ENERGY EFFICIENCY IN THE WORKPLACE AND HOME:

How to use energy more efficiently

LIGHTING:

1) Convert to Compact Fluorescent Lamps (CFLs):

CFLs use 1/4 the energy for the same light output, and can last up to 10 times as long, reducing both energy and replacement costs significantly.

- CFLs
  - Cost $3-10 each. Savings is around $6 per year (based on a light that is on 4 hours per day), paying for itself quickly if you buy a quality brand. Be aware: if it says "not for enclosed spaces" and you use it in one, it may burn out right away.
  - Imports are less expensive but NOT better. You get what you pay for with most CFLs.
  - CFL wattage is about 1/3 of incandescents. This means you can replace a 150W incandescent with a 30-35W CFL, a 100W with a 25W CFL, a 75W with a 20W CFL, and a 60W with a 13 or 14W CFL.
  - CFLs do contain small amounts of mercury, and should thus be disposed of during your regional hazardous waste collection events, rather than in the regular trash.
  - Energy efficient "Capsule Lamps" are NOT CFLs--they are incandescent light bulbs that use quartz, so they give off more light or lumens per W and thus you can go with a lower wattage--many of these ARE dimmable and ok in enclosed spaces.
  - LED technology is rumored to replace all forms of lighting in the future, but it's not looking like the silver bullet because studies are showing that LEDs cannot give good color rendering--the light will always be yellow. We hope for more work on LEDs to get them to lead the way to energy efficiency, they way many hoped they would.

2) Replace burned out or flickering fluorescent tube lights:

These ballasts are still drawing the same amount of energy into the lamp as if they were fully-lit!

3) Reduce Light in Over-Lit Spaces:

- Waste of energy and leads to eyestrain, headaches and increased absenteeism in work places.
- Get SMART! can help you determine if a space is over- or under-lit with our light meter; then you can decide what lighting to adjust.
- For work areas, the **use of task lighting** means general area lighting needs (like overheads) can be reduced.
- Often one can just **unscrew** one lamp in a tube fluorescent fixture without the other one going out.
- **Experiment** and don't reduce too much--under-lit conditions can be just as bad for worker health.

4) Turn lights OFF when not in use:

Using signs as reminders to turn lights OFF can certainly be effective, but not always consistent. Here's a few alternatives or additional measures:

- **Install occupancy sensors or motion detectors**--these devices turn lights and fans on automatically when someone enters, and turn off after a set period of time with no motion…some prefer not to use these in bathrooms, and that's fine.
- But they're an excellent choice for rooms where lights are seldomly used but frequently left on when unoccupied (like supply rooms, conference rooms, break rooms).
- **Sensors** can be found for around $20 plus installation costs, and can pay for themselves quickly.
- **Install daylight sensors or photocells** for lights that MUST remain on at night, preventing lights being LEFT on during daylight hours.
- Smaller photocells can screw right into light sockets and cost a mere $7-$10.

5) Upgrade Exit Signs:

- Illuminated exit signs are on 24 hours/day, 7 days/week, and often use lights with a total wattage of up to 30W. When multiplying this by the number of signs in a building, it can really add up.

(EXAMPLE: It costs around $13/year to power a 30W exit sign year-round ***x*** *10 signs = $130/year. Compare that to $30 for purchase of a new 2W LED exit sign with an 80 year life expectancy = $0.88 each to power these signs * 10 signs = $9/year. With the $121/year energy savings you nearly pay off the cost of the signs in 2 years, after which time it's all in-pocket savings.)*

ALSO Energy Trust of Oregon and the Oregon Office of Energy **provide rebates and tax incentives** for certain retrofits. Visit http://www.energytrust.org or http://oregon.gov/ENERGY/ to learn more.

ELECTRONIC EQUIPMENT

6) Turn off computers and monitors:

- In most brands, computer monitors typically run at 85 Watts during normal usage, and still use 25 Watts when "asleep" (CPUs use 55 Watts when running).
- **Turn off computer monitors** when you know you'll be away from the computer for 15 minutes or more (at lunch, during meetings, etc.). This saves about $2.60 per year for EACH monitor in a 5-day/wk workplace that is turned off for 2 additional hours per day.
- $2.60 doesn't sound like much until you multiply that figure by the number of computers in any office.
- This will NOT affect the usable life of the monitor, and REP can provide you with the study upon request.
- **Screen Savers do not save energy--they only prevent image imprint on the screen.**
- Consider upgrading to Energy Star monitors.

7) Turn off printers and copiers:

- **Turn off all possible computers, printers and copiers** at night or when the office is closed down. This saves about $40 per year for each copier or laser printer, and about $24 per year for each desk jet printer. Turning the machines off will save more money than even the "power down" and this will NOT effect the usable life of these devices. REP can provide documentation of this, as well.

- **Make it a policy to turn all equipment off at day's end,** whenever possible. Institute an office "shut-down checklist" to be used every evening. This checklist will help ensure that resource saving efforts are in place.
- Buy high-efficiency Energy Star approved printers, (ink-jet printers with internal power-down devices) and replace copiers with pre-designed power-down models.
- Many newer models even use motion detectors to only turn on when needed.

OTHER ENERGY DRAWS--these are some of the hidden energy hogs:

8) Avoid heating a vacant workspace or space at home while people are sleeping: Install Programmable thermostats

- Set temp to 60F at night and on weekends if office is not in use during those hours. In the home, turn it down when everyone is gone for the day for school or work, and again at night if you're willing when everyone is otherwise bundled up anyway.
- **It's rumored** that it takes too much energy to turn it down and then heat the space back up--NOT TRUE--energy savings of the entire time the heat is down overnight far surpasses the energy use to heat it back up the next morning, so definitely worth it.
- Thermostats can range from $40 to over $100, but can quickly save up to 33% on energy costs associated with heating. Shop around.

9) Avoid overheating water:

- **Reduce hot water temperature** controls so that tap water is no more than 110F required for handwashing or 120F for facilities or homes with an automatic dishwasher. Restaurants, care giving facilities, etc. should check with the County Health Dep't or State of Oregon for their minimum water temperature requirements. REP CAN HELP YOU CHECK TEMP or you can do it yourself with a thermometer.
- **For every 10 degree reduction, you can realize an 8% drop in energy costs associated with that appliance.**
- Also, check with your hands for heat loss around older water heater models. If the air around the water heater is warm, use a water heater insulation blanket. These start at $18. If there is a hot water storage tank, and exposed piping leading from it, wrap as much piping with insulation as you can see.

10) Use Coffee Thermoses:

- Larger coffee makers with more than one burner can use as much as 1800 Watts when brewing, and still use at least 150W constantly while left on all day. REP CAN HELP YOU CHECK THIS WITH OUR WATT METER.
- Whatever the size of your coffee maker, consider brewing coffee and pouring it into an insulated decanter or thermos to keep warm; brew additional pots as necessary.
- This avoids running energy-intensive burners, saves money, AND avoids coffee sludge or dried up, overheated pots.

11) Heating/Cooling system maintenance:

- **Clean or change air filters as needed**. Clogged filters make your heater work longer to get desired temperatures.
- Have the system checked professionally at least once per year, to maintain maximum operational efficiency.
- Also keep refrigeration coils clean, 1-2x / year to maximize efficiency.

12) Fix air leaks:

- Don't heat the outside …Walk around and **check** doors, windows, etc. **for air leaks**;
- **Differences of one or two degrees indicate a room is improperly sealed.**
- Sealing leaks with caulking, weather-stripping, foam sealant, and other means can be quick ways to cut your losses.

To summarize:

Upgrade Light Bulbs and Exit Signs; don't over-light spaces; don't over-heat water; turn off lights, computers, monitors, printers, copiers, heaters and coffee makers when not in use; maintain equipment annually; and seal leaks.

Resources: Get SMART! Resource Efficiency Program; Alliance to Save Energy http://www.ase.org/