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Dear Colleagues,

Whether it is an inconvenient truth or not, greening cyberinfrastructure is a matter of significant national and international effort. We know that global cyberinfrastructure contributes at least as much to global warming as the aviation industry. Unlike the aviation industry, growth in IT infrastructure continues to explode with double digit percentage increases in the required power consumption, the cooling requirements, and the space requirements year over year. At the same time, IT is perhaps one of the most important enablers of reducing global carbon emissions through the efficiencies it offers, the alternative working arrangements it affords, and its ability to collapse costs, distance, and adoption cycles for alternatives to fossil fuels.

Our ITS Strategic Plan calls for launching a greening of IT at Case Western Reserve University. This past Spring, the Board of Trustees embraced a University Strategic Plan that itself calls out support for environmental and alternative energy academic disciplines. In addition, it calls for action on greening the campus. As you may know, President Snyder has signed the University President's green declaration which commits the University to a number of specific goals and outcomes.

For the past year, Jeff Gumpf has been researching and planning a broad and long term strategy for green IT at Case. As you can well imagine, the issues are non-trivial and the goal of greening IT will take us some years to realize.

In sharing and distributing this Green Newsletter, I wanted to outline some of our initial efforts in this area along with the broader goals we have embraced in collaboration with Linda Robson, Gene Matthews and the Campus Environmental Task Force.

Case Western Reserve University's ITS organization will pursue reducing its carbon-footprint by no less than 50% and achieve that goal by 2012 (the end of our second 5-year plan) in concert with the University's Strategic Plan focus on energy and the environment. ITS will model 'green' computing efforts across our organization, including our network infrastructure, our data centers, desktop and mobile computing platforms and our printing environments.

Please take a moment to read the rest of this newsletter to learn more about our initiatives and the specific actions you can take to make a difference. We're also calling for 'good ideas' in a soon to be launched Greening Case IT wiki. Don't hesitate to let me know if you have suggestions on what we can do individually and together to reduce, reuse, and recycle in the IT Division.

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"The supreme reality of our time is... the vulnerability of our planet."
- John F. Kennedy, 35th President of the United States, 1963

INTEGRATING GREEN PRINTING INTO CASE WESTERN RESERVE UNIVERSITY'S SUSTAINABILITY PROGRAM

I pledge
to...

- Reduce my printing output by 25% in FY09 (and 50% by 2012)
- Remove and recycle 50% of all desktop attached printers in FY09 (and 90% by 2012)
- Use ENERGY STAR efficient, shared networked laser printing in my working area
- Only print documents that I *must absolutely* have as hard copies
- Print double-sided documents whenever possible
- Use narrower margins on documents
- Use paper with at least 20% recycled content
- Recycle my office paper
- Promote paperless meetings
- Promote events and share information electronically
- Circulate course information electronically (syllabi, readings, resources & assignments)
- Use online collaboration tools like <http://connect.case.edu>

DID YOU KNOW?

- The IT industry alone produces 10% of the world's CO2 emissions which is equivalent to the carbon output of the entire aviation industry.
- IT emissions growth is the fastest of any sector in society due to new cyber-infrastructure, Internet and mobile applications.
- One small computer server generates as much carbon dioxide as a SUV with a fuel efficiency of 15 miles per gallon.
- Nearly 40% of servers are under utilized by more than 50%.
- Printers are among the most energy-intensive type of office equipment because they are left on for long periods of time — in some cases, up to 24 hours per day.
- Printers and other imaging products qualified under the new ENERGY STAR specification will save more than \$3 billion over the next five years and avoid greenhouse gas emissions equivalent to 4 million cars.
- Case Western Reserve University spends in excess of \$500,000 a year in “ink” for desktop attached printers.
- To date, the University does not have a comprehensive ink recycling program.
- To date, the University does not have a certified recycling program for printers.
- To date, the University has not set goals for being carbon neutral.



MAKING CHANGES AT HOME...

Heating/Air Conditioning:

Set your home AC units to as high a temperature as is comfortable. Each degree above 78 will save you 1-2% in cooling costs.

Close or tilt window blinds to block direct sunlight, reducing cooling needs during warm months.

Plant trees or shrubs to shade outdoor AC units, but not to block the airflow to the unit. An AC unit operating in the shade uses as much as 10% less electricity than the same one operating in the sun.

Clean your air conditioning filter once a month during peak cooling seasons to insure maximum efficiency.

Check if your home water heater has an insulating blanket. An insulating blanket will pay for itself in less than a year.

Keep blinds and drapes closed during the heat of the day in the summer months to reduce radiant solar gain.

Install ceiling fans to save money on cooling and heating and reduce energy waste. In the summer, use them in place of, or to assist, an AC unit. In the winter, a ceiling fan with a motor that runs in reverse can push warm air down from the ceiling and thus conserve energy.

Run heat producing appliances such as washers, dryers, dishwashers, and ovens during the cooler hours of the day in the summer months.

Planting trees and shrubs, or using awnings on the west and south sides of your house will block heat and direct sunlight, thus reducing cooling costs.

Lighting:

If each U.S. homes replaced all of their incandescent bulbs with compact fluorescent ones, the U.S. would instantly become an energy-*exporting* nation.

Compact fluorescent bulbs are more expensive than incandescent bulbs, but they last 6-10 times longer, and can save the consumer up to 75% in energy costs over the life of the bulb.

Keep fixtures and bulbs clean. Dirt, along with being unsightly, can absorb as much as 50% of the light emitted.

More bulbs are not better. Use one bulb instead of multiple bulbs whenever possible. A single 100-watt incandescent bulb produces the same amount of light as two 60-watt bulbs, and it uses 20% less energy.

Appliances:

Use efficient *ENERGY STAR* products and ensure that power-down features are activated.

Save up to 11% in energy costs: unplug small appliances that drain energy even when not on: cell phone and iPod chargers, coffeemakers, desktop printers, and VCRs.

Defrost your freezer. For manual defrost freezers, don't let ice build up more than 1/4 in. When this happens, the efficiency of the freezer drops significantly.

Check your freezer temperature. Keep your freezer at a temperature between 0-5 degrees F. Settings below this use more energy and are not necessary.

Keep your refrigerator away from heat. Try to locate it in a cooler part of the kitchen, away from direct sunlight and other appliances that generate heat like ovens and water heaters. A 5 degree difference in air temperature can have a 20% impact on the energy consumption of your refrigerator.

Close the refrigerator door. Opening the refrigerator door accounts for between \$10-\$20 of a typical family's electricity bill each year based on 40-60 openings per day.



Download the Energy Savers Tip guide at :

<http://www1.eere.energy.gov/consumer/tips/pdfs>.

Continued on page 4

Making changes at home...

continued from page 3

Inspect refrigerator door seals. Check the door seals on your refrigerator by closing the door on a dollar bill. If you can easily pull the dollar out then you would probably benefit by replacing the seal.

Keep refrigerated foods covered. Keep foods covered to prevent moisture build-up. Your refrigerator has to work harder if the air inside is humid.

Reduce the load. Refrigerators operate most efficiently when full but not overloaded.

Don't put hot food in the refrigerator. Allow leftovers to cool before putting in the refrigerator.

Give your refrigerator some space. Allow at least one inch of space on each side of the refrigerator for good circulation. Poor circulation can increase energy consumption by 10%.

Turn off moisture control when not needed. If your refrigerator has a moisture control switch ('anti sweat' heater) you can generally safely turn it off on all but the hottest days (and even then if you have central air), and reduce the energy cost of your refrigerator by about 10%.

Replace old refrigerators. A new refrigerator uses a third of the energy of 15-20 year old models. This could mean savings of over \$150 per year, making a new refrigerator a very good investment.

Clean the cooling coils. Vacuum behind your refrigerator at least once a year, making sure to remove dirt and dust from the coils. Dust build-up not only increases energy use, but it may cause the unit to break down. (Some refrigerators have the coils inside or underneath where you can't get at them. Most built-in models have them readily accessible on top, typically behind a removable grille).

Turn off spare refrigerators. An older second refrigerator consumes a significant amount of energy. It could be costing you over \$200 per year! If you only need use the second 'fridge on certain occasions, you can pull the plug and then plug it back in only when you need it. This won't hurt the refrigerator and can result in significant savings.

Organize your freezer. Mark items in your freezer for quick identification so that you do not have to keep the door open while you sort through packages. Freezers operate most efficiently when full, and in the event of a power outage foods will stay frozen longer.

Wash your clothes in cold water and reduce your energy consumption by up to 85% than when using hot water.



In the summer, use a drying rack or clothes line to dry delicate and lighter weight items.

Get lean, mean, and clean! When it's time to buy a new washing machine, replace your old one with an ENERGY STAR qualified model. You will use 50% less energy per load, averaging a savings of more than \$100 / year.

Instead of firing up your oven, use a toaster oven for small jobs, using one third as much energy.

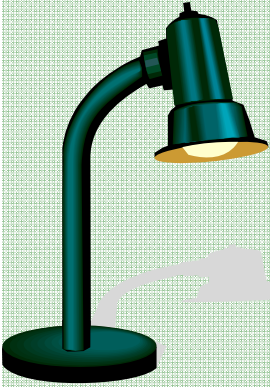
If you have a "no-heat" dry setting on your dishwasher, use it! Heat drying isn't necessary after a hot-wash cycle. If you don't have an air dry setting on your model, turn the dishwasher off after the final rinse and prop the door open, allowing dishes to air dry.

Home Maintenance: Weatherize your home. Save 1,000 lbs. of carbon dioxide and \$274 per year. Caulk, and weather-strip your doorways and windows.

For home improvement projects find green building materials. Choosing lower impact products for DIY projects can reduce toxins in your home and environment, reduce waste, and preserve natural resources.

For spring home improvement painting projects, use water-based paints instead of oil-based paints. Water-based paint is less hazardous, dries faster, saves time and eliminates the need for chemical solvents for cleanup.

TIPS FOR IN THE OFFICE:



- Turn OFF the lights when you leave your office or room to run errands, for a meeting, or lunch.
 - Turn OFF your computer monitor, speakers, chargers, power strips and personal printers when they're not in use.
 - Turn OFF general, overhead lighting and use task lighting, like a desk lamp.
 - Use natural lighting when possible. Arrange furniture to take advantage of natural light from windows. Place desks and reading chairs next to windows to cut down on the need for supplemental lighting during the day.
- Encourage people to bring coffee mugs, re-usable water bottles, plates and eating utensils from home.
 - Save large copy jobs for non-peak office hours such as early in the morning or late in the day.
 - During summer months, consider turning the thermostat up a bit; every degree saved will cut up to 20 percent of air conditioning costs.

WORKING AT HOME? Check out these Home Office Tips:

http://www1.eere.energy.gov/consumer/tips/home_office.html

- Selecting energy-efficient office equipment—personal computers (PCs), monitors, copiers, printers, and fax machines—and turning off machines when they are not in use can result in enormous energy savings.
- An **ENERGY STAR** computer uses 70% less electricity than computers without this designation. If left inactive, **ENERGY STAR** computers enter a low-power mode and use 15 watts or less. Spending a large portion of time in low-power mode not only saves energy, but helps equipment run cooler and last longer.
- To maximize savings with a laptop, put the AC adapter on a power strip that can be turned off (or will turn off automatically); the transformer in the AC adapter draws power continuously, even when the laptop is not plugged into the adapter.
- Common misconceptions sometimes account for the failure to turn off equipment. Many people believe that equipment lasts longer if it is never turned off. This incorrect perception carries over from the days of older mainframe computers. **ENERGY STAR** computers and monitors save energy only when the power management features are activated, so make sure power management is activated on your computer.
- There is a common misconception that screen savers reduce energy use by monitors; they do not. Automatic switching to sleep mode or manually turning monitors off is always the better energy-saving strategy.
- Long-Term Savings Tip: Consider buying a laptop for your next computer upgrade; they use much less energy than desktop computers.



OTHER INITIATIVES HAPPENING AT CASE WESTERN RESERVE

The American College & University Presidents' Climate Commitment was recently signed by President Snyder.

This is a public statement that Case Western Reserve University is committing attention and resources to reducing our impact on climate disruption. Signing on to the UPCC is more than a diplomatic agreement, requiring clear statements of goals and specific actions to reduce Case's greenhouse gas emissions and climate impact.

Signatories to the American College & University Presidents' Climate Commitment are committing to real, meaningful action to eliminate their contribution to global warming by:

- Establishing an institutional structure to oversee the development and implementation of the schools' program to comply with the ACUPCC;
- Completing an emissions inventory within one year;
- Establishing a climate action plan that includes a target date and interim milestones for becoming climate neutral within two years;
- Taking immediate steps to reduce greenhouse gas emissions by implementing at least two of a list of seven tangible actions while the climate action plan is being developed;
- Integrating sustainability into the curriculum and making it a part of the educational experience; and
- Making their inventory, climate action plan, and progress reports publicly available.

More information regarding the American College & University Presidents' Climate Commitment is available online at:

<http://www.presidentsclimatecommitment.org/>

Plant Services has made "real time" energy use graphs available for many buildings on campus. To view these charts, go to

<http://www.case.edu/finadmin/plantsrv/rpgraphs.htm>

Purchasing has adopted an Energy Star policy, which reads:

"Case Western Reserve University has adopted an ENERGY STAR® Purchasing Policy which states that CWRU is to purchase Energy Star certified appliances and equipment for both single and mass purchasing actions, whenever financially possible, to include purchasing for research-related, office, residence hall, and dining hall categories that have ENERGY STAR® rated products available. The University will focus its procurement efforts only on products with an ENERGY STAR® rating, consistent with meeting the needs of the CWRU community."

Thanks to a great partnership with Laura Artwell and her team in Purchasing, this will not only apply to equipment and materials purchased, but ENERGY STAR® preferences will also be written into RFPs, like for contracts with vending machines or printing / copying services for example. We were inspired by the following stories about the University of Buffalo:

http://www.energystar.gov/ia/products/vending_machines/UB_Case_study.pdf

<http://www.buffalo.edu/news/7779>

Construction Administration is currently updating its new construction and renovation standards, which impacts all contractors as well as internally implemented work on campus. In March 2007, high performance building standards, based on the LEED building scorecards and standards, were integrated into the updated materials.


Thus, all new construction and building renovations (including data centers) must comply with rules relating to how and where the project is sited (for new construction), water use and conservation, energy efficiency and building systems performance, healthy interior environments (lighting, air quality, accessibility, etc), materials used in the construction or renovation (using local sources, low emitting materials and compounds, etc), and minimizing and recycling waste from the project.

Printing Recommendations for the ITS Division



- It's recommended that paper purchased for office use should contain no less than 20 percent recycled materials, with the preferred recycled content of 30 percent. These papers are readily available through Corporate Express.
- When purchasing replacement ink Cartridges for the Dell 3110 and 5110 series printers, please purchase the highest capacity volumes. In addition, for cost effectiveness, use the Dell catalog (through Peoplesoft) to purchase these replacements.

Printer Model	Color Toner Part	Black Toner
Dell 3110cn	BCMY311 High Capacity	3BK3110 High Yield
Dell 5110cn	CMY5110 High Capacity	4BK5110 High Yield

- Consider using this (or something similar) in your email signature file:  Please consider the environment before printing this e-mail
- Whenever you are using a desktop printer, ask yourself if it couldn't be done just as well on a networked printer. (Remember, it's good to get up and stretch!)
- Whenever possible, use the "narrow" margin feature whenever possible, resulting in 1/2 inch margins throughout your documents.

TRANSPORTATION TIPS:

- Turn an errand into an opportunity to take a walk.
- Take the Rapid downtown or to the airport.
- Ride your bike, or better yet, carpool to work!
- Turn off your ignition when you're stopped for more than 30 seconds. Idling for more than 30 seconds burns more gas than it takes to restart the engine or than if the car were moving.
- By driving 2 fewer days each week, the average person can save over 140 gallons of gas and keep more than 2700 lbs. of CO2 out of the atmosphere in 1 year.
- If only 1% of all licensed drivers drove 2 fewer days per week, 273 million gallons of gas and 5.3 billion lbs. of CO2 could be saved each year.
- In the U.S., the transportation sector is responsible for 1/3 of all man-made carbon dioxide emissions and consumes 67% of all U.S. petroleum.
- Hybrid fuel vehicles are twice as fuel efficient as a standard, similar-sized car, and trading in your 4-wheel drive or SUV for a medium-sized hybrid fuel car cuts your personal transportation emissions by 70% in one fell swoop!



- Buy a Hybrid Car. Save 16,000 lbs. of CO2 and \$3,750 per year. You can get 50 miles to the gallon and reduce the demand on oil. Your government hears you by how you spend your money. Between tax credits and fuel saved, you can save, and say, a lot!
- Keep the tires on your car adequately inflated. Check them monthly. Save 250 lbs. of carbon dioxide and \$840 per year. If everyone in the United States did it, gasoline use nationwide would come down by 2 percent.

Take the *Drive Smarter Challenge* and get more money-saving fuel-efficiency ideas and related product discounts. Share them with your family and friends and "fuel the challenge."

Go to <http://drivesmarterchallenge.org/> for an easy-to-use calculator that you can use to calculate savings for your own vehicle! Other money saving tips and a free newsletter subscription are also available.

**drive
the smarter challenge**



REDUCE... REUSE... RECYCLE

Aluminum Cans: Throwing away an aluminum can wastes as much energy as pouring out a soda can half-filled with gasoline.

Every 60 seconds more than 120,000 aluminum cans are recycled in the United States.

Recycling 1 soft drink can saves enough energy to power a television for 3 hours.

Recycling 48 aluminum cans is the energy equivalent of 1 gallon of gas.

2 out of 3 aluminum cans are recycled in the United States each year.

A single recycled aluminum can saves enough electricity to light a 100 watt bulb for 3.5 hours.

Habitat for Humanity could have built 9,933 homes last year with the money lost by throwing away aluminum cans.

Recycling 1 ton of aluminum saves enough energy to power an average home for more than 10 years.

Paper: 60% of Case Western Reserve University's solid waste is paper.

Currently Americans are recycling only 43% of the paper they could be.

Each ton of recycled paper can save 17 trees, 380 gallons of oil, 3 cubic yards of landfill space, 4,000 kilowatts of energy and 7,000 gallons of water.

Each month between January and March 2006, Case sent an average of 260 tons of waste to the landfill.

During the period December, 2005 - March 2006, Case recycled an average of 17 tons per month, representing only 11% of what we *could* be recycling!

Recycled paper uses up to 90 percent less water and half the energy required to make virgin paper.

Plastic: 1 ton of recycled plastic saves 5,774 Kwh of energy, 16.3 barrels (685 gallons) of oil, 98 million Btu's of energy, and 30 cubic yards of landfill space.

Americans use 4 million plastic bottles every hour, yet only 1 bottle out of 4 is recycled.

When one ton of plastic bags is reused or recycled, the energy equivalent of 11 barrels of oil are saved.

Paper or plastic? Neither! Purchase a reusable bag (Heinen's, Zagara's, and Trader Joe's all sell them) or reuse your paper or plastic bags at the store. Reusing a bag meant for just one use has a big impact. A sturdy, reusable bag needs only be used 11 times to have a lower environmental impact than using 11 disposable plastic bags.

In New York City alone, one less grocery bag per person per year would reduce waste by five million pounds and save \$250,000 in disposal costs.

Plastic grocery bags can take 1,000 years to decompose. Most plastic bags are made from polyethylene, which is made from crude oil and natural gas.

Electronic waste is less than 4% of the total solid waste stream in the U.S., but it is growing 2-3 times faster than any other waste stream (i.e. paper, yard waste). In 1998, of the 20 million computers taken out of service, only 2.3 million (slightly more than 10%), were recycled or e-Cycled. Between 2000 and 2007, as many as 500 million personal computers became obsolete and entered the municipal solid waste stream.

I am only one, but I am still one.
I cannot do everything, but I
can do something.

~Helen Keller

Join in the Million Monitor Drive!

Energy wasted by unused computers and monitors costs colleges and universities millions of dollars every year. Computers and monitors use more electricity than all other forms of office equipment combined. More than half of this energy is wasted because computers and monitors are left on at night and weekends, and are not enabled for power management.

ENERGY STAR, a program managed by the U.S. Environmental Protection Agency to promote energy efficiency, is helping eliminate costly waste through the “Million Monitor Drive,” an annual campaign to activate monitor power management on at least 1 million computer monitors.

When enabled on your computer, Power Management allows monitors to go into a low-power sleep mode during periods of inactivity. Then, instead of using energy for computers and monitors that are kept on 24 hours a day, seven days a week, energy is expended only for the time that the computers are actually in use. For large organizations, this single step leads to annual savings of thousands of kilowatt-hours.

Placing a monitor into a low-power sleep mode after a period of inactivity can lead to annual savings of between \$10 and \$30 per monitor. The Energy Star program offers a free download with detailed instructions to enable your monitor to go into sleep mode. The program is available online at

http://www.energystar.gov/index.cfm?c=power_mgt.pr_power_mgt_ez_wiz *Note: EZ Wizard is currently only available for computers that use a Windows 2000 or Windows XP operating system. To activate power management features in a Windows Vista operating system please use the manual instructions found online at*
http://www.energystar.gov/index.cfm?c=power_mgt.pr_power_mgt_manual_act_winVista.

Information courtesy of www.energystar.gov



See page 10 for instructions on how to put your notebook PC into standby mode...

You Asked...

If I'm using a shared printer, how do I ensure the confidentiality of my printouts?

If you and your coworkers share a networked printer, you are probably concerned that your printouts are vulnerable to review by anyone who has access to the area where that networked printer resides. But, don't fret, there is usually a way from within your Office program to delay printing your job until you're ready to retrieve your document.

In Word, Excel, or any other printable Office document, a section in the Print Dialog box lets you tell the printer to delay printing your document until you're in the copy room.

Each printer (including the Dell 3100 and 5100 printers) have their own nuances regarding how to set this up. For more information, please see the “Secure Printing Tips” suggested by Linda Lazzaro at <http://www.case.edu/its/caseworks/documents/Secureprinting.pdf>

Look for an email soon containing specific instructions for the Dell networked printers as they are deployed throughout the ITS division.

ADDITIONAL RESOURCES

Want to know more? Here are some websites with additional information:

Environmental Glossary: <http://earth911.org/support/environmental-glossary/>

Footprint Calculator: <http://www.myfootprint.org/>

Energy Calculator: <http://www1.eere.energy.gov/consumer/calculators/>

Water Saving Tips: <http://www.epa.gov/watersense/>

Eat Low Carbon Diet Calculator: <http://www.eatlowcarbon.org/Carbon-Calculator.html>

Get the kids involved! See these kid-friendly sites: <http://kidsfootprint.org/>

<http://www.coolkidsforacoolclimate.com/>

<http://earth911.org/for-students/>



HOW TO MANUALLY PUT YOUR PC ON STANDBY

Open Power Options in Control Panel.

On the **Advanced** tab, under **When I press the power button on my computer**, click **Standby**. If you are using a portable computer, click **Standby** under **When I close the lid of my portable computer**.

Click **OK** or **Apply**, and then turn off the power or close the lid of your portable computer.

To open Options, click **Start**, point to **Settings**, click **Control Panel**, and then double-click **Power Options**.

- You can also put your computer on standby by clicking **Start** and then clicking **Shut Down**. In the **What do you want the computer to do** drop-down list, click **Stand by**.
- You might want to save your work before putting your computer on standby. While the computer is on standby, information in computer memory is not saved on your hard disk. If there is an interruption in power, information in memory is lost.
- To put your computer on standby, you must have a computer that is set up by the manufacturer to support this option. Using Power Options in Control Panel, you can adjust any management option that your computer's unique hardware configuration supports. Because these options may vary widely from computer to computer, the options described may differ from what you see. Power Options automatically detects what is available on your computer and shows you only the options that you can control.

For more information, see <http://www.microsoft.com/windowsxp/using/setup/maintain/powermgmt.mspx>



We're all in this together! We want to hear from you!

Please post your suggestions and ideas at

<http://sites.google.com/a/case.edu/greenitcase/>

Comments or questions regarding this newsletter may be addressed to

insideits@case.edu

