Energy Management Program

In order to have a successful Energy Management Program, it should be continuous and not an on-again-off-again process. The commitment from management is to assure this continuity of developing an energy management program that is carefully planned and monitored. Cooperation among Medical Center employees is very essential to success of the Medical Center's Energy Management Program. It is critical that we commitment to energy conservation permeate the entire Medical Center's operation so everyone involved will know that we consider energy conservation a high priority. We must have the cooperation of all Medical Center employees.
Physical Facilities is responsible for managing the Medical Center's over $15 million annual energy budget and all the utilities distribution infrastructures required to provide lighting, heating and cooling to all Medical Center buildings on campus.

Physical Facilities coordinates the Medical Center's Energy Management Program, which was designed to reduce and optimize energy use while maintaining or improving building heating and cooling comfort. Every dollar the Medical Center spends on energy that we can save through energy conservation efforts represents a dollar that the Medical Center could use elsewhere.

Many actions taken at the Medical Center by Physical Facilities to save energy are invisible to the occupants of our buildings. Examples of such actions are efficient operation of the central power plants, installation of high-efficiency lights and motors, installation of digital control systems on heating and ventilating equipment, and the quick repair of malfunctioning steam valves. Physical Facilities has done an outstanding job on all the Medical Center's energized systems; energized systems are systems which consume energy directly. These include the HVAC (Heating, Ventilation and Air Condition), lighting, water heating, and office equipment.

Energy Management System

A Johnson Controls Energy Management System was installed in 1981. There were 5,000 installed motoring points, increasing over the years to 72,398 motoring points in 2009.

The Energy Management System controls a broad spectrum (95 %) of campus equipment under the heading of heating and cooling from boilers, heating pump chillers, cooling towers, to a ventilation system involving supply fans (coils), supply fans (furnace) return fans and fume fans, freezers and coolers to name a few. In addition to automatically controlling the on/off feature to unoccupied buildings, the system utilizes outside air temperature to reset hot water heaters and chilled water.

Campus energy savings is achieved by reducing the consumption of natural gas and electricity achieved through scheduled control of temperatures in buildings, rooms and associated equipment. When buildings are unoccupied, the highest proficiency for energy saving is achieved when equipment is commensurately turned off.

Energy savings is facilitated by resetting the air temperature supplied by the air handling systems to the various rooms to meet load conditions. To elaborate, as the room temperature increases or decreases the air is heated or cooled just enough to satisfy the lowest or highest temperature in the room.

In a similar sense, resetting Medical Center building heating water and chilled water temperatures to meet load conditions also conserves energy. As outside air temperature increases, the heating water temperature is reduced. In the reverse fashion, when the outside air temperature decreases the chilled water temperature is reduced.

Here is how everyone can be part of the Medical Center's commitment to conserving energy on campus:

- Turn off lights in unoccupied offices, classrooms, conference rooms and restrooms. Check these areas as you leave the office for the day, especially before weekends and holidays.
- Offices with dual light controls are asked to turn half the lights off.
- Consider updating aging computers, monitors and printers with newer versions. Check for Energy Star® accreditation on new office equipment, especially bulk purchased equipment. Information can be found at www.energystar.gov
- Replace incandescent light bulbs with energy saving compact fluorescent bulbs.
- Use natural day light instead of electrical lighting when you can.
- Look for opportunities to reduce lighting levels in areas that seem to be over lighted (without creating safety or security problems). Contact Physical Facilities to check your lighting level.
- Turn off PCs, monitors and copiers every night and every weekend. If you cannot turn off the whole computer, turn off the monitor.
- Wait until you are ready to use your PC or other equipment before you turn it on each morning.
- Use flat-screen LCD monitors rather than CRT monitors. They use less energy.
- Use laptop computers and ink jet printers, if available, since they use 90% less energy than desktop and laser printers.
- Implement paper-reducing strategies, such as double-sided printing, re-using paper, and using e-mail instead of sending memos or faxing documents not only to save energy, but also to conserve other resources.
- Use shared LAN laser printers instead of individual laser printers.
- Use central departmental coffee makers and refrigerators instead of personal units.
- Do not use electrical space heaters. They can overload circuits; they are a fire hazard; and they are "energy hogs" (one electric space heater uses as much electricity as 45 fluorescent light fixtures).
- If you have control of your thermostat, set the heating set point no greater than 68 degrees and cooling to no less than 76 degrees.
- Use blinds to control solar heat gains.
- Make sure all heating and air conditioning systems under your control are turned off every night and every weekend.
- Dress appropriately for the seasons and the comfort level of your work area. Keep a sweater in your office instead of adjusting the thermostat.
- Keep exterior doors and windows closed in climate-controlled spaces. This reduces heat loss in the winter and heat gain in the summer.
- Limit use of passenger elevators by using stairs when possible.
- Adopt a last-person-out policy. The last person to leave labs, lecture rooms and meeting rooms should be responsible for turning off lights and unnecessary equipment.

- Report immediately any maintenance items to the Physical Facilities at 4-1420. Some items are:

    - ❖ Water leaks
    - ❖ Air leaks around doors or windows
    - ❖ Lighting problems (flickering or burned out bulbs)
    - ❖ Room temperature problems
    - ❖ Restroom fixtures, (leaks, flushing, etc.)
    - ❖ Insect problems (they can eat away sheetrock around utility pipes, etc.)
    - ❖ Report any item of concern that affects our facility and your work environment

Laboratory and fume hood operation

A research laboratory building consumes twice the energy of an office, hospital or classroom building. Although much of this energy usage is dictated by health and safety requirements, it is still possible for occupants to reduce energy use in laboratory facilities.

- Conserve energy by lowering the sash (the glass window). This reduces the amount of air exhausted from the building. Fume hood sashes should not be left wide open in any circumstance.
- Turn off all equipment when not in use.
- Keep the hallway door shut as much as possible. This is not only a safety measure; it helps balance the building air system.
- When using automatic glassware washers, wait until you have a full load before running.

Summary:

Approximately **one third** of the Medical Center's energy usage is under discretionary control of building occupants. If we faithfully use these energy conservation measures, combined with personal efforts and ideas, we can conserve up to **ten percent** of the energy used on the campus of the Medical Center.

Trying to reduce energy costs should be a concern to all members of the Medical Center family. As a medical, educational and research institution serving a statewide clientele, we should set an example of conscientious and cost-effective use of non-renewable energy resources. Moreover, the reduction of energy costs enhances the Medical Center's ability to compete for research funding and to contain tuition costs. I hope that this has been helpful in explaining the role that energy conservation plays at the Medical Center and how students, faculty, and staff can assist with our energy conservation efforts. These simple suggestions may not seem significant by themselves, but with everyone's participation, they can make a big difference.

Please contact Physical Facilities with any questions you may have at 4-1420.