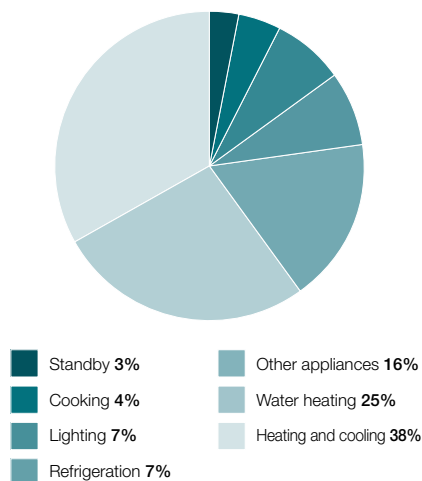


Appliances

Household appliances account for a substantial portion of household energy consumption and greenhouse gas emissions. This fact sheet outlines ways to use appliances efficiently.

Home Energy Use
(Baseline Energy Estimates, 2008)



By selecting appliances carefully you can save money and reduce your environmental impact without compromising lifestyle.

CHOOSING AND USING WHITE GOODS

Apply the following guidelines

Avoid buying appliances that you don't really need.

If you need to buy an appliance, choose one that is the right size for your needs and is as efficient as possible. Appliance rating schemes can help you to select the most efficient appliance, see over page.



Operate appliances efficiently by closely following the instructions.

Maintain appliances carefully.

Turn appliances off when not in use, preferably at the power outlet. Many appliances continue to draw standby power when switched off, contributing up to ten per cent of household electricity use. [See: 6.1 Energy Use Introduction]

Purchase the most efficient appliance available by choosing the highest rating product.

Seek advice from consumer groups, such as the Australian Consumers' Association.

Think about the best layout and placement of appliances to maximise efficiency when designing a new laundry or kitchen.

Do you really need it?

This is the first question to ask when you are thinking of buying an appliance. For example:

Do you really need a clothes dryer when you could use the sun and a clothesline without cost?

Do you really need a second fridge?

Can you think of a way to do without an extra appliance, to save both the cost of buying and running it and the environmental impact of its use, manufacture and disposal?

Size considerations

Buy the right sized appliance to suit your needs. A large model with the same star rating as a smaller model uses more energy and generates more greenhouse gas. Ensure the retailer considers what size appliance you need.

Ongoing cost

When choosing an appliance many people ignore the ongoing costs of maintenance and operation.

Ongoing running costs can easily exceed the original purchase price of an appliance so consider the full lifetime cost when choosing an appliance.

Energy efficient appliances cost less to run and have less environmental impact than similar appliances with lower energy efficiency. Using efficient appliances can save you hundreds of dollars each year in running costs.

THE APPLIANCE ENERGY RATING SCHEME

The Energy Rating Scheme is a mandatory national labelling scheme for:

- > Refrigerators.
- > Freezers.
- > Clothes washers.
- > Clothes dryers.
- > Dishwashers.
- > Air conditioners.



Look for the Energy Rating Label that shows the star rating and other useful information about energy consumption. Choose an appliance with a high star rating.

Add the purchase cost and the lifetime running cost to get a more accurate picture of the total cost of an appliance.

Appliances with a higher star rating generate fewer greenhouse gas emissions.

The Energy Rating Label must be displayed on the above listed appliances when offered for sale. It gives a star rating between one and six stars. The greater the number of stars the higher the efficiency. Total energy consumption in kWh per year under test conditions is also shown (in the red box). If two suitable appliances have the same star rating choose the one with the lower energy consumption.

Reverse cycle air conditioners can be used for heating or cooling and their efficiency is different for the two modes of operation. The Energy Rating Label for reverse cycle air conditioners shows separate star ratings and energy consumption figures for heating (in red) and for cooling (in blue).

A detailed website (www.energyrating.gov.au) provides additional information on the Energy Rating Scheme. The site lists the energy rating and approximate annual energy costs for all appliances on sale in Australia. You can search for an appliance that best meets your needs. The site also provides tips on appliance selection and background information on how appliance ratings are determined.

Televisions, game consoles, set-top boxes, video, CD and DVD players and recorders do not carry energy rating labels in Australia, neither do computers, scanners or printers. Nevertheless the collective energy demand of these appliances in a modern household is significant. Taken together, the electrical power use of these commonly used appliances may outweigh that consumed by traditional white goods.

A large screen television used 6 hours a day, can generate around half a tonne of greenhouse gases a year – more than a family fridge.

Digital technologies have led to the emergence of 'convergence' in which previously unrelated devices operate interactively with one another. As an example, CD players, radios, cameras and telephones used to be quite separate devices but now consumers can buy mobile phones that play music, email and take photographs. In the home, this phenomenon of convergence has led to such things as refrigerators that contain a computer, and the increasingly popular home theatre.

Turn off appliances not in use where possible, although this is not always as easy as it sounds. A continual power draw is becoming the default condition for many appliances. As electronic devices have become more sophisticated they have become more and more likely to have sleep or standby modes rather than a hard off switch that disconnects the mains from all electrical circuits in the appliance.

Very few home entertainment products for example have an off switch. This means that significant power is wasted even when the device is put into passive standby mode by the remote control. Even more power is wasted when devices such as DVDs, set-top boxes and CD players are left active standby after use. In this mode they can use twice as much energy as they do when powered down to passive standby mode.

Switch off at the powerpoint.



Courtesy of Fisher and Paykel

CHOOSING AND USING APPLIANCES

Fridges and freezers

Choosing a fridge or freezer

Running a six star 360L fridge will produce almost half a tonne less greenhouse gas each year than a three star model.

Buy appliances that are the right size, especially freezers as their energy demand is high. A larger model will use more energy than a smaller one with the same energy star rating. One large fridge will usually be more efficient than two smaller ones.

Look for features such as easily adjustable shelving, easy access to the thermostat, simple thermostat controls, separate thermostats for fridge and freezer compartments, a door-open alarm and rollers or castors that will make cleaning and operating the fridge easier.

Chest freezers are usually more efficient than upright models as cold air does not escape every time you open the door. Upright freezers with enclosed drawers (not baskets) are a good compromise.

Through-the-door features such as cold water dispensers and ice-makers use more energy and cost more. Avoid these if possible.

Upright units with one door above the other are generally more efficient than units with side by side doors.

A cool cupboard will keep many fruits and vegetables well in most climates, allowing you to choose a smaller fridge. Cool cupboards should be located in the coolest part of the house and have good airflow in at floor level and out at the ceiling.

Using your fridge or freezer

- > Place the fridge or freezer in a cool spot out of direct sunlight and away from cookers, heaters and dishwashers.
 - > Ensure 75mm air space around all sides of the cabinet. If in an alcove make sure the top is also ventilated.
 - > Make sure the door seal is clean and in good condition. It should hold a piece of paper tightly in place when shut.
 - > Set the fridge thermostat to between 3°C and 5°C. The freezer should be set to between -15°C and -18°C. Every degree lower requires five per cent more energy. A fridge thermometer is a good investment.
 - > Avoid overloading the fridge or freezer. Try to leave about 20 per cent free space for air circulation.
 - > Defrost manual models regularly or when ice is more than five millimeters thick.
 - > Turn the second fridge off when not needed. Do not put it in a hot garage or veranda.
 - > Avoid placing hot food in the fridge.
- Dispose of old fridges properly to avoid release of ozone damaging CFCs. Your local council should be able to offer advice.

Clothes washer

Choosing a washing machine

Choose a washer that's the right size for your needs. An oversized model will often be filled with partial loads.

Select the most energy and water efficient model.

Front loaders are usually more water and energy efficient. They are gentler on clothes, use less detergent and save space as they can be installed under a bench. They usually have a higher spin speed so clothes come out dryer. Some have only a cold water connection.

Top loaders usually use more water despite shorter wash times. They may be less expensive to buy but are often harsher on clothes. A suds saver feature is very desirable.

Look for models with dual water connection, cold wash cycles and auto load sensing or load size selection. Heating the water for a hot load can generate up to 4kg of greenhouse gas – a cold wash will produce less than 0.5 kg.

Models with a high spin speed and reverse tumble action are also desirable, especially if you use a clothes dryer.

Look for an economy cycle.

Using your washing machine

Wash a full load rather than several smaller loads and use suds saver if available. Don't use too much detergent. Making detergent produces a lot of greenhouse gases and using too much pollutes our waterways.

Use the economy cycle.

Most of the energy used in washing clothes is for heating the water. Use cold water where possible.

Clothes dryer

Choosing clothes dryers

Consider buying a gas fired or heat pump model clothes dryer. They are more expensive to buy and install but much cheaper to run.

Drying a load of washing in an electric dryer generates more than 3kg of greenhouse gas.

Look for an auto-sensing feature, easily accessible lint-filters and other features such as reverse tumbling and special fabric cycles.

Using clothes dryers

- > Use a clothes line or rack to dry instead of a dryer.
- > Avoid over loading or over drying.
- > Do not put wet clothes in the dryer. Part dry or spin dry them first, using the maximum spin speed of the washer.
- > Clean the lint filter after each load.
- > Externally vent the dryer to remove moist air from the room.
- > Run the dryer on medium instead of high.

Dishwasher

Choosing a dishwasher

Choose the right size for your needs so you will not always be washing partial loads. Two drawer models are available and can be more efficient in households where regular small loads are required.



A well designed dishwasher will wash better at lower temperature and with less detergent than a poorly designed one.

Select the most energy and water efficient model.

Look for models with hot and cold connections or cold connection only. Hot connection only models use much more energy as the whole cycle will use hot water, not just the wash phase.

Research performance well. Basket and rack design is important.

Look for an economy cycle.

Using a dishwasher

- > Avoid rinsing dishes under the hot water tap.
- > Scrape plates well before packing the dishwasher.
- > Always clean the filter between washes.
- > Run the dishwasher only when fully loaded.
- > Use cold water cycles as much as possible in dishwashers. Select the cycle with the lowest temperature and the minimum time to get the job done.
- > Avoid using drying cycles – open the door instead.
- > Use the economy cycle.

Audio visual appliances

The hours of usage of home entertainment and computer equipment is increasing. The Australian home for example has an average of 2.4 televisions watched by at least one family member for between 5-8 hours a day. The average television size has increased from 51cm in 2000 for a cathode ray tube TV to 106cm for a Plasma type. Energy consumption has increased dramatically as a result. In addition, the ubiquity of computers with associated scanners, printers, additional displays and 24 hour internet access make them a significant part of energy use.



To minimise energy use from home entertainment and computer equipment, where possible switch the appliance off at the power point to avoid energy consumed in standby mode. If that isn't possible use the 'hard off' switch on the appliance (if it has one) or turn the appliance off with the remote control to reduce standby power use.

Other equipment

Swimming pool and spa equipment can consume large amounts of energy. Pumps and heaters should be as efficient as possible and be used as little as practicable.

Home automation

Home energy management and automation systems are not intrinsically energy efficient. If you are contemplating investing in any kind of home automation, consider the potential for achieving additional energy efficiencies through the design of the system.

[See: 6.10 Home Automation]



The www.energystar.gov.au website contains useful product information and tips.

AUSTRALIAN CONSUMERS' ASSOCIATION

The Australian Consumers' Association (ACA) regularly undertakes benchmark testing of products, including a full range of appliances.

The results of these benchmark tests are published in the ACA magazine CHOICE and are available on-line at the ACA website at www.choice.com.au for a fee. Most public libraries subscribe to CHOICE.

The tests often provide information on energy efficiency and environmental impact that can assist in deciding which appliance to buy.

The tests also cover a range of other features such as price, safety, warranty details and performance that can help you to choose the best appliance.

BUILDING DESIGN CONSIDERATIONS

When designing a new kitchen or laundry, think about the best layout and placement of appliances to maximise efficiency.

Refrigerators and freezers should be located out of direct sunlight and away from other sources of heat such as ovens and stoves. This is an important consideration in kitchen design.

Appliances that require hot water should be located as close to the hot water service as possible to reduce heat losses in pipes.

Where possible choose appliances that have a high rating for water efficiency.

[See: 7.2 Reducing Water Demand]

ADDITIONAL READING

Contact your State / Territory government or local council for further information on energy efficiency. www.gov.au

Australian Consumer Association
www.choice.com.au

Department of the Environment, Water, Heritage and the Arts (2008), *Australian Residential Sector Baseline Energy Estimates 1990 – 2020*.

Energy Rating
www.energyrating.gov.au

Water Rating
www.waterrating.gov.au

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