

Oakland County Executive Department of Facilities Management

Energy Management Procedures

October 5, 2009

1. Goal

The acquisition and management of energy is fundamental to the mission and operation of Oakland County. This requires a program that ensures that the Department of Facilities Management is operating, maintaining and repairing components of the utility system to attain optimum efficiency in energy use. It also requires support for the reduction of energy consumption in Oakland County office buildings and to sustain the County's commitment to environmental improvement.

These procedures address energy conservation and utilities management for buildings and facilities operated by the Oakland County Executive and managed by the Department of Facilities Management. Each building and facility will be required to implement the provisions of these procedures to reduce energy consumption from fiscal year 2008 levels. System wide, the goal is to reduce total consumption by 15% as measured in British Thermal Units (BTU) per gross square foot by the end of fiscal year 2015. This goal recognizes that there will be differences in attainable energy savings from one building or facility to another, however all buildings and facilities are included and the overall reduction will be at least 15%. In 2008 dollars, the reduction could equate to an annual \$420,000 in savings to the County.

These Energy Management Procedures provide:

- a. Structured and accountable energy management.
- b. Fiscal accountability for energy use and conservation projects.
- c. Efficient, collaborative mechanisms for purchasing and delivering energy.
- d. Guidance for planned design, engineering, and construction projects.

2. Applicability

These procedures apply to all Oakland County government buildings and facilities managed by Facilities Management, and to all employees and other individuals using the same.

3. Coordination

The County Executive, through Facilities Management, will coordinate all actions as prudent and necessary to reduce energy consumption by the stated goal. To the extent that some of the provisions contained herein involve coordination with other branches of government who occupy facilities operated by the County Executive, these government entities will be encouraged to take whatever steps are necessary to coordinate with and provide input to Facilities Management to assist in the formulation and implementation of a system wide Energy Management Program.

4. Responsibility

Facilities Management is responsible for:

- a. Developing short and long term programs to control energy use in County facilities.
- b. Establishing reporting procedures for all energy conservation projects.
- c. Developing an annual and long term budget planning effort to support efficient energy use and goals in conjunction with Fiscal Services.
- d. Promoting research for the development of efficient energy strategies.
- e. Reporting periodically to the County Executive and the Board of Commissioners on energy conservation goals, objectives, and accomplishments.
- f. Keeping current on the development of energy saving equipment, devices, and systems applicable to the County's needs.
- g. Establishing long-range plans for conversion of inefficient and outmoded systems in County owned buildings and equipment.
- h. Establishing specific energy standards that will serve as guidelines for architects and engineers and others who have a reason to alter lighting or temperature levels in new or renovated County facilities.
- i. Requiring that architectural and engineering firms conducting studies or developing plans for construction or alteration of facilities and utilities systems produce designs or recommendations that are the most energy efficient and cost effective in the areas of HVAC, lighting, building envelope, and incorporate the use of renewable energy where feasible.

- j. Collecting and analyzing existing historical energy consumption use in a database.
- k. Anticipating changes in the availability and cost of energy sources.
- l. Developing contingency planning to ease the impact of a sudden disruption in supplies of fossil fuels, natural gas, or electricity.
- m. Tracking energy consumption using an electronic spreadsheet or database.
- n. Serving as the liaison with utility companies and federal agencies such as the Department of Energy.
- o. Reviewing and implementing curtailment strategies for limiting energy use in summer and winter to reduce consumption and cost.
- p. Bringing awareness to Oakland County employees and the public about Energy Management through the initiatives of these procedures.
- q. Revising and updating the provisions of these Energy Management Procedures.

5. Energy Conservation and Utilities Management

General Provisions

- a. All Executive operated Oakland County buildings and facilities, regardless of the source of funding for their operations, will be managed in the most energy efficient manner without endangering public health and safety.
- b. Facilities Management will continue to identify energy efficiency improvement measures to the greatest extent possible, undertake all necessary steps to seek appropriate funding for their implementation and, upon securing funds, expeditiously implement the measures.

- c. All new construction, remodeling, renovation, and repair projects will be designed using prudent standards for optimum energy utilization, lowest life-cycle operating costs, and in compliance with all applicable energy codes and regulations. In instances where a project's current funding does not include energy features consistent with lowest life cycle costing, augmentations will be sought, when warranted. Incorporation of energy efficient design features in the project plans and specifications will receive a high priority without compromising health and life safety code requirements and the program needs of the project within the available project budget.
- d. The County Executive promotes the use of cost-effective renewable and non-depleting energy sources, wherever possible, both in new construction projects and in existing buildings and facilities.
- e. Facilities Management will endeavor to take the necessary steps to provide an adequate, reliable, and cost effective utilities infrastructure at all present and planned future buildings and facilities managed by the department. This task will be met as financial conditions allow and only where a suitable return on investment is present.
- f. The County will consider all available funding sources for implementation of energy efficiency improvement and utilities infrastructure renewal projects. Funding sources may include federal and state budget appropriations; federal, state and private sector grant opportunities; and other unique public/private collaborative efforts which may become available. In the event these funding sources are unable to meet the requirements for an approved Energy Management Program or project, priorities within the existing Capital Improvement Program will be examined to determine if funds could be made available for project development purposes.
- g. The County Executive will consider collaboration with federal, state and local governments and other appropriate organizations in accomplishing energy conservation and utilities management programs. The County will, when appropriate, inform employees and the public of the need for, and methods of, energy conservation and utilities management via its web presence and possibly other communication channels.
- h. Facilities Management will maintain an individual from existing staff who will manage energy and utilities with the responsibility for conservation and utilities management programs.

- i. Facilities Management will monitor energy usage in all buildings and facilities monthly and prepare an annual report on energy utilization. Facilities Management will maintain an energy database in which monthly building data will be compiled to produce system-wide energy reporting.
- j. Facilities Management will develop and maintain an energy efficiency strategic plan as a component part of its Capital Improvement Program, which will include tactical recommendations in the areas of new construction, deferred maintenance, facility renewal, and energy projects. This plan will drive the overall Energy Management Program for the County Executive and be coordinated with the rolling five year budget of the Capital Improvement Program.
- k. To monitor the effects of energy conservation efforts on the programs and working environment of buildings and facilities impacted by these procedures, Facilities Management will solicit and evaluate feedback from the departments and divisions it serves.
- l. To enhance the effectiveness of these Energy Management Procedures, training on new energy management concepts and programs will be provided as necessary.
- m. It is understood that the County's emergency plan will supersede these procedures during times such as short-term electrical outages, large-scale grid failures, and natural gas curtailments.

6. Maintenance & Operations Provisions

General Practice

- a. Facilities Management will make the necessary arrangements to achieve optimum efficiency in the use of natural gas, electricity, water, or any other purchased energy resources to meet the heating, cooling, and lighting needs of the buildings and facilities.
- b. Facilities Management will pursue the purchase of energy through alternative suppliers when doing so is proven to be cost effective.
- c. Wherever possible and practical, each building and facility will operate and maintain a computerized energy management system that will provide centralized reporting and control of the energy related activities therein.

- d. During occupied building hours the temperature will be set to the following levels to allow the County to efficiently and economically conserve energy:

1. Heating Season – 68 degrees Fahrenheit
2. Cooling Season – 76 degrees Fahrenheit

In accordance with recommendations of the United States Department of Energy, wherever possible and practical, purchased energy resources for County Executive managed buildings and facilities will not be used to heat above 68 degrees Fahrenheit or cool below 76 degrees Fahrenheit. Implementation of this goal will take place in seasonal adjustments of one degree from current settings. Each heating season individual temperature set points will be reduced by one degree until meeting the 68 degree goal. Each cooling season individual temperature set points will be increased until meeting the 76 degree goal. Except for areas requiring special operating conditions, such as electronic data processing facilities, or as required by law, buildings and facilities temperatures will be allowed to fluctuate between the limits stated above.

- e. During unoccupied building hours (weekdays overnight, weekends, and holidays), the temperature will be set back to the following levels to allow the County to efficiently and economically conserve energy:

1. Heating Season – 62 degrees Fahrenheit (6 degree setback)
2. Cooling Season – 82 degrees Fahrenheit (6 degree setback)

- f. Scheduling of events and operations within buildings and facilities will be optimized to reduce the number of buildings operating at partial or low occupancy and to promote individual building air conditioning and heating system shutdowns to the greatest extent possible during the evenings, weekends, and holiday periods.
- g. Evening meetings in County-owned or managed buildings will be limited to buildings where HVAC systems can be operated for only the meeting room areas, except at the direction of the Director of Facilities Management.
- h. Space allocations within buildings and facilities will be consolidated whenever possible and practical to permit best utilization of energy resources.
- i. All windows and doors in buildings and facilities that are air-conditioned will be kept closed and as secure as possible to prevent loss of conditioned air.

- j. Facilities Management will, to the greatest extent possible, overlap custodial hours from evening / night shift work to day shift work to reduce custodial energy usage. Building ventilation and lighting systems will not be operated any longer than what is required under health and safety codes during the low load custodial occupancy periods.
- k. When replacing energy consuming and/or utilities infrastructure equipment, the most energy efficient models will be given the highest consideration. Life cycle costing procedures, instead of first capital cost only, will be utilized as the basis for all future equipment selections, within budget constraints.

Electrical Conservation

- l. The County Executive, through Facilities Management, will continuously assess demand-reduction programs, and participate where practical during periods of high energy demand. Reductions in non-critical loads will be made in an effort to aid in the state electrical grid integrity and to avoid exceeding previously established peak load levels within the County.
- m. During times of high energy demand, Facilities Management may elect to send out an emergency broadcast message through the County's email system asking all departments to voluntarily eliminate unnecessary electrical loads by shutting down any lighting, printers, copiers, and other devices as appropriate.
- n. During times of high energy demand, Facilities Management may implement load shedding by placing some buildings on generator power for the period of time necessary to keep electrical energy use below threshold limits.
- o. Outdoor air ventilation within buildings will be set at 10 CFM/Person or such other higher limits as prescribed by law or regulations. This restriction does not apply to situations where 100 percent outside air is called for by properly installed and tuned economizer cycles.
- p. All air conditioning equipment, including supply and return air fans, are to be shut off on weekends, holidays and for varying periods each night, except where it would adversely affect electronic data processing installations, 24 hour operations, or other special need areas.

- q. Restricted electrical appliances are not permitted within individual offices or workstations unless specifically required by occupants because of medical conditions or other extenuating circumstances. These appliances include, but are not limited to the following :
1. Personal space heaters
 2. Personal fans
 3. Personal coffee pots
 4. Personal refrigerators
 5. Personal microwaves
 6. Other personal electric appliances such as toasters, etc.

Facilities Management may grant exemptions on a case-by-case basis. When allowed by exception, appliances must be provided by the user, be Energy Star rated, be U.L. Certified, and be inspected by Facilities Management prior to use. Each work area may share one Energy Star rated refrigerator, microwave, or similar appliances for every 20 to 25 employees. These appliances must be certified by Facilities Management before they are used.

- r. After hours interior lighting practices will follow these guidelines¹:
1. All buildings have a minimum number of lights and lighted exit signs that remain on constantly by code and or safety or security reasons.
 2. Building interior lighting is on generally, as needed, starting at 6:00 AM, Monday through Friday.
 3. Building interior lighting is off generally by 10:00 PM, Monday through Friday in buildings cleaned by contracted custodial crews.
 4. Building interior lighting is off generally by 1:30 AM, Tuesday through Saturday, in buildings that are cleaned by in-house custodial crews.
 5. Building interior lighting is off during weekend and holiday hours except in the case of special events or if staff is working in a particular area.
 6. All lighting, except what is required for security purposes or by building code, will be turned off when buildings and facilities are unoccupied, such as at the end of the workday. Custodial personnel will turn lights back on only for the time actually required for custodial work.
 7. Building Safety Unit staff making after hours watch rounds will turn off any lights left on and report same for follow up.

¹ This guideline selectively applies to buildings that house 24/7 operations.

- s. All office equipment including copiers, printers, and personal computers, including monitors, will be turned off by appropriate staff at the end of the work day whenever possible.
- t. During work hours, all capable PCs will be programmed for the highest energy savings mode appropriate for the particular PC using the power options feature.
- u. Indoor lighting will be reduced in number and / or wattage, wherever possible, to provide for the minimum but adequate lighting levels consistent with the needs of the programs and functions being provided in those spaces, and with any state-mandated standards for the efficient and effective use of those spaces.
- v. Incandescent lamps and task lights will not be allowed unless exempted for very limited and specialized tasks or situations by Facilities Management.
- w. Existing interior and exterior lighting systems will be retrofitted to new energy saving technologies where practical and as funding permits. New lighting systems will make use of the latest proven energy saving technology.
- x. Wherever practical, office and corridor fluorescent lighting will be reduced through a reduction in the total number of lamps illuminating the space.
- y. Employees are encouraged to turn off lights when leaving a space unoccupied for more than even a few minutes. Rooms equipped with occupancy sensors will be adjusted to shut off the lights in the shortest practical time. Employees with exterior offices are asked to consider working with fluorescent task lighting rather than overhead lighting whenever outside light conditions permit.
- z. Outside lighting on building exteriors and Service Center grounds will be maintained at foot-candle levels necessary to provide appropriate security and safety on the facility's grounds, parking lots, and building entrances. Good energy management practices will be observed within this guideline.
- aa. Purely decorative lighting on or in County Executive buildings and facilities, beyond reasonable display lighting, will not be added. Existing decorative lighting beyond reasonable display lighting will be eliminated where possible. In general, decorative lighting will not be used for commercial or holiday purposes unless specifically exempted by the County Executive.

Natural Gas Conservation

- bb. Domestic hot water temperatures will be set below 120 degrees Fahrenheit, unless necessary or mandated by code.
- cc. All natural gas fired boilers in all buildings and facilities will be tuned at least once annually and brought up to maximum efficiency unless automated combustion controls are installed. In the case of automatic controls, verification of combustion efficiency will be conducted routinely or at least monthly for the central heating plant and quarterly for decentralized boilers. A record of these readings will be maintained at each building or facility.
- dd. Facilities Management will maintain the central heating plant and utilities infrastructure in good working order and will undertake preventive maintenance schedules to maintain the highest possible system efficiencies and the lowest operating costs.

Water Conservation

- ee. Facilities Management will take every necessary step to conserve water resources, including such steps as installing controls to optimize irrigation water use, reducing water usage in restrooms and showers, and promoting the use of reclaimed water. In the event of a declaration of drought, the County Executive will cooperate with State and local governments to the greatest extent possible to effect additional water conservation.

7. Program Improvements through Employee Suggestion and Participation

- a. The County Executive encourages employees to consider ways and means of reducing energy consumption and will refer all ideas for improved energy management through the Employee Suggestion Program.
- b. Employees are asked to become knowledgeable about these procedures and to comply with them.
- c. Employees are asked to advise their supervisor of any circumstances that prevents adherence to the County's Energy Management Program.

- d. Facilities Management will encourage continuing energy conservation and lowest utilities operating costs in all buildings and facilities managed by the County Executive by recognizing the suggestions of individual employees and publishing the results of energy saving initiatives on the department website.
- e. Facilities Management will post on the department website each building's progress by comparing energy use reduction from year to year and against other buildings and departments.
- f. Facilities Management will encourage departments and operations located within its managed facilities to appoint volunteer "green monitors" to work with Facilities Management in reaching its energy goals.
- g. Facilities Management will promote these procedures through its presence on the County's website, periodic emails, and through publications like the Telegraph newsletter.

8. Energy Management Procedures Employee Dress Code Recommendations

Facilities Management recognizes that implementation of these procedures, especially with respect to temperature set points, will at times potentially create a measure of discomfort for some County employees in some buildings. Employees are asked to dress appropriately to compensate for these temperatures, and consult their department for guidelines as to what is considered appropriate dress.

9. The Energy Management Procedures and Other Green Initiatives

- a. These procedures stand as one component of other "green and sustainability" initiatives established or pursued by Oakland County and Facilities Management. Initiatives such as recycling and the four day work week serve along with these procedures to reduce the County's greenhouse gas footprint. These procedures are designed to supplement and support those initiatives.