicles and other equipment not captured in the FAST system. Fuel data not captured in the FAST system will be reported by locations to HQ through the BSCs annually for the GHG report.

3.5.14 Areas will identify opportunities for ESPCs and UESCs and coordinate them with the ARS FEM. Areas will cooperate in the investigation and implementation of energy audits, ESPCs, and UESCs by HQ.

3.5.15 Areas will reduce vehicle fuel and petroleum consumption, increase vehicle alternative fuel use, increase use of hybrids, plug in hybrids (when commercially available), NEVs, and more fuel efficient vehicles, and routinely use alternative fuel in dual-fuel AFVs unless the alternative fueling station is too far or too expensive, based on Agency waiver from Department Of Energy (DOE).

3.5.16 Areas will review vehicle purchase requests to assure that Area vehicles are justified and comply with the Agency VAM Plan, http://www.afm.ars.usda.gov/acquisitions/pdffiles/APDALERT2012-P07P.pdf,
Prohibits Federal agencies from acquiring "light-duty motor vehicles (GVWR 8500 or under) and medium duty passenger vehicles (MDPVs, GVWR between 8500 and 10,000) that are not low GHG-emitting vehicles."

3.5.17 Structure contracts and statements of work to reduce GHG.

3.5.18 Areas will work with locations/programs and develop and implement a plan for use and conservation of potable and non-potable water for agricultural purposes, including agricultural irrigation, animal watering, and fish hatcheries that respects the intent of EO 13514.

3.6 Responsibilities of ARS Locations (These responsibilities include NASS, ERS and NIFA field offices as applicable.)

3.6.1 Location managers, usually the Administrative Officer (AO), will be aware of the energy and water conservation features of their facilities and how well they are working. Facilities Managers, including the BSC/location energy manager and mechanics, will understand the energy and water conservation features of their facilities and ensure that they are performing optimally.

3.6.2 Location managers will train their facilities staff and have them participate in re-/retro-commissioning.

3.6.3 The primary responsibility for green or environmentally preferable, energy and water efficient purchasing such as Bio-based, Recycled, Energy Star, FEMP designated, WaterSense products, etc., lies on the program offices.

3.6.4 Locations will conduct their activities to minimize their impact on the environment and conserve resources.

3.6.5 Locations will perform all R&M and construct projects within their authority in a manner that will optimize their energy and water conservation and sustainability. Incorporate any applicable portions of the Five Guiding Principles into projects. Refer to Appendix 4 regarding the Five Guiding Principles.

3.6.6 Each location will have an energy and water management plan. A water conservation plan will be developed for agricultural water uses including agricultural irrigation, fish hatcheries, and animal water.

3.6.7 All energy and water management plans shall be reviewed and updated at least annually.

3.6.8 Procurement specialists and purchase card holders will be trained on the requirements for sustainability, energy and water efficiency and environmentally preferable products, and give them procurement preference.

3.6.9 Locations will maintain accurate records of consumption and costs of all fuels and utilities including meter readings. Meter readings of advanced meters shall be exported from meters, retained and reported monthly for input into Energy Star Portfolio Manager.

3.6.10 Locations will verify all utility bills for accuracy and track usage and trends.

3.6.11 Locations will report energy, water, and other green procurement to BSCs and enter data into automated systems if required.

3.6.12 Locations will assure through training and verification, that all employees and \] contractors are knowledgeable regarding energy and water conservation and sustainability requirements even if not covered by FBPTA and incorporate information regarding energy and water conservation and sustainability into EMS training.

3.6.13 Locations will recycle all eligible materials including paper, cardboard, cans, bottles, and toner/ink cartridges, as well as promote the reduction and diversion of waste. Fifty percent of non hazardous waste shall be diverted by FY 2015 including construction and demolition waste.

3.6.14 Locations will practice responsible electronics stewardship and use EPEAT.

3.6.15 Locations will evaluate their energy and water usage in their respective buildings and identify opportunities to reduce consumption.

3.6.16 Locations will recommend actions and request adequate funds in budgets under their jurisdiction to implement the requirements of this plan. Locations will not pay utility bills with the 4 percent allocation for R&M.

3.6.17 Locations will identify and allocate necessary and qualified staff to carry out the requirements of this plan.

3.6.18 Location EMS committees will disseminate information, provide initiative, and coordinate energy and water efficiency improvements and sustainability.

3.6.19 Facility engineers and location contract specialists will ensure that appropriate clauses are included in all maintenance, construction, A-E, and other service contracts and specifications within their authority to carry out this policy.

3.6.20 Locations will be responsible for documenting and collecting data to be entered into the FAST system. FAST data entry is by APD. They will ensure that vehicle fuel type, consumption, and cost records are maintained for both fleet vehicles captured in the FAST system, non-fleet vehicles, and other equipment not captured in the FAST system. Mobility equipment data not captured in the FAST system will be reported by locations to HQ through the BSCs annually.

3.6.21 Locations are responsible for completing the VAM for all vehicle requests, ensuring compliance with Agency and Federal fleet policies.

3.6.22 Locations are responsible for informing drivers to refuel with E85 fuel for vehicles that do not have a waiver and monitoring E85 fuel use.

3.6.23 Locations will ensure that all Agency operated fueling stations have at least one renewable fuel pump.

3.6.24 Locations will identify opportunities for ESPCs and UESCs and coordinate them with the ARS Facilities Energy Manager. Locations will cooperate in the investigation and implementation of ESPCs and UESCs by FD and BSCs.

3.6.25 Locations, Area Offices and BSCs will coordinate with the Facilities Energy Manager before making any early buy down or payoff of an ESPC.

3.6.26 In de-regulated states where multiple utility suppliers are available, locations will purchase utilities from the least expensive source. Utilities will be purchased utilizing GSA area-wide contracts wherever available. Locations will work with their utilities to reduce utility consumption and cost through demand-side management, efficiency, and conservation. Locations will cooperate with FD alternative utility procurement efforts. See APD alert 2013-10 Utility Procurement at: http://www.afm.ars.usda.gov/acquisitions/pdffiles/APDAlert2013-01.pdf.

3.6.27 Locations will reduce vehicle fuel and petroleum consumption and increase vehicle alternative fuel use, use of hybrids, NEVs, and more fuel efficient vehicles. Locations will routinely use alternative fuel in dual-fueled AFVs unless the vehicle has an agency waiver through APD from DOE under EPACT 2005 indicating that an alternative fueling station is too far away or too expensive.

3.6.28 Locations will request vehicle replacement purchases that comply with the Agency VAM Plan, http://www.afm.ars.usda.gov/acquisitions/pdffiles/APDALERT2012-P07P.pdf,

3.6.29 Locations will use green cleaning products exclusively, including in custodial contracts, except where they do not meet mission requirements. As part of this program, each building should have an entrance mat to remove dirt from shoes at each entry and they should be vacuumed/cleaned often. Keep outside walkways clean. This will reduce the need for the use of cleaning chemicals. Cleaning equipment with a low environmental impact should also be used. As always, dispose of toxic materials responsibly. All cleaning products and other chemicals should be stored in isolated closets so that fumes do not enter occupied spaces. Follow label instructions for use.

3.6.30 Locations will remove all mercury-containing products from use, except where no non-mercury-containing product will meet mission requirements.

3.6.31 Structure procurements, contracts, and statements of work to reduce greenhouse gases.

3.6.32 Locations will manage animals, manure, and land use to minimize net greenhouse gas emissions consistent with mission requirements. This will include no-till/tillage methods, crop/wood burning, nitrogen fertilizer, and rice production.

3.6.33 Locations will utilize refrigerants and bulk gases that are GHGs in a manner that minimizes GHG and ozone depleting compound emissions consistent with mission requirements. Note HFCs are ozone friendly but powerful GHGs.

3.6.34 Locations will establish policies to save energy and water such as decommissioning, disconnecting, or turning down equipment and conditioned spaces that are not in use, and consolidate or share equipment.

3.6.35 Locations purchasing fuel through Defense Logistics Agency (DLA) Energy can use the DLA Enterprise Business System under their Energy Convergence program. Contact APD Property and Support Services Branch for guidance.

3.7 Responsibilities of Office of the Chief Information Officer and Information Technical Specialist (OCIO/ITS)

3.7.1 OCIO/ITS will ensure that electronics purchased are Energy Star® or FEMP designated energy-efficient products. Purchase equipment that uses no more than one watt of stand-by power, or if impracticable, purchase items with the lowest stand-by wattage available.

3.7.2 OCIO/ITS shall ensure that EPEAT is used to find the best products for all electronics purchases. (unless there is no EPEAT standard for such product)

3.7.3 OCIO/ITS shall ensure that all power management software and energy saving features of electronics are enabled including Energy Star® settings.

3.7.4 OCIO/ITS shall be responsible for informing computer users of energy-efficient practices in the use of their computers and facilitating the implementation of those practices.

3.7.5 OCIO/ITS shall operate and maintain networks and servers in the most energy-efficient manner possible. Explore strategies to reduce the number of data centers and servers. Data centers shall be separately metered to the maximum extent practicable.

3.7.6 Ozone depleting compounds (i.e., Halon) shall not be used for fire suppression.

3.7.7 OCIO/ITS shall ensure that computer room and data center air conditioning and ventilation, installed or operated by IT specialists, is properly sized, the most energy-efficient possible, and is not used more than is necessary for optimal performance of the equipment. A hot isle/cold isle configuration is recommended.

3.7.8 Electronics shall be purchased, used and disposed of according to the existing Federal management policy and USDA Sustainable Procurement Plan and ARS Bulletin Electronics Stewardship 10-100.3-ARS – http://www.afm.ars.usda.gov/ppweb/Bulletins/10-100-3.pdf .

3.7.9 The CIO shall be responsible for electronics stewardship.

4. Glossary, Definitions, and Information

Acquisition & Disposal of Real Property

- The disposal of buildings is accomplished by Areas often through HQ by demolition; transfer to state, county, municipal or private ownership; donation, sale or other means. Buildings will be disposed of when they reach the end of their lifespan and/or are no longer effective in providing space to carry out the Agency's mission.
- Recycling and other waste stream diversion should be a part of demolition. At least 50 percent of non-hazardous construction and demolition debris must be diverted from the waste stream.

Advanced Metering

- Advanced metering systems collect time-differentiated energy usage data from advanced meters via a network system on either an on-request or defined scheduled basis. Advanced meters can provide usage information on at least a daily basis and have the capability to measure and record interval data at least

hourly. They can communicate the data to a remote location. They can also detect power quality problems and electrical anomalies. Advanced meters must be building level, in other words, measure a single building.

- A standard meter is an electromechanical or solid state meter that cumulatively measures, records and stores aggregated kilowatt hours (kWh), and sometimes demand data that is periodically retrieved for use in customer billing or energy management.
- A pulser is a device on a flow meter (gas, steam, water, etc.) that transmits consumption data in the form of pulses and allows for remote reading.
- EPACT 2005 requires that Federal buildings have advanced electric meters by the end of FY 2012 where cost effective (energy intensive and over 10,000 SF) and EISA requires that Federal buildings have advanced natural gas and steam meters by the end of FY 2016.
- Advanced water meters are required by *Guidance on Federal Agency Implementation of Water Efficiency and Management Provisions of EO 13514*.

Alternative Financing

- Energy Savings Performance Contracts (ESPC), Utility Energy Services Contracts (UESC), rebates, incentives, or public benefits funds can be used to finance energy savings projects.

Alternative Fuel Vehicles (AFV), Flexible Fuel Vehicles (FFV), Hybrid Vehicles and Neighborhood Electric Vehicles (NEV)

- Flexible fuel vehicles are specially designed to run on gasoline or any blend of up to 85 percent ethanol (E85).
- An AFV is a vehicle that is specially equipped to use alternative fuels.
- A hybrid vehicle is a vehicle that uses two or more distinct power or fuel sources such as an on-board rechargeable energy storage system and an internal combustion engine for vehicle propulsion. Purchase plug-in hybrids when commercially available.
- An NEV is a speed limited battery operated electric vehicle.

Alternative and Renewable Fuels

- Renewable fuel for vehicles is produced from biomass or bio-based oils. Renewable fuels include ethanol and biodiesel.
- Alternative fuel for vehicles is fuel that is substantially not petroleum (oil). Alternative fuel includes renewable fuel. Alternative fuels are electricity, biodiesel (in a 20 percent or higher blend), 85 percent ethanol/15 percent gasoline (E85), compressed natural gas (CNG), Liquefied Natural Gas (LNG), and Liquid Propane Gas (LPG). Coal-derived liquid fuel, another alternative fuel, can produce more lifecycle emissions than the petroleum fuel it replaces.
- If the office is located within 5 miles (or a 15 minute trip) of an alternative fueling station, an individual is required to use an AFV fleet vehicle unless the fuel is

more than 15 cents higher or if a waiver has been obtained. APD has to submit the specific garaged location of all Agency owned, leased alternative fuel vehicles to OPPM for a consolidated USDA report to DOE. DOE grants waivers to offices that are outside the radius/cost area. These offices are exempt from having to acquire alternative fuel 100 percent of the time – as required by EPACT 2005.

- A fueling station is a fixed tank with piping and pump(s) for the storage and dispensing of vehicle fuels.
- EISA requires that Federal fueling stations have at least one renewable fuel pump.
- Special equipment is required for storing and dispensing E-85 and biodiesel. See http://www.ethanol.org/index.php?id=55&parentid=29 and http://www.epa.gov/oust/altfuels/bfcompend.htm.

Beneficial Landscaping

- An environmentally and economically beneficial landscaping program will:
  - Utilize the most suitable plant materials available
  - Use native or acclimated plant materials
  - Require minimum maintenance and irrigation
  - Provide passive energy conservation
  - Manage and seek to reduce the impact of invasive plants on facilities
  - Utilize environmentally and economically sound management practices and materials on facilities
  - Utilize environmentally sound landscape practices in the planning, development, and management of USDA facilities without compromising security
  - Manage storm runoff

Biobased Products

- A bio-based (or BioPreferred^{SM}) product is a product determined by the USDA to be a commercial or industrial product (other than food or feed) that is composed in whole or in significant part of biological products including renewable domestic agricultural materials (including plant, animal, and marine materials) or forestry materials.
- Bio-fuels are excluded from the bio-preferred program.
- The USDA has initiated a voluntary product certification and labeling program for qualifying biobased products. Manufacturers have the option to have biobased products tested and certified by a third party to bear the biobased label. There is a Federal procurement preference for biobased products if they are comparable in price performance and availability to non-biobased products. Designated biobased products that do not bear the label are still eligible for Federal procurement preference.
- Specifications shall not include any language that precludes biobased products.
- Bio-based refers to the feedstock and does not necessarily mean biodegradable or compostable.
- Use the USDA BioPreferred^{SM} Catalog at http://www.biopreferred.gov/ to find

biobased products.

- Note the difference between certified and designated. Certified means that a particular manufacturer's product has qualified for the USDA biobased label. Designated means USDA has identified a generic product or group of products as biobased. Designated biobased products that do not bear the label are still eligible for Federal procurement preference.

Commissioning, Re-commissioning and Retro-commissioning

- Commissioning is the process of ensuring and documenting that building systems are designed, installed, functionally tested, and capable of being operated and maintained according to the owner's operational needs. Commissioning should start on the first day of design and end on the last day of the warranty period. Re-commissioning is commissioning performed after the end of the warranty period on a previously commissioned building, to restore a building to its as-designed operational efficiency. Retro-commissioning is commissioning a building that was not previously commissioned.
- Re-/Retro-commissioning is not an energy audit but Re-/Retro-commissioning can include an energy audit.
- Constant commissioning is a continuous process of diagnosis and improvement to prevent a building from drifting from its optimum performance. Continuous Commissioning^{SM} is trademarked by Texas A&M.

Compliance Tracking System (CTS)

- EISA section 432 requires that agencies post the results of energy audits, water surveys and re-/retro-commissioning surveys on a public facing website developed by DOE and benchmark buildings. CTS is the website developed by DOE. Benchmarking will be done using EPA's Energy Star Portfolio Manager which feeds into CTS.

Composting

- Compost is decomposed organic material made for the purpose of diverting waste and recycling. Composting is encouraged by EO 13514 as a method of diverting waste.

Demand-Side Management

- Demand-side management (DSM) programs consist of the planning, implementing, and monitoring activities of electric utilities that are designed to encourage consumers to modify their level and pattern of electricity usage. They are utility-sponsored programs promoting more efficient electricity use and can help avoid the costs and environmental concerns associated with power plants including generating facilities, power purchases, and transmission and distribution capacity additions.

Demand Response Programs

- In Demand Response programs utility customers agree to disconnect all or part of their facility from power at times of high demand in return for a payment. Programs are provided by Curtailment Service Providers (CSP). CSPs must be competed. Fifty percent of proceeds must be sent to the Treasury and 50 percent is to be used for energy projects.

Enterprise Content Management (ECM) and Enterprise Data Interface (EDI) [this will be updated when TUMs is replaced by AXIS]

- ECM is an on line tool into which the Rural Development Service Center in St Louis MO scans hard copy utility bills and from which bills can be retrieved for payment by NFC. With access granted by NFC locations can view the scanned image of their hard copy utility bills.
- EDI is a secure system operated by Veterans Administration that receives utility bills in an electronically and feeds them to NFC for processing. There is no hard copy and no image of EDI bills.

Electronic Product Environmental Assessment Tool (EPEAT)

- Annually 95 percent of electronics purchased must meet the EPEAT standards where applicable. EPEAT is an on-line system to help purchasers in the public and private sectors evaluate, compare, and select desktop computers, notebooks, and monitors based on their environmental attributes. See http://www.epeat.net/.
- Electronics stewardship involves purchasing, using, and disposing of computers responsibly.

Environmental Management System (EMS)

- An EMS framework is a continual cycle of planning, implementing, reviewing, and improving to allow an organization to consistently address the effects its operations may have on the environment and support continual improvement. Aspects are examined for their impacts. It is a continuous cycle of improvement which consists of four steps: Plan, Do, Check, and Improve.
- EMS is the overarching framework for energy, water, and sustainability programs required by EO 13423.

Energy Audit

- ASHRAE Level I – Walk-Through Assessment. This involves assessing a building's energy cost and efficiency by analyzing energy bills and briefly surveying the building. Level I analysis indentifies and provides a savings and

cost analysis of low-cost/ no-cost measures. It also lists potential capital improvements that merit further consideration, along with an initial judgment of potential costs and savings. The level of detail depends on the experience of the auditor or the client's specifications.

- ASHRAE Level II – Energy Survey and Analysis. This includes a more detailed building survey and energy analysis. A breakdown of energy use in the building is provided. Level II analysis identifies and provides the savings and cost analysis of all practical measures that meet the owner's constraints and economic criteria, along with a discussion of any effect on operation and maintenance procedures. It also lists potential costs and savings. This level of analysis is adequate for most buildings and measures.
- ASHRAE Level III – Detailed Analysis of Capital-Intensive Modifications. Investment Grade Audit (IGA). This focuses on potential capital-intensive projects identified during Level II and involves more detailed field data gathering and engineering analysis. It provides detailed project cost and savings information with a high level of confidence sufficient for major capital investment decisions.
- Refer to ASHRAE publication – Procedures for Commercial Building Energy Audits, 2nd Edition, www.ashrae.org.

Energy Efficient Lighting

- EISA section 321 and DOE rulemaking require lighting manufacturers to phase out inefficient lamps between 2012 and 2014. T-12 High Output lamps were phased out in July, 2012. Manufacturing of T-12 magnetic ballasts ceased in October, 2010. EISA section 323 requires that Federal agencies purchase energy efficient light bulbs, even for regular maintenance. Incandescent and T-12 fluorescent lamps are not energy efficient.
- T-12 lamps with magnetic ballasts should be replaced with T-8 lamps (or T-5 lamps or Light Emitting Diodes (LED) in appropriate cost effective applications and electronic ballasts. Regular medium screw base incandescent lamps are included. They must be replaced with equivalent Compact Fluorescent Lamps (CFLs). Special purpose incandescent lamps such as 3-way, appliance, or rough service lamps, or those in dimming applications are excluded.
- Lighting should always be evaluated to provide the proper lighting levels when lamps and fixtures are replaced.
- Exit signs using incandescent lamps should be replaced with LED exit signs.
- Mercury High Intensity Discharge (HID) and Probe Start Metal Halide lamps are being discontinued. Replace them with Pulse Start Metal Halide or high efficiency T-8 or T-5 lamps
- T-12 lamps are tube shaped fluorescent lamps that are 1-1/2 inch in diameter.
- T-8 lamps are tube shaped fluorescent lamps that are 1 inch in diameter.
- T-5 lamps are tube shaped fluorescent lamps that are 5/8 inch in diameter.
- The prefix TU indicates a fluorescent lamp that is U-shaped

- The ballast is usually a black brick-shaped device that provides the starting and operating voltage for fluorescent and other types of lamps. Magnetic ballasts are inefficient. Electronic ballasts are energy efficient.
- CFLs are fluorescent lamps that are often spiral shaped but can have other shapes. They can produce the same amount of light using a fraction of the electricity of incandescent lamps. Replacing a 60 watt incandescent lamp with an equivalent CFL can pay for itself by the second month because of the electricity it saves. CFLs also last longer than incandescent lamps.
- Incandescent lamps are the traditional light bulb that produces light by heating a filament in a glass globe.
- LEDs are semiconductors that produce light. They are excellent for some applications such as exit signs. They may be cost effective replacements for general lighting. LEDs consume very little energy compared to incandescent lamps and have a long service life.
- Incandescent lamp phase out schedule:

Current Wattage	**Rated Lumen Ranges**	**New Max Rated Wattage**	**Effective Date Phased Out**
100	1490-2600	72	10/1/2012
75	1050-1489	53	1/1/2013
60	750-1049	43	1/1/2014
40	310-749	29	1/1/2014

Energy Efficient Design

- All new construction projects including major renovation projects (where an entire facility is to be renovated) shall be designed in accordance with the energy design standard of 10 CFR, Part 433, *Energy Efficiency Standards for the Design and Construction of New Federal Commercial and Multi-Family High Rise Residential Buildings,* and 10 CFR, Part 434. *Energy Code for New Federal Commercial and Multi-Family High Rise Residential Buildings.*
- ARS has adopted the latest edition of ASHRAE Standard 90.1, Energy Efficient Standard for Buildings Except Low-Rise Residential Buildings, published by the American Society of Heating Refrigerating and Air-Conditioning Engineers, Inc. (ASHRAE) for energy conservation. New buildings must be designed to meet the energy requirements described in ARS Manual 242.1, Chapter 5.
- For minor renovation/alteration work, the following standards shall apply. 1) ASHRAE Standard 100.2006 - *Energy Conservation in Existing Buildings.* 2)

Refer to ARS Manual 242.1, Chapter 5 for additional energy requirements for renovations.

- EO 13423, *Strengthening Federal Environmental, Energy and Transportation Management*, and EO 13514 *Federal Leadership in Environmental, Energy, and Economic Performance*, require the design of high performance and sustainable Federal buildings.
- Beginning in 2020, design all buildings to be zero-net-energy by 2030.
- Provide solar hot water heaters for 30 percent of hot water demand in new buildings where cost effective.

Energy-Efficient Products

- Energy Star® means a product that is rated for energy efficiency under the EPA Energy Star® program established by Sec. 324A of the Energy Policy and Conservation Act. Purchase Energy Star or FEMP designated energy efficient products.
- FEMP designated products are identified in a DOE program designating products that consume less energy.
- Products with low standby power consumption per EO 13221 – Energy Efficient Standby Power Devices. Purchase appliances requiring less than 1 watt of standby power.
- Energy Star® smart grid capable products should be used when they become available.

Energy Star Portfolio Manager

- Energy Star Portfolio Manager is an online benchmarking tool that tracks energy and water use in buildings, compares them to buildings in similar categories, and scores their efficiency. It was developed and is supported by EPA. It is the benchmarking tool that is used to comply with the benchmarking requirements of EISA section 432. www.energystar.gov/benchmark.

Environmentally Preferable Products

- Environmentally Preferable Products are products and services that have a lesser or reduced effect on human health and the environment when compared with competing products or services that serve the same purpose. This comparison may consider raw materials acquisition, product, manufacturing packaging, distribution, reuse, operation, maintenance, or disposal of the product or service.
- Bio-based, recycled, energy and water efficient, sustainably harvested, low toxicity, and rapidly renewable products, are examples of environmentally preferable products.
- EO 13514 requires that 95 percent of contract actions for products and services should use energy efficient, water efficient, biobased, environmentally preferable, EPEAT listed, non-ozone depleting, recycled content, and non-toxic/less toxic alternatives.

Energy Savings Performance Contracts (ESPCs)

- ESPCs can be used to finance energy savings projects. With ESPCs agencies can take advantage of private sector capital to fund energy and water saving equipment and renewable energy systems at Federal facilities. Agencies can obtain state or utility-sponsored rebates for energy-efficient improvements, and can apply for public benefits funds set aside to promote energy efficiency. Contractors can take advantage of tax incentives.
- The maximum term of an ESPC is 25 years after award including the design and construction period.
- An ESPC is a performance contract between an ESCO and a Federal customer. A Super ESPC is a task order against a DOE IDIQ contract. The Federal customer realizes a savings in the cost of energy and related O&M and repair and replacement (R&R) relative to a pre-project baseline. The sum of payments to the ESCO, for debt service, O&M, and energy are less than the pre-contract cost of energy and O&M when amortized over the contract period. ESPCs use private financing to leverage the funds in Federal agencies' budgets. ESPCs can be long term contracts up to 25 years. When the contract period is over, the agency gets all of the improvements and savings resulting from the investment.

- ESPC goals:
    - Health and safety
    - Decrease energy intensity
    - Decrease water consumption
    - Reduce utility costs
    - Reduce GHGs
    - Reduce the use of fossil fuel generated energy
    - Increase sustainability
    - Increase indoor air quality
    - Utilize renewable energy, especially photovoltaics, solar hot water heat and geothermal energy
    - Install advanced metering of all utilities and make metered data available on the internet
    - Install energy efficient lighting at the correct lighting levels
    - Reduce use of ozone depleting compounds
    - Provide efficient, reliable, proven technologies, and equipment that can be maintained for their entire planned useful life.
    - Re-/retro-commissioning
- Usual steps in an ESPC:
    - Contact FEM
    - Contact DOE Federal Financing Specialist
    - Form a procurement team
        - Assign roles and responsibilities
    - Develop an acquisition plan

- Issue Notice of Opportunity to 16 ESCOs
  - Form a Technical Evaluation Panel (TEP)
- TEP down-selects ESCOs (usually up to 3)
- ESCO interviews
- Select ESCO
  - CO notifies selected and un-selected ESCOs
- ESCO develops Preliminary Assessments (PA)
- Procurement Team reviews PA
- CO releases Notice of Intent to Award (commitment starts)
- Execute Interagency Agreement with DOE for Project Facilitator
- Investment Grade Audit (IGA) kickoff meeting
- ESCO conducts and submits IGA
- Agency Reviews IGA and Submits Comments to ESCO
- Agency develops Task Order RFP
- ESCO submits Final Proposal
- Agency issues TO
- Agency reviews Final Proposal
- Negotiation/Award
- Design and construction
- Acceptance of construction
- Payment period

- The cost for an ESPC Interagency Agreement cannot be paid out of the first year's savings. It must be paid from appropriated funds.
- If any buildings that were the subject of ESPC ECMs are closed, transferred or demolished, or any ECMs are significantly modified, the ESPC must be partially terminated to pay off the ECMs for those buildings. Locations and BSCs will coordinate with the FEM before making any early payment/termination on an ESPC.
- ENABLE is a streamlined five-phase procurement process using GSA Award Schedule 84, SIN 246-53, or a site-specific approach using a Department of Energy - qualified ESCO for services provided during the installation of energy conservation measures at Federal facilities smaller than 200,000 square feet. Only lighting, controls, and water projects can be done with ENABLE. See https://www1.eere.energy.gov/femp/financing/espc_enable_process.html.

Facility

- A facility means any building, installation, structure, or other property owned, operated by, constructed for, or leased to, the Federal government. This includes a group of facilities at a single location or multiple locations managed as an integrated operation, and contractor-operated facilities owned by the Federal Government. It may be a group of buildings or structures that share the same servicing energy and water utilities so that utility data can be aggregated easily.
- A covered facility is one that is in the highest 75 percent of energy use measured at the Department level as defined by EISA section 432.

Fossil Fuels

- Fossil fuels include oil from petroleum, natural gas, propane and coal. Generally, fossil fuel is used directly by facilities for heat, and indirectly to generate electricity, purchased steam, and purchased chilled water.
- Sec 433 of EISA 2007 requires new construction and major renovations of Federal buildings with designs starting on or after the dates below to reduce direct and indirect fossil fuel consumption by the percentages enumerated:

FY	%
2010	55
2015	65
2020	80
2025	90
2030	100

  Percentage reductions are based on a similar building in 2003 built to ASHRAE 90. The current requirement (after Aug 10, 2012) is to build to ASHRAE 90.1 – 2007.
  New buildings and major renovations covered are those for which a prospectus was sent to Congress or with construction costs, excluding land and legal fees, over $2.5 million. For major renovations less than the whole building, consider only the energy consumption of the system renovated.
  For designs started in FY 2030 and beyond, fossil fuel generated energy consumption must be zero.
  On-site thermal and electric renewable energy and Combined Heat and Power are compliance strategies and must be tracked. Purchase of RECs, PPA's, and off site renewable power can be used with some limitations, for instance minimum efficiency levels must still be met. A stamped statement from the design engineer is required.
  If agencies cannot meet this requirement, the rule provides a downward adjustment process. Cost alone is not a justification. Technical impracticability is required. The head of the agency must submit a request to the head of FEMP with a stamped justification statement from the design engineer, a description of the technologies evaluated and not used, a description of the building, its systems, and its need.

Greenhouse Gas (GHG)

- CO_2, CH_4, SF_6, N_2O, PFCs, HFCs (and other synthesized gases) and other natural or man-made gases in the atmosphere that absorb and emit radiation within the thermal infrared range.
- Scope 1 GHG – direct, produced by on-site fuel combustion or owned vehicles.
- Scope 2 GHG – indirect, emissions of utilities purchased.

- Scope 3 GHG – indirect, emissions from business travel, waste disposal, contractor-owned vehicles, outsourced activities, product use, transmission losses, and production of purchased materials. Agricultural emissions, contractor activities, and purchased materials are currently not included in EO 13514 goals. Fully serviced lease reporting is optional.
- USDA goals are to reduce Scope 1 and 2 GHG emissions 21 percent and scope 3 GHG emissions by seven percent by FY 2020 based on FY 2008 levels.

Green Cleaning Products

- All cleaning products in use, including in custodial contracts, in REE facilities should be green exclusively, except where they do not meet mission requirements. This includes ARS, NASS, ERS and NIFA.
- Green cleaning products are products that perform the same functions as conventional cleaning products but are lower emitting, less toxic, biodegradable, and/or environmentally safer. They include all purpose cleaners, sanitizers, deodorizers, glass cleaners, carpet cleaners, hand soap, laundry detergent, bathroom cleaners, and many other commonly used janitorial products. The use of green cleaning products will improve indoor air quality and working conditions by removing a major source of potential exposure to toxic and irritating chemicals, while providing effective and cost competitive cleaning solutions. There are many manufacturers of green cleaning products, and they are widely available.
- As part of the green cleaning requirement, each building should have an entrance mat to remove dirt from shoes at each entry and they should be vacuumed/cleaned often. Keep outside walkways clean. This will reduce the need for the use of cleaning chemicals. Cleaning equipment with a low environmental impact should also be used. All cleaning products and other chemicals should be stored in isolated closets so that fumes do not enter occupied spaces.
- Language for custodial contracts can be found at http://www.usda.gov/procurement/programs/biobased/CustodialJanitorialFY08.pdf.
- Green cleaning products can be found in the Biopreferred catalog at http://www.catalog.biopreferred.gov/bioPreferredCatalog/faces/jsp/catalogLanding.jsp

Hazardous Chemicals

- Hazardous chemical means any material that is regulated as a hazardous material by 49 Code of Federal Regulations (CFR) 173, requires a Material Safety Data Sheet (MSDS) per 29 CFR 1910.1200 or has components which will meet the definition of Hazardous Waste in 40 CFR 261.
- Used fluorescent tubes are universal waste if they are not broken. Contact the safety specialist for handling requirements.

Incentives and rebates

- Utility companies often offer rebates or incentives to their customers to increase energy efficiency, conserve water, or manage electricity demand (including demand response). Application for and acceptance of these rebates and incentives is required.
- Fifty percent of these funds shall be deposited in the General Fund of the Treasury and 50 percent of the funds will be retained by the Agency (at HQ) and redistributed at the ARS Administrator's discretion for additional energy efficiency or water conservation projects or activities. Retained proceeds are no year funds.
- Find incentives at the Database of State Incentives for Renewables and Efficiency - http://www.dsireusa.org/
- Proceeds of incentives and rebates must be handled according to Bulletin 11-160.0-ARS - http://www.afm.ars.usda.gov/ppweb/Bulletins/2011/11-160-ARS.pdf
- Often incentives must be applied for in advance of the work.

Integrated Pest Management

- Employ a coordinated use of pest and environmental information that will prevent unacceptable levels of pest damage by the most economical methods that will protect the health of people, property, and the environment.

Low Emitting Greenhouse Gas Vehicles

- EISA prohibits Federal agencies from acquiring "light-duty motor vehicles (GVWR 8500 or under)" and "medium duty passenger vehicles (MDPVs, GVWR between 8500 and 10,000)" that are not low GHG-emitting vehicles. GSA's vehicle requisition system, Auto Choice, lists the greenhouse gas score for LDVs and MDVs. The GHG score requirement for a low GHG-emitting vehicle: (Note for FY 2013 and beyond, vehicles have a different methodology for GHG scores.)
  - Passenger Cars operating on gasoline, diesel or CNG
    - GHG Score = 7, 8, 9 or 10 or 330 g/mile
  - Passenger Cars (flex fuel) that will operate on the alternative fuel
    - GHG Score = 6, 7, 8, 9, or 10 375 g/mile
  - Light-Duty Trucks and MDPVs operating on gasoline, diesel or CNG
    - GHG Score = 6, 7, 8, 9, or 10 415 g/mile
  - Light-Duty Trucks (flex fuel) that will operate on the alternative fuel
    - GHG Score = 5, 6, 7, 8, 9, or 10 460 g/mile
  - Battery electric vehicles (BEVs)
    - GHG Score = 10

• Neighborhood electric vehicles (NEVs) are not motor vehicles and thus beyond the score of EISA 141. They should be included and scored as a 10 when using EPA's Federal Vehicle GHG Emissions Calculator.

Mercury-containing products

- Switches, thermostats, relays, flame sensors, button cell batteries, manometers, psychrometers/hygrometers and non-fever thermometers.
- See "A Guide for Federal Agencies on Replacing Mercury-Containing Non-Fever Thermometers" at http://www.epa.gov/hg/pdfs/Non-Fever-Mercury-Thermometers-Guide-for-Federal-Agencies-FINAL.pdf.

NEPA

- The NEPA requires that Federal agencies consider the potential impacts of their actions on the environment. (7 CFR 520)
- EO 13514 requires that Agencies consider energy impacts and alternative energy in NEPA Environmental Assessments.

Occupancy Sensors

- There are two types of occupancy sensors and one that combines both technologies. Passive infrared sensors detect temperature changes in a room, and work well where the entire room is within the sensor's field of view. Ultrasonic sensors use high frequency sound, much like bats do, to detect motion (even around corners). Dual-technology sensors use both methods, increasing accuracy and flexibility, but at a higher price. Sometimes mounting occupancy sensors on ceilings provides better accuracy.

Operation and Maintenance (O & M)

- O&M costs include utilities, facility operations, janitorial, communications, administrative support facility, and R&M. Utility costs are a function of energy and water efficiency and conservation.
- CPAIS tracks annual operating costs.

Ozone Depleting Compounds

- Any substance designated as a Class I or Class II substance by the EPA in 40 CFR Part 82. Chlorofluorocarbons (CFCs), hydrochlorofluorocarbons (HCFCs), Freon (refrigerant) and Halon (fire suppressant) are ozone depleting. Hydrofluorocarbons (HFCs) are ozone friendly but some HFCs are powerful GHGs.
- Use of CFC refrigerants is banned unless they are required for maintenance of equipment not cost effective to replace or if no other product will satisfy the Agency's mission. HCFC refrigerants are to be phased out. Use of Halon fire suppressants is not allowed.

- Do not purchase any new equipment that uses R-22 or other HCFCs as refrigerants.
- If equipment using CFCs or HCFCs is being replaced or undergoing major repairs, do not replace it in kind. Replace it with equipment using ozone-friendly HFC refrigerants. Use alternatives to ozone depleting substances as approved by the EPA Significant New Alternatives Policy (SNAP) program. The EPA SNAP Web site is at: http://www.epa.gov/ozone/snap/refrigerants/lists/114cent.html. HCFC gas may be purchased for maintenance if it is not cost effective to replace existing serviceable equipment. Some equipment may be converted.
- Recycle refrigerants. Recovery and recycling of refrigerants must be done by licensed and trained professionals. Do not vent them to the atmosphere.
- Distinguish ozone depleting substances which deplete the stratospheric ozone layer leading to higher levels of harmful UVB radiation vs. GHGs which cause the atmosphere to trap heat resulting in global warming and climate change.

Recycled Products

- Use EPA Comprehensive Procurement Guidelines to purchase recycled content products with the highest recovered material content practicable. http://www.epa.gov/cpg/products.htm

- Recovered material means waste material and by-products which have been recovered or diverted from solid waste, particularly postconsumer solid waste, but this term does not include those materials and by-products generated from, and commonly reused within, an original manufacturing process.
- Postconsumer content means a material or product that has served its intended use and has been discarded for disposal by the final user.

Recycling

- Recycling is the reprocessing of used materials into new products. Recycling generally prevents the waste of potentially useful materials, diverts waste from landfills, and reduces the consumption of raw materials and energy usage in manufacturing, and hence GHG emissions, compared to virgin production.
- All proceeds from ARS managed sales of recycled material may be retained by the Area, and used for recycling and waste prevention projects. The recycling proceeds are good until expended (no year funds).
- Reduce, Reuse, and Recycle are the three strategies for reducing waste.

Renewable Energy

- Renewable Energy is energy produced by solar (heat or photovoltaic), wind, biomass, landfill gas, hydrokinetic, ocean (including tidal, wave, current, and thermal), geothermal, municipal solid waste, or new hydroelectric generation capacity achieved from increased efficiency or additions of new capacity at an existing hydroelectric project.

- By FY 2020 Federal Agencies must consume 20% of electricity from renewable sources, according to the President's Climate Action Plan of June, 2013. See http://www.whitehouse.gov/sites/default/files/image/president27sclimateactionplan.pdf.

Sustainable Design – Five Guiding Principles

- Sustainability is defined as the ability to meet present needs without compromising those of future generations. Sustainable also means to create and maintain conditions under which humans and nature can exist in productive harmony, that permit fulfilling the social, economic, and other requirements of present and future generations.
- Per EO 13423 and EO 13514, 15 percent of the Agency's buildings are to be sustainable by FY 2015. For the purposes of this requirement, sustainable means incorporating the Five Guiding Principles.
- For the purposes of defining sustainability as it applies to the requirement to have 15 percent of existing buildings sustainable and sustainable new construction and major renovations, sustainable means incorporating the Five Guiding Principles of the Sustainable High Performance Buildings. The Five Guiding Principles for new construction are:
    6. Use integrated design and commissioning
    7. Optimize energy efficiency using measurement and verification
    8. Protect and conserve water
    9. Enhance indoor environmental quality
    10. Reduce the environmental impact of materials in Federal buildings.

  See Appendix 4 for a detailed explanation of the Five Guiding Principles.

Sustainable Leasing

- Sustainable leasing includes encouraging energy and water conservation and the use of environmentally preferable products. Sustainable leases:
    - require materials that are recycled, bio-based, or have other positive environmental attributes
    - minimizes the consumption of resources, energy, and water
    - reduces the creation of solid waste, air pollution, or water pollution
    - promotes the use of non-toxic substances and the avoidance of toxic materials/processes, or ozone depleting compounds
    - requires that all utilities be metered
    - encourages the use of renewable energy
- Lease Energy Star or LEED silver spaces if over 10,000 SF. If none are available the leased space must be made energy efficient in 1 year.

Tax Exemption

- Assure that utility accounts have tax exempt status. The United States Department of Agriculture is an Agency of the Federal Government. As such, it

is exempt from taxes imposed on the purchaser by States, municipalities and political subdivisions thereof. Usually if it is a tax levied directly on the Federal Government, the Government is immune under the Supremacy Clause of the Constitution and the doctrine of Sovereign Immunity, such as a sales tax, even if collected by the vendor. If the tax is imposed on a vendor for the privilege of doing business, usually called a gross receipts tax, the government usually pays it. (Usually vendor taxes on utilities are in the rate base and not shown on the customer's bill, but sometimes the regulatory authority permits/requires them to be treated as a pass thru.) The determination is not about the name, it is about whether the tax is levied on the utility or the customer. A fee, as distinguished from a tax, is usually a payment for which something is received in return such as an additional service.

Telephone and Utility Management System (TUMS) [This will be edited when AXIS replaces TUMS]

- The TUMS is the system used to pay utility bills. It is the front end of Utility Vendors System (UTVN) which processes the payments and serves as one of the feeder systems for FMMI, the accounting system of record.

UESC

- A UESC is similar to an ESPC but with a utility. In a UESC, the utility typically identifies and implements the energy conservation measures then arranges financing to cover the capital costs of the project. The utility is repaid over the contract term from the cost savings generated by the energy efficiency measures, often with the utility bill. UESCs are usually fuel neutral and limited to the utility's geographical service area. They can accommodate smaller projects with shorter terms than ESPCs. UESCs under a GSA Areawide contract are limited to a maximum term of 10 years including any post award design and construction period. GSA Areawide Contracts are the contract against which the task order is written for a UESC.
- Energy audits can also be performed by utilities.
- Refer to the FEMP UESC Enabling Documents.
- UESCs and ESPCs should incorporate the requirements of the OMB Memorandum M-12-21 at http://www.whitehouse.gov/sites/default/files/omb/memoranda/2012/m-12-21.pdf. UESCs should have performance assurances or guarantees and measurement and verification (M&V).
- Financial incentives and rebates should be applied by the utility as a credit to the implementation price.

Water Conservation

- A Water Efficient Product or Service means a product or service that uses less water than competing products or services that serve the same purpose including

those meeting EPA's WaterSense[SM] standards. Water used should be returned or disposed of un-degraded in quality or uncontaminated to the greatest extent possible. Reusing water and treating water before disposal are conservation strategies.

- Water is often considered the cheap utility, too inexpensive for conservation to be financially worthwhile. However, water is costly in many ways. Its use depletes aquifers, requires energy for pumping and heating, chemicals for treatment, staffing to operate treatment and wastewater treatment plants, and disposal can result in sewer charges. By using water efficiently, we can save money, protect water sources, improve water quality, and reduce the amount of energy used to treat, pump, and heat water.
- Large water consumers are deionized/reverse osmosis (DI/RO) water generators, evaporative coolers, cooling towers, fish tanks, and irrigation.

WaterSense[SM]

- WaterSense[SM] is an EPA program and label to indicate water conserving products and organizations. It covers products and contractors.

Thirty percent more energy efficient than ASHRAE 90.1-2004 vs. meeting ASHRAE 90.1-2007

- Federal Register (FR) - Volume 76, Number 154 (76 FR 154) requires that new designs started on or after August 10, 2012 meet ANSI/ASHRAE/IESNA Standard 90.1---2007.
- EPACT 2005 requires new Federal building designs to be 30 percent more energy efficient than required by ASHRAE 90.1-2004 if life cycle cost effective. 71 FR 70275 states that if the additional 30 percent energy savings is not life cycle cost effective, an agency must evaluate the cost effectiveness of alternative designs at successive decrements below 30 percent (e.g., 25 percent, 20 percent, etc.) in order to identify the most energy efficient design that is life cycle cost effective for that building, however the building must remain compliant with ASHRAE 90.1-2004. This applies to new designs started before August 10, 2012.

5. Management Infrastructure

5.1 As required by EO 13423, REE will identify a Senior Agency Official. EO 13514 requires agencies to appoint a Senior Sustainability Officer. The Senior Sustainability Officer for USDA is the Deputy Assistant Secretary for Administration. The Senior Agency Official for REE is the Deputy Administrator for Administration and Financial Management (DAAFM). The lines of authority will follow the established Agency organizational structure.

5.2 REE will also identify a FEM/Sustainable Program Manager to act as the subject matter expert and provide guidance to REE. BSCs and locations will identify an energy manager for each covered facility as required by EISA section 432.

5.3 EMS committees will support the implementation of this policy and EPACT 2005, EISA, EO 13423 and EO 13514.

5.4 To ensure widespread involvement of REE employees in meeting REE goals, the following management tools are suggested:

5.4.1 Awards and other employee incentive programs to recognize employees for exemplary work in carrying out the Agency's energy management plan, EPACT 2005, EISA, EO 13423 and EO 13514.
5.4.2 Performance plans of all employees with duties related to the energy management plan, EPACT 2005, EISA, EO 13423 and EO 13514 shall include elements describing these duties and responsibilities.
5.4.3 Training and outreach on the Agency's energy management plan, EPACT 2005, EISA, EO 13423 and EO 13514 shall be provided to all employees and contractors.

5.5 Supporting policies, action plans (APs), standard operating procedures (SOPs) and standards will be established, maintained, and followed by all levels of the Mission Area to carry out the REE Energy Water and Sustainability Plan, EPACT 2005, EISA, EO 13423 and EO 13514.

6. Assessing REE Status

The position of REE in relation to the requirements of EPACT 2005, EISA, EO 13423 and EO 13514 will be assessed. The following elements will be included:

6.1 Energy intensity in terms of British Thermal Units (BTUs) per GSF
6.2 Water consumption and nature of its use
6.3 Extent of advanced and standard metering of electricity, natural gas, steam, and other utilities
6.4 Confirmation that new building designs are 30 percent more energy-efficient than ASHRAE 90.1-2004 subject to the DOE rule
6.5 The utilization of self generated and purchased renewable energy
6.6 The sustainability of the existing inventory of buildings
6.7 Recycling and reduction of waste
6.8 Use of recycled products
6.9 Use of Energy Star® and FEMP designated energy-efficient products
6.10 Use of bio-based products
6.11 Reduction of ozone depleting compounds
6.12 Use of beneficial landscaping
6.13 Use of The Five Guiding Principles
6.14 O&M and preventive maintenance practices
6.15 Use of EPEAT
6.16 Annual GHG emissions.
6.17 EISA section 432 compliance

7. Framing strategies for low or no cost compliance with EPACT 2005, the EISA of 2007, EO 13423 and EO 13514

7.1 O & M strategies will include the following:

7.1.1 Install and utilize advanced metering to identify energy and water saving opportunities
7.1.2 Perform re-commissioning, retro-commissioning, and constant commissioning to optimize the performance of equipment and systems
7.1.3 Enable Energy Star® functions and energy savings capabilities of equipment
7.1.4 Take advantage of low or no cost conservation measures (See APPENDIX 3)
7.1.5 Assure that appropriate preventive maintenance is performed, especially to preserve warranty rights.
7.1.6 Ensure contracting requirements must contain energy and water conservation measures and sustainability
7.1.7 Assure that facilities managers understand the energy and water conservation features present in their facilities and if they are functioning optimally, especially controls systems.
7.1.8 Ensure that alternative utility procurement will be utilized to the greatest extent possible to reduce costs including:

a.) In some states the retail sale of utilities is a regulated monopoly and customers must purchase utilities from the local service provider in whose territory they are located. Some states are deregulated for the sale of some or all utilities. In deregulated states customers are also able to purchase utilities from approved third parties. The commodity (natural gas or electricity) supplied by the third party is transported to the retail customer by the local service provider. Locations in deregulated states should compete approved third party utility providers to obtain the source most advantageous to the government.

b.) Defense Logistics Agency (DLA) Energy (formerly DESC). DLA Energy is a branch of the Department of Defense (DOD) that procures energy for DOD. DLA Energy will also procure utilities for civilian agencies using a request for proposal (RFP). In addition to electricity and natural gas, DLA Energy can procure fuel oil, diesel, gasoline, biodiesel, E85, etc.

c.) GSA will compete with utilities for Agencies using a reverse auction.

d.) Use GSA area-wide contracts to procure utilities from local distribution companies (the serving utility) and transportation in the case of third party

procurement, if available. Complete and send the Exhibit A of the applicable Area wide Contract to the utility.

e.) Bulk propane is available on the GSA schedule. See GSA Schedule 73, Category 655 01 Propane, http://www.gsaelibrary.gsa.gov/ElibMain/SinDetails?scheduleNumber=73&executeQuery=YES&specialItemNumber=655+01.

f.) Utilize demand response programs where able.

g.) See APD Alert 2013-001 Utility Procurement for more detailed information http://www.afm.ars.usda.gov/acquisitions/pdffiles/APDAlert2013-01.pdf.

7.2 Energy Awareness activities will include the following:

7.2.1 Outreach to provide information within and outside ARS using written, on-line, and personal contact.
7.2.2 Appropriate training will be provided for all employees and contractors.
7.2.3 Areas and locations will develop appropriate energy awareness activities.

7.3 Sustainability certification methodologies/measurement tools including the following will be employed:

7.3.1 LEED is a rating system by the US Green Building Council (USGBC). New buildings and major renovations shall be constructed to meet or exceed the equivalent of LEED silver. In-house certification may be utilized as long as at least 5 percent of new construction and major renovations are formally registered, documented, and certified. LEED Existing Building O&M certification is encouraged.
7.3.2 Green Globes is a rating system by the Green Building Institute (GBI). Two globes is approximately equivalent to LEED silver.
7.3.3 Laboratories for the 21st Century (Labs 21) is a joint effort of the EPA and DOE. ARS is a partner with Labs 21.
7.3.4 Energy Star® Portfolio Manager is a tool developed by the EPA. It may be used where there is a category available for the building type being considered. Energy Star Portfolio Manager is the required benchmarking tool for EISA section 432 compliance.

8. Perform energy/water use audits and re-commissioning/retro-commissioning

Energy audits will be performed including the following:

8.1 Prioritize and perform a preliminary walk through (ASHRAE Level 1 Energy Audit minimum).

8.2 Gather building information, equipment information, utility bills, weather data, previous energy audits, etc.

8.3 If indicated, perform further investigations.

8.4 Identify energy savings opportunities and implement them. Energy conservation measures identified in the energy audit must be implemented within two years.

8.5 Take advantage of energy auditing services of utilities, municipalities, and universities.

8.6 Energy and water surveys must be performed by the area/location Energy Manager on 25 percent of covered facilities each year so that all covered facilities are surveyed in a four year period. Energy and water surveys of covered facilities must include re-commissioning or retro-commissioning surveys.

8.7 If the initial assessment walk-through finds that the building does not require a more detailed commissioning effort, then it should be documented and the commissioning requirement is fulfilled. If the Re-/Retro-commissioning survey indicates it is cost effective, perform appropriate Re-/Retro-commissioning. Additional energy/water-related O&M and optimization opportunities should be identified and documented along with detailed recommendations of remedial measures as well as expected cost to implement and savings. More capital-intensive retrofit opportunities may be identified and passed forward for detailed evaluation.

8.8 Commission all new facilities and major equipment replacement.

8.9 For new buildings and equipment, perform a walk through before the end of the warranty period to identify issues that must be addressed under the warranty.

8.10 Implement constant commissioning in facilities with a building automation system (BAS), advanced metering systems, and sufficient O&M resources.

8.11 Resources to complete energy audits for discounted or no cost include:

a.) Utilities or municipalities may perform energy audits for facilities in their territory at no cost.

b.) Universities may include energy audits of ARS buildings with theirs.

c.) Organizations associated with certain states that charge fees on utility bills my perform discounted energy audits (New York State Energy Research Development Authority, Energy Trust of Oregon)

d.) It may cost less to validate a previous energy audit than do a new one.

e.) Perform in-house with ARS staff.

f.) Federal energy marketing agencies such as Bonneville Power Administration or Tennessee Valley Authority may perform energy audits.

9. Investigate building component energy and water saving opportunities and rank

Opportunities for energy savings and water conservation will be investigated and prioritized based on cost effectiveness, available resources, and funding availability including the following items:

9.1 Building Envelope
9.2 Heating, Ventilation, and Air Conditioning (HVAC) Systems - Reduce Ventilation Rates where allowable
9.3 HVAC Distribution Systems - Reduce Distribution System Energy Losses
9.4 Water Heating Systems
9.5 Lighting. Reduce light levels where appropriate
9.6 Power and Load Management Systems
9.7 Energy Management Control Systems and Metering
9.8 Information Technology Systems
9.9 Distributed Generation
9.10 Water Conservation
9.11 Cogeneration/Combined Heat and Power (CHP)
9.12 Renewable Energy
9.13 Heat recovery

10. Estimate the investment required to comply with EPACT 2005, the EISA of 2007, EO 13423 and EO 13514

Estimates will be prepared for the costs to comply with the energy and water conservation and Greenhouse Gas emission and waste reduction requirements of EPACT 2005, the EISA of 2007, and EO 13423 and EO 13514. The following steps will be included:

10.1 Determine target reduction

10.1.1 USDA's goals for GHG emission reductions are 21 percent for scope 1 and 2 and 7 percent for scope 3 by FY 2020 based on FY 2008 emissions.

10.1.2 USDA's goal for potable water consumption reduction is 2 percent per year based on FY 2007 through FY 2020. Potable water includes all water associated with buildings including greenhouses and landscape irrigation associated with buildings.

10.1.3 USDA's goal for non-potable water consumption reduction is 2 percent per year based on FY 2010 through FY 2020. Non-potable water consumption includes agricultural irrigation, fish hatcheries and animal water. Where ARS will not be able to reduce agricultural uses of water for research purposes, for mission critical reasons, use cost effective measures to increase efficiency such as with leak prevention. Track non-potable water consumption.

10.1.4 USDA's goal for reduction of petroleum use is to reduce petroleum consumption by 20 percent by 10/1/2015 from a FY 2005 baseline.

10.1.5 USDA's goal for use of alternative fuels is to increase vehicle alternative fuel use by 10 percent by 10/1/2015 from a FY 2005 baseline.

10.1.6 USDA's goal for non-hazardous waste diversion is 50 percent based on FY 2010 by FY 2015 including construction waste and demolition debris.

10.1.7 Fifteen percent of buildings shall be sustainable by 2015. Sustainable means incorporating the five guiding principles.

10.1.8 Reduce fossil fuel generated energy consumption in designs starting in 2010 by 55 percent, 2015 by 65 percent, 2020 by 80 percent, 2025 by 90 percent, and 2030 by 100 percent in new facilities and major renovations.

10.1.9 Purchase or produce renewable energy in at least the amount of 7.5 percent of the electricity consumption of the Agency from FY 2013 and onward.

10.2 Prioritize investments and leverage private financing in performance contracts.

10.2.1 In order to maximize savings and minimize overall life-cycle cost, the best strategy for the agency is to use private financing to fund as many of the ECMs as possible within the ESPC statutory maximum 25-year project term, beginning with the ECMs with the shortest paybacks. Available appropriations should either be applied to a privately financed project as a one-time payment from savings (i.e., as a "buy down") or used to directly fund longer-payback ECMs that cannot be included in the privately financed project.

10.2.2 Adjust priorities based on availability of funds, return on investment, and other factors.

11. Identify facilities that are likely to house the greatest energy savings opportunities and prioritize investments

Estimates will consider the total investment required and the return on investment to determine the best opportunities for savings including the following:

11.1 Compare energy intensity reduction to investment cost based on consumption per GSF.
11.2 Use life cycle cost methodologies. Justification will be based on a cost benefit analysis resulting in a ten year payback period or better.
11.3 Adjust plans as opportunities arise or improvements are accomplished.

12. Identify similar facilities that can benefit from similar efforts

Information, success stories, and case studies will be developed and disseminated as part of the outreach and training program.

12.1 Share information on energy savings opportunities or first time efforts between facilities.
12.2 Select facilities for investigation and investment based on the ability to replicate results.
12.3 Group facility improvements by use, systems, size, location, energy use/intensity, function, age, and other pertinent criteria.
12.4 Determine a template or suite of energy efficiency opportunities that might apply to several facilities.
12.5 Post on Sharepoint

13. Track utility costs

13.1 Verify utility bills, preferably prior to payment, but do not incur late fees.

a.) Utilize Enterprise Content Management (ECM) to view utility bills sent directly to National Finance Center (NFC) (in St Louis).
b.) Utilize the utility's website to view bills sent to NFC electronically by Electronic Data Interface (EDI).

13.2 Meter utilities and read meters. Track meter readings from advanced electric meters.
13.3 Analyze billing or consumption anomalies for energy or cost savings opportunities.
The government should not be taxed on utilities.
13.4 Work with utilities to find the most favorable rate schedule/tariff, minimize consumption and demand, and participate in demand-side management programs.
13.5 Verify billing accuracy and track historical trends with at least monthly data. Separate by building to the extent possible.
13.6 Participate in Demand Response programs where compatible with the mission.
13.7 Establish automated cost tracking methods

13.7.1 Network metered data

ARS is installing advanced electric meters on energy intensive buildings over 10,000 SF as required by EPACT 2005 by the end of FY 2012. Install advanced steam and natural gas meters by the end of FY 2016. Network advanced electric meters nationwide by the end of FY 2012.

13.7.2 CPAIS

13.7.3 FMS will automate many functions that are manually performed now. This will reduce operating costs and improve data quality and visibility, and thus decision making in the future. FMS will perform all of the following:

a.) Provide a dashboard to locations, areas, BSCs, and HQ of facility performance
b.) Make Facility O&M data securely accessible on the internet
c.) Provide user friendly graphical representations
d.) Highlight savings opportunities in real time
e.) Compare like facilities by size, program, geography, Scientific Years (SYs), etc.
f.) Weather and rate normalize utility data
g.) Interface with TUMS/UTVN and its successor system [This will be edited when Axis replaces TUMS]
h.) Receive invoice input automatically from National Finance Center (NFC)
i.) Reduce duplicate input
j.) Automatically collect data from advanced meters
k.) Automatically update Energy Star Portfolio Manager as required by EISA
l.) Interface with Building Automation Systems
m.) Automatically provide annual greenhouse gas report data
n.) Make utility invoices and invoice transcripts accessible
o.) Provide for ad hoc reporting and calculations
p.) Allocate O&M costs
q.) Maintain institutional knowledge and historical data
r.) Enhance learning and skills of facilities operating personnel
s.) Improve employee productivity and effectiveness
t.) Can be expanded with bolt on modules for maintenance, repairs, supplies, fleet mgmt, chemicals, etc.

13.7.4 Use other new methods to capture costs. Consider manual efforts.

13.7.5 Unless they cannot be separated from a Research Support Agreement, all utilities shall be entered into the TUMS or its successor system. The Reporting Center provides ad hoc reports to users of TUMS. Electricity, natural gas, and water must be paid for using TUMS. To the greatest extent possible, fuel oil and liquid petroleum gas (LPG)/propane should be paid through TUMS. All energy and water consumption must be tracked and reported by locations through the Areas. Facilities Division will provide reporting guidance. [This will be edited when Axis replaces TUMS.]

13.8 The following is a listing by Budget Object Class Codes (BOCC) of the types of facilities services that may be encountered:

- 2311 - Electricity
- 2312 – Natural Gas
- 2313 – Potable Water
- 2314 – Non-potable Water
- 2315 – Trash Collection Services

- 2317 – Steam Heating*
- 2318 – Chilled Water (for building cooling)*
- 2319 – Sewer Service
- 2612 – Gasoline non-travel and non transportation
- 2616 – Diesel fuel for emergency generators – use 2612 for gasoline generators*
- 2617 – Coal (ARS does not use coal)
- 2618 – #2 fuel oil used for heating
- 2619 – Liquid Propane (LPG) and related fuel
- 2668 – Biomasss/Wood Chips
- 2696 – #6 fuel oil (also called Bunker C or PS 400)
- 2697 – Kerosene used for heating oil

* Purchased steam, purchased chilled water, and fuel for emergency generators may be paid for, tracked, and reported by the location without using TUMS. [This will be edited when Axis replaces TUMS]

13.9 Non Facility BOCCs that should be used are enumerated below:

- 2611 – E85 (85% ethanol and 15% gasoline)
- 2614 – Gasoline (mobility)
- 2615 – Diesel (mobility)
- 2692 – Biodiesel (in a 20% or greater mixture)

14. Provide access to energy savings expertise to BSCs, Areas, and locations

14.1 Provide in-house engineering expertise

14.2 Energy Awareness communications and references

14.2.1 Provide Web based resources

a.) Statement of Work library – Statements of Work shall be posted on a SharePoint site as templates by BSCs and be edited by FD to include sustainable procurement requirements.

b.) Energy audit library – Energy audits shall be posted on SharePoint in order for management and other locations to share energy and water saving measures.

14.2.2 Provide periodic informational messages

14.2.3 Conduct training and presentations

14.2.4 Case Studies to share information and recognize excellence

a.) Energy Patriot flyers
b.) Biobased Success Stories

15. Identify sources of funding to accomplish energy savings projects

The following funding sources will be pursued:

15.1 Appropriated funds
15.2 UESCs
15.3 ESPCs
15.4 Utility demand-side incentives and rebates
15.5 Retained energy cost savings or avoided costs
15.6 Tax incentives for contractors
15.7 At least 20 percent of Agency energy consumption costs must be spent on energy improvements and at least half of that 20 percent must utilize UESCs and ESPCs. UESCs shall be pursued first because UESCs are usually faster, easier, less expensive, and more flexible than ESPCs. ESPCs shall be utilized where UESCs are not available or not appropriate.

16. Monitor progress

16.1 Report progress towards targets semi-annually for OMB Scorecards and annually for the Annual GHG and Sustainability report.

16.2 Provide for automated energy reporting including

16.2.1 CPAIS

16.2.2 DOE EISA mandated Web based reporting Compliance Tracking System (CTS) and Energy Star Portfolio Manager.

16.2.3 FMS

16.3 Revise plans based on progress, success, and changing priorities.

17. Provide appropriate training

17.1 Pursuant to the Federal Buildings Personnel Training Act, GSA identified the core competencies for personnel performing building operations and maintenance, energy management, safety and design functions. The core competencies identified include competencies relating to building operations and maintenance, energy management, sustainability, water efficiency, safety (including electrical

safety) and building performance measures. Personnel must be identified for each core competency for each building by June 2013. (ARS FBPTA program currently in draft and subject to change.)

17.2 Provide training with new facilities/commissioning, equipment replacement, re-/retro-commissioning, controls updates, policy changes, etc.

17.3 Document and record training for personnel changes.

17.4 DOE/FEMP on line training

17.5 Provide other training as appropriate.

APPENDIX 2
References and Acronyms

References

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http://www.gpo.gov/fdsys/pkg/FR-2011-08-10/html/2011-20024.htm.

Alliance for Water Efficiency
http://www.allianceforwaterefficiency.org/codes_and_standards_home_page.aspx

Alternative Fuel Locations and Route Planner:
www.afdc.energy.gov/afdc/locator/stations/

APD Bio-Preferred Products and Acquisition
http://www.afm.ars.usda.gov/acquisitions/biopreferred.htm

ARS EMS Implementation Guide
http://www.afm.ars.usda.gov/shem/files/ARS%20EMS%20Implementation%20Guide.pdf

ARS Energy Awareness SharePoint site
https://arsnet.usda.gov/sites/AFM/FD/EA/default.aspx

ARS Manual 242.1 - ARS Facilities Design Standards
http://www.afm.**ars**.usda.gov/ppweb/PDF/242-01M.pdf

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http://www.afm.ars.usda.gov/ppweb/PDF/242-8.pdf

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http://www.biopreferred.gov/

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http://www1.eere.energy.gov/femp/program/lifecycle.html.

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http://www1.eere.energy.gov/femp/pdfs/mv_guidelines.pdf.

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http://www1.eere.energy.gov/femp/pdfs/est_unmetered_landscape_wtr.pdf.

Discontinued Lamp Replacement Poster
https://arsnet.usda.gov/sites/AFM/FD/EA/Shared%20Documents/Non-Residential%20Energy%20Conservation/lamp%20poster.pdf

DOE "You Have the Power" Campaign
http://www1.eere.energy.gov/femp/services/yhtp/index.html

Energy Savings Assessment Training Manual
http://www1.eere.energy.gov/femp/pdfs/esa_manual.pdf

Energy Star®
http://www.energystar.gov/

EO 13221
http://www.gpo.gov/fdsys/pkg/FR-2001-05-22/pdf/01-13116.pdf

EO 13423
http://www.gpo.gov/fdsys/pkg/FR-2007-01-26/pdf/07-374.pdf

EO 13514
http://www.gpo.gov/fdsys/pkg/FR-2009-10-08/pdf/E9-24518.pdf

EPA Comprehensive Procurement Guidelines
http://www.epa.gov/cpg/products.htm

EPACT 2005 - PUBLIC LAW 109–58—AUG. 8, 2005
http://www.gpo.gov/fdsys/pkg/PLAW-109publ58/pdf/PLAW-109publ58.pdf

EPEAT
http://www.epeat.net/.

ESPC
http://www1.eere.energy.gov/femp/financing/espcs.html

Facility Energy Management Guidelines and Criteria for Energy and Water Evaluations in Covered Facilities
http://www1.eere.energy.gov/femp/pdfs/eisa_s432_guidelines.pdf

FBPTA
http://www.fmi.gov/ and http://fmi.knowledgeportal.us/index.aspx

FedCenter
http://www.fedcenter.gov/

FEMP energy-efficient equipment
http://www1.eere.energy.gov/femp/procurement/

FEMP Water Efficiency Resources
http://www1.eere.energy.gov/femp/program/waterefficiency_resources.html

GSA Advantage
https://www.gsaadvantage.gov/advgsa/advantage/search/specialCategory.do?cat=ADV.ENV

GSA's On-line Vehicle Acquisition Tool
www.gsa.gov/autochoice

High Performance and Sustainable Buildings Guidance
http://www.wbdg.org/pdfs/hpsb_guidance.pdf

Instructions for implementing EO 13423
http://www.whitehouse.gov/sites/default/files/omb/procurement/green/eo13423_instructions.pdf

Locating alternative fuel stations by city/state/zip
http://www.e85refueling.com/

Metering Best Practices
http://www1.eere.energy.gov/femp/pdfs/mbpg.pdf

Re-/Retro-commissioning
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UESC
http://www.eere.energy.gov/femp/financing/uescs.html

UESC Enabling Documents
http://www1.eere.energy.gov/femp/pdfs/uesc_enabling_documents09.pdf

USDA Departmental Regulation 3170-001 – End User Workstation Standards
http://www.ocio.usda.gov/directives/doc/DR3170-001.htm

USDA Green Purchasing
http://greening.usda.gov/purchasing.htm

USDA REE Manual 221.1M – Personal Property, Motor Vehicle, and Aircraft Management
http://www.afm.ars.usda.gov/ppweb/PDF/221-01M.pdf

USDA Strategic Sustainability Performance Plan (SSPP) 2012
http://www.dm.usda.gov/emd/

USDA Sustainable Operations Website
www.greening.usda.gov

USDA Sustainable Procurement Plan
http://www.dm.usda.gov/GreeningUSDA/docs/SustainableProcurementProgram.pdf

U.S. EPA, 2004 Guidelines for Water Reuse, EPA-625/R-04/108, August 2004
http://www.epa.gov/ord/NRMRL/pubs/625r04108/625r04108.htm.

Utility Demand Side Incentives
http://www1.eere.energy.gov/femp/pdfs/oliver.pdf

WaterSense^{SM}
http://www.epa.gov/watersense/

WBDG Protect and Conserve Water - Water Conservation Best Management Practices
http://www.wbdg.org/design/conserve_water.php
http://www1.eere.energy.gov/femp/program/waterefficiency_bmp.html

"What Makes a Sustainable Building" Poster
https://arsnet.usda.gov/sites/AFM/FD/EA/Shared%20Documents/Sustainability/A%20Sustainable%20Building.pptx

Whole Building Design Guide
http://www.wbdg.org

Acronyms

AFM – Administration and Financial Management
AFV – Alternative Fuel Vehicle
AO – Administrative Officer
APD – Acquisition and Property Division
APD/APOB – Acquisition and Property Division/Acquisition Programs & Oversight Branch
APD/PSSB – Acquisition and Property Division/Property and Support Services Branch
ARS – Agricultural Research Service
ASHM – Area Safety and Health Manager
ASHRAE – American Society of Heating Refrigeration and Air Conditioning Engineers
AXIS is not an acronym
BSC – Business Service Center
CFC - Chlorofluorocarbon
CFR – Code of Federal Regulations
CHP – Combined Heat and Power
CH_4 – Methane
CIO – Chief Information Officer
CO_2 - Carbon Dioxide
CPAIS – Corporate Property Automated Information System
DAAFM – Deputy Administrator for Administration and Financial Management
DI/RO – De-ionized and Reverse Osmosis water
DLA Energy – Defense Logistics Agency Energy (formerly DESC)
DOE – Department of Energy
EBSC – Eastern Business Service Center
EMS – Environmental Management System
ENABLE is not an acronym
EO – Executive Order
EPA – Environmental Protection Agency
EPACT 2005 – Energy Policy Act of 2005
EPEAT – Electronic Product Environmental Assessment Tool
ESCO – Energy Service Company
ESPC – Energy Saving Performance Contract
FAST – Federal Automotive Statistical Tool
FCs – Foot Candles
FD – Facilities Division
FEM – Facilities Energy Manager
FEMP – Federal Energy Management Program
FMs – Facility Managers
FMMI – Financial Management Modernization Initiative
FR – Federal Register
FY – Fiscal Year
GHG – Greenhouse Gas
GSA – General Services Administration
GVWR – Gross Vehicle Weight Rating
HCFC - Hydrochlorofluorocarbon
HFC - Hydrofluorocarbon

HQ – Headquarters
HVAC – Heating Ventilation and Air Conditioning
IGA – Investment Grade Audit
ITS – Information Technology Specialist
Labs 21 – Laboratories for the 21st Century
LED – Light Emitting Diode
LEED – Leadership in Energy and Environmental Design
LPG – Liquid Propane Gas or Liquid Petroleum Gas
MDPV - Medium Duty Passenger Vehicle
NAL – National Agricultural Library
NEPA – National Environmental Policy Act
NEV – Neighborhood Electric Vehicle
NOITA – Notice of Intent to Award
N_2O – Nitrous Oxide
O&M – Operations and Maintenance
OCIO – Office of the Chief Information Officer
OFEE – Office of the Federal Environmental Executive
OMB – Office of Management and Budget
P&P – Policy and Procedure
PA – Preliminary Assessment
PAO – Procurement Assistant Officer
PFC – Perfluorocarbon
PSSB - Property Support Services Branch
R&M – Repair and Maintenance
REE – Research Education and Economics
REM – Resource Efficiency Manager
RPMB – Real Property Management Branch
SF – Square Feet
SF_6 – Sulfur Hexafluoride
SHEMB – Safety Health and Environmental Branch
SIN – Special Item Number
SMACNA – Sheet Metal and Air Conditioning Contractors National Association
SSPP – Strategic Sustainability Performance Plan
SYs – Scientific Years
TEP – Technical Evaluation Panel
TO – Task Order
TUMS - Telephone & Utilities Maintenance System [This will be edited when Axis replaces TUMS]
TV – Television
UESC – Utility Energy Service Contract
USDA – United States Department of Agriculture
UTVN – Utility Vendors System [This will be edited when Axis replaces TUMS]
VAM – Vehicle Allocation Methodology
VCR – Video Cassette Recorder
VOC – Volatile Organic Compound
WBSC – Western Business Service Center

Appendix 3
Low Hanging Fruit – Low or No Cost Actions

Occupant conservation actions:

- Turn off lights, office equipment, and window air conditioners when not in use. Use natural lighting from windows in lieu of electric lights when possible.
- Reduce the use of elevators. Walk down two flights or up one flight instead of using elevators.
- Keep windows/doors shut in areas that are being heated or cooled.
- Close blinds, shades, and drapes at night during the heating seasons to reduce heat loss through the window area. Open them during the day to use the sun for heating the rooms.
- Close blinds, shades, and drapes during the day in summer. These interior shading devices can reduce heat gain in the room as much as 50 percent.
- Implement a hood sash management program.
- Minimize overtime work. Consolidate work areas of after-hours workers to minimize the amount of space that must be heated, air conditioned, and lighted.
- If rooms are individually controlled by thermostats, keep temperatures above 76^{o} F in the summer and below 70^{o} F in the winter. Avoid large difference in thermostat settings in the same zone.
- Avoid the use of fans and space heaters if the building HVAC systems are operating.
- Do not block HVAC air distribution outlets with books, furniture, etc.
- Reduce plug loads by not leaving equipment plugged in that draws a trickle current such as chargers, TVs, VCRs, etc.
- Keep energy conservation awareness a priority by way of staff meetings, newsletters, posters, etc.

FMs O&M conservation actions:

- Institute and emphasize energy conservation awareness programs for building occupants by publishing/announcing actions indicated above.

- Perform inspections of the facility to determine compliance with temperature and lighting criteria, condition of equipment, piping and controls, and the need for repair. Make repairs promptly. Track and confirm repairs.

- Do not add heat to keep buildings warmer than 55 ^{o}F when unoccupied in the heating season.

- Keep the building envelope, equipment, and systems properly maintained to promote efficient operation of HVAC systems.

- Keep temperatures between 65 ^{o}F and 70 ^{o}F in the heating season and between 76 ^{o}F and 80 ^{o}F in the cooling season, where practicable (41 CFR 101).

- Do not cool buildings when unoccupied except as required, to achieve target temperature ranges during occupied hours in extreme weather conditions.

- Review building operating plans and tailor start-up and shut-down times of HVAC systems so that target temperature ranges are met within 1 hour of occupants arriving and departing the building, taking into account outdoor temperatures.

- Reduce the operating hours of HVAC, ventilation, water heating, and lighting systems, along with escalators, elevators, equipment, and machines.

- Lower humidification/raise dehumidification set points.

- Install locking thermostats where necessary to prevent unauthorized settings.

- Reduce water temperatures to lavatories, consistent with good hygiene. Disconnect water fountain cooler power.

- Install timers and/or occupancy sensors, as appropriate, to cut off lights and equipment automatically. Install occupancy sensors and night setback on HVAC.

- Use energy-efficient fluorescent lamps. Replace incandescent light bulbs with compact fluorescent lamps. Select replacement lamps with high Color Rendering Index (CRI) lamps and reduce number of lamps where lighting level will be adequate.

- Participate in load-shedding programs/demand response programs of electric utilities.

- Clean lighting fixtures and replace lamps (with energy efficient lamps) on a regular maintenance schedule to maintain proper lighting levels.

- Reduce lighting levels during working hours to 40 foot-candles (FCs) at work station surfaces, 30 (FCs) in general office space not at work station surfaces, and 10 (FCs) in non-work areas, in conformance with 41 CFR 101. Eliminate

unnecessary lighting. Turn lights off when not in use. Occupants in areas with computers and video display terminals may benefit from lower lighting level using parabolic fixture lenses - refer to Illuminating Engineering Society publications for guidance. Minimum lighting levels:

Space	Lighting level in fc
Stairways, washrooms, service areas	10 at floor level
Hallways, corridors, passageways, storage	5 at floor level
Work surfaces with very difficult seeing tasks	75 at work surface
Work surfaces with difficult and critical seeing tasks	30 at work surface
Work surfaces with ordinary seeing tasks	20 at work surface

Keep in mind that these minimum lighting levels are based on "1970's workplace tasks," not using a computer monitor in a modern office, which makes its own light, so less light is necessary in today's office. It is recommended that a light meter be used to check light levels.

- Adjust system and equipment settings hourly, daily, weekly, or seasonally to obtain the most energy-efficient operation, based on weather conditions and the system characteristics.

- Install and maintain weather-stripping on all doors and windows. Install vestibules on high traffic doors.

- Use EPEAT when purchasing electronics. Purchase Energy Star or FEMP designated energy-efficient products. Enable Energy Star features on electronics.

- De-energize vending machine lighting and install Vendmisers. See http://www.vendingmiserstore.com

- Replace standard belts with cogged belts.

- Perform preventive maintenance and cleaning of HVAC equipment on a regular basis including filter replacement. Keep outside equipment free of plants, debris, and other obstructions.

- Commuting: Encourage and provide accommodation for employees to walk, bicycle, use public transportation, and car pool. Request a nearby bus stop from local transit if available. Study a shuttle for often driven routes. Telework. 75 percent of ARS' scope 3 greenhouse gas emissions are from employee commuting. Teleworking and alternatives to single-passenger vehicle commuting will reduce the Agency's GHG emissions.

- Check for water leaks and poor/missing pipe insulation.

Energy conservation retrofit actions:

- Reduce heat conduction through ceilings, roofs, floors, and walls by installation of insulation and vapor barriers.

- Reduce solar heat gain through roofs by installing reflective roof surfaces. Use cool roofing. Green or vegetated roofs may be considered if appropriate. . See Guidelines for Selecting Cool Roofs at http://www1.eere.energy.gov/femp/pdfs/coolroofguide.pdf.

- Reduce heat conduction and long-wave radiation through glazing areas by installing storm windows or multiple glazed windows, by insulating movable windows, or by installing operable windows.

- Control solar heat gain through glazing areas by use of shading, tinted or reflective glazing or films, or by installing air-flow windows, or window screens with reflective/insulating characteristics.

- Reduce infiltration by caulking, weather-stripping doors and windows, or by constructing vestibules.

- Improve HVAC equipment efficiency (i.e., chiller, boiler, furnace, etc).

- Replace T-12 fluorescent lights and magnetic ballasts with T-8 lamps and electronic ballasts.

- Replace incandescent exit signs with LED exit signs.

- Reduce energy used for tempering supply air by installing Variable Air Volume systems, or by resetting supply air, hot water, or chilled water temperatures.

Vehicles

- Fleet Mix: Acquire fuel efficient vehicles to meet mission requirements when new acquisition is justified. These vehicles should be of the minimum size, weight, and options necessary to complete the mission requirements of the Agency. Acquire hybrids when available in the size and type needed.
- Acquire AFVs: Acquire AFVs when the option is available in the size and type needed.
- Acquire NEVs when appropriate for the job.
- Coordinate Vehicle Use: Employ trip planning, pooling, redistribution of vehicles, and other methods of achieving the best utilization of vehicles. Promote ride sharing to reduce petroleum fuel usage by REE employees and contractors where appropriate. Use the most fuel efficient vehicle that will accomplish the mission. Substitute cars for light trucks, increase vehicle load factors, decrease vehicle miles traveled and decrease fleet size.

- Maintenance: Establish internal procedures for effective preventive maintenance programs in accordance with manufacturer's standards, including regular tune-ups, wheel alignments, and keeping tires inflated to the pressure designated on the vehicle.
- Use of Alternative Fuels: Routinely obtain alternative fuels unless these fuels are not reasonably available or unless the fuels cost 15 cents more per gallon than petroleum fuel, based on an official waiver from DOE.
- Track/Monitor vehicle operational costs: Ensure vehicle operational costs are tracked and properly recorded in USDA's personal property system.
- Operator Training: Implement a program to keep operators alert to fuel efficient driving and operation techniques. This educational effort should include such actions as reminding drivers to drive at posted speed limits, avoid sudden bursts of speed, refrain from tailgating or pumping the accelerator pedal while the vehicle is not in motion, not idling the engine for long periods of time, eliminating unnecessary weight in the trunk or truck bed, and encourage pooling and combining of travel needs.

Appendix 4

THE FIVE GUIDING PRINCIPLES

(Six Guiding Principles are currently in draft)

Based on the High Performance and Sustainable Buildings Guidance
http://www.wbdg.org/pdfs/hpsb_guidance.pdf

A. GUIDING PRINCIPLES FOR SUSTAINABLE NEW CONSTRUCTION AND MAJOR RENOVATIONS

I. Employ Integrated Design Principles

Integrated Design. Use a collaborative, integrated planning and design process that:

- Initiates and maintains an integrated project team as described on the Whole Building Design Guide <http://www.wbdg.org/design/engage_process.php> in all stages of a project's planning and delivery.
- Integrates the use of OMB's A-11, Section 7, Exhibit 300: *Capital Asset Plan and Business Case Summary*.
- Establishes performance goals for siting, energy, water, materials, and indoor environmental quality along with other comprehensive design goals and ensures incorporation of these goals throughout the design and lifecycle of the building.
- Considers all stages of the building's lifecycle, including deconstruction.

Commissioning. Employ commissioning practices tailored to the size and complexity of the building and its system components in order to verify performance of building components and systems and help ensure that design requirements are met. This should include an experienced commissioning provider, inclusion of commissioning requirements in construction documents, a commissioning plan, verification of the installation and performance of systems to be commissioned, and a commissioning report.

II. Optimize Energy Performance

Energy Efficiency. Establish a whole building performance target that takes into account the intended use, occupancy, operations, plug loads, other energy demands and design to earn the ENERGY STAR® targets for new construction and major renovation where applicable. For new construction, reduce the energy use by 30 percent compared to the baseline building performance rating per the American National Standards Institute (ANSI)/ASHRAE/Illuminating Engineering Society of North America (IESNA) Standard 90.1-2007, Energy Standard for Buildings Except Low-Rise Residential. For major renovations, reduce the energy use by 20 percent below pre-renovations 2003 baseline.

Laboratory spaces may use the Labs21 Laboratory Modeling Guidelines. Use ENERGY STAR® and FEMP-designated Energy Efficient Products, where available.

On-Site Renewable Energy. Per the EISA Section 523, meet at least 30 percent of the hot water demand through the installation of solar hot water heaters, when lifecycle cost effective.
Per EO 13423, implement renewable energy generation projects on Agency property for Agency use, when lifecycle cost effective.

Measurement and Verification. Per the EPACT of 2005, Section 103, install building level electricity meters in new major construction and renovation projects to track and continuously optimize performance. Per EISA Section 434, include equivalent meters for natural gas and steam, where natural gas and steam are used.

Benchmarking. Compare actual performance data from the first year of operation with the energy design target, preferably by using ENERGY STAR® Portfolio Manager for building and space types covered by ENERGY STAR®. Verify that the building performance meets or exceeds the design target, or that actual energy use is within 10 percent of the design energy budget for all other building types. For other building and space types, use an equivalent benchmarking tool such as the Labs21 benchmarking tool for laboratory buildings.

III. Protect and Conserve Water

Indoor Water. Employ strategies that in aggregate use a minimum of 20 percent less potable water than the indoor water use baseline calculated for the building, after meeting the EPAct 1992, Uniform Plumbing Codes 2006 and the International Plumbing Codes 2006 fixture performance requirements. The installation of water meters is encouraged to allow for the management of water use during occupancy. The use of harvested rainwater, treated wastewater, and air conditioner condensate should also be considered and used where feasible for non-potable use and potable use where allowed.

Outdoor Water. Use water-efficient landscape and irrigation strategies, such as water reuse, recycling, and the use of harvested rainwater, to reduce outdoor potable water consumption by a minimum of 50 percent over that consumed by conventional means (plant species and plant densities). The installation of water meters for locations with significant outdoor water use is encouraged.

Employ design and construction strategies that reduce storm water runoff and discharges of polluted water offsite. Per EISA Section 438, to the maximum extent technically feasible, maintain or restore the predevelopment hydrology of the site with regard to temperature, rate, volume, and duration of flow using site planning, design, construction, and maintenance strategies.

Process Water. Per the EPACT of 2005 Section 109, when potable water is used to improve a building's energy efficiency, deploy lifecycle cost effective water conservation measures.

Water-Efficient Products. Specify EPA's WaterSense-labeled products or other water conserving products, where available. Choose irrigation contractors who are certified through a WaterSense labeled program.

IV. Enhance Indoor Environmental Quality

Ventilation and Thermal Comfort. Meet ASHRAE Standard 55-2004, Thermal Environmental Conditions for Human Occupancy, including continuous humidity control within established ranges per climate zone, and ASHRAE Standard 62.1-2007, Ventilation for Acceptable Indoor Air Quality.

Moisture Control. Establish and implement a moisture control strategy for controlling moisture flows and condensation to prevent building damage, minimize mold contamination, and reduce health risks related to moisture.

Daylighting. Achieve a minimum daylight factor of 2 percent (excluding all direct sunlight penetration) in 75 percent of all space occupied for critical visual tasks. Provide automatic dimming controls or accessible manual lighting controls, and appropriate glare control.

Low-Emitting Materials. Specify materials and products with low pollutant emissions, including composite wood products, adhesives, sealants, interior paints and finishes, carpet systems, and furnishings.

Protect Indoor Air Quality during Construction. Follow the recommended approach of the Sheet Metal and Air Conditioning Contractor's National Association Indoor Air Quality Guidelines for Occupied Buildings under Construction, 2007. After construction and prior to occupancy, conduct a minimum 72-hour flush-out with maximum outdoor air consistent with achieving relative humidity no greater than 60 percent. After occupancy, continue flush-out as necessary to minimize exposure to contaminants from new building materials.

Environmental Tobacco Smoke Control. Implement a policy and post signage indicating that smoking is prohibited within the building and within 25 feet of all building entrances, operable windows, and building ventilation intakes during building occupancy.

V. Reduce Environmental Impact of Materials

Recycled Content. Per Section 6002 of the Resource Conservation and Recovery Act (RCRA), for EPA-designated products, specify products meeting or exceeding EPA's recycled content recommendations. For other products, specify materials with recycled content when practicable. If EPA-designated products meet performance requirements

and are available at a reasonable cost, a preference for purchasing them shall be included in all solicitations relevant to construction, operation, maintenance of or use in the building. EPA's recycled content product designations and recycled content recommendations are available on EPA's Comprehensive Procurement Guideline Web site at <www.epa.gov/cpg>.

Bio-based Content. Per Section 9002 of the Farm Security and Rural Investment Act (FSRIA), for USDA-designated products, specify products with the highest content level per USDA's bio-based content recommendations. For other products, specify bio-based products made from rapidly renewable resources and certified sustainable wood products. If these designated products meet performance requirements and are available at a reasonable cost, a preference for purchasing them shall be included in all solicitations relevant to construction, operation, maintenance of or use in the building. USDA's bio-based product designations and bio-based content recommendations are available on USDA's Bio-Preferred Web site at www.usda.gov/biopreferred.

Environmentally Preferable Products. Use products that have a lesser or reduced effect on human health and the environment over their lifecycle when compared with competing products or services that serve the same purpose. A number of standards and eco-labels are available in the marketplace to assist specifiers in making environmentally preferable decisions. For recommendations, consult the Federal Green Construction Guide for Specifiers at <www.wbdg.org/design/greenspec.php>.

Waste and Materials Management. Incorporate adequate space, equipment, and transport accommodations for recycling in the building design. During a project's planning stage, identify local recycling and salvage operations that could process site-related construction and demolition materials. During construction, recycle or salvage at least 50 percent of the non-hazardous construction, demolition, and land clearing materials, excluding soil, where markets or onsite recycling opportunities exist. Provide salvage, reuse, and recycling services for waste generated from major renovations, where markets or onsite recycling opportunities exist.

Ozone Depleting Compounds. Eliminate the use of ozone depleting compounds during and after construction where alternative environmentally preferable products are available, consistent with either the Montreal Protocol and Title VI of the Clean Air Act Amendments of 1990, or equivalent overall air quality benefits that take into account lifecycle impacts.

B. GUIDING PRINCIPLES FOR SUSTAINABLE EXISTING BUILDINGS

I. Employ Integrated Assessment, Operation, and Management Principles

Integrated Assessment, Operation, and Management. Use an integrated team to develop and implement policy regarding sustainable O&M.

- Incorporate sustainable O&M practices within the appropriate EMS

- Assess existing condition and operational procedures of the building and major building systems and identify areas for improvement

- Establish operational performance goals for energy, water, material use and recycling, and indoor environmental quality. Ensure incorporation of these goals throughout the remaining lifecycle of the building

- Incorporate a building management plan to ensure that operating decisions and tenant education are carried out with regard to integrated, sustainable building O&M

- Augment building O&M as needed using occupant feedback on work space satisfaction

Commissioning. Employ re-commissioning tailored to the size and complexity of the building and its system components in order to optimize and verify performance of fundamental building systems. Commissioning must be performed by an experienced commissioning provider. When building commissioning has been performed, the commissioning report, summary of actions taken, and schedule for re-commissioning must be documented. In addition, meet the requirements of EISA 2007, Section 432 and associated FEMP guidance.

Building re-commissioning must have been performed within four years prior to reporting a building as meeting the *Guiding Principles*.

II. Optimize Energy Performance

Energy Efficiency. Three options can be used to measure energy efficiency performance:

- Option 1: Receive an ENERGY STAR® rating of 75 or higher or an equivalent Labs21 Benchmarking Tool score for laboratory buildings

- Option 2: Reduce measured building energy use by 20 percent compared to building energy use in 2003 or a year thereafter with quality energy use data

- Option 3: Reduce energy use by 20 percent compared to the ASHRAE 90.1-2007 baseline building design if design information is available.

Use ENERGY STAR® and FEMP-designated Energy Efficient Products, where available.

On-Site Renewable Energy. Per EO 13423, implement renewable energy generation projects on Agency property for Agency use, when lifecycle cost effective.

Measurement and Verification. Per the EPACT of 2005, Section 103, install building level electric meters to track and continuously optimize performance. Per the EISA 2007, the utility meters must also include natural gas and steam, where natural gas and steam are used.

Benchmarking. Compare annual performance data with previous years' performance data, preferably by entering annual performance data into the ENERGY STAR® Portfolio Manager. For building and space types not available in ENERGY STAR®, use an equivalent benchmarking tool such as the Labs21 benchmarking tool for laboratory buildings.

III. Protect and Conserve Water

Indoor Water. Two options can be used to measure indoor potable water use performance:

- Option 1: Reduce potable water use by 20 percent compared to a water baseline calculated for the building. The water baseline, for buildings with plumbing fixtures installed in 1994 or later, is 120 percent of the Uniform Plumbing Codes 2006 or the International Plumbing Codes 2006 fixture performance requirements. The water baseline for plumbing fixtures older than 1994 is 160 percent of the Uniform Plumbing Codes 2006 or the International Plumbing Codes 2006 fixture performance requirements.

- Option 2: Reduce building measured potable water use by 20 percent compared to building water use in 2003 or a year thereafter with quality water data.

Outdoor Water. Three options can be used to measure outdoor potable water use performance:

- Option 1: Reduce potable irrigation water use by 50 percent compared to conventional methods.

- Option 2: Reduce building related potable irrigation water use by 50 percent compared to measured irrigation water use in 2003 or a year thereafter with quality water data.

- Option 3: Use no potable irrigation water.

Measurement of Water Use. The installation of water meters for building sites with significant indoor and outdoor water use is encouraged. If only one meter is installed, reduce potable water use (indoor and outdoor combined) by at least 20 percent compared to building water use in 2003 or a year thereafter with quality water data.

Employ strategies that reduce storm water runoff and discharges of polluted water offsite. Per EISA Section 438, where redevelopment affects site hydrology, use site planning, design, construction, and maintenance strategies to maintain hydrologic conditions during development, or to restore hydrologic conditions following development, to the maximum extent that is technically feasible.

Process Water. Per EPAct 2005 Section 109, when potable water is used to improve a building's energy efficiency, deploy lifecycle cost effective water conservation measures.

Water-Efficient Products. Where available, use EPA's WaterSense-labeled products or other water conserving products. Choose irrigation contractors who are certified through a WaterSense-labeled program.

IV. Enhance Indoor Environmental Quality

Ventilation and Thermal Comfort. Meet ASHRAE Standard 55-2004 Thermal Environmental Conditions for Human Occupancy and ASHRAE Standard 62.1-2007: Ventilation for Acceptable Indoor Air Quality.

Moisture Control. Provide policy and illustrate the use of an appropriate moisture control strategy to prevent building damage, minimize mold contamination, and reduce health risks related to moisture. For façade renovations, Dew Point analysis and a plan for cleanup or infiltration of moisture into building materials are required.

Daylighting and Lighting Controls. Automated lighting controls (occupancy/vacancy sensors with manual-off capability) are provided for appropriate spaces including restrooms, conference and meeting rooms, employee lunch and break rooms, training classrooms, and offices. Two options can be used to meet additional daylighting and lighting controls performance expectations:

- Option 1: Achieve a minimum daylight factor of 2 percent (excluding all direct sunlight penetration) in 50 percent of all space occupied for critical visual tasks.

- Option 2: Provide occupant controlled lighting, allowing adjustments to suit individual task needs, for 50 percent of regularly occupied spaces.

Low-Emitting Materials. Use low emitting materials for building modifications, maintenance, and cleaning. In particular, specify the following materials and products to have low pollutant emissions: composite wood products, adhesives, sealants, interior paints and finishes, solvents, carpet systems, janitorial supplies, and furnishings.

Integrated Pest Management. Use integrated pest management techniques as appropriate to minimize pesticide usage. Use EPA-registered pesticides only when needed.

Environmental Tobacco Smoke Control. Prohibit smoking within the building and within 25 feet of all building entrances, operable windows, and building ventilation intakes.

V. Reduce Environmental Impact of Materials

Recycled Content. Per section 6002 of RCRA, for EPA-designated products, use products meeting or exceeding EPA's recycled content recommendations for building modifications, maintenance, and cleaning. For other products, use materials with recycled content such that the sum of postconsumer recycled content plus one-half of the pre-consumer content constitutes at least 10 percent (based on cost or weight) of the total value of the materials in the project. If EPA-designated products meet performance requirements and are available at a reasonable cost, a preference for purchasing them shall be included in all solicitations relevant to construction, operation, maintenance of or use in the building. EPA's recycled content product designations and recycled content recommendations are available on EPA's Comprehensive Procurement Guideline Web site at <www.epa.gov/cpg>.

Bio-based Content. Per section 9002 of FSRIA, for USDA-designated products, use products with the highest content level per USDA's bio-based content recommendations. For other products, use bio-based products made from rapidly renewable resources and certified sustainable wood products. If these designated products meet performance requirements and are available at a reasonable cost, a preference for purchasing them should be included in all solicitations relevant to construction, operation, maintenance of or use in the building. USDA's bio-based product designations and bio-based content recommendations are available on USDA's Bio-Preferred Web site at <www.usda.gov/biopreferred>.

Environmentally Preferable Products. Use products that have a lesser or reduced effect on human health and the environment over their lifecycle when compared with competing products or services that serve the same purpose. A number of standards and eco-labels are available in the marketplace to assist specifiers in making environmentally preferable decisions. For recommendations, consult the Federal Green Construction Guide for Specifiers at <www.wbdg.org/design/greenspec.php>.

Waste and Materials Management. Provide reuse and recycling services for building occupants, where markets or on-site recycling exist. Provide salvage, reuse, and recycling services for waste generated from building O&M, repair and minor renovations, discarded furnishings, equipment and property. This could include such things as beverage containers and paper from building occupants, batteries, toner cartridges, outdated computers from an equipment update, and construction materials from a minor renovation.

Ozone Depleting Compounds. Eliminate the use of ozone depleting compounds where alternative environmentally preferable products are available, consistent with either the

Montreal Protocol and Title VI of the Clean Air Act Amendments of 1990, or equivalent overall air quality benefits that take into account lifecycle impacts.

Appendix 5

Authorized Signing Officers

Authorized signing officers for documents used to purchase utilities and for other energy and water related contract actions.

Action	Description	Signing Officer
Procure utilities from a regulated utility	Use Exhibit A or B of a GSA Areawide Contract to order, change or disconnect electricity or natural gas service from a regulated franchised utility over the simplified acquisition threshold. Regulated utilities may take the form of an investor owned utility, a Coop, or a Public Utility District. Attach all utility specific agreements to the Exhibit A or B.	Contracting Officer (CO) with a warrant equal to the annual utility expenditure.
Procure utilities under a Research Support Agreement	Use the customary form for ordering, changing or disconnecting utilities under a Research Support Agreement (RSA). GSA considers these like a full service lease and not under FAR part 41.	Authorized Departmental Officer (ADO)
Procure Utilities under an Interagency Agreement	Ordering, changing or disconnecting utilities under an Interagency Agreement. GSA considers these like a full service lease and not under FAR part 41.	Servicing Budget and Fiscal Officer (SBFO)(formerly ABFO)
Procure utilities from other entities	Ordering, changing or disconnecting utilities from other entities such as municipalities. GSA considers these as not under FAR part 41.	Contracting Officer (CO) with a warrant equal to the annual utility expenditure.
Procure utilities from a 3rd party	In deregulated states, utilities can be purchased as commodities from 3rd	

	parties and transported to the customer by the local service provider over the same infrastructure. Assisted procurement is provided through reverse auctions by GSA or DLA Energy (formerly DESC). The following documents can be involved.	
	Memorandum of Agreement with GSA or DLA Energy for assisted procurement	Servicing Budget and Fiscal Officer (SBFO)(formerly ABFO) or Authorized Departmental Officer (ADO)
	ARS acceptance of rate from the reverse auction to GSA. A GSA CO signs the delivery order with the 3rd party.	ARS Contracting Officer (CO) with a warrant equal to the annual utility expenditure.
	Designation of Agent for transportation service	Contracting Officer (CO) with a warrant equal to the annual utility expenditure.
	Use Exhibit A or B of the GSA Areawide Contract to order transportation service from the local service provider. Attach any transportation or tariff agreement from the local service provider to the Exhibit A or B.	Contracting Officer (CO) with a warrant equal to the annual utility expenditure.
	Letter of Authorization for GSA, DLA Energy (or their representative) or another entity to contact the local service provider or 3rd party supplier to obtain ARS' utility history or rate information. This includes forms for information access or affidavits to nominate.	Any responsible employee associated with the location or utilities process.
Energy Performance Contracts	Many other documents used for ESPCS and UESCs that are clearly signed by a CO	

	are omitted from this list.	
UESC	Request for free energy audit from a utility under a GSA Areawide Contract using a "Preliminary Survey Report" form.	Any responsible employee associated with the location or utilities process.
	Request for energy services using GSA Areawide Contract Exhibit C and a UESC Task Order.	Contracting Officer
	Application for on-bill energy efficiency demand response program.	Any responsible employee associated with the location or utilities process.
	Interagency Agreement for installation of energy projects with Bonneville Power (or other Federal agencies)	Servicing Budget and Fiscal Officer (SBFO)(formerly ABFO) or Authorized Departmental Officer (ADO)
ESPC	Selection or non-selection notification letters to Energy Savings Contractors (ESCO) to notify ESCOs of down-selection or selection for a project	Contracting Officer
	Interagency Agreement with DOE for Project Facilitator under the Skaggs Amendment 42 U.S.C. § 8287d.	Servicing Budget and Fiscal Officer (SBFO)(formerly ABFO) or Authorized Departmental Officer (ADO)
	Letter of Authorization for the ESCO to contact utilities directly to obtain utility history or rate information.	Any responsible employee associated with the project, location or utilities process.
Tax Issues		
Tax Exemption	A letter to a Utility requesting correction to tax exempt status and refund of overpaid taxes. This includes utility- or state-specific tax exemption forms and the Federal Tax Identification number.	Any responsible employee associated with the location or utilities process.
Tax Allocation	Section 179D tax allocation letter - A signed letter from	A Contracting Officer may sign.

	a representative of the government property owner (defined as an employee of the government owned building) who has both knowledge of the project and the parties' involvement that is requesting the deduction with that project.	
Renewable Energy	Utility Interconnection Agreement attached to Exhibit D of the GSA Areawide Agreement. Obtain OGC review, particularly for indemnity clauses.	Contracting Officer
	Renewable Energy Certificate (REC) procurement assisted by DLA Energy or another Federal Agency that uses an RFP and competes vendors on ARS' behalf. ARS issues a purchase order to the vendor identified by DLA Energy.	Contracting Officer
Demand Response Agreement	Agreement with a curtailment service provider to cut utility use at peak times in exchange for a payment from the utility. Competitive selection is required.	Any responsible employee associated with the location or utilities process.
Incentives and rebates	Applications for utility incentives and rebates for energy and water efficiency projects. Includes recycling.	Any responsible employee associated with the location or utilities process.
DLA Energy Requirements Worksheet for bulk fuels	Bulk Diesel, gasoline, fuel oil, etc. procurement requirements are provided to DLA Energy and DLA	Any responsible employee associated with the location or fleet matters.

	Energy assists with procurement.	
Advanced utility metering	Meter agreement. Obtain OGC review of indemnity clauses.	Any responsible employee associated with the location or utilities process.

References

All GSA Areas-wide Contracts are on Sharepoint at https://arsnet.usda.gov/sites/AFM/FD/EA/Shared%20Documents/Forms/AllItems.aspx?RootFolder=%2fsites%2fAFM%2fFD%2fEA%2fShared%20Documents%2fUtilities%2fGSA%20Areawide%20Contracts%20by%20Name

APD Alert – Utility Procurement http://www.afm.ars.usda.gov/acquisitions/pdffiles/APDAlert2013-01.pdf

P&P 115.0 Administrative Delegations of Authority http://www.afm.ars.usda.gov/ppweb/PDF/115-0.PDF

APD Alert – Interagency Acquisitions http://www.afm.ars.usda.gov/acquisitions/pdffiles/APDALERT201305.pdf

Bulletin 07-001 Research Support Agreements http://www.afm.ars.usda.gov/ppweb/Bulletins/07-001.pdf

P&P 704.0 Research Support Agreements http://www.afm.ars.usda.gov/ppweb/PDF/704-0.pdf

APD Alert 2013-12 Contracting Officer Authority - http://www.afm.ars.usda.gov/acquisitions/pdffiles/APDAlert2013-12.pdf