WHAT GOES AROUND COMES AROUND

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LEVEL 12, 60 COLLINS STREET, DX 492 MELBOURNE 3001 • **POSTAL ADDRESS** GPO BOX 4326PP, MELBOURNE 3001
**PH** (03) 9667 5561 • **FAX** (03) 9667 5550 • **EMAIL** ecobuy@mav.asn.au • **www.mav.asn.au/ecobuy**

# THE GREENHOUSE EDITION

## WHAT ARE GREENHOUSE FRIENDLY PRODUCTS?

Every product we purchase affects our environment. At every stage of the life-cycle of every product we buy there is an environmental impact. Greenhouse friendly products are those that create less greenhouse gas emissions at one or more stages of their life-cycle. By choosing products that produce less greenhouse emissions during their life cycle than similar products, we can have a dramatic impact on reducing greenhouse emissions.

## LIFE CYCLE IMPACTS

### 1. SOURCE—WHAT IS IT MADE FROM?

Many raw materials used in the manufacture of products are mined from natural resources. Greenhouse emissions can be created through the removal of natural vegetation, the extraction process and the transportation of the materials. Using recycled materials in the manufacture of products can significantly reduce greenhouse emissions.

### 2. MANUFACTURE—HOW IS IT MADE?

The manufacturing process requires the use of materials and energy and creates emissions, all of which have an impact on greenhouse emissions. Look for a manufacturer that has tried to improve production process to use less energy; that has minimised the number of raw materials used; that has reduced the number of components and simplified the production process and has in place processes to reduce emissions.

### 3. PACKAGING—HOW IS IT PACKAGED?

The manufacture of packaging can create greenhouse emissions and the disposal of packaging, especially to landfill can effect greenhouse emissions. Look for minimal packaging; packaging made from recycled materials; recyclable or compostable packaging; returnable systems, buying in bulk or reusing the packaging elsewhere.

### 4. DISTRIBUTION—HOW IS IT TRANSPORTED?

Transporting a product has greenhouse impacts. The further a product is transported, the more fuel is used. This contributes to pollution and greenhouse emissions. To reduce greenhouse emissions, buy local, buy in bulk, and use rail where feasible.

### 5. USE—HOW MUCH ENERGY DOES IT USE?

It is now possible to check how efficiently products use electricity, gas, water and fuel. More efficient products use less energy to run and therefore produce less greenhouse emissions. Refer to the ratings systems described in this newsletter to assist you in purchasing the most energy efficient products.

### 6. DISPOSAL—HOW WIL IT BE DISPOSED OF?

Before buying products, you need to consider how these will be disposed of at the end of their life. The disposal of products, especially those that end in landfill can create greenhouse emissions, especially methane. Before disposing of a product consider… Does the manufacturer take back products at the end of their life? Can it be reused by someone else? Can it be remanufactured? Can it be reused? Can it be recycled? All these options should be explored before making the purchasing decision.

## GREENHOUSE & GLOBAL WARMING

The Australian Greenhouse Office states that global warming is caused by an increase in greenhouse gases in the Earth's atmosphere. The main greenhouse gases are water vapour, carbon dioxide, methane and nitrous oxide, as well as some manufactured gases such as chlorofluorocarbons (CFCs) and some of their replacements. Reducing the amount of greenhouse gases produced by human activity – particularly by burning of fossil fuels and land clearing – is increasingly being recognised as an important issue by governments, industry and the community.

By purchasing greenhouse friendly products you can reduce greenhouse emissions and global warming.

## ENERGY STAR

ENERGY STAR is an international standard for energy efficient office equipment. ENERGY STAR features enable electronic equipment to power down into 'sleep' mode when not in use and to 'wake-up' when needed.

ENERGY STAR equipment uses less energy. As most electricity in Australia is generated by coal-fired power stations which produce carbon dioxide, saving energy means reducing greenhouse gas emissions.

By buying equipment that complies with the ENERGY STAR standard, and making sure its energy-saving features are enabled, you can save money on your electricity bills and help the environment by reducing greenhouse gas emissions.

Standby power accounts for an increasing proportion of the world's energy use. In 'developed' countries, it can represent up to 15 per cent of household electricity consumption. In Australia, standby power could be costing consumers around $500 million every year – and resulting in greenhouse gas emissions of more than 5 megatonnes (CO2 equivalent) annually. Worldwide, standby power is estimated to account for as much as 1 per cent of global greenhouse emissions.

To work, ENERGY STAR equipment must have their energy saving features activated. Unfortunately many suppliers, installers and IT staff disable these features because of unfounded concerns that these features can cause network problems. ENERGY STAR provides step by step instructions on how to make sure your equipment's energy saving features are activated.

ENERGY STAR provides an interactive energy saving calculator to assist you in measuring the greenhouse gasses you save by using energy saving equipment.

Use the ENERGY STAR product search to find energy efficient products.

## ACKNOWLDEGEMENTS

Much of the material in this newsletter has been sourced directly from the following documents or websites. The Green Guide; Shop Smart Buy Green: Centre for Design's Ecospecifier, The Australian Greenhouse Office; Environment Australia; Energy Star; Sustainable Energy Authority Victoria, Water Services Association Australia, Australian Gas Association. Direct links to all these are provided in the relevant section of this newsletter

## WATER CONSERVATION RATING

The Water Services Association of Australia, the peak body of the Australian water industry has developed a rating scheme to assist consumers purchasing water saving products. The water conservation scheme rates water using products from A to AAAAA. The more A's — the more water efficient the product. By purchasing products that are more water efficient you will not only save water and money but also use less energy by heating less water and hence reduce greenhouse emissions. Products displaying the water conservation rating logo comply with all relevant performance requirements of Australian Standards.

The ratings scheme covers the following water using products: shower heads; dishwashers, washing machines, taps, tap outlets, toilet suites, flow regulators and urinal flushers.

WSAA produces a Buyers Guide to Saving Water and the website lists all certified products and their appropriate water efficiency label.

## GREENHOUSE FRIENDLY

The Australian Greenhouse Office provides the 'greenhouse friendly' certification to manufacturers and service providers whose greenhouse emissions have been offset by activities to reduce greenhouse emissions in other areas.

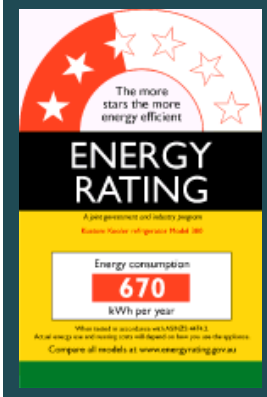
The greenhouse emissions of the greenhouse certified product or service have been calculated over its lifetime-from its production and transport through to its use and disposal. This lifecycle analysis tells the manufacturer or service provider how many greenhouse emissions they will have to reduce in other areas in order to cancel out the greenhouse impact of their product or service.

Projects to offset greenhouse emissions may include planting trees, using landfill methane to generate electricity, renewable and energy efficiency projects and capturing greenhouse emissions from mining and production activities.

Independent experts review and verify the claims on emissions generated by the products and services seeking certification, as well as the claims made about emissions reduced through the offset activities.

Current certified products and services are BP Ultimate 98, BP Global Choice Commercial Fuels and AGL electricity.

## ENERGY RATING




Purchasing energy efficient products is an excellent way of reducing greenhouse emissions. Major appliances in Australia are a significant source of electricity consumption and greenhouse gas emissions, accounting for as much as 40% of residential greenhouse gas emissions.

The Energy Rating label enables consumers to compare the energy efficiency of domestic appliances. It also provides an incentive for manufacturers to improve the energy performance of appliances. The system has a minimum of 1 star and a maximum of 6, shown in half star increments. Various "algorithms" or equations have been developed to rate the least efficient products at around 1 star.

The Energy Rating Label was first introduced in 1986. It is now mandatory in most states and territories for refrigerators, freezers, clothes washers, clothes dryers, dishwashers and air-conditioners (less than 7.5 kilowatts output cooling capacity) to carry the label when they are offered for sale.

The Energy Rating Label has two main features:

- The star rating gives a quick comparative assessment of the model's energy efficiency.
- The comparative energy consumption (kilowatt hours/year) provides an estimate of the annual energy consumption of the appliance based on the tested energy consumption and information about the typical use of the appliance in the home.

The Star Rating of appliances is determined from the energy consumption measured under Australian Standards which define test procedures for measuring energy consumption and minimum energy performance criteria. Appliances must meet these criteria before they can be granted an Energy Rating Label.

The Energy Rating website provides a list of all energy rated appliances and provides tips for purchasing energy efficient appliances.

## MANAGING ENERGY

The Australian Greenhouse Office has produced a workbook - Managing Energy in Local Government.

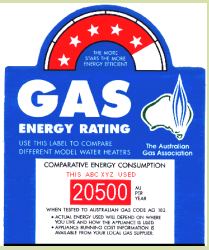
Included in the work book are energy sheets which provide useful advice about selecting energy efficient products

## GALAXY ENERGY AWARD


An easy way to make sure you choose the most energy efficient appliance is to look for Australia's top energy performers - Galaxy Energy Award winners. Each year, Galaxy Energy Awards are presented to appliances that have the highest star rating in their class. Award winners are indicated on an interactive appliance listings.

## GAS ENERGY RATING

When buying a new gas appliance look for the Gas Energy Rating label. This label gives you important information on the energy use and overall energy efficiency of the product.




The Australian Gas Association is committed to energy efficient appliances and includes appropriate energy performance assessments in a number of its gas standards. The star rating results assist consumers in comparing similar products and encourage manufactures to design appliances with even greater energy efficiencies.

The Gas Rating labels utilise a star system (0–6 stars) to represent the level of energy efficiency of the appliance. Quite simply, the more stars on the label, the energy efficient and economical that appliance will be to run.

An improvement of only 1 star can mean significant savings of around 10%. Even if a high star rating appliance costs more to purchase, the running cost savings will make up the difference in only two or three years and after that, the overall savings continue each year.

## GREEN PURCHASING GUIDES

**Shop Smart Buy Green**
Guide to saving $ and reducing environmental impacts.

**The Green Office Guide**
Guide to buying environmentally friendly office equipment.

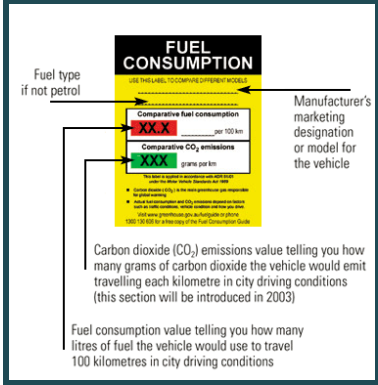
**Ecospecifier**
Guide to sourcing environmentally preferable materials.

**Working Energy Resource Kit**
Guide to reducing greenhouse emissions.

**Waste Wise Shopping Guide**
Guide to purchasing recycled products.

**Environmental Purchasing Checklist**
Checklist and specifications for green purchasing.

## FUEL CONSUMPTION LABEL




From 1 January 2001 all new passenger vehicles, four-wheel drives and light commercial vehicles sold in Australia have carried a fuel consumption label on the windscreen.

The current label tells you how many litres of fuel the vehicle uses to travel 100 kilometres when driving around the city and how much carbon dioxide (a major greenhouse gas) is emitted when driving the vehicle.

Alternative fuels such as liquefied petroleum gas (LPG) produce less carbon dioxide per litre than petrol. For every litre of petrol used 2.3 kilograms of carbon dioxide is released from the exhaust. For every litre of LPG used, 1.5 kilograms of carbon dioxide is released from the exhaust. Carbon dioxide is the main greenhouse gas that contributes to global climate change.

A vehicle using LPG will have a higher fuel consumption than the same vehicle using petrol. This is due to different fuel densities between LPG and petrol. For example a vehicle using LPG with a city cycle fuel consumption of 15 L/100km may have a city cycle fuel consumption of 12 L/100km when using petrol. The greenhouse gas emissions for the LPG vehicle, travelling 15,000 kilometres annually, will be 3375kg compared to 4140kg of emissions when the vehicle uses petrol. 765 kg less greenhouse gases are being emitted each year from the vehicle using LPG, which is a better outcome for our environment.

The Greenhouse Office has produced the Fuel Consumption Guide which includes a table that compares annual greenhouse gas emissions from vehicles using petrol and LPG and a table to calculate your annual fuel costs.

## BUILDING PRODUCTS

RMIT's Centre for Design has developed the Ecospecifier a tool for designers, architects, builders and specifiers. It provides detailed information on environmentally friendly building and construction materials including information on products with reduced greenhouse impacts. The Guide provides details on the environmental attributes of products and lists suppliers and manufacturers of these products.

## PAPER

Producing and transporting a sheet of paper to your office usually takes more energy than your printer, fax or photocopier uses to print on it. Manufacturing recycled paper can use up to 90% less water and 50% less energy that making it from trees, so it is good to look for paper with high recycled content.

Using recycled paper saves trees. Every 100 reams of recycled office paper that is printed double sided saves two trees, more than a tonne of greenhouse gas and almost a cubic metre of landfill space compared to 100 reams of paper that is not recycled or printed double sided.

Trees remove carbon dioxide from the air and act as natural 'sinks' for greenhouse gases. Cutting down trees for paper production reduces these sinks.

Paper disposed of in landfill generates greenhouse gasses of carbon dioxide and methane. Diverting paper from landfill and using it to produce more paper helps to reduce these gas emissions.

For information on purchasing recycled office paper go to Know Your Paper Guide and the Victorian supplement.

## COMPUTERS AND MONITORS

Purchasing energy efficient computers not only reduces operating costs, but also reduce environmental impacts.

Energy efficient computers can reduce greenhouse emission by using less energy, and because they give off less heat, have the added benefit of reducing air conditioning costs.

Environment Australia has produced an environmental checklist for purchasing computers and monitors.

When buying computers and monitors:

- Buy ENERGY STAR products.
- Consider a laptop—they are more energy efficient and materials efficient than a desk top computer and monitor. By selecting an efficient laptop computer and operating it efficiently you can reduce your energy use by 98-99%.
- Consider LCD type flat screens for desk top computers, they are more energy efficient and space efficient than standard monitors.
- Use energy efficient specifications in contracts.

## PHOTOCOPIERS

Most of greenhouse emissions produced by photocopiers comes from the energy and paper used. The greenhouse emissions from the energy used to manufacture a standard photocopier from raw materials are about 0.5 tonne. To reduce greenhouse emissions choose a photocopier that has both energy and paper saving features.

When purchasing photocopiers you should look for ENERGY STAR rated products. These photocopiers are equipped with a feature that allows them to automatically turn off after a period of inactivity, reducing a copier's annual electricity costs by over 60 per cent.

If you are purchasing a photocopier with accessories, make sure that these also have low energy consumption.

Look for copiers that:

- Reduce paper use and wastage by being able to print double sided as a default and print two pages to one. It takes 10 times more energy to manufacture a piece of paper than to copy an image onto it.
- Have low consumable usage and will guarantee the use of remanufactured or recycled consumables.
- Have an 'energy save' button in addition to programmable power management features so that you can put it into low power mode as soon as you finish copying.
- Have a seven day clock so you can program it to turn itself off when its not needed at the end of each day and weekends.
- Can reduce from A3 to A4.
- Have high recycled content and makes use of recycled components.

Environment Australia has an environmental checklist for purchasing photocopiers.

Use specifications developed by ENERGY STAR for your photocopier contracts.

## SEAV INFORMATION SHEETS

The Sustainable Energy Authority Victoria have produced a comprehensive range of fact sheets that provide excellent information on how to reduce energy consumption and greenhouse emissions. They include information on air conditioners, refrigeration, lighting, insulation and office equipment. The site has direct links to many guides, resources and tools and is well worth clicking onto.

## PRINTERS & FAX MACHINES

While inkjet or dot matrix printers consume less energy, most people prefer laser printers because of their speed. Laser printers have similar energy consumption to small photocopiers. The ENERGY STAR program has resulted in much more efficient laser printers being developed and these can rival the better inkjets in sleep mode, but they still use more energy while printing.

ENERGY STAR compliant printers and fax machines automatically power down to between 10 and 100 watts or less when not in use, depending on the size of the machine and the number of pages per minute produced. This automatic power-down feature could cut the energy use of a printer or fax machine by up to 65 per cent.

By using the power management features, your printer or fax machine will produce less heat, which can reduce greenhouse emissions by reducing air conditioner use.

Environment Australia has produced an environmental checklist for purchasing printers and ENERGY STAR have developed specifications that can be used

## CARS

Road transport in Australia is responsible for 65 million tonnes of greenhouse gas emissions or 14 per cent of Australia's overall greenhouse gas emissions.

You can help reduce greenhouse gas emissions and minimise air pollution by choosing the most fuel-efficient car to meet your needs and driving it in a fuel-efficient manner.

By buying a fuel-efficient car you can save you hundreds of dollars on fuel bills and up to 20 tonnes of greenhouse gas emissions over its life.

Consider buying a car that uses an alternative fuel such as liquefied petroleum gas (LPG). LPG produces less greenhouse gas than petrol.

Buy the right sized car for your needs – a car that is bigger or more powerful than you need could unnecessarily increase your fuel bills. It is worth noting that fuel consumption can vary considerably among cars of similar size.

The Greenhouse Office's Fuel Consumption Guide provides information on tips for buying cars and the top performing cars.

**Using public transport or alternative forms of transport is the most effective way of reducing greenhouse emissions caused by cars.**

## LIGHTING

Energy used for lighting is responsible for more than a quarter of the greenhouse gas emissions from commercial buildings, even without counting the emissions associated with air conditioning to remove the heat created by lights.

When choosing lighting, use the following as a guide:

- **Use fluorescent lamps rather than incandescent lamps.** Fluorescents use about 70% less electricity than incandescent lamps of similar output.
- **Use high triphosphor lamps rather than standard fluorescent lamps.** The most efficient tubes have a 'triphosphor' coating and will produce about 15% more light for the same electrical energy as a standard tube.
- **If existing lights are switched on for more than eight hours per day use compact fluorescent lamps.** The operating cost of compact fluorescents is only 20% of equivalent incandescent globes.

Check Environment Australia's purchasing checklist for lighting for information on how to choose the most energy efficient lighting.

### COST COMPARISON OF LIGHTING TYPES

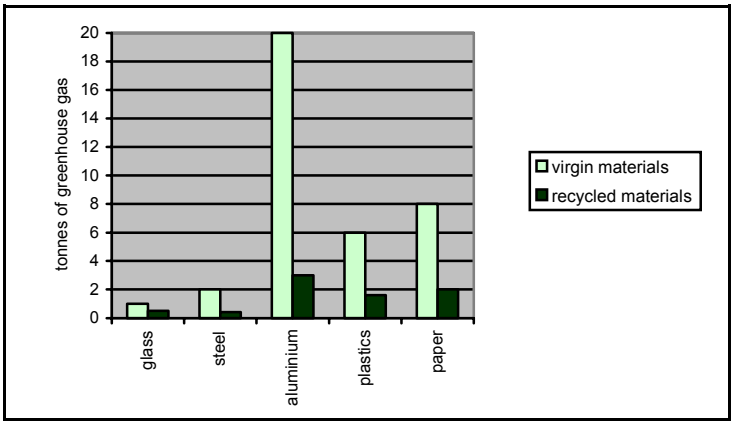
| | Compact flouro (15 watt) | Halogen (50 watt) | Standard incandescant (60 watt) |
|---|---|---|---|
| Number needed | 1 | 5 | 10 |
| Cost per globe | $15 | $7 | $1 |
| Total globe cost | $15 | $35 | $10 |
| Energy used (watt hours) | 15 x 10,000 | 50 x 10,000 | 60 x 10,000 |
| Energy used (kwh) | 150 | 500 | 600 |
| Energy cost @ 15c/kwh | $22.50 | $75 | $90 |
| **Total cost** | **$37.50** | **$105** | **$100** |

From: Environment Australia's purchasing checklist

## RECYCLED PRODUCTS

Using recycled products reduces greenhouse emissions as it generally takes less energy and creates fewer emissions to manufacturer products from recycled material rather than virgin material. Reducing energy use is one of the most effective ways of reducing greenhouse emissions. By purchasing products made form recycled materials, you can significantly reduce greenhouse emissions.

- Making recycled paper can use up to 50% less energy and 90% less water than making it from trees.
- Making aluminium cans from recycled aluminium cans uses only 5% of the energy to make the cans from bauxite.
- Recycling glass saves 74% of the energy it takes to make glass from raw materials.
- Recycling steel cans saves 87% of the energy it takes to make the cans from raw materials, ie. iron ore and coal.
- Recycling PET bottles saves 84% of the energy it takes to make PET bottles from raw materials




From: Green Office Guide

EcoRecycle Victoria's on-line Waste Wise Shopping Guide provides a comprehensive list of recycled products and their suppliers and manufacturers.

The ECO-Buy™ website provides direct hotlinks to manufacturers and suppliers of recycled products.