



CITY OF HOUSTON

Administrative Procedure

Subject: **City Energy Efficiency Policy**

A.P. No.

7-1 Revised

Effective Date:

December 31, 2011

1. AUTHORITY

- 1.1 Article VI, Section 7a, of the City Charter of the City of Houston; Article XIII, Section 2-434 of the Code of Ordinances.

2. PURPOSE

- 2.1 The City's goal is to be environmentally, fiscally, and socially responsible by reducing the use of energy from fossil fuels. This goal will be fulfilled by creating a flexible procedure to reduce energy consumption, costs, air emissions and greenhouse gases, and improve energy efficiency, while promoting employee productivity.
- 2.2 As energy expenses are the third largest expense following salaries and benefits, all stakeholders, including managers, department heads, maintenance and operations staff, building personnel, and designers of new buildings share the responsibility for this goal.

3. OBJECTIVES

- 3.1 To promote energy efficiency in the operation of the basic facilities, services, and installations needed for the functioning of the City, such as transportation and communications systems, energy consuming equipment, water and power lines, and public institutions including courts, administration, fire, police, and parks.
- 3.2 To promote energy efficiency in the operation of City buildings by reducing energy consumption and cost, reduce greenhouse gas emissions, and establishing a sustainable culture for all City operations.
- 3.3 Educate City of Houston personnel on energy conservation, energy costs, and other green initiatives.

4. SCOPE

- 4.1 This Administrative Procedure is applicable to all City-owned or City-operated property.

5. DEFINITIONS

Fiscally Plausible – An energy efficiency scenario requiring an expenditure for goods or services that is reasonably expected to yield a savings equal to or greater than the upgrade

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amount invested within ten years. For example, a verifiable commissioning claim illustrating a course of action showing savings in operations of \$4 over the first five years of occupancy as a direct result of every \$1 invested in commissioning.

Operating Department – A department whose responsibilities includes the maintenance and management of any given City property.

Ongoing Commissioning – A continuation of the commissioning process well into the occupancy and operations phase to verify that a project continues to meet current and evolving owner’s project requirements. The ongoing commissioning process activities occur throughout the life of the facility; some of these will be close to continuous in implementation, and others will be either scheduled or unscheduled, as needed.

6. RESPONSIBILITIES

- 6.1 The goals and practices set forth herein shall apply to and be implemented by operating departments for the purpose of enacting energy reduction and conservation measures.
- 6.2 The Energy Division of the General Services Department (GSD) is responsible for:
 - 6.2.1 Monitoring energy usage and making recommendations to improve operating efficiencies and reducing energy consumption;
 - 6.2.2 Reporting on this subject as defined by the Texas Legislature; and annually to all departments; and
 - 6.2.3 Working in conjunction with all departments, as requested, in the preparation of operation plans for energy management.

7. PROCEDURE

- 7.1 Each operating department shall manage its facilities to meet optimum efficiency given the individual purpose of the space being used and shall implement energy conservation measures to the extent fiscally plausible. Optimum efficiency standards where special considerations are not a factor are listed in §7.2.
- 7.2 Energy Protocols
 - 7.2.1 Heating and Cooling
 - 7.2.1.1 The HVAC system should be operated to optimize energy efficiency and health with operating hours and facility utilization taken into account.
 - 7.2.1.2 If a department (or departments) request to have the HVAC system in operation after hours, on weekends and holidays and there are less than 50 employees anticipated to be present, the operating department may charge an hourly operations fee to cover staff overtime and electrical costs associated with system monitoring and energy consumption. City facilities which directly serve the public during these times as a part of their normal operating schedule are exempt from this rule.

- 7.2.1.3 Cooling Operations: The thermostat should be adjusted so that the temperature falls in the range of 72-76°F in the warmest occupied office work areas during hours of operation with a relative humidity of 45-60%.
- 7.2.1.4 Heating Operations: The thermostat should be adjusted so that the temperature falls in the range of 68-74°F in the coldest occupied office work areas during hours of operation with a relative humidity of 45-60%.
- 7.2.2 Ventilation and Humidity Control
 - 7.2.2.1 Introduction of outside air to a building should be reduced to the minimum required by mechanical code to balance the exhaust requirements and maintain a slight positive pressure to reduce infiltration that causes heat losses and heat gains.
- 7.2.3 Lighting
 - 7.2.3.1 Lighting generally represents 20% of building energy use, necessitating optimization for City functions.
 - 7.2.3.2 Task Area Lighting: Lighting wattages for areas where specialized tasks are performed should be kept at levels consistent with energy conservation, but which do not reduce productivity or endanger employee health or safety. General ambient light levels should be minimized appropriately.
 - 7.2.3.3 Non-security interior lighting should be off when the building is vacant. Interior security lighting should be maintained at a level no greater than that required per current building code. If individual room light switches exist, lighting should be turned off during unoccupied periods.
 - 7.2.3.4 Exterior lighting should be used primarily for security and safety purposes and should be off during daylight hours.
 - 7.2.3.5 Automated systems that take business hours into consideration and involve motion sensors should be used to accomplish these practices when fiscally plausible.
- 7.2.4 Domestic Water
 - 7.2.4.1 Domestic water often consumes from 2% to 4% of the total energy used in large office buildings; therefore, the generating and storage temperature levels should be reduced to the code minimum required for washing hands, usually 110°F.
 - 7.2.4.2 Boost hot water temperatures locally for kitchens and other areas where needed, rather than providing higher than necessary temperatures for the entire building.
 - 7.2.4.3 Mitigate water waste with low flow fixtures and irrigation controllers and sensors when fiscally plausible.

7.2.5 General Maintenance

7.2.5.1 The importance of good maintenance in an energy management program cannot be overemphasized. Effective maintenance and ongoing commissioning will ensure efficient operation of equipment and systems and prolong the life of the equipment. Departments should use best efforts to properly maintain all energy-related equipment.

7.2.5.2 Operating departments shall make, at a minimum, annual reviews of the energy consumption and efficiency for the property in which they are responsible. Continuous commissioning, as described in ASHRAE Guideline 0, is the goal for evaluating and documenting that all city facilities are performing per the design and construction intent.

7.2.6 Equipment Use

7.2.6.1 A department director may find cause to waive the following rules on equipment use, and may do so in writing on a case-by-case basis. For the purpose of this policy, "department director" shall only include personnel who retain a pay grade of 35 or higher. Waivers should be submitted to, and kept on hand by the property's operating department.

7.2.6.2 Employees shall turn off all computers, copiers, printers, televisions, radios and any other electrical devices when not in use after business hours, except those that are vital to the City's operational needs, network functions or are in use for emergency response purposes. Sleep mode should be enabled on all computers.

7.2.6.3 Space Heaters – Space heaters are prohibited in City facilities. These use excessive amounts of energy and local receptacles are likely not designed to handle the electrical load, posing a potential fire hazard.

7.2.6.4 Personal Printers – Personal printers are prohibited and shall be phased out through attrition by turning them into the Administration & Regulatory Affairs Asset Disposition Section. Attrition standards shall be based on the depletion of on-hand toner cartridges. Exceptions to this rule should involve personal printers that have been networked with five or more employees or for employees who perform an acceptable amount of custom printing, such as award certificates.

7.2.6.5 Units provided for City use as a part of a contract with Xerox shall:

7.2.6.5.1 Be set to print documents in the double-sided mode.

7.2.6.5.2 Not be set to print cover/banner sheets.

7.2.6.5.3 Not be set to print scan confirmation notification pages. Scan failure notification pages are acceptable.

7.2.6.5.4 Have secure print availability for confidential printing when it is operationally necessary.

7.2.7 Equipment Purchasing

7.2.7.1 All equipment, appliance and computer purchases should be Energy Star rated, when possible.

7.3 Staff Education and Awareness

7.3.1 Education – After completion of the annual evaluation, the Energy Division of GSD shall provide informational updates on progress with the departments. Educational training shall be identified, developed, approved, and implemented as practical.

7.3.2 Awareness – The Energy Division of the GSD shall provide energy awareness discussions to all departments. Energy conservation awareness topics shall be discussed in all department meetings.

8. REFERENCES

8.1 Texas Senate Bill 5 (S.B. 5), renewed in 2007 with the passage of both House Bill 3693 and Senate Bill 12, was enacted to help the state comply with Federal Clean Air Act standards. It required each “political subdivision” in Texas to establish a goal to reduce electricity consumption by 5% each year, through September 2012.

8.2 Additional energy saving resources can be found at:

8.2.1 Energy Star - www.EnergyStar.gov;

8.2.2 U.S. Dept. of Energy/Environmental Protection Agency - www.eere.energy.gov;

8.2.3 U.S. Conference of Mayors – www.usmayors.org;

8.2.4 National League of Cities – www.nlc.org;

8.2.5 National Institute of Building Science Whole Building Design Guide - <http://www.wbdg.org/project/buildingcomm.php>;

8.2.6 Smart Energy Cities - www.smartenergycity.com; and

8.2.7 ASHRAE - <http://www.ashrae.org/>.