

# GREEN-MY-TECH TIPS 1

## Did you know:

Computers and electronic gadgets produce more greenhouse gases than the airline industry!

About 2% of carbon emissions are caused by computer and phone equipment, and this number is on the rise. People around the world are talking about climate change and how they can be more environmentally friendly, while as consumers can use technology in a sustainable way. These fact sheets offer practical information and suggestions on what you can do to "green your tech".

## SAVING ENERGY

### Should I turn my computer off when it's not being used?

Yes. It may seem simple, but about a third of office computers are left on at night, meaning they use about four times more electricity than needed. You can manually turn your computer off, or you can set your computer (and some televisions) to turn off or "sleep" automatically when they are unused for more than, say, 30 minutes.

### What are the different power-saving modes on a computer?

There are usually two power-saving modes on a computer: "hibernate" and "standby" (also called "suspend to memory" or "sleep"). Hibernation saves what you are working on to a disk file and the equipment should turn off completely, so you could unplug it and move it if needed. "Standby" keeps your work in memory and puts components into a low-power mode. It uses slightly more energy than hibernation, but usually only a small fraction of leaving everything on. You can also edit these modes to save even more energy.

### Does a screen-saver save energy?

No. Because a modern computer's processor slows down its internal clock to save energy when not used, screen savers "wake it up", meaning the computer will use more power. It's much better to set your screen to turn off after a few minutes of inactivity.

### How do I maximise my laptop's battery life?

If you use your laptop on mains, physically removing the battery will reduce power consumption, and increase the battery life. For many rechargeable batteries, discharging completely before recharging will also lengthen the life of the battery. Laptop computers are designed to use much less energy than desktops, which you might want to consider if buying a new computer.

### Should I change my old heavy monitor or TV for a new flat-panel screen?

If you use it a lot, yes – as soon as possible. It's a bit like replacing old light bulbs with new energy-saving ones. Bulky cathode-ray tube (CRT) displays eat up more energy than flat-panel screens. But check that your local authority or waste company can dispose of the old equipment safely – CRTs have lead in them and can't just be dumped anywhere.

### My computer runs very slowly – is it using more energy?

Yes. But there is something you can do about it. If the disk light flashes a lot, this is probably caused by newer software applications using more memory (RAM) than suits the machine. Closing windows and tabs you don't need will help, but buying and install-

ing more RAM in a desktop or laptop computer is an easy and cost-effective way of avoiding having to upgrade. Slow-downs might also be caused by a virus (malware), so use and update antivirus software. However, antivirus software can itself be one of the most demanding applications! So try find relatively "lightweight" anti-virus software such as Avast! (which is freeware) or ESET NOD32.

### What about using websites, or Google searches or email?

These are also significant, and Sheet 4 in this series gives you some technical tips for energy-efficient surfing. Any online work means servers need to use energy to deliver the information you've requested. There is also the transmission cost of data being passed down the cables or through wireless frequencies to your home or offices. Ideally, websites should be made easy to navigate, and images and documents should be light and quick to download. Consider setting a day aside when you don't surf the web, do random Google searches, or download your mail! Some people manage to have these "off-line" days and they say they end up being a lot happier too!

### How do I estimate the "carbon footprint" used by my electronics?

Multiply the power a device uses (in watts) by the number of hours it is on in a year, and divide by 1000 to get energy use in kWh (kilowatt-hours) per year. How to then convert from kWh to kilograms of CO<sub>2</sub> equivalent depends on the source of your electricity: in many countries multiply by 0.6, but in coal-powered countries like South Africa, it's close to 1.0. And finally divide by 1000 to convert kg/year to tonnes/year (tCO<sub>2</sub>e / yr). A typical European uses about 10 tCO<sub>2</sub>e – which is considered high. If you don't know how much power a device uses, you could calculate this from comparing the speed of your electricity meter when the device is on or off, guessing from the rating marked on it (it's often a lot less), or possibly plugging it in through a "wattmeter". Most energy in electronics becomes waste heat, so you could also guess from feeling how hot it gets and how fast any fan is going. But remember, your total carbon footprint also includes the energy used in manufacturing and transporting the things we buy. For example, the energy used in making a computer and screen is about 1800 kWh.

### Can I really make a difference as an individual?

Yes! We all make a difference together. It may be an effort to do the work and convince other people now, but it pays off in the long run. Consider how you can make small changes in your life and encourage friends, colleagues or decision-makers to do the same, perhaps using the information in these sheets. Remember, don't break the biosphere -- someone else might want it!

