FREQUENTLY ASKED QUESTIONS—ENERGY CONSERVATION

Q: Is it more energy efficient to keep turning fluorescent lighting on and off all day or to just leave it on? Our office uses the room at least every 20 minutes during an 8-hour work day but no one is ever in there all day.

A: By leaving fluorescent lamps on you save the lamp life, but not energy costs. It’s a tradeoff between buying new fluorescent lamps which are generally pretty cheap and the cost of electricity to run the lamps all day for 20 minutes of actual use. This depends on your cost of electricity. Basically, we’ve found it more energy efficient to turn lights off when not in use. (For that type of room it might be cost effective to install an occupancy sensor unless people actually turn the lights off when they leave.)

Q: Is it more energy-efficient to let a lightbulb burn for a short period of time, or to turn it off and then on again? I read once that the surge in power when a bulb is turned on is equal to letting the bulb burn for a while?

A: It is more energy efficient to turn the light off than to leave it on. Energy is measured with respect to time. The unit used to measure electrical energy is the kilowatt-hour or thousand-watt-hour, the amount of power or watts that you use in one hour. The momentary or millisecond or less surge of electricity required to start your light bulb will not impact your energy cost, but leaving it on all the time will. With the rising cost of energy, it’s probably a good idea to turn the lights out when you are not using it.

(Not to mention the pollution impact, less energy use, less emissions from power plants.)

Turning the lights on and off a lot will impact your lamp life, however. If you compare the number of bulb(s) you need to buy versus the cost to let the light burn all the time, it will still probably be cheaper to turn the lights off.

Q: How do I check to see if my computer equipment has an Energy Star feature? (Some computers, like mine, were built by someone and they don’t have the Energy Star logo on them.)

A: It will usually be necessary to make a few changes to the computer’s BIOS (Basic Input Output Options) before changing the operating system settings. Making these changes is typically quite simple, but because there are many different systems in use today, it is impossible for us to give you detailed instructions on every BIOS. Check the documentation that came with your computer or the manufacturer’s or distributor’s website.

A critical part of power management is the major system timers—these are typically called doze, standby (or sleep), and suspend, and occur in that order.

- Doze reduces power during periods of inactivity by lowering processor (CPU) speed and powering down unused logic and memory.
- Standby usually sends a signal to power down the monitor, but may also slow down the whole system (in a BIOS without a Doze mode).
- Suspend typically sends the command to go to the lowest power operation by sending the “off” signal to the monitor and CPU and cutting system board power [Source: EPA’s Energy Star website]
Q: Yesterday I had a 7:30 pm meeting in the School of Education building, and two different thermometers registered 80 degrees! Why is it necessary for the heat to be on so high during the evening hours?

A: In order to conserve energy, many buildings utilize what is called a “temperature setback.” This is a process through which building air handling units are automatically scheduled based on occupancy patterns. In a building that is typically empty during nighttime hours, air handling units are shut down so as not to waste energy by heating or cooling a space while it is unoccupied. In these situations, a particular space will only receive heating or cooling in extreme temperature cases. If your schedule requires you to spend extended periods of time in a building during its setback period, you may want to speak to your building facility manager to request an override or building schedule modification.

Temperature setback is the probable explanation if you experienced this during the summer months. However, if this situation occurs in the winter, it may be an indication of equipment failure and you should notify the Plant Department.

Q: Recently, the fluorescent bulbs in our office were replaced, but the plastic panels covering them were left off. I sit directly under this light at a computer 8 hrs a day. I heard that plastic stops the UV rays coming through and without it, a person is exposed to these rays unnecessarily. From a health and safety point of view, is there a real risk here?

A: Ultraviolet content emitted from the energy-efficient T8 fluorescent lamps used at U-M is very low. The amount of UV produced by standard fluorescent lamps is not hazardous and does not pose a major health concern. In fact, a paper by the National Electrical Manufacturers Association (NEMA) explores this subject in more detail. It cites a study in which it was determined that UV exposure from sitting indoors under fluorescent lights at typical office light levels for an eight hour workday is equivalent to just over a minute of exposure to the sun in Washington, D.C. on a clear day in July [Source: GE Lighting, NEMA]. For more, see the Permissible Exposure Time PDF in the Energy Conservation Tools section.

Q: What is the most energy-efficient thing to do with your computer at the end of the day? Turn it all off or just turn off the screen or leave it all on? I don't have an Energy Star computer.

A: Just like fluorescent lighting, explained above, turn off your computer in order to use less energy, especially if it does not have an energy-saving mode.

How Does Employee Awareness Help?

An employee awareness program provides employees and/or building occupants with prompt and precise information on how energy resources are used in the workplace and how employees' actions can directly affect energy consumption. By changing employees' attitudes and behaviour, it is possible to significantly reduce energy use and contribute to the savings achieved through technical measures.

Simple actions – such as turning off lights, computers and printers, installing insulation and weatherstripping, keeping the pressures of compressed air systems at their correct settings, ensuring that filters on heating and cooling coils are clean and dust-free, and maintaining
expensive equipment at peak efficiency – all contribute to reduced energy use and energy costs in the workplace.

A Federal Buildings Initiative employee awareness program should aim to achieve the following:

- promote the Federal Buildings Initiative energy efficiency project within the workplace
- encourage employee commitment and participation in the project
- promote the benefits of energy-saving technologies and practices in the workplace, at home and on the road

Successful employee awareness initiatives are implemented over a period of time. The following have proven effective in generating interest and enthusiasm for improved energy efficiency and additional savings:

- newsletters
- fact sheets
- e-mail messages
- electronic signs
- energy awareness days or weeks
- stickers and buttons
- videos and screen savers
- logos

Experience has shown that even a stand-alone employee awareness program has the potential to generate significant savings at low cost, provided it is well run. The employee awareness program at Canadian Forces Base Halifax, for example, initially cost $20,000 per year and was expected to generate savings of $50,000 per year. In fact, savings due to energy performance contract retrofits and the base's energy awareness program have exceeded original estimates by 20 percent. The current annual savings from all energy efficiency measures at Canadian Forces Base Halifax is now $1.9 million.

**Awareness Creates Savings!**

An awareness program is essential to keep employees up to date on the changes taking place in the working environment of large organizations that are undertaking energy efficiency improvements. When an energy performance contract is in effect, an employee awareness component is essential. It is clear that an energy performance contract, combined with a well-managed employee awareness program, can help organizations generate thousands of dollars in savings per year.