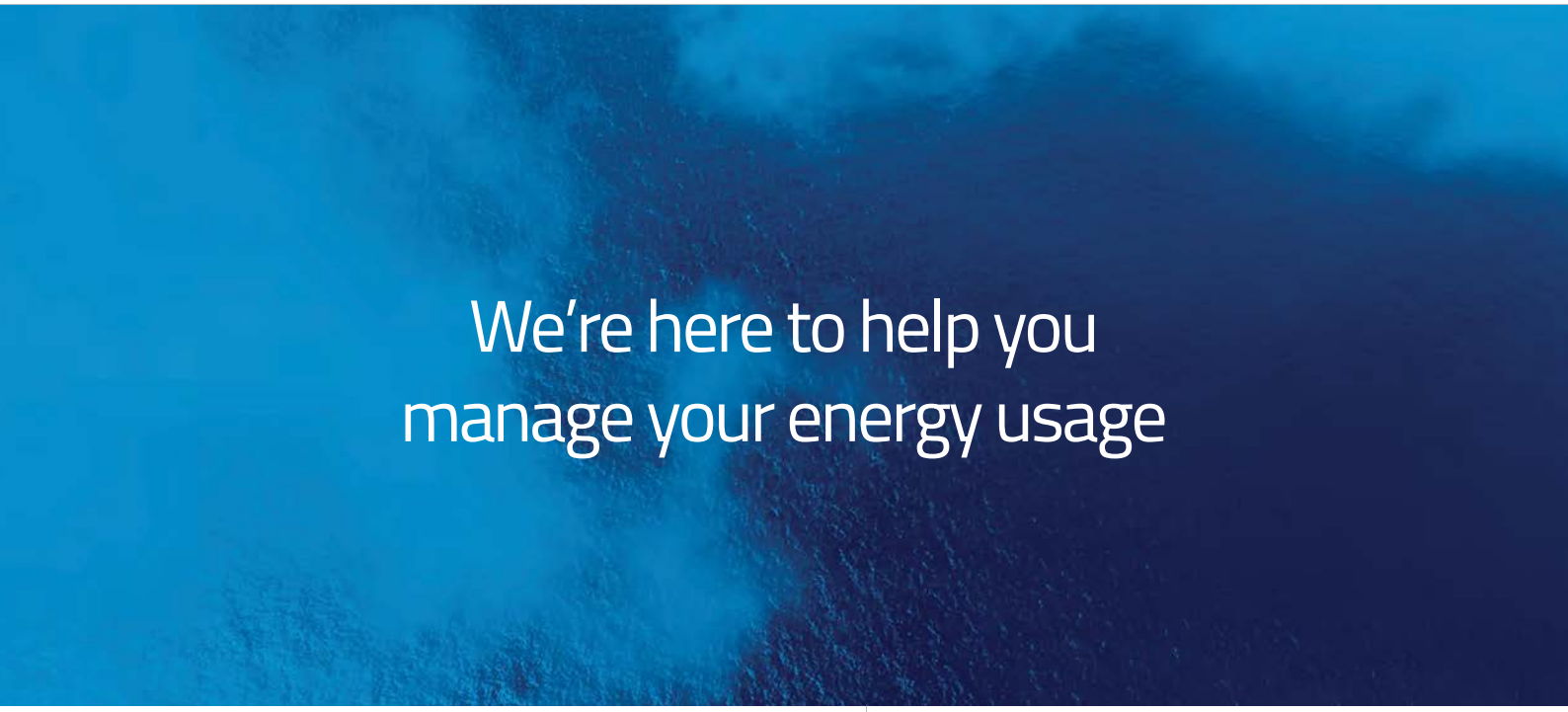
AGL Home Energy Efficiency Guide

Small ways to help make a real difference to your home's energy bills



We're here to help you manage your energy usage

At AGL, we've been helping Australians with their gas and electricity for over 180 years, so you could say we know a thing or two about using energy wisely.

But being energy efficient in your home doesn't mean you have to 'go without'. With just a little effort, you can save energy and money – plus help the environment. And with the simple yet useful information in this guide, you could discover new ways to use energy at home and cut back on your costs.

Make today the day you join us on the path to greater energy efficiency.

What you'll find in this guide

How is energy used in your home?

Less wasted energy for lower energy bills

The same way a household budget lets you see where you spend your money and where you can save, an energy budget lets you see where you can save energy, without impacting on your lifestyle.

It's about not wasting your money, and getting the most out of what you do spend.

By working out which appliances use the most energy, and when, you can make changes around the home to better manage the amount you spend on gas and electricity.

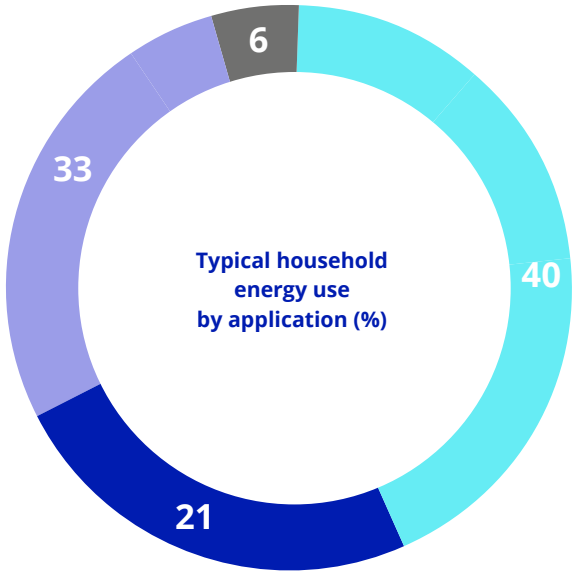
Where and when do you use energy at home?

The average Australian home uses most of its energy on heating and cooling, but common household appliances like refrigerators, washing machines and dishwashers are next in line.

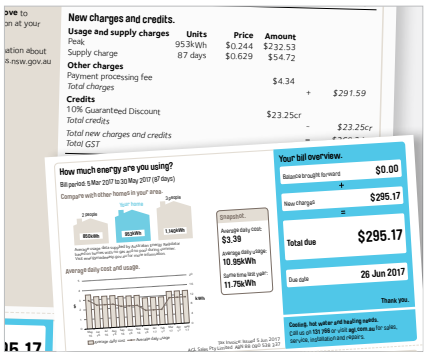
Research suggests 10% of energy used in the home is by appliances left on standby and not being actively used.

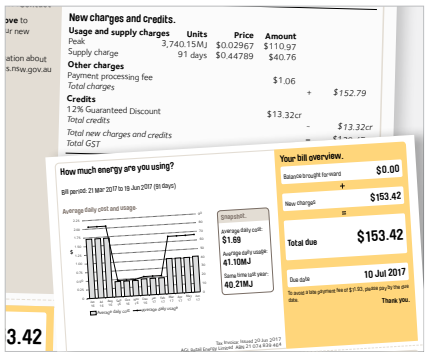
Then there's the time of day you use your appliances. Some homes have an Off-Peak tariff, where they pay lower energy usage charges for energy used between 11.00pm and 6.00am the following day.

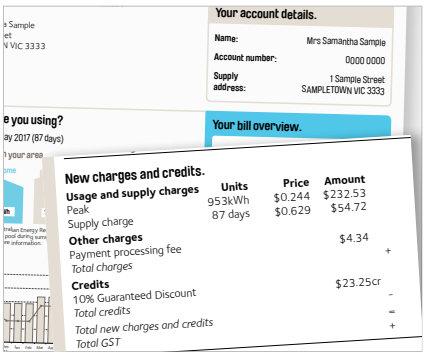
So, if you have an Off-Peak tariff, it can pay to use high-energy appliances like washing machines, dryers and dishwashers overnight.



Understanding your energy bills







Energy charges

Electricity is measured in a unit of power called a watt. 1,000 watts is equivalent to 1 kilowatt (kW). Your electricity charge on your bill is in cents per kilowatt hour (c/kWh). Check the second page of your bill for the c/kWh tariffs.

Electrical appliances are rated in watts (W) or kilowatts (kW). Kilowatt hours (kWh) show how many kWs an appliance uses each hour to run. For example, a 100W globe left running for 10 hours would use 1 kWh of electricity, while a 1 kW-rated portable heater switched on for 5 hours would use 5 kWh of energy.

Gas is measured in cubic meters, but – depending on which state you live in – is charged in either 'units' or 'megajoules' on your gas bill. 1 unit of gas is equivalent to 1 kWh of electricity.

Supply charges are what gas and electricity retailers (like AGL) charge to supply energy to your home and are displayed as a daily rate on your bill.

Average use

Each electricity and gas bill you receive will show how much energy you've used in the last billing period, as well as your average use. Plus, if you've been with the same retailer for more than 12 months, it'll compare your recent usage with that for the same billing period the year before.

While energy usage often changes with the seasons (especially when it comes to heating or cooling your home), spotting increases and decreases in your consumption can help you work out if specific changes – from adding a new air conditioning or heating system, to your family having a child – have led to higher gas and electricity bills.

Tariffs

Some homes have **'time of use' tariffs**, and can be split into Peak 1, Peak 2 (or Shoulder) and Off-Peak. Each of these tariffs will have a different rate, with Peak being the most expensive. To lower your energy costs, see if you can move your electricity use from Peak to either Peak 2 or Off-Peak.

To check what tariffs you're on, look under the 'usage' section on the back page of your electricity bill.

Are you getting the best deal?

Energy plans can change, and since the cost to produce and distribute energy is different across the country, they vary from one state to the next. Go to **agl.com.au** to find the best energy plan available where you live that suits your household's needs, or call us 24/7 on **131 245**.

Insulate for your comfort

Maximise your energy with insulation

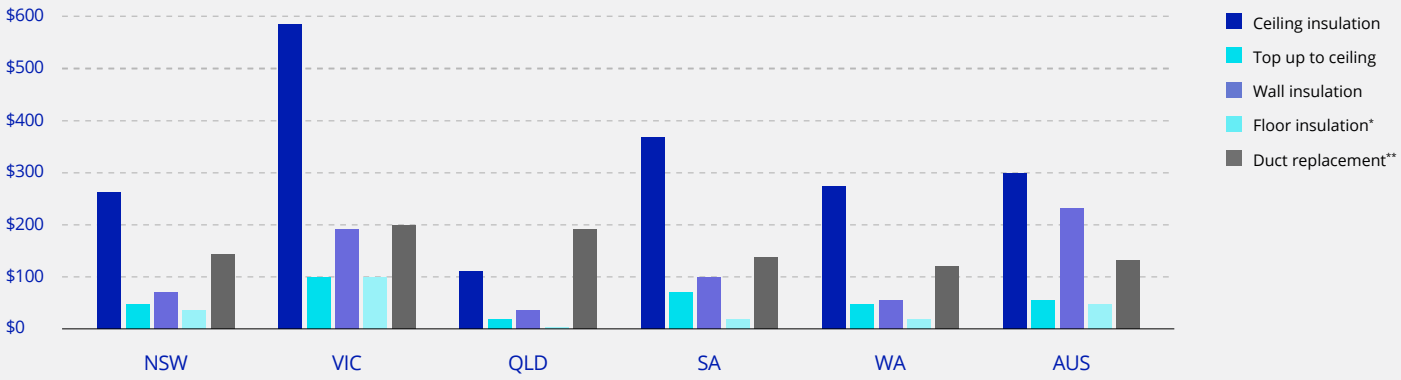
With heating and/or cooling making up a large chunk of the average Aussie household's energy bill, it's a smart idea to find ways to maintain the temperature you want as best you can.

That's where insulation comes in. By reducing temperature extremes in your home, it can slow down the transfer of hot and cold air from inside your house to outside – and in turn, help to lower your energy bills.

A well-insulated house is cooler in summer, warmer in winter, and less expensive to run all year round. On the flipside, an uninsulated house can lose up to 50% of its heat through the ceiling in winter, plus gain 60% of its heat through the ceiling and walls during summer.

Insulation isn't the cheapest option, but it's an investment that can pay for itself many times over. Not only can it save you energy and money, it can make your home more comfortable while also extending the life of your heating and cooling appliances.

Household benefits - annual operational cost savings ($) 2012



*Assumes R2.5 floor insulation. **Weighted average for ducted gas, ducted R/C & ducted cooling only systems (R1.5 ducting). Source: Insulation Council of Australia & New Zealand[1].
[1] *The Value of Insulation-based Residential Energy Savings Measures,* Vol 10, September 2012, Energy Efficient Strategies for ICANZ.

Safety first

If you have halogen downlights at home, you'll need a clearance between them and your ceiling insulation to avoid the risk of fire.

But given this gap can reduce the effectiveness of your insulation, a smarter option can be to replace your halogen globes with LED globes. LEDs need much less clearance than halogens, and can actually increase the effectiveness of your insulation. Better still, by installing a tight insulative cover with a well-ventilated gimble, you can reduce air flow, as well as protect the LED from extreme roof temperatures of up to 60ºC.

Draught sealing

Simply by applying weather strips around the inside of door and window frames, you can stop air from coming in or out of your home, and reduce your energy use – along with your energy bills.

What uses the most amount of energy?

Most homes use **40%** of their energy on **heating and/or cooling**. Here's how to keep your energy use down.

- Only heat and cool the rooms you're using, rather than the whole house.
- Keep your thermostat set between **18 – 20ºC in winter** and **24 – 27ºC in summer**. Particularly for air conditioners, every degree lower can increase their usage costs by up to 10% (depending on how efficiently your appliance runs).
- **Insulation and draught stopping** are essential year-round, and can make sure you're maximising the benefits of your heating and cooling appliances.
- **Evaporative cooling** is less expensive to run than refrigerated cooling, but struggles to work in humid climates – so depending on where you live, choose the best option to keep you comfy.
- **Fans** are much cheaper to run than your air conditioner. They cost about 2 cents an hour, plus can reduce the temperature of a room by about 3 degrees. In summer, use your fan with your air conditioner to circulate the cool air and reduce the time you need to run the air conditioning. In winter, fans can be used on low speeds to push the hot air down from the ceiling towards you.
- **Heating water** contributes up to 30% of your home energy use. Installing a low-flow showerhead can reduce the amount of hot water you use, and in turn, how much water you need to heat. Also, while instantaneous hot water systems can cost more to install, they can save you money in the long run by only heating water when you need it, rather than heating it around the clock.

Avoid paying for standby power by switching your appliances and devices off at the wall when they're not being used.

For more energy saving tips, head over to page 8.

The biggest energy wasters in your home

Standby power and appliances

One of the biggest home energy wasters is standby power, which is the energy an appliance uses when it's plugged in and switched on at the wall, but not being used.

In 2010, Australia's average standby power use was 81.8 Watts per household – or around 10% of the country's total residential electricity use – and together we're spending over $1.1 billion a year on powering appliances which don't need to be on.

With the typical Aussie house running 67 appliances on mains power – with some powering as many as 175 appliances[2] – how many dollars could you be throwing away on standby power at home?

For more useful information on standby power, head over to page 7.

[2] *Third Survey of Residential Standby Power Consumption of Australian Homes – 2010,* Commonwealth of Australia, December 2011.

How much are you wasting on standby power?

Use the table on the right to work out how much power your home's appliances could be using when they're not switched off at the wall.

While the watts per hour figures may not seem all that high, you'll find that your appliances can cost you plenty when left on standby 24 hours a day for a year (8,766 hours) especially when not being used.

We know it's not always convenient to turn all your appliances off at the wall, but at least you'll know which appliances are energy guzzlers even when they're not being used.

Appliances Existing (more than a year old), not star rated	Average active standby Watts/ hour	kW hours/ year^
Heating & cooling		
Gas ducted heating – instantaneous	6.3	55
Gas convection heater	5.4	47
Laundry		
Gas water heater – instantaneous	6.6	58
Clothes dryer	3.9	34
Washing machine – front loader	5.8	51
Washing machine – top loader	5.9	52
Kitchen		
Microwave - convection	4	35
Home entertainment		
Games console	44.9	.03
DVD player	8.7	76
AV receiver/amplifier	34.9	306
Integrated stereo	8	70
TV – plasma	4	35
Media hub	8.2	72
Computer / home office		
Desktop computer*	3.5	31
Laptop computer*	10	88
Modems – wireless ADSL	8.3	73
Computer speakers	5.8	51
Printer – laser	8.8	77
Printer – inkjet	3.5	31
Office & communications equipment	3	26

Source: http://www.energyrating.gov.au/sites/new.energyrating/files/documents/E3-2010-Intrusive-Survey-FINAL-Report_0.pdf
*Off mode, plugged in. ^Whereby appliance was never used but never turned off at the switch for a year.

Good to know

These days, home electronics and computers typically make up around 15% of a home's energy use.

So, if you have two games consoles left on standby 24/7 (multiply 365 x 27.5c/kWh), these could be costing you as much as $91 each year in standby mode alone.

Other energy wasters that are small in size but big users of energy include:

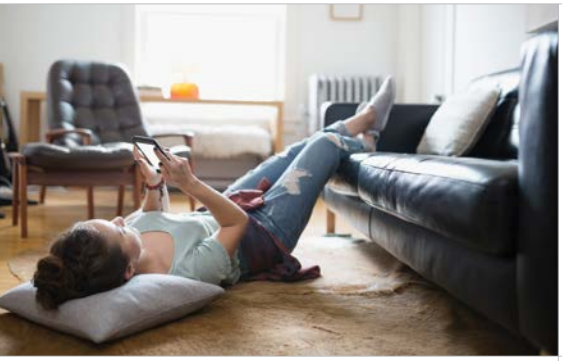
- **Electric blow heaters** can be costly to run, using over two kilowatts of energy per hour.
- **Tumble dryers** are big energy users. But drying your clothes on the line can do a great job for free - plus it kills bacteria!
- **Halogen downlights** use up to 50W per light globe, plus an extra 10W per hour for each of their individual transformers.
- **An additional** 500 litre **fridge** which uses around 581 kWh per year will cost around $160 per year to run and emit around 769 GHG emissions[3]. Turn it off if you're not using it.
- **Additional freezers** can cost over $500 per year each.
- **TVs** come in various sizes and use different technologies. But on average, they're now the fourth largest energy user in Aussie homes, simply because we have more of them. Screen sizes are larger and picture brightness is usually set higher. You can use less energy by using your TV's built-in speakers instead of the energy-intensive home theatre speakers when you don't need the full home cinema experience.

[3] Sustainability Victoria. Price per kWh used = 27.5 cents.

Stop wasting and start saving

Practical tips to reduce your home's energy use and bills

By following a few simple tips and changing some basic behaviours, you can start using energy more efficiently around the house and reduce your gas and electricity bills – no matter if you're a renter or a home-owner.



Heating

- On winter mornings, open your curtains or blinds on the north, east and west sides of your home to allow the sun to naturally heat your home.
- Set your thermostat between **18 – 20ºC in winter** to maximise the efficiency of your appliance. Close your curtains and blinds at night to keep the heat in.
- Place draught sealing, like foam strips or door snakes, along the bottom of windows and doors to maximise your heating.
- If you have ducted heating, close vents in unused rooms to create zoned areas in your home.
- Close doors to any unoccupied rooms to maintain the temperature in the areas you're using.
- Close chimney ventilation outlets, flues and ducts when you're not using them.
- Dress for the weather. It may sound simple, but once you're in the most appropriate clothing, you may not need to run the heater after all.

Cooling

- Close windows and doors and draw blinds and curtains early in the day to block out the summer heat.
- Use fans to circulate the air before running your air conditioner, to see if it'll do the trick.
- Set your air conditioner's thermostat to **24 - 27ºC**, as every degree below can add 10% to its usage charges.
- Cool your house naturally by opening your windows and blinds when the outside temperature drops.

Water (Bathroom, Shower, Laundry and Kitchen)

- Reduce the amount of hot water you use by having short showers and installing a low-flow showerhead.
- Install flow restrictors in your bathroom, laundry and kitchen taps to reduce the amount of water that comes out.

Windows

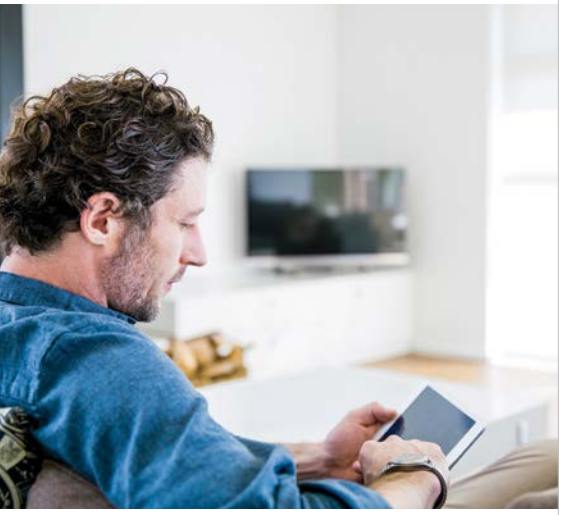
Your home can lose up to **40%** of its heating in winter and gain up to **87%** of its heat in summer through its windows. So, by improving their performance, you can help reduce your energy costs and greenhouse gas emissions.

- Heavyweight curtains can protect your home from outside temperatures more effectively than blinds.
- If you can't install pelmets, use rolled towels on top of your curtains or blinds to stop draughts.
- Install external blinds or plant deciduous trees in front of your north and west facing windows to help protect them from gaining unwanted summer heat.
- Double-glazing your windows and skylights can help keep warm air in during winter and cool air in summer, plus reduce outside noise penetration.
- Window films can be a cost-effective alternative to double-glazing existing windows.

Appliances

General

- Switch off appliances at the wall to reduce standby power use when you're not using them.
- When buying a new appliance, choose the most energy efficient option you can afford. The more energy stars, the less energy it'll use – which can help you save in the long run.
- Check your energy bill to see if you're on a time-of-use energy tariff. If you are, set your dishwasher and washing machine to run during Off-Peak or shoulder times, and not during Peak times during the day (unless you have a solar system).



Kitchen

- Set your fridge and freezer thermostats to the recommended temperature (often being 4ºC for the fridge and -18ºC for the freezer) and regularly remove any frost build up.
- Check to see if your fridge and oven are using energy unnecessarily because of loose or ineffective seals by placing a $5 note in their door frames. If the note slips or blows in the draught, it's likely that air is escaping and the seals need replacing.
- When cooking, avoid running your oven for longer than the recipe asks for, and keep lids on pots to heat them faster on your stove top and use less energy.
- Kettles can use a lot of energy, so only fill it to heat the amount of water you need.
- Microwaves are more energy efficient than electric ovens, varying from 700 – 1200 W, while ovens range from 3 kW upwards.
- Use the 'eco' setting on your dishwasher to lower its energy and water consumption, and wait until it's full before starting it up.

Laundry

- Washing clothes, sheets and towels in cold water can still clean everything effectively, yet can cost you as much as $140 less each year over using warm water[4].
- Wait for a full load of laundry before washing in cold water.
- Use the 'eco' setting on your washing machine to lower its energy and water consumption.
- Avoid using a tumble dryer by hanging your clothes on a washing line or clothes horse.

Popular household appliances

- Plug your TVs, games consoles and other entertainment devices into a standby power control board, which can automatically switch them off for you when they're not being used.
- After charging portable devices like smart phones, tablets or laptops, switch their charger off at the wall, as many of them continue to use power – even when a device isn't plugged in.

Computers & laptops

- Set your device to enter sleep or hibernate mode automatically after it hasn't been used for a few minutes, to avoid you needing to remember.

- Switch off Bluetooth and Wi-Fi when you're not using them as they draw a substantial amount of power.
- Screensavers don't save energy, so either turn your device's screen off if you're no longer using it – or better yet, shut it down and switch it off at the wall.
- When buying a new device, choose one with a high Energy Star Rating as it'll help you save on your power costs in the long run.

Lighting

- An oldie but a goodie: always remember to switch off the lights when you leave an empty room.
- Install or replace all incandescent bulbs and halogen downlights with LED bulbs, as they provide the same lighting but use less watts.
- If replacing your home's halogen downlights isn't possible, put lamps with LED A-Bulbs in the spaces you use the most.
- Use sensors and timers for external outdoor and security lighting to help make sure they only come on at nighttime, or when they're needed.
- Open blinds and curtains in the morning and light your home up naturally – and for free.

[4] http://www.energyrating.gov.au/document/washer-and-dryer-factsheet-retailers-and-tradies

Garden

Install solar lighting with rechargeable batteries in your garden so the sun can cover the cost of providing safety and adding ambience to your front and back yards.

Pool or spa

Over a year, a pool pump running 24 hours a day can produce as much greenhouse gas as a large car[5].

- Reduce daily pumping time. Read the manufacturer's instructions or consult an industry professional to assess the number of hours your pump should run.
- Use a timer to manage your pump's run-time.
- Reduce your pump's energy use by running it at the lowest recommended speed that still maintains correct pool hygiene.
- Check the plumbing. The most efficient pool plumbing usually has larger diameter pipes with as few bends as possible.
- Regularly clean your skimmer basket, pool pump basket and pool filter and keep your intake grates clear of debris.
- Consider running your pump during an Off-Peak tariff period when electricity is cheaper.
- Purchase a minimum 5-star energy efficient pool pump from the list of pool pumps participating in the government's voluntary labelling program. Although it may feel like you're splashing out, buying a high-efficiency pump will save you energy and money over the long term in running costs. The more stars the better.

[5] http://yourenergysavings.gov.au/energy/appliances-equipment/swimming-pools-spas-pool-pumps/reduce-pool-spa-running-costs

Energy efficient appliances

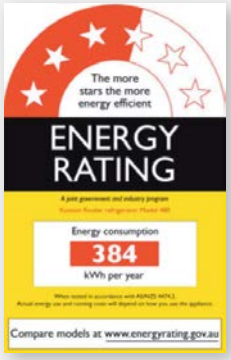
Compare and save in the long run

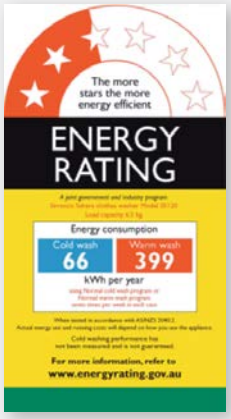
When you're shopping around for new appliances, look closely at the Energy Star Rating labels.

The rating system is based on official standardised testing and allows you to compare different model appliances of the same size. The rating also gives the energy consumption per year based on average use.

Appliances with higher Energy Star Ratings usually come with a higher price tag than their lower-rated counterparts, but what they can save you in electricity over their lifetime often more than covers the additional upfront cost.

For instance: a 2-star rated 400L to 500L refrigerator uses approximately 520 kWh/year, whereas a 4-star rated refrigerator of the same size uses only 336 kWh/year, a saving of 184 kWh/year or 35%.





An example of an appliance's Energy Star Rating sticker.

Work out the model or size of appliance your household needs before you start comparing Energy Star Ratings

Go to **energyrating.gov.au/calculator** to learn more about Energy Star Ratings, including how to read them, as well as how to work out the type of appliances you need based on your household's requirements.

More information

The AGL Home Energy Efficiency Guide is just the beginning of your energy-saving journey. Check out these great resources to learn even more practical and powerful ways to reduce your energy bills.

More tips and energy saving tools	agl.com.au
Sustainability information and research	mefl.com.au
Energy Star Ratings	energyrating.gov.au
Green Home Cooling e-book	ata.org.au/news/new-green-home-cooling-e-book
Water saving	yourenergysavings.gov.au/water
Reducing home energy costs	sustainability.vic.gov.au
Insulation	icanz.org.au
Technical information on home design	yourhome.gov.au
NSW Government	resourcesandenergy.nsw.gov.au/energy-consumers/sustainable-energy
QLD Government	qld.gov.au/families/government/sustainable/pages/homes
SA Government	sa.gov.au/topics/energy-and-environment/using-saving-energy
VIC Government	victorianenergysaver.vic.gov.au/victorian-energy-upgrades
WA Government	commerce.wa.gov.au/building-commission/energy-efficiency-residential-buildings

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