



Many Small Steps

Lead to Increased Energy Savings



Why Take Steps?

Computers are among the fastest growing users of electricity in North America today. Currently, energy consumption by equipment accounts for more than seven percent of total electricity use. Moreover, energy consumption by computers and other office equipment is predicted to increase in the 21st century as more and more of these products are purchased. Much of this energy is wasted because office equipment sits idle for long periods – 30 to 40 percent of computers are left running at night and on weekends. Leaving equipment running when it offers no service to learners, staff and faculty is economically inefficient, and it contributes unnecessarily to greenhouse gas emissions.

Developing systems that automatically turn off computers during extensive non-use periods can generate significant savings. For example, Cégep de Saint-Jérôme in Quebec has calculated that, with energy consumption per computer at 0.35 kW per hour and the cost of energy at \$0.06 per kW, each of its 400 computers costs \$0.021 to operate per hour (0.35 × \$0.06). By shutting down its computers in non-use periods (approximately 40 hours per week), Cégep de Saint-Jérôme has avoided costs of \$17,472 a year. Similarly, La Cité Collégiale, a medium-sized community college in Ottawa, Ontario, estimates that shutting down its computers from 11:00 p.m. to 6:00 a.m. can save energy costs of \$17,000 a year.

Unrealized Savings

Learners, staff and faculty often underestimate the impact of small steps that can be taken to realize significant savings in total spending. Most desktop computers use 80–160 watts of electricity. In addition, home-sized copiers use about 400 watts of electricity when active – twice as much as the popular laser printer, which is itself the least energy-efficient printing choice.



The average cost of electricity to run one computer and monitor 24 hours a day is about \$165 a year. Operating an associated printer continuously costs another \$84, for a total cost of \$249 per computer. A large photocopier consumes close to \$250 for the same timeframe. A typical small college or office with 100 computers, 10 laser printers and three copiers can easily spend more than \$4,700 each year to power the equipment during periods when they are not in use.

Myths and Reality

Myth Opponents argue that “thermal cycling” (continuous warming and cooling) can harm a computer’s hard drive.

Reality Most studies indicate that you would have to turn your computer on and off every five minutes to do any harm.

Myth Many people believe it is more cost-effective to leave computers running all the time.

Reality A personal computer uses only one second of running-time energy when starting up.

Myth Switching a machine off for a number of hours when it is not needed makes it vulnerable to electrical surges.

Reality This practice actually extends machine life by reducing mechanical wear. Most major computer manufacturers now insist that their machines be shut down at the end of the day.

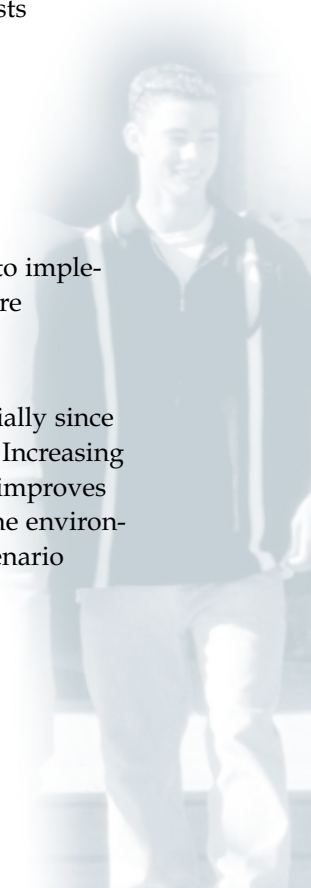
Myth The heat that computers generate while operating can reduce costs for space heating.

Reality Personal computers are a very expensive way to heat an office compared to space heating systems. In fact, computers and other equipment increase cooling costs incrementally while driving up electricity costs.

A Win-Win Scenario

Centralized systems which can turn computer equipment off and on are relatively easy to implement; one of the largest hurdles to such a system is attitude. Recently introduced software programs makes installing these systems simpler and more feasible.

It is simply common sense to implement cost-saving measures wherever possible, especially since energy prices are now climbing and appear likely to continue to increase in this decade. Increasing your efficiency by shutting down computer equipment and printers in non-use periods improves your bottom line, increases the life expectancy of your equipment, reduces impacts on the environment and, most importantly, models energy efficiency to our students. It’s a win-win scenario for everyone.



For further information on how to save energy, please do not hesitate to contact the following members of the Association of Canadian Community Colleges' Energy Efficiency Steering Committee.

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References

- Green Living Center: Office Equipment.
<http://www.greenliving.org/home/homeoffice/officeequipment.html>
- Natural Resources Canada. 1996. *Guide to Buying and Using Energy-Efficient Office Equipment*.
- U.S. Environmental Protection Agency's voluntary ENERGY STAR Office Equipment Program.
<http://www.energystar.gov/>
- Energy Innovators Initiative:
This program, offered by Natural Resources Canada's Office of Energy Efficiency, encourages Canadian organizations in the commercial and institutional sectors to make energy efficiency investments throughout their operations in order to lower costs and reduce greenhouse gas emissions related to energy use.

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Office of Energy Efficiency
Office de l'efficacité énergétique

Leading Canadians to Energy Efficiency at Home, at Work and on the Road

The Office of Energy Efficiency of Natural Resources Canada is a dynamic organization with a mandate to renew, strengthen and expand Canada's commitment to energy efficiency in order to help address the challenges of climate change.

