



SUSTAINABLE LIVING TASMANIA

E-Waste

What is e-waste?

E-waste is post-consumer electronic and electrical equipments. It includes computers and computer components such as monitors, printers, modems and toner cartridges, mobile phones, TVs, video and DVD players, fridges, washing machines, lighting, stereo components, MP3 players, phones and faxes, photocopiers, and batteries.

In 2002, the Environment Protection and Heritage Council of Australia identified electrical equipment as a waste product of national significance. Australia is one of the top 10 countries in the world using information and communication technology. We like to buy a lot of gadgets!

Why is e-waste a problem?

The Australian Bureau of Statistics estimates that e-waste in Australia is growing at more than three times the rate of general municipal waste (household waste and other council waste such as park and street bins). E-waste is of major concern for several reasons.

Most electronic items are not discarded because they ceased to work; they are simply upgraded to newer models, whether for improved services or increased energy efficiency or just out of habit. Another issue is the increasing rate of obsolescence as technology improves. It is not uncommon to hear of a 2-year old computer or digital camera referred to as ancient! Also electronic items have become more affordable, which means that there are simply more being produced to meet the increasing demand.

Electronic items (and the batteries that run them) contain toxic components such as mercury, lead, cadmium and arsenic.

When these items are landfilled these toxic substances can leach into the water table, contaminate soils, and pose a serious threat to human health. Heavy metals and particulate matter released from e-waste can cause severe damage to our circulatory, nervous and respiratory systems.

While Australians have generally embraced kerbside recycling, recycling of electronic items is far more complicated than recycling of glass, paper or aluminium. Electronic products are made from a huge range of component materials that are useless for further manufacturing until the product is dismantled and the component materials are separated.

Concern over health and environmental impacts has led to restrictions on the disposal of hazardous electronics in developed countries. However this has meant that significant amounts of e-waste is shipped to countries such as India and China, where 'recycling centres' have sprung up to cater for the growing mounds of e-waste being generated by markets such as the United States. Here electronic items are often dismantled in an unsafe and unregulated environment, by workers without adequate protective clothing and with toxic materials being released into the air and local waterways.

In addition, the metals used to make items such as mobile phones are often rare and non-renewable such as gold and platinum. But the good news is that many of the materials used in these items can be recovered and reused if disposed of properly in the first place.

Changing the Culture

As discussed, electronic items are discarded for a number of reasons. Currently in Australia, only 4% of these items are recycled and the number of new electronic

items being produced continues to grow. Around 12 million Australians own one or more mobile phones and upgrade them on average every 18-24 months. According to Environment Victoria, "Making one desktop computer and monitor uses the same amount of chemicals (22kg), water (1500kg) and fossil fuels (240kg) as a mid-size car." We need to adopt an approach of e-waste avoidance, rather than simply focussing on disposal. This involves shifting from a 'throwaway' culture to one of producing quality, extending the life of products by repairing and reusing them, and then recovering and recycling materials in the items prior to correctly disposing of the residual waste. While there is much that governments and industry can do to require manufacturers to improve product durability, and implement schemes for 'buying back' used electronics, there is still a lot that we as consumers can do.

Avoiding e-waste

- Buy only items you really need. For example, do you really need to upgrade to a mobile phone that takes photos if you already have a digital camera?
- Consider buying second hand. Many items are available online, in local newspapers or from second-hand shops. E-bay is a great place to shop for quality used computers, mobile phones, TVs and stereos and other electronic items.
- Buy a computer that can be easily upgraded so you don't have to replace the entire system when technologies advance.
- Try to buy brands that will last longer. Check consumer reliability ratings to see which brands are made to last. And if a component breaks, check first if it can be repaired or replaced rather than upgrading the whole product.

Tips for prolonging the life of your computer

If your old computer still goes but runs a bit slow, there's plenty you can do to give it a makeover:

- Get rid of any unused applications to free up memory
- Run anti-virus and spyware software to remove any bugs lurking on the computer
- Spending \$100 on extra memory can give an old computer a significant boost in speed
- A new motherboard, processor, graphics card and memory will make your old computer feel like a whole new machine.

Talk to a good PC shop about giving your computer a 'makeover'. If you go to a big appliance store however, you can expect that they will simply try to talk you into buying a new computer!

Buying better

If you do need to buy a new computer, ask your retailer about computers that:

- Are made with fewer toxic constituents, such as mercury free back lighting in the monitor
- Use recycled content
- Are energy efficient (look for the energy star label)
- Don't use cathode ray tubes (CRTs) in the monitors. Flat screen monitors are more energy efficient and don't use leaded glass.

Batteries

Don't forget the energy source that most portable electronic items rely on – batteries. They are often classified as 'e-waste'. There is an enormous array of sizes and types of batteries available today. Nearly 94% of the more than 300 million batteries imported to Australia each year end up in landfill, where they cause serious problems.

Batteries are among the most expensive energy sources in the world. Australia does not produce any batteries, so the ones we use have already travelled a long way, just to be thrown away after a short lifespan. The

average family with young children goes through 109 batteries a year! Their manufacturing consumes many valuable resources and often involves hazardous chemicals. Most household batteries are made up of iron, manganese and zinc. Rechargeables require a more complex chemical reaction. They generally contain lithium, nickel-metal hydride (Ni-MH) and nickel-cadmium (Ni-Cd). These chemicals, nickel and cadmium in particular, pose a serious threat to human and environmental health. They are known carcinogens, pollute groundwater and destroy micro-organisms in the soil. However, despite these concerns, rechargeables still have 32 times less impact on the environment than their disposable counterparts over their lifespan.

There are several ways that you can minimize your reliance on batteries:

- Use rechargeable (Ni-MH) batteries and a battery charger rather than the more toxic Ni-Cd version or non-rechargeable batteries. Most battery powered appliances accept rechargeable batteries, however it is not advisable to use rechargeable in smoke alarms as they can self-discharge.
- Plug appliances into the mains power supply whenever you can.
- If you have to buy single use batteries, buy ones with a long life and where possible, with low or zero mercury.
- When buying a new product, where possible buy one that can be powered alternatively, such as wind up torches, clocks & radios, or solar powered calculators.
- Take all batteries that are no longer in use to a safe disposal site, such as Battery World (Hobart & Glenorchy).

Fluorescent Lighting

There has been a big push to convert all of our light globes to Compact Fluorescent

Lights (CFLs). They are 30 – 80% more energy efficient, have a longer lifespan and can lead to reduced electricity bills.

In an attempt to cut greenhouse gas emissions, standard incandescent light bulbs are set to be phased out from 2009 to 2010 throughout Australia. They will be replaced by energy-saving compact fluorescent light bulbs (CFLs).

CFLs — more commonly known as long-life or energy-efficient bulbs — last much longer and consume a lot less energy than normal incandescent bulbs. While they're more expensive to buy, their price has fallen considerably over the past years to around \$5 to \$20, depending on type.

So to replace, say, 10 incandescent bulbs with CFLs will probably cost you around \$70 — an amount you'd be able to recover in energy savings after one to two years, or in areas where lights are used a lot, in much less time. There are differences in quality, so we recommend buying your bulbs from a lighting shop rather than discount stores.

Contributing to your savings is the longevity of CFLs. They are claimed to last between 6000 and 15,000 hours, compared with 1000 to 2500 hours for an incandescent bulb. So if you operate a 6000-hour CFL for five and a half hours a day, it should last for around three years. And over this time, it'll consume about a quarter of the energy as an incandescent bulb uses.

What to Do if a Fluorescent Light Bulb Breaks

Fluorescent light bulbs contain a very small amount of mercury sealed within the glass tubing. EPA recommends the following clean-up and disposal guidelines:

1. **Open a window and leave the room (restrict access) for at least 15 minutes.**
2. **Remove all materials you can without using a vacuum cleaner.** Wear disposable rubber gloves, if available (do

not use your bare hands). Carefully scoop up the fragments and powder with stiff paper or cardboard. Wipe the area clean with a damp paper towel or disposable wet wipe. Sticky tape (such as duct tape) can be used to pick up small pieces and powder.

3. **Place all cleanup materials in a plastic bag and seal it.** Take the sealed broken bulb to be recycled (see *light globes* in the following section for locations). DO NOT put broken bulbs in domestic rubbish bins. Wash your hands after disposing of the bag.
4. The first time you vacuum the area where the bulb was broken, remove the vacuum bag once done cleaning the area (or empty and wipe the canister) and put the bag and/or vacuum debris, as well as the cleaning materials, in two sealed plastic bags in the outdoor rubbish bin or protected outdoor location for normal disposal.

Most lighting stores stock a large range of CLFs and many now have a range of LED lights as well. LED is set to be the lighting source of the future, but there are still some technical issues that are being dealt with to make them suitable to all situations.

Reuse and Recycling

OK, so you've got all the life out of a product that you possible can, and you no longer want it. What can you do? The following outlets will accept your electronic goods for reuse or recycling:

Computers and other Electrical Equipment

Veolia Environmental Services – (03) 6244 0000 www.veolia.com.au

Statewide collection of most electrical equipment and fluorescent lighting tubes. Items are sent to Melbourne where they are manually dismantled with individual

materials being reprocessed to be used as raw materials to produce new products.

Rivercity Christian Church – North Hobart - Jim Garlick 0412 817 970

Free collection of laptops and computers (Pentium III and above only). Refurbished and distributed to those in need.

The Recovery Shop – Jackson Street Waste Management Centre, Glenorchy

eWaste drop-off facility accepts working and non-working electrical items. Reusable items and parts sold onsite; metal components recycled locally; residual items and parts either recycled or to Hazardous Waste area at landfill.

Freecycle – www.freecycle.org

location based e-mail group for people to list items that they want to give away for free. Groups active in Hobart, Launceston, Midlands, Burnie, Devonport, and on the East Coast.

Resource Work Co-operative Tip Shop – McRobies Gully Landfill, South Hobart

Accepts e waste items - computer and computer components (printers, towers, screens), entertainment devices (TVs, video and DVD players, stereo components) for reuse and for cannibalising of recyclable elements.

Mobile Phones

Cerebral Palsy Tasmania – (03) 6228 4488 – admin@cptas.org

CPT have teamed up with Aussie Recycling Program for a fundraiser that benefits the earth as well as giving \$5 per phone to Cerebral Palsy projects. Phones will be refurbished and sent to people in developing countries, used for spare parts, or dismantled and recycled, depending on their condition. No batteries or chargers.

Mobile Muster – www.mobilemuster.com.au

Nationwide recycling initiative of the mobile phone industry. Comprehensive program to dismantle and recycle all components of handsets, batteries, chargers and

accessories. Website details local collection points which include most mobile phone retailers.

Batteries

Battery World - 164 Campbell St Hobart (03)6231 3726 & 442 Main Rd Glenorchy

Collects all types of batteries for recycling and safe disposal. There are currently no outlets in other areas of the state to recycle batteries (other than automotive). Battery World will accept batteries for recycling by post.

Printer Cartridges

Australian Laser Charge – 1800 687 660
www.lasercharge.com.au

Specialist remanufacturer and retailer of toner cartridges with a strong focus on reuse rather than recycling. A specialised plastics granulator has been installed on site to enable unserviceable plastic components to be crushed (to reduce volume) prior to being used to produce a range of new 100% recycled plastic products such as park benches, tables, signs, boardwalk planking etc.

Cartridge World - 131 Bathurst St Hobart (03)6231 0114 & 50A Main Rd Moonah

Refill and recycling of printer toner cartridges and collection point for mobile phones to be recycled by Mobile Muster.

Tasmanian Printer Cartridge Company – 119 York St Launceston (03)6334 2999

Refill printer cartridges and send those that cannot be reused to be broken down and recycled by PlanetARK.

Planet Ark – www.planetark.com - Collection Statewide at participating Australia Post, Officeworks, Harvey Norman, Tandy, Dick Smith Electronics Outlets.

Over 50% of the laser cartridges are sent to the original equipment manufacturers for their remanufacturing or component recovery programs. All inkjet cartridges,

toner bottles and drum units are processed to recycle their component materials into new products.

Light Globes

Lights ‘N’ Lamps - 41 Victoria Street, Hobart (03) 6234 8066 –

Collects compact fluorescent lamps for recycling (by CMA). The recycling program is for residents of Hobart and small businesses that operate in the Hobart City Council CBD. Phone: (03) 6234 8066.

Veolia Environmental Services – (03) 6244 0000 www.veolia.com.au

Statewide collection of commercial quantities of fluorescent lighting tubes.

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