

## SECTION 3-3: ENERGY AND WATER MANAGEMENT

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### 3-3-00 POLICY

The purpose of this section is to provide policy directives and procedures for the efficient use of energy and water at facilities associated with the Department of Health and Human Services (HHS). The section outlines the Department-wide energy and water management program that provides the foundation and direction for the Operating Divisions (OPDIVs) and individual facility energy and water conservation programs. All HHS personnel shall support the goals of energy and water conservation and cooperate with program initiatives.

In August 2005, the Energy Policy Act (EPACT) of 2005 was signed. EPACT 2005 requires a reduction in energy use of 2% per year when compared to a 2003 baseline.

On January 24th, 2007, President George W. Bush signed Executive Order 13423, "Strengthening Federal Environmental, Energy, and Transportation Management." This EO addresses a wide array of environmental and energy-related management areas including energy efficiency, water conservation, green procurement, toxics reduction, recycling, renewable energy, sustainable buildings, electronic stewardship, and fleet fuel efficiency. It also calls for more widespread use of EMS as the framework to manage and continually improve these sustainable practices. (Executive Order 13423 superseded EOs 13101, 13123, 13134, 13148, and 13149.)

In terms of facility energy management, this EO is significantly more stringent than the EPACT of 2005. The EO sets forth the following energy management and water conservation goals:

- **ENERGY EFFICIENCY:** Reduce energy intensity by 3 % annually through 2015 or by 30% by 2015.
- **GREENHOUSE GASES:** By reducing energy intensity by 3% annually or 30% by 2015, reduce greenhouse gas emissions.
- **RENEWABLE POWER:** At least 50% of current renewable energy purchases must come from new renewable sources (in service after January 1, 1999).
- **BUILDING PERFORMANCE:** Construct or renovate buildings in accordance with sustainability strategies, including resource conservation, reduction, and use; siting; and indoor environmental quality.
- **WATER CONSERVATION:** Reduce water consumption by 2% annually through 2015.

The EO also establishes additional goals that, while not pertaining directly to facility energy and water use, will have an overall impact on energy and water. These additional goals are as follows:

- **ELECTRONICS MANAGEMENT:** Annually, 95% of electronic products purchased must meet Electronic Product Environmental Assessment Tool standards where applicable; enable Energy Star® features on 100% of computers and monitors; and reuse, donate, sell, or recycle 100% of electronic products using environmentally sound management practices.

- **PROCUREMENT:** Expand purchases of environmentally-sound goods and services, including biobased products.
- **POLLUTION PREVENTION:** Reduce use of chemicals and toxic materials and purchase lower risk chemicals and toxic materials from top priority list.
- **ENVIRONMENTAL MANAGEMENT SYSTEMS:** By 2010, increase to at least 2,500 the number of Federal operations that implement environmental management systems, up from about 1,000 today.
- **ALTERNATIVE FUEL USE:** Increase alternative fuel consumption at least 10% annually.
- **VEHICLES and PETROLEUM CONSERVATION:** Increase purchase of alternative fuel, hybrid, and plug-in hybrid vehicles when commercially available and reduce petroleum consumption in fleet vehicles by 2% annually through 2015.

The Executive Order establishes stringent goals, practices, and reporting requirements for environmental, energy, and transportation performance and accountability.

Each OPDIV is hereby tasked with responsibility to meet or exceed these mandates for assigned facilities based on guidelines and policy issued by the HHS Office of the Secretary, Energy Program Officer.

#### A. MANAGEMENT

It is the policy of HHS and its OPDIVs to manage its facilities in the most energy and water efficient manner consistent with: 1) Federal energy and water efficiency requirements, 2) safety of personnel and protection of facilities, 3) reliability and maintainability of its building operating systems, 4) protection of the environment (*e.g.*, reduction of emissions, elimination of CFC refrigerants), 5) maximum effectiveness of its employees, and 6) the mission of HHS, the OPDIVs, and individual facilities.

Management encompasses the full scope of energy and water impacting activities, including design, construction, and renovation of buildings; purchase and operation of building equipment, energy consuming personal property, and fuel sources; and employee actions. OPDIVS and facility managers will comply with specific requirements of applicable energy and water conservation-related laws, regulations, and executive orders. Life Cycle Cost (LCC) alternatives will be considered and will be pursued whenever feasible in order to achieve greater energy conservation than standards require. OPDIVs are encouraged to favorably consider additional capital expenditures and/or personnel costs for activities that will reduce overall energy usage. OPDIVs and facilities will evaluate energy conservation opportunities at least annually and prepare and fund a plan to implement the most significant of the identified opportunities.

#### B. APPLICABILITY

The Department of Health and Human Services (HHS) energy and water management program provides policy guidance, tools, and assistance to the OPDIVs for energy and water conservation. The Department program coordinates the efforts of the OPDIVs and serves as a model for individual OPDIV and facility programs. The program is managed by the Office of the Secretary, Assistant Secretary for Administration and Management, Office for Facilities Management and Policy.

Each HHS OPDIV is required to develop a centralized energy and water management program consistent with the applicable laws, regulations, guidelines, and policies, as well as the agency program described in this chapter. The purpose of the OPDIV program is to coordinate the efficiency efforts and provide specific guidance to facility managers, engineers, architects, managers, procurement officials, and others involved in energy and water efficiency operators, and users within the OPDIV. Individual facilities may

establish their own energy and water efficiency program based on the goals of the Department program while using the existing tools and resources.

The policies and procedures described in this chapter are applicable to all HHS owned space and General Services Administration (GSA) delegated space or privately leased space for which HHS pays the utility costs.

In all new lease agreements (except leased space from Tribal organizations), the OPDIVs must require the lessors to implement all energy conservation improvements to the building that have a payback period less than the term of the lease or 10 years, whichever is the shorter period. In GSA leased space, GSA will be the lead agency in creating or renewing leases and in designating operating procedures to minimize energy usage unless HHS has delegated management authority.

### 3-3-10 PROCEDURES

#### A. ENERGY CONSUMPTION AND GREENHOUSE GAS EMISSION REDUCTION

Energy and water consumption and greenhouse gas emission reduction in each HHS facility is the responsibility of the OPDIV Facility Director. The Facility Director should plan to reduce facility energy and water consumption and greenhouse gas emissions to meet Federal requirements through a multifaceted approach including, but not limited to, the following:

- Maximize use of available alternative financing contracting mechanisms, including ESPCs and utility energy service contracts.
- Consider the LCC of combinations of projects, particularly to encourage bundling of energy efficiency projects with renewable energy projects.
- Operate the existing building equipment in the most energy efficient manner to minimize operating hours and temperature setpoint extremes while maximizing productivity in the space.
- Conduct Energy Audits.
- Analyze and implement energy and water conservation projects identified in audits.
- Establish an energy awareness program for all employees.
- Monitor utility billing and energy consumption to evaluate progress toward conservation goals and eliminate the potential for billing errors.
- Construct new facilities and perform building renovations to comply with Federal energy performance standards.
- Procure low cost fuel from deregulated markets, where available.
- Select Energy Star® and other energy efficient products (in the upper 25 percent of energy efficiency) when acquiring energy-using materials and equipment.
- Limit the number of personal appliances (*e.g.*, refrigerators, water coolers) brought into the facility.
- Enforce restrictions on personal space heaters and reduce the need for this equipment by ensuring building equipment and systems are operating properly.
- Encourage use of energy saving software for personal computers.
- Encourage all employees to turn off lights and other equipment at the end of the day.
- As required by EPACT 2005, separately meter all buildings as provided for in Departmental guidance.
- Develop a water conservation plan to implement projects to reduce water consumption.

## B. ENERGY AUDITING

Each agency is required to continue conducting energy and water audits for approximately 10 percent of their facilities each year, either independently or through ESPCs or utility energy efficiency service contracts. HHS will integrate the Energy Star® Building rating tool and/or the LEED Existing Buildings Criteria into these facility audits, whenever possible.

There are several resources available to complete a comprehensive energy audit. Facilities are encouraged to take advantage of low cost comprehensive facility audits, such as those provided by DOE, GSA, or local utilities. If a facility is considering an ESPC, the comprehensive energy audit may be performed by the company interested in the contract (*i.e.*, a utility or energy services company) and then financed as part of the contract agreement. Often there are barriers involved when pursuing any of these audit options, such as time constraints, unfavorable utility stipulations, or unavailability of these options. At that point, facilities will turn to either in-house audits using energy simulation software or contract with an engineering company to perform the audit.

1. Local Utility: The first resource a facility should pursue is their local utility to see what type of, if any, programs are available specifically for comprehensive facility audits. Local utility companies, both electric and gas, may offer low cost facility audits. Utility companies vary widely in the type of programs they offer for energy management. In some cases, the utility company may offer to pay a portion of the cost for a facility audit. When consulting with the utility company, it is important to specifically ask what type of audit will be performed. For example, an electric utility may only look at the lighting or electrical systems. This is not a comprehensive audit since it does not reflect the entire building as a whole system.
2. Federal Resources: If a utility audit is not feasible, then the facility should consider a federal program, through either DOE or GSA. DOE FEMP has developed the SAVEnergy Program to conduct energy and water audits and present action plans that will facilitate project implementation and maximize both energy and dollar savings. SAVEnergy Audits are not available for direct leased facilities. DOE FEMP will pay a portion of the audit cost to their contractor while the facility uses direct agency funding to make up the rest. It is important to note that DOE FEMP does not guarantee that all requests will receive audit funding. Request forms are reviewed and judged upon factors such as high energy costs, funding availability, aggressive utility demand side management programs, and on-site energy management leadership. Only those facilities with high opportunities are chosen for comprehensive audits. Request forms are available from the DOE FEMP website at [http://www1.eere.energy.gov/femp/services/assessments\\_savenergy.html](http://www1.eere.energy.gov/femp/services/assessments_savenergy.html).
3. ESPC/UESC Audit: Often the only means by which a facility can implement energy and water efficiency projects is by using an alternative financing contract (ESPC or UESC). The utility or company involved in the alternative financing contract will often offer the completion of a comprehensive energy audit in their proposal, and most include the performance of an audit in their price as a standard line item. The cost of the audit can be paid up-front or financed in the contract agreement with the recommended projects. Therefore, if a facility is strongly considering an ESPC or UESC, the most cost-effective manner of completing a comprehensive energy audit is with the interested company or utility.
4. In-House Audit: Another resource for comprehensive facility audits is an in-house audit. Many facilities have an engineering design or operations staff that is fully capable of performing a comprehensive facility audit. In many cases, these facilities have already performed numerous studies and evaluations of energy and water conservation projects. In order for an in-house audit to qualify as a comprehensive facility audit, it must meet the following requirements:

- a. Generation of an energy simulation model, for use in developing and comparing energy conservation measures, from computer software such as ASEAM, FEDS, DOE2, Trane Tracer, Carrier;
- b. Exploration of water conservation measures and renewable energy applications;
- c. LCC comparisons of energy and water conservation measures;
- d. Analysis of operation and maintenance procedures for energy efficiency; and
- e. A complete report stating method of audit, energy and water conservation measures analyzed, economic justification, and implementation plan of recommendations.

DOE FEMP distributes, free of charge, many computer programs and publications that can assist agencies in performing in-house audits. More information on these programs can be found on the FEMP website at [http://www1.eere.energy.gov/femp/information/access\\_tools.html](http://www1.eere.energy.gov/femp/information/access_tools.html).

5. Engineering Firm Audit: The final resource for the completion of comprehensive energy audits is an engineering firm. There are many companies, from small consulting firms to large energy service companies, who can perform energy audits. The major drawback with using an outside company is the initial funding required to contract for their services. As mentioned previously, a local utility company may help to offset the cost for the audit. Otherwise, the agency is required to budget funding appropriately in order to comply with audit requirements. The GSA Energy Services schedule can be used to expedite contracting with an engineering firm to perform a comprehensive audit.

### C. ENERGY EFFICIENCY AND WATER CONSERVATION PROJECT IMPLEMENTATION

Agencies and facilities will utilize LCC energy measures to meet the greenhouse gas emissions, energy consumption, and water consumption reduction goals. The implementation of energy efficiency and water conservation projects is the foundation of compliance with the Executive Order.

### D. ENERGY ACCOUNTING

All HHS facilities responsible for the direct payment of utility bills must report energy consumption and cost data on an annual basis to the OPDIV energy office. The OPDIV energy office is then required to report this information to the HHS Energy Officer in the annual energy report. Therefore, it is extremely important that the facility or energy manager coordinate the consolidation of energy consumption and cost data for all types of energy including electricity, natural gas, fuel oil, propane, coal, purchased steam, and water.

The facility or energy manager should review energy consumption and cost data monthly and compare usage to previous months and corresponding timeframes in prior fiscal years. Monitoring usage rates can highlight areas of concern and consumption anomalies in the building operating plan such as high consumption during off peak hours, unusually high usage peaks, or prolonged excessive consumption. These problems may not be apparent during day-to-day activities, but could be revealed by analysis of monthly utility bills. Careful review of utility bills may also disclose errors by the utility company.

### 3-3-20 GUIDANCE AND INFORMATION

#### A. ENERGY MANAGEMENT TRAINING

A key individual must be appointed at each HHS land holding OPDIV as the ODIV Energy Coordinator to serve as the focal point for all energy matters and to manage and monitor energy consumption and conservation. These individuals should become trained energy managers as defined below.

The Energy Policy and Conservation Act (EPACT) requires executive departments and agencies to establish and maintain programs to ensure that facility energy managers are "trained energy managers." This entails demonstrated proficiency or a completed course of study in all of the following areas:

- Fundamentals of building energy systems
- Building energy codes and applicable professional standards
- Energy accounting and analysis
- LCC methodology
- Fuel supply and pricing
- Instrumentation for energy surveys and audits

Demonstrated proficiency can be verified by on-the-job performance in current or previous positions or through certification as an energy manager by an appropriate professional organization such as the Association of Energy Engineers or a public education institution. Courses of study in the topics listed above may be through private or public education institutions, a government agency program, a professional association training program, or a private company.

In addition, HHS is required to ensure that all energy managers receive training for implementing EO 13423, *Strengthening Federal Environmental, Energy, and Transportation Management*, and its provisions, and EPACT 2005.

#### B. ENERGY AWARENESS PROGRAM

The energy used by lights and miscellaneous equipment such as computers, printers, refrigerators, freezers, and laboratory equipment is often a very large percentage of a facility's total annual energy consumption. The use of this equipment is normally controlled by the occupants. Therefore, the most effective method of energy and water conservation in this area is an employee energy awareness program consisting of education, information, and support.

First, the occupants of the building must be educated on the amount of energy that is used to operate the lights and miscellaneous equipment and the role it plays in the energy costs of the entire facility. Next, the occupants must be given direction and information on how they can control these energy costs in their own offices and labs. Finally, the occupants must receive support, feedback, and recognition for their efforts in energy and water conservation.

Several tools are necessary for an energy and water awareness program to be successful. There needs to be a primary tool for communication such as a newsletter, flyer, or electronic mail. It is important that the communication tool is available to all employees and is sent directly to them, particularly in the early stages of the awareness program. Once a communication tool is established, information can be given to the employees about energy consumption, reduction tips, and various activities. It is also very important to allow employees to use this tool as a means of providing feedback to facility management.

Marketing tools work well to keep the awareness program visible throughout the facility. These tools would include posters, stickers, pamphlets, post-it notes, pens, magnets, etc. Many of these items are available at no charge through FEMP energy conservation campaigns, local utilities, large vendors or private companies, EPA, and professional organizations.

The DOE FEMP “You Have the Power Campaign” was established to support the President’s goal of developing outreach programs that educate and promote energy efficiency. A communications initiative, the campaign raises awareness of the energy-saving activities at Federal agencies across the country and around the world. Individual and group energy efficiency efforts are championed through promotional materials, successful public/private partnerships are showcased, and interagency cooperation is highlighted. To learn more about participating in the campaign or to request campaign materials, browse the website at <http://www.eere.energy.gov/femp/services/yhtp/>.

A measurement tool should be in place to establish baseline awareness habits and monitor progress towards improving these habits. Monitoring tools may include off-hour audits or walk-throughs, security personnel reports from after-hours rounds, or a building energy monitor program where specific individuals are assigned to monitor the actions of fellow employees. Monitoring must be completed on a routine basis and the results must be communicated to the employees.

Recognition tools are strongly recommended to keep interest in the awareness program. These may vary widely from having an OPDIV awards program that recognizes leaders in energy and water conservation to a spoken or written word from high-level management, or to actual material rewards.

The keys to a successful energy management program are to provide statistical data and information, communicate your facility's energy reduction goals, provide guidance and reduction tips, recognize achievements, and keep it fun.

### 3-3-30 REPORTING REQUIREMENTS

HHS as an agency is required by EPACT 2005 to measure and report its progress on an annual basis. The OPDIV reports will include descriptions of how energy and greenhouse gas reduction goals are being met and will also detail why certain strategies, if any, have not been used. Exempt facilities will be listed and an explanation about these facilities’ status will be included. In addition, OPDIV budget submissions shall specifically request funding necessary to achieve the goals of EO 13423 and EPACT 2005, including the costs associated with ESPCs, utility energy service contracts, and implementing LCC measures. The HHS annual energy report is generated as a summary document of the individual OPDIV annual energy reports. Therefore, each facility must report energy consumption and cost data, and energy management activities annually to their corresponding OPDIV energy office. The OPDIV Energy Coordinator must then submit an annual report to the HHS Energy Officer that consolidates all of the information from the facilities.

Each agency’s progress will be evaluated by OMB and DOE through an energy scorecard and scoring system. The scoring criteria will include the extent to which agencies are taking advantage of key tools. The scorecards will be based on the annual energy reports submitted by HHS. In turn, the OPDIVs will receive a report card based on these criteria.

The HHS Energy Officer distributes the annual energy report format and guidelines in August of each year to the OPDIV Energy Coordinators. The Energy Coordinators are then responsible for gathering the required information from the individual facilities.