EnergySmart
SOUTH AUSTRALIA

The 10 Step Guide to Reducing Your Energy Bills

Jon Dee

DO SOMETHING!

Government of South Australia

EnergySmart South Australia

The 10 Step Guide to Reducing Your Energy Bills

Written by Jon Dee
Published in October 2017 by DoSomething (second edition)

Final draft reviewed by:
The Energy Advisory Service (Government of South Australia).

Also by Jon Dee:
EnergyCut
Published in 2015 by DoSomething

Small Business: Sustainable Growth
Published in 2010 by Sensis Pty Ltd

Design and typeset by Modern Art Production Group
Published by DoSomething – ABN 29 129 319 204
PO Box 585, Katoomba, NSW, 2780 Australia.

Government of South Australia

Government disclaimer: This activity received funding from the Government of South Australia. The views expressed herein are not necessarily the views of the Government of South Australia and it does not accept responsibility for any information or advice contained herein.

DO SOMETHING!

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Foreword by Jon Dee

Australians are spending billions of dollars more than we need to on electricity and gas. But with a little bit of effort and knowledge, we can all reduce our energy use.

That's why I've written 'EnergySmart South Australia'. It's a simple 10 step guide to cutting your energy bills.

You don't have to be an expert in energy efficiency to understand this book.

A lot of my energy saving ideas can be implemented at little or no cost. Where you do invest in energy saving measures, the financial benefits can be significant – with LED lighting, for example, you can reduce your lighting bills by up to 80%.

I do hope this book saves you money. If you have any questions, contact the Energy Advisory Service during weekday business hours on 8204 1888 (or freecall 1800 671 907 from fixed lines). You can also email them via EnergyAdvice@sa.gov.au.

Further energy saving tips are also available at EnergySmartSaver.com.au and Twitter.com/JonDeeOz.

Jon Dee, Founder and Managing Director
DoSomething

Anchor Host of Smart Money
Sky News Business Channel

EnergySmart Saver – The 10 Steps

Did you know?

If your energy retailer has you on the wrong tariff, you can end up paying charges that you don't need to pay. You should always check that you're being billed correctly.

Financial savings from switching energy retailers can be invested into energy efficiency improvements. That will save you even more money.

When calling up energy retailers, strengthen your negotiating position by telling them that you're shopping around for the best deal.

According to the AER, switching from the most expensive electricity offer to the cheapest can save a four person SA household up to $1,600 p/a.

See page 5 for details

EnergyMadeEasy.gov.au is an independent government-funded comparison website. It can show you how much money you'll save by switching energy retailers.

STEP 1

Negotiate a better energy deal

The quickest way to save money on your energy bills is to switch to a better energy deal.

Many South Australians are paying more for their energy than they need to. This book aims to help you reduce the amount that you pay.

The first step is to get a better deal from an energy retailer. This involves a quick call to energy retailers to see who'll offer you the best deal. By using the comparison tool at the EnergyMadeEasy.gov.au website, you might save hundreds of dollars a year.

This chapter lists the questions you need to ask to ensure that you come out on top. If you're struggling to pay your energy bills, this step will also show you how to get government assistance.

If you've previously called an energy retailer and received a better deal, you might want to call and check that you're still getting that discount. That offer could have ended and your deal might have gone back to a more expensive rate.

> ### How to get independent advice on the best energy deals
>
> **The independent Australian Energy Regulator (AER) says that a four-person household in Mount Gambier could save around $1,600 in a year if they switched from the most expensive electricity offer to the cheapest. In Adelaide the figure is $1,500 p/a.[1]**
> **To find out how much you could save, visit their EnergyMadeEasy.gov.au website or call them on 1300 585 165.**

1 Source: sa-energy.info/sa-bill-savings

Switching energy providers

If you're not in a contract with your current energy retailer, then it pays to shop around for the best deal you can get. Big savings are available for people and businesses who call up energy retailers seeking a better deal.

To get underway, gather up your bills from the last 12 months – this will enable you to answer any questions that they have about your previous energy use. When you've got a number of quotes, call your current energy retailer and see if they can better them.

When calling up energy retailers, strengthen your negotiating position by politely telling them that you're shopping around for the best deal.

It's worth remembering that there's a 10-day 'cooling off' period when you sign a new energy contract. During this period you're entitled to change your mind and terminate the new contract at no cost.

After switching energy retailers, check your first bill to ensure you're receiving the promised discount and that you've been billed the correct amount.

To find a list of all the energy retailers in South Australia, visit: EnergyMadeEasy.gov.au

Switching advice from the South Australian Government

There are many energy retailers servicing South Australia, and each has different offers that you can choose between. The Government of South Australia has a web page full of useful tips regarding contracts and plan comparisons. Check it out before you make the switch: sa-energy.info/sa-govt-advice

Questions to ask an energy provider

Important! Before you call any energy retailers, make sure you have one year of electricity and gas bills to hand. If you don't have them, call up your current energy retailer and ask them to email or post them to you.

Once you're ready, here are the questions to ask:

- Do we need to sign up to a contract? If so, for how long?
- Are there any fees associated with connection, disconnection or leaving during the fixed contract period?
- How often do you bill? (i.e. monthly or quarterly). Does that affect the discount I can get?
- How do I maximise the discount from you? Is it by paying on time, paying via direct debit, paying upfront, etc?
- Are the discounts you're offering applicable to my energy usage only, or to both my usage and supply charges?
- Based on your rates and discounts, what do you estimate my monthly/ quarterly bill will be?

> **Tip: Give them your bills from the last 12 months – then ask them to analyse your energy use to tell you how much you'll potentially save.**

- What happens at the end of the contract period? Do my charges go back up to your normal standard rates?
- Will my current tariff change if I install solar?
- I've got solar panels. What is the feed-in tariff for my property? What discounts and rates apply to this offer? Are they any different to a customer who doesn't have solar?

What else can they offer you?

- What assistance can you offer with the installation of solar panels or energy efficient equipment?

> **Tip: If you can't afford to install solar panels, ask the energy retailer if they offer Power Purchase Agreements. Called PPAs, this involves the energy retailer installing solar on your roof with no upfront costs. For more information on this and your other solar options, check out 'STEP 10: Save money with solar'.**

Government assistance with your energy bills

The Government of South Australia runs a range of programs to help people with their energy bills.

Energy Advisory Service

If you'd like to talk to someone who can help you over the phone, call the Government of South Australia's Energy Advisory Service. It provides free, independent information on a range of energy topics, including:

- help and advice on saving energy at home
- help with understanding your energy bills and meters
- ways to calculate your appliance running costs
- links to services that can help you if you have trouble paying bills
- general information about energy efficient home design and renewable energy technology (like solar panels and battery storage).

The service is available Monday to Friday between 9am - 5pm and can be accessed by phoning 8204 1888 or 1800 671 907 (a free call from fixed lines). You can also email: energyadvice@sa.gov.au or visit level 8, 11 Waymouth Street, Adelaide.

Energy Partners Program

The Energy Partners Program works with community organisations and local councils to help South Australians manage their energy use and costs. Run by the Government of South Australia, this program complements the Energy Advisory Service. For the full list of community organisations and councils that give out energy efficiency advice, visit sa-energy.info/energy-partners-program.

The Retailer Energy Efficiency Scheme

Did you know that larger energy retailers in South Australia are required to help you save energy?

Many South Australian households and small to medium sized businesses can receive free or discounted energy efficiency activities from energy retailers that participate in the Retailer Energy Efficiency Scheme (REES). This includes the installation of energy efficient lighting, or water efficient shower heads that can help to reduce your water heating costs.

Since 2009, more than one in three households have benefitted from this South Australian government scheme. Since then energy retailers have installed more than:

- 2.5 million energy saving light globes
- 340,000 standby power controllers
- 170,000 water efficient shower heads

In addition, over 45,000 home energy audits have also been delivered to low income households. To find out more about the REES scheme and how it might assist you visit: www.sa.gov.au/energy/rees

Concessions

The Government of South Australia offers a number of concessions that can assist eligible households with their energy costs. This includes the:

- Energy concession
- Medical heating and cooling concession
- Emergency electricity payment scheme
- Cost of Living concession.

More information on concessions, including eligibility criteria, can be obtained from DCSI's Concessions Hotline on 1800 307 758, during business hours, or by visiting the concessions website at www.sa.gov.au/concessions

Home Energy Toolkits

Why not borrow a Home Energy Toolkit for free from your local library? Created by the Government of South Australia, the toolkits help you to measure and reduce your energy use.

The Home Energy Toolkit is available at all 47 metropolitan libraries and in 94 regional public/school community libraries.

For more info: www.sa.gov.au/energy/toolkit

Did you know?

It is safe to completely switch off your WiFi unit as it automatically reconnects with the internet when you turn it back on. Most WiFi units take only 1–3 minutes to reconnect.

If you have a second fridge, turn it off when it's not needed. A large fridge can cost hundreds of dollars each year to run.

Hard-to-reach plug boards and equipment can now be turned off with remote-controlled plugs as well as WiFi-enabled plugs that are linked to smartphone apps.

The average household spends over $250 a year on standby power. That's why you need to switch things off at the power point.

'Smart' power boards help to eliminate standby power use. They detect when your 'master' device (eg a computer) has been turned off, then shut down power to connected 'slave' devices (eg a printer and WiFi unit).

STEP 2

Switch off and save

The average household spends over $250 a year on standby power. The best way to stop that is to switch appliances off at the wall.[1]

In our homes and small businesses, lots of machines and appliances are left on standby when nobody is around. For example, when you leave your WiFi on 24 hours a day, it's using 8,760 hours of power every year. Yet you may only use it for 8 hours a day.

Some appliances may appear to be off but they're still using stand-by power. The fully off mode is best achieved by turning the appliance off at the wall.

Rather than reaching down behind every piece of equipment, you can turn things off with plug-timers, smartphone apps, remote-controlled power boards and switches. It can also be done with professionally installed isolation switches.

The savings can be significant. A large fridge can cost hundreds of dollars each year to run. So if you have a second fridge or freezer, turn it off when it's not needed. If you're a small business with a hot water boiler on your kitchen wall, a $10 plug timer can turn it off in the evenings and on weekends, saving up to $50 or more per year.

> **Where can you save?** **When it comes to standby power, think of what you leave on at home: microwaves, TV sets and home entertainment appliances, computers, set-top boxes, battery chargers, WiFi and more. You can easily switch these off and save money.**

1 Source: sa-energy.info/sa-standby-costs

Solutions for when you can't reach the plug

Hard-to-reach plug boards and equipment can now be turned off with remote controlled plugs.

These have been released under various brand names (Efergy, Kambrook and ALDI's Bauhn brand are the best known). Some of these packages offer four remote control plugs with prices ranging from $25–$50.

On leaving home or the workplace, hit the off button on the remote and it can turn off four power boards at once. Sticking the remote next to your front door makes this switch-off nice and easy.

Save money with a 'smart' energy saving power board

'Smart' power boards detect when your 'master' device has been turned off and then shut down power to connected 'slave' devices.

For example, if you turn off a computer, they will automatically cut power to connected 'slave' devices such as the monitor, printer and WiFi unit.

If you have devices like phones or TV set-top boxes that need to be on all the time, 'smart' power boards are available that let some devices remain fully on, but turn others off.

What does your small business leave on?

When their premises are closed, many small companies unnecessarily leave on their air conditioners, exhaust fans, photocopiers, water-coolers, audio-visual equipment, air compressors, computers and fax machines. What do you leave on?

Remotely controlling your appliances with WiFi-enabled plugs and smartphone apps

You can remotely control appliances in your home using smartphone apps that communicate with WiFi-enabled plugs.

What systems are available?

There are two high quality 'app and plug' systems on the market:

Belkin's 'WeMo Switch': www.belkin.com/au

Efergy's Smart Master & Sockets: www.efergy.com/au

These apps are free and the WiFi-enabled plugs cost up to $70 for the Efergy plug and up to $70 for the WeMo Switch.

How do they work?

You plug your appliance or power board into the WiFi-enabled plug and put it into the wall socket.

Using your WiFi network, you pair the app with the WiFi-enabled plug. In the app you give the appliance plug a name and choose a graphic for it. You can then turn that appliance on and off using your smart phone or tablet.

You can be in your office or on the other side of the world. As long as you have an internet, 3G or 4G connection, you'll have remote control of your appliance energy use.

They're good to use with appliances that use a lot of energy. You can make sure your home entertainment devices are definitely switched off. When you're sitting on the bus after work, you can also use your phone to remotely turn on your heater and kettle just before you get home!

In real time, it can also monitor how much energy each appliance is using and how much that energy is costing you. You can even set schedules where your plug turns things on or off at any time of the day or night.

Did you know?

In summer your thermostat should be set between 24–27°C.

In winter your thermostat should be set between 18–21°C.

Your thermostat might not read the room temperature correctly if it is in direct sunlight or near heat radiating equipment such as refrigerators.

Every degree you raise or lower your thermostat can increase your heating or cooling costs by up to 10%.

You can install a lock cover over your thermostat to stop people from changing the temperature. They are available from hardware stores for about $20.

STEP 3

Watch your thermostat

Watching your thermostat levels is so important that it gets its own step.

How many times have you walked into a building and found it to be too hot or too cold? When this happens, it's because the thermostat is set incorrectly. When it comes to wasting energy, it's one of the most common mistakes that people make.

During winter, when you increase your thermostat by one degree, you increase your heating costs by up to 10%. In summer, when you lower it by one degree, you increase your cooling costs by up to 10%. Lots of homes and businesses set their thermostats many degrees higher or lower than they should be and they get bigger bills as a result.

What are the correct settings?

Many homes and businesses set their thermostats to a constant 20–24°C regardless of the weather and what people are wearing. However, your thermostat should be adjusted according to the season.

In summer your thermostat should be set between 24–27°C. If you set it at 27°C, this means your cooling will kick in only when the temperature goes above 27°C.

In winter your thermostat should be set between 18-21°C. If you set it at 18°C, your heating will switch on when the temperature goes below 18°C.

If being too cold or too hot could affect your health, set your thermostat at a level you feel comfortable with.

What to do if your heater or air-conditioning unit doesn't have a thermostat

If you have a radiant, fan, electric or column-style heater, it may not have a room temperature thermostat. Without an inbuilt thermostat, these types of heaters can overheat the room, costing you money in the process.

The solution is to buy a plug-in electronic thermostat such as the HeaterMate. Costing only $40 per unit, you plug a heater (or air conditioner) into the thermostat and then plug the thermostat into the wall socket.

When the room reaches the temperature on the plug-in thermostat, the unit automatically turns off the heater or air-conditioner.

They can be bought from HeaterMate.com.au.

Did you know?

If you get to work or home and it's cold inside, immediately setting the heating thermostat to 26°C won't make your home or workplace heat up quicker.

It just means it will get too hot and you'll increase your heating costs. Put the thermostat between 18–21°C or as low as you feel comfortable with. And if need be put on a jumper!

In extreme heat or cold, people should always put safety first and use their air-conditioning or heating systems.

How to stop people changing the thermostat

If your family or colleagues keep changing your thermostat settings, you can install a lock cover over it. This will stop them from changing the settings! You can buy them online or from select hardware stores for $20.

Other actions to take

If people keep changing the thermostat setting, try and find out why:

- There may be draughts that are making people uncomfortable – fixing this will be far cheaper than having the wrong thermostat settings.
- It may be that people are dressing inappropriately for the season. If it's winter, ask them to put on a jumper.
- Your thermostat may be located where it doesn't work properly. An electrician can check this for you.
- Talking to the other people in your home or business will help you to arrive at a setting that maximises their comfort and minimises your energy bills.

Make sure your thermostat is in the right place

Your thermostat may not read the room temperature accurately if it's:

- near heat radiating equipment such as refrigerators
- in direct sunlight (from a window)
- in a draughty area (near a doorway)
- in an area with low air movement (behind an open door)
- on an external wall.

You can check the accuracy of your thermostat reading by using a thermometer. If the thermostat reading is incorrect, talk to your electrician.

Did you know?

When you maximise the use of daylight you reduce the use of artificial light. It's a very simple way to cut your lighting bills.

By implementing the tips in this step, people can reduce their lighting energy use and running costs by up to 82%.

Halogen downlights can get as hot as 370°C which makes them a fire risk. LED alternatives generate substantially less heat, so they're safer and can reduce air-conditioning costs.

A LED downlight can last for up to 50,000 hours – this is up to 25 times longer than a halogen downlight and significantly reduces the amount of times you or a tradesperson has to go up a ladder to replace your lighting. They also reduce energy use by up to 83%.

Motion detectors and sensors that turn lights on and off can offer savings, safety and convenience.

STEP 4

Cut your lighting bills

Lighting can account for about 7% of the energy used in your home.[1]

Energy efficient light globes can save a lot of money. It's estimated that the phase out of incandescent light bulbs has saved Australian households an estimated $5.5 billion.[2]

While the running cost for a single globe is very low, the average Australian home has 48 globes, so energy use can quickly add up.[3]

Fortunately, reducing your lighting bills is easy. By implementing the tips in this step, people can reduce their lighting energy use and running costs by up to 82%.[4]

Saving dollars can be as simple as:

- turning off lights
- maximising the use of daylight
- switching to more energy efficient lighting
- removing lights from overlit areas
- installing skylights and light tubes.

1 Source: sa-energy.info/light-usage

2 EnergyRating.gov.au. Since Australia's phase out of incandescent light bulbs commenced in 2009, the average household is estimated to be saving $70 per annum, with cumulative national savings of an estimated $5.5 billion.

3 Source: sa-energy.info/light-usage

4 Source: sa-energy.info/oeh-lighting-stats

Saving money on lighting

The benefits of energy efficient lighting

If you switch to energy efficient lighting, you'll save money. Here's how:

- **Energy efficient lighting is cheaper to run**
  Energy efficient lighting saves money because it uses less energy. Switching to an LED light bulb can cut energy use from a light fitting by up to 83%.[5]

- **You don't have to buy light bulbs as often**
  A LED downlight can last for up to 50,000 hours – this is 25 times longer than a halogen downlight which lasts for approximately 2,000 hours. This means that buying a single high-quality LED downlight can do away with the need to buy up to 24 halogen downlights. Halogen downlights can cost $5 each, so that's up to $120 saved on purchase costs.

- **Maintenance is cheaper**
  When an energy efficient light lasts up to 50,000 hours, you significantly reduce the amount of times that you or a maintenance person have to go up a ladder to replace your lighting. This saving is rarely taken into account.

  Check how much you pay someone to install new lighting. From this, you can work out your savings on maintenance labour costs over the next 5–10 years. The savings can be considerable.

- **It makes running your air conditioner cheaper**
  Energy efficient lighting can generate less heat, so making the switch can also potentially reduce air-conditioning costs.

- **You might be able to get assistance to switch to energy efficient lighting**
  If you want to switch over to energy efficient lighting, you may be able to access assistance from the Retailer Energy Efficiency Scheme (REES) scheme. To find out if you're eligible, contact the list of third party contractors on this web page: sa-energy.info/rees-info

5 Source: sa-energy.info/oeh-lighting-stats

Is it too bright? How delamping reduces your lighting bills

There may be some areas of your home where lighting levels are too bright. You can lower the levels by removing some of the lights. This is called 'delamping'.

- Delamping saves money on powering your lights.
- It cuts the cost of replacing lights.
- Less lights mean less heat, so delamping could potentially save you money on air-conditioning costs.

Busting lighting myths:
"Energy savers aren't as good as the old lights"

When energy-saving lights first came out, they weren't as bright as the old globes and took longer to 'warm up'. As such, they got a reputation for being 'too cold' and not bright enough.

Today all that has changed. New-generation energy-saving lights are available in warm tones and every brightness level.

Alternatives for standard incandescent globes

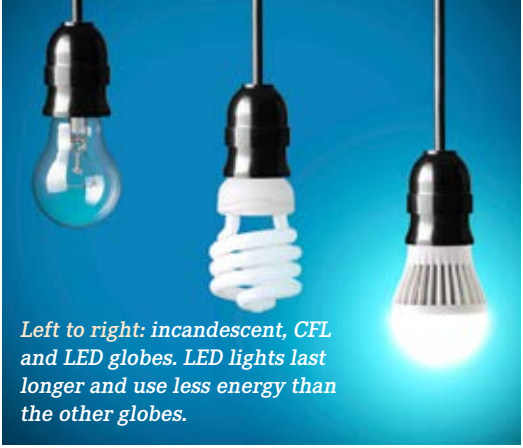
Although traditional incandescent globes were phased out back in 2009, some households and businesses still use them. Given that they use up to 85% more power than their energy efficient alternatives, it makes sense to replace them sooner rather than later.

On average, incandescent globes only last for 750–1,000 hours, but an LED globe can last for up to 50,000 hours. The savings that you'll make by switching to CFL or LED globes are listed below. For more help, download the 'Light Bulb Saver' app via energyrating.gov.au/apps

Incandescent globe

Alternative lighting	Estimated lifespan	Estimated cost reduction
Halogen GLS	2,000 hours	up to 30%
CFL	8,000–15,000 hours	up to 80%
LED	15,000–50,000 hours	up to 85%

To check out the full range of LED lamps, visit a specialist lighting shop. They come in a wide range of sizes and give out a wonderful quality light. If you choose CFL lights, remember that they contain a small amount of mercury which needs to be disposed of with due care.



Left to right: incandescent, CFL and LED globes. LED lights last longer and use less energy than the other globes.

'Watt' to look for when replacing incandescent lights

When it comes to replacing incandescent globes, it's important to know what lighting will give you the same amount of brightness.

The brightness of a light is measured in 'lumens'. This table shows you what to look out for when replacing incandescent globes with CFL and LED lighting.

Lumens (Brightness)	Ordinary Incandescent Globe	CFL	LED
250	25W	4–6W	3–4W
400	40W	7–9W	5–8W
600	60W	11–14W	8–12W
800	75W	15–23W	11–17W
1,050	100W	19–23W	15–23W

Look for LED lighting that comes with a guarantee

Good quality brands offer guarantees on their LED lighting products. For LED lamps claiming to last 25,000 hours, Lighting Council Australia recommends that you look for a guarantee of at least 2–3 years.[6]

If a manufacturer claims that their LED light will last for 50,000 hours, they recommend that you look for a longer guarantee of up to 5 years.

LED lamp

6 Source: sa-energy.info/sa-led-guarantees

Alternatives for halogen downlights

LED downlight

Halogen downlights are one of the most common forms of lighting in Australia. Unfortunately they use a lot of energy.

An average halogen downlight uses between 35 and 50 watts (W) and has a transformer that uses about 10W. If you have 10 downlights in a room, you could be using 450–600W per hour to light a single room.

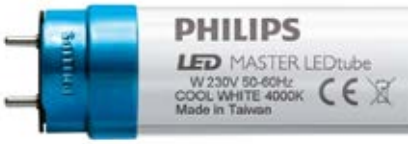
A halogen light (50W) will only last for up to 1,000–2,000 hours. In stark contrast, LED downlights can last for up to 50,000 hours and use up to 83% less energy!

Alternatives for T8 twin fluorescent tube lighting

A significant number of businesses use T8 and T5 fluorescent tube lighting. Some homes also use them, particularly in kitchens, laundries and garages.

Many businesses have replaced their fluorescent tubes with LED tubes. In some cases the fitting can be modified, but a replacement is the best option. In any case, any work on the electrical installation must be done by a licensed electrician.

When it comes to installing alternatives to fluorescent tubes, talk to your electrician or lighting store about what needs to be professionally installed. LED tubes last up to 50,000 hours – that's 2 to 3 times longer than fluorescent tubes. They also use up to 67% less electricity, so you'll save money there too.



LED lighting tube

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Alternatives for outside lighting

In addition to switching to energy efficient lighting, you should also look to install:

- **Motion detectors -** where these are appropriate, they stop outside lighting from being left on for extended periods. They can enhance security whilst helping to reduce lighting costs.
- **Daylight sensors -** linking a daylight sensor to the lights on the perimeter of your building ensures that they remain off during the daytime.

> **Using solar for outside lighting**
>
> **If you have an outdoor pathway that needs to be lit at night, install solar lights. They don't have to be installed by an electrician and during the day they get recharged by the sun.**

Cutting the cost of halogen floodlights

Halogen lighting for outside use can be very cheap to buy, but it uses a lot of energy and the light might only last for up to 2,000 hours.

When it comes to replacing an outside 500W halogen floodlight, your best money saving option is to switch to a 110W LED floodlight. It will last for up to 50,000 hours and will reduce your lighting energy costs by up to 82%. A 150W metal halide floodlight will also save you money but they don't last as long. They only last for up to 10,000 hours but reduce running costs by up to 66%.[7]

Halogen floodlight

Cutting the cost of PAR lamp floodlights

PAR lamp

Some floodlighting uses halogen PAR lamps. These can be replaced by CFL or LED floodlights.

- CFL floodlights can reduce running costs by up to 60%.
- LED floodlights can reduce running costs by up to 73%.[8]

7 The 110W LED floodlight is the recommended option in the NSW OEH 'Energy Efficient Lighting Technology Report'.

8 NSW OEH 'Energy Efficient Lighting Technology Report'

Saving money with daylight

Daylight is free and can reduce your lighting bills – so take advantage of it!

- Keep your windows clean and clear of shading. If necessary, trim back vegetation that blocks the outside light.
- Plant deciduous trees outside your windows. They'll shade you from the hot summer sun, but when they lose their leaves, they'll let in light and warmth.
- If your premises are not exposed to much natural daylight, install skylights, solar tubes or translucent roof sheeting to bring light in through the roof.
- Use mirrors and light colours on walls, ceilings and benchtops as they can reflect and maximise the effectiveness of natural light.

When your household or business maximises the use of daylight, it reduces the use of energy to provide artificial light. It's a simple way to reduce lighting bills.

> **Did you know? Modern motion detectors are far better than they used to be. In the past, you could be sitting too still in a room and the lights would go out. This would result in people waving their arms to trigger the lighting back on.**
>
> **That no longer needs to happen as motion detectors can be adjustable. They can also detect body heat or generate microwave pulses that pick up people's presence in a room.**

Use photosensors and dimmers to adjust lighting levels

Photosensors

Photosensors detect the amount of natural light in a room. When daylight is strong, they automatically decrease your artificial lighting levels. This can save you up to 15% on your lighting costs.[9]

Dimmers

If you're upgrading your lighting, you may want to install fixtures that use a dimmer. This will allow you to manually adjust your lighting levels. The lower the light level, the lower your lighting bill will be.

9 sa-energy.info/sa-photosensors

Did you know?

During winter, draughts can be responsible for up to 25% of heat loss from your business. Australian buildings leak 2–4 times as much air as North American or European buildings.

By properly insulating and draught-proofing your premises, you can reduce your heating and cooling bills by up to 40%.

Insulation and draught-proofing can reduce winter heating costs by up to 70%.

Insulation keeps the heat in during winter and keeps excessive heat out during summer. It's a very cost effective way to reduce your HVAC bills.

Your home can lose up to 40% of its heat through windows, leading to an increase in heating costs. It can also gain up to 87% of its heat through windows, leading to an increase in cooling costs.

STEP 5

Get comfortable with insulation

When you mention insulation, most people think of batts in the roof. But it's more than that.

Insulation involves anything that:

- keeps the heat in during winter
- keeps excessive heat out during summer.

Without insulation, a significant amount of the energy that we use to heat or cool our homes and business premises can be lost.

By properly insulating and draught-proofing your premises, you can reduce your heating and cooling bills by up to 40%.[1]

In addition to reducing costs, insulation can also make your home and working environment more comfortable.

This section will show you how insulation, draught-proofing and energy efficient windows can really help to cut your running costs.

Insulation and draught-proofing can reduce winter heating costs by up to 70%.[1]

1 EnergyCut.info/wall-insulation and sa-energy.info/winter-costs

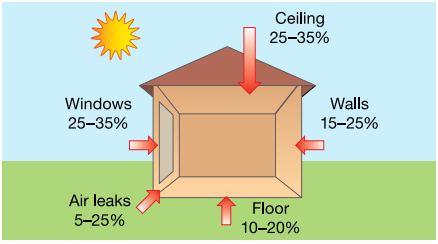
Insulation – the basics

How much money can you save with insulation?

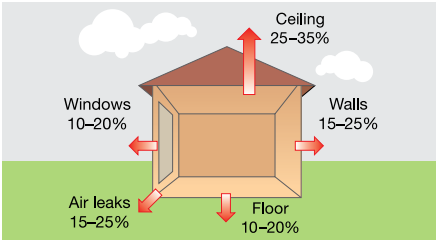
Many homes and businesses do not have adequate insulation. With 69% of Australian homes now insulated,[2] the financial savings are well documented:

- Ceiling/roof insulation – savings of up to 45%.[3]
- Floor insulation – savings of up to 10-20%.[4]
- Wall insulation – savings of 15-25%.[5]
- Duct insulation – saves money by minimising heat leakage.
- Shading the outside of a building – can block up to 90% of the sun's heat.[6]
- In winter, up to 40% of heat can leak out through windows.[7] Using double glazing or 'low-E' glass and window film can reduce this problem.
- During winter, draughts can be responsible for up to 25% of heat loss from your home or business.[8]

The impact of not having insulation



Typical heat gain in summer for an uninsulated home



Typical heat loss in winter from an uninsulated home

2 EnergyCut.info/abs-energy-use
3 EnergyCut.info/insulation-installation
4 SA Energy Advisory Service
5 SA Energy Advisory Service
6 EnergyCut.info/yh-shading
7 EnergyCut.info/window-heat-leak
8 EnergyCut.info/ivdp-home

Insulation and safety

Having insulation installed in your home is a great way to save money and improve your home's energy efficiency. However, if the insulation is incorrectly installed it could cause moisture problems, fires or electrical incidents.

You can easily avoid these problems by sticking to some basic rules. To ensure that your insulation is safely installed, your installer should:

- have a South Australian builder's licence that permits them to install insulation – check they are licensed via the licensing public register at: sa-energy.info/sa-public-register
- make sure that the insulation has an appropriate R-value for your home
- ensure that they minimise condensation, vermin and fire risk. Installers should install all bulk insulation in compliance with Australian insulation installation standard AS 3999. The installer should follow a strict set of guidelines to keep insulation away from heat sources such as halogen downlights or hot flues (your installer should install appropriate barriers and/or covers, while avoiding excessive gaps and openings)
- guarantee the insulation material has been properly treated for fire or is a non-combustible product. Insulation products have a fire rating under Australian Standards AS 1530.3
- ensure that thermal insulation in roof spaces is clear of electrical fittings
- follow Australian New Zealand Standard AS/NZS 3000:2007 Electrical Wiring Rules which provide guidance on the separation of electrical equipment and insulation materials. Electricians and insulation installers working in the roof space of your house must follow these guidelines
- ensure that an installer certificate is issued. You may also want them to photograph the completed installation.

What types of insulation are there?

There are two main types of insulation – bulk insulation and reflective insulation. You may also have heard of a third type – composite insulation. This combines the benefits and properties of both bulk and reflective insulation.

All of them will save you money. This section explains the difference between them.

Bulk insulation

Bulk insulation is like a big quilt in your ceiling and walls. In summer it stops the hot air outside from getting in, and in winter it stops the heat inside your building from getting out. This type of insulation includes:

- glasswool
- wool and rockwool batts
- rockwool
- polyester
- wool and cellulose fibre loose-fill
- extruded polystyrene (styrofoam)
- expanded polystyrene (EPS).

Reflective insulation

Reflective insulation such as reflective foil can reflect up to 95% of outside radiant heat.[9] This type of insulation includes:

- reflective foil
- multi-cell foil batts
- concertina-type foil batts.

Composite insulation

Composite insulation combines the benefits and properties of both bulk and reflective insulation.

This type of insulation is used for foil-backed batts, foil-faced boards, foil-faced blankets and air cell products.

9 EnergyCut.info/lsqld-insulation

What's the difference between 'R-values' and 'U-values'?

R-values and U-values are measurements used to judge the effectiveness of different types of insulation. They are the insulation equivalent of the energy stars on washing machines and fridges.

The R value measures the ability of your insulation material to resist the flow of heat.

The U-value helps you to judge the effectiveness of window insulation. It's the measure of how much heat can be transferred through a window or glass layers.

When it comes to installing insulation or windows:

- with insulation go for the highest R-value
- with windows go for the lowest U-value.

The window frame material and the quality of installation is also important. If in doubt, consult your local insulation and window expert.

Look for the R-value when buying insulation

Low-cost solutions

Draught-proofing your building

During winter, draughts can be responsible for up to 25% of heat loss from your building. YourHome.gov.au states that Australian buildings leak 2–4 times as much air as North American or European buildings.

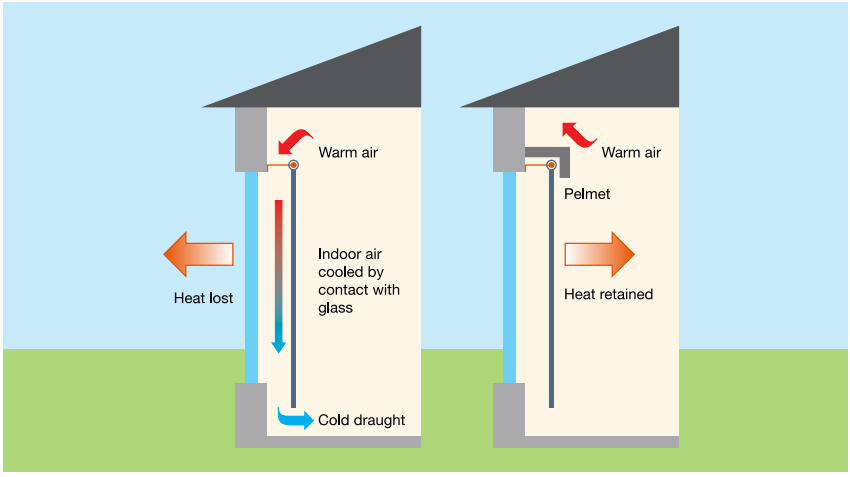
Draught-proofing your building is a cheap way to save on your winter heating bills and your summer cooling costs.

How to reduce or fix draught problems

Here are the simple ways to fix or reduce draughts:

1) **Attach double-sided draught excluders or door seals to the base of your doors.** Easy to install and far more effective than a 'door snake', these are available at your local hardware store.

2) **Use window blinds or well-fitted thermally-backed curtains with a pelmet above them.** This traps the air between the curtains and the window, helping to reduce your heating and cooling bills. In summer, as the window heats up, it also heats the air between the curtain and the window. The pelmet stops this hot air from rising and getting into your premises. In winter, the curtains and pelmet combine to keep the warm air inside.[10]



10 EnergyCut.info/pelmets

3) **Seal gaps and cracks with filler and caulk.** Expanding foam is good for large hollow gaps. Gap fillers and caulk are good for filling in the gaps between two surfaces such as a wall and a cornice, or a wall and a skirting board. Caulk is also useful for filling in small gaps around windows and door frames. There are a variety of available types of filler and caulk – your local hardware store can give you advice on the best solutions for your needs.[11]

4) **Fit weather sealing strips to windows and doors.** Weather strips are self-adhesive polyester strips and come in a range of thicknesses. Installing them is as simple as peeling off the adhesive strip and sticking the strips to the frames of your windows and doors.

They are a cost-effective way to block the small draughts that come in via your windows and doors.

If you're not sure what to do, use your phone to take a photo of your doors and windows and show it to a salesperson at the hardware store – they'll advise you on the kind of weather stripping that you need.

5) **Put rugs on wooden floorboards**

> **If you want to 'do it yourself' when draught-proofing your home or business, your local hardware store will stock a range of products and can give you good advice.**

11 EnergyCut.info/gap-filler & EnergyCut.info/caulking-guide

Back to Contents

Invest and save

What should you ask an insulation installer?

When it comes to getting insulation quotes, check that the insulation installer meets the safety and compliance requirements set out on page 29 of this book.

Checking off these points will ensure that they do the job properly and safely.

When it comes to getting a quote, ask about the following:

1) **R-value ratings**

   When you get quotes from different installers, make sure they tell you the R-value rating of the insulation that they're proposing to install.

   This will enable you to properly compare their quotes – the higher the R-value, the better the insulation will be when it comes to keeping your home or business warm in winter and cool in summer.

   Make sure that the insulation meets the minimum recommended R-values for your local area. See page 36 for detailed information.

2) **What insulation are they proposing to use?**

   When getting a quote, make sure they specify the type of insulation that they're going to use. This will commonly be bulk insulation, reflective insulation or composite insulation. You may want to ask why they're recommending it and if it's been treated for vermin and mould. You should also check that the product complies with Australian Standard AS 4859.1.

3) **Is the product fire-resistant?**

   There are two Australian Standards that rate the fire performance of insulation. The best performance for insulation under the AS 1530.1 standard for combustibility is a pass. With regards to the AS 1530.3 standard, the best insulation score for the flammability, ignitability, heat evolved and smoke developed tests is zero for each. Ask for the test certificates for these standards.

4) **Guarantees and warranties**

   Find out who manufactures the insulation and what guarantees and warranties are available with the product. You may want to find out how long the insulation is expected to last and when it needs to be replaced.

5) How long have they been in business and what experience do they have?

When hiring an insulation installer, make sure that they have experience. Where possible, use a local company that's been long established in your area.

6) Get references

A good insulation installer will always have references. To make sure you're not dealing with a 'fly-by-night' operator, ask for references from their customers that are local to your area.

7) Are they insured?

Make sure that they have public liability insurance and workers compensation in case one of their staff gets injured on your premises.

8) Recycled content insulation

If you would like to use recycled content, then there are a number of options available.

Glasswool insulation uses old windscreens, window glass and glass bottles in its ingredients; polyester insulation can use recycled plastics; and cellulose fibre insulation uses old phone books and newspapers.

9) Installer declaration

Make sure they are able to provide an installation certificate at the end of the job. This should contain all the information about the installer, their company and the insulation products that were installed. It may be useful for future reference.

10) DIY insulation installation

If you install your own insulation, there are sources available to help you install it safely and effectively:

- Follow the on-pack instructions.
- Look for instructions and videos on the manufacturer's website.
- Download the ICANZ 'Insulation Handbook Part 2' from EnergyCut.info/icanz-insulation-guide

Use the right insulation levels for your area

The type of insulation you need to use depends on where you live in South Australia and what kind of climate zone you live in.

In a cool temperate city like Mt Gambier, reducing heat loss is the main priority. So your home roof insulation should have a minimum R-value rating of 4.6 (but check your local building code).

In a milder climate city like Adelaide, reducing heat loss and heat gain is equally important. So household roof insulation should have a minimum R-value rating of 4.

When it comes to household wall insulation, homes in both cities should seek an R-value of 3.

Whether you're a household or business customer, your adviser or insulation installer will be able to tell you the R-value that's appropriate for your needs.

Duct insulation

In a lot of homes and small businesses, the cooling ducts from the air-conditioning are located in hot roof spaces and are poorly-insulated. This can affect the cooling efficiency and running costs of the air-conditioning system.

If you have air-conditioning ducts in your roof space, the way to solve this problem is to:

- improve the insulation on your air-conditioning ducts – this needs to be applied to the outside surface of the duct
- ensure that there are no air leaks from the ducts
- during summer install a 'whirlybird' ventilator or solar-powered ventilator to remove heat from your roof space.

Insulating underneath your floors

Flooring can account for around 10-20% of winter heat loss. Suspended flooring often has electrical cables underneath it, so you or your installer should take care when installing insulation there (particularly if you're using reflective foil insulation).

Saving money with exhaust fans and vents

When an exhaust fan or vent is not in use, it should snap shut. If it doesn't, hot or cold air can move in and out of your home or business. To fix this, get an electrician or insulation expert to install a self-closing damper or filter on it.

Check out DraftStoppa.com.au

Using shade to cut your cooling bills

One of the easiest ways to reduce your summer cooling bills is to have external shading such as eaves, shutters, shade cloths or retractable awnings outside your building. These help to reduce heat gain from the sun.

A retractable awning helps to reduce heat gain from the sun.

The shade cover should be placed on the side of your building that's most exposed to the hot summer sun – typically, the north- and west-facing walls. YourHome.gov.au has an excellent guide that shows the cost saving benefits of shading: EnergyCut.info/yh-shading

How shade planting can save you money

Planting north-facing deciduous trees is a very effective way to shade your home or business from the hot summer sun.

- **In summer the leaf-cover will keep your home or business building cooler as it minimises the heat gain from the summer sun. This will reduce your cooling costs.**
- **When their leaves drop in winter, the bare branches let in the warmth of the winter sun. This can help to reduce your heating costs.**

Keeping your roof spaces cooler

In summer, the temperature of roof areas can get up as high as 60–70°C. In addition to insulation, roof ventilation can play a key part in keeping your roof spaces cooler.

This section shows you how to keep the roof cool in your home or business.

How do whirlybirds work?

A roof-mounted whirlybird uses wind power to remove hot air from enclosed attic and rooftop spaces. When they expel the hot air, the whirlybirds rely on the vents in your eaves to draw in the cooler outside air. In cooler months, make sure you can close this ventilation system. Doing that will retain natural warmth and reduce your heating costs.

Solar-powered roof-cavity ventilator

Solar-powered roof-cavity ventilators have proven to be very effective in removing heat from enclosed roof spaces. The small solar panel drives the fan motor, which gives it a significant performance boost over traditional whirlybirds.

It is far more effective in reducing the heat build up in your roof space. This can lead to lower cooling costs.

One advantage of these units is that you can link them to a roof thermostat that extracts the air only when the temperature reaches a certain level.

This ensures that the unit doesn't kick in on colder winter days, when you need the warmth to stay in your roof cavity.

The Solar Whiz roof-cavity ventilator with heat extraction functionality

Matching ceiling vents to roof-cavity ventilators

Within a home and business environment, there are many factors and appliances that generate heat. Rather than fully relying on your air-conditioner to deal with that heat, you can partially extract it using:

- a whirlybird or solar-powered ventilator on your roof
- ceiling grille vents in your home or business

A ceiling grille vent

During hot summer days, these ceiling grilles can be left open. The hot air in your premises rises through the open ceiling grilles and the ventilator on your rooftop sucks the hot air out.

During winter, you can shut the ceiling grilles to keep the heat in. The thermostat can also switch off the heat extractor on the solar-powered or normal powered ventilator during colder weather – this helps to keep any warm air in the roof space.

Hybrid Wind Ventilators with smart controls are also able to monitor conditions inside and outside to make sure that you are not accidentally bringing in hot air. In summer this ensures that your ventilation system is only bringing in cooler air from outside.

Ventilation and heat extraction systems

Solutions that ventilate buildings and extract heat from the roof spaces include:

www.SolarWhiz.com.au

www.Edmonds.com.au

www.Odyssey.com.au

sa-energy.info/sa-max-breeze

sa-energy.info/sa-hybrid-ventilators

These products can make your home or premises more comfortable and will potentially cut your heating and cooling bills at the same time.

Pricing on ventilation equipment and systems can vary. When seeking quotes, don't forget to get multiple quotes from different suppliers.

Insulation and windows

How your home or businesses can save money with the Windows Energy Rating Scheme (WERS)

A building can lose up to 40% of its heat through its windows, leading to an increase in winter heating costs.

Similarly, it can gain up to 87%[12] of its heat through its windows, leading to an increase in summer cooling costs.

That's why improving the thermal performance of windows can insulate your building and reduce your heating and cooling energy costs.

The Window Energy Rating Scheme (WERS) rates the energy efficiency of windows, enabling consumers to choose those with the highest thermal performance.

On the website, www.wers.net, the red stars show how efficient the window is at keeping heat in and the blue stars show how efficient the window is at keeping heat out. As with other star-rating schemes, more stars mean more efficiency.

If a window has no stars, it won't perform well. If it has the maximum possible 10 stars (5 stars for cooling and 5 stars for heating), then the window will have strong thermal resistance and will be able to substantially slow the transfer of heat.

If you're replacing your windows, install ones with the highest star rating you can afford. This will help to reduce your heating and cooling costs.

> **WERS has a searchable list of 250,000 products. For residential products visit:** sa-energy.info/sa-residential-windows
>
> **For commercial products visit:** sa-energy.info/sa-commercial-windows
>
> **For more information on energy efficient windows, visit:** sa-energy.info/sa-select-windows

12 40% and 87% stats sourced from WERS: sa-energy.info/wers-infosheet

What should you look for when buying windows?

Windows can play an important role in reducing your heating and cooling costs.

When purchasing windows for your home or business premises, you need to take into account the U-value of the window and its SHGC rating. If retaining warmth is important to you, you also need to ask for low-E glass. These 3 elements can improve the insulation potential of your windows.

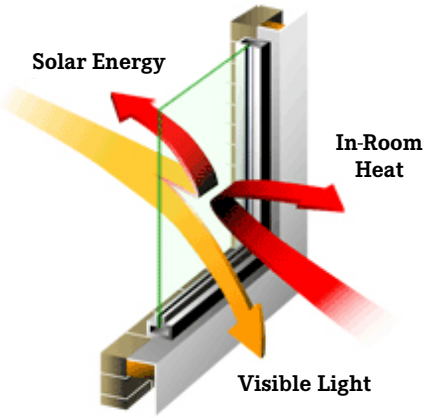
It's worth remembering that the window frame material and the quality of installation is also important here. For more information on this, consult your local insulation and window expert.

> **What's a U-Value?**
>
> **The U-value helps you to judge the insulation effectiveness of a window – it's a measure of how well a window stops heat from escaping. Go for the lowest figure – a low U-value means that the whole window performs well in keeping out the heat and cold.**
>
> **For more information, visit: wers.net/werscontent/faqs**

Solar Heat Gain Coefficient and how it can save you money

The amount of solar heat that gets through a window is measured using a term called Solar Heat Gain Coefficient (SHGC).

If you want to reduce the amount of heat coming in via your windows, then get windows with a low SHGC rating. This will help to reduce your cooling costs.



If you're in a cold climate and want to increase the amount of warm winter sun that comes in, then get a window with a higher SHGC reading. This can help to reduce your heating costs.

However, during summer, windows with a higher SHGC reading need to have proper shade outside, otherwise they'll increase your cooling costs.

Double glazing

Double glazing creates an insulating gap between two panes of glass. Some types of double glazing can halve the heat lost or gained through windows.

In addition to reducing your heating and cooling costs, double glazing can insulate against outside noise when the correct double glazing unit is selected.

If you're installing it, get a variety of quotes from different companies as it can be quite expensive. Don't accept the first price that comes along.

What are the most energy efficient window frames?

When it comes to energy efficiency, timber and uPVC window frames are better than aluminium window frames.

For detailed information on energy efficiency and window frames visit: YourHome.gov.au/passive-design/glazing

Retrofit glazing

Also known as secondary glazing, retrofit glazing is where you add an extra layer of glazing to your existing single-glazed windows. This can help to reduce heating and cooling bills.

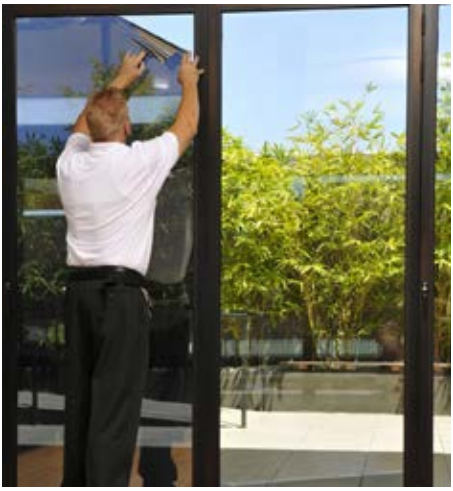
Secondary glazing manufacturers have rated their products through WERS. Check out these ratings when choosing your retrofit glazing.

With both retrofit and double glazing, make sure the installer has a track record and good references.

Low-E glazing

When you purchase window glazing, if you want to retain heat in your premises, ask for low-E glass. It has improved insulating properties that result in less heat loss.

Window film



13

If you can't afford double glazing, then consider putting window film onto your existing windows. This can be done quickly and installers don't have to remove the glass from the frame.

Window film can help to absorb and reflect the solar rays that heat up your premises.

The main benefit from window film is during summer. In WERS tests, one film product achieved a 5-star cooling rating with a cool percentage of 70%.

A low-E film can reduce heat-loss during winter and reflect the heat in summer.

WERS For Film rating scheme

The Windows Energy Rating Scheme now lists films on their website. This WERS For Film initiative enables you to compare the energy claims of different window films.

Windows film receives a star rating for heating and cooling, similar to the energy-star stickers on white goods. The WFAANZ website lists applied film products that have been tested for energy efficiency performance. It also has a searchable listing for windows film installers: www.wfaanz.org.au

General window tips:

- **if you're designing a new home or renovation, consider the appropriate size and location of your windows - especially those facing the sun.**
- **quality window furnishings, blinds, curtains and roller shutters can be an effective way to help control heat flow.**

13 Image courtesy of WFAANZ

Did you know?

Every extra star on an air conditioner can reduce your running costs by up to 10%.

Fans only cost about two to five cents an hour to run - they can use up to 50 times less energy than air-conditioning units.

Before you buy, compare the running costs of new air conditioners. You can do this with the Energy Rating calculator: EnergyRating.gov.au/calculator

Many homes and businesses waste money by using heaters when all they need to do is improve their insulation, eliminate draughts, use ceiling fans, and better utilise the warmth of the sun.

Newer heating and cooling systems can be 20–40% more efficient than older ones – even more if the old system has not been well maintained.

STEP 6

Lower your heating, ventilation and air-conditioning (HVAC) costs

In 2012, air-conditioning-related energy bills cost Australians $9 billion. We also spent nearly $3.3 billion purchasing and installing new air-conditioning equipment.[1]

Reducing these costs is important as heating and cooling can account for about 40% of your energy use.[2]

In Step 3, I showed you how to reduce that cost by having the correct setting on your thermostat. It's worth remembering that a one-degree difference on your thermostat can increase your heating or cooling costs by up to 10%.

In Step 5, I showed you how to properly insulate and draught proof your home. If you don't do that, the air you're heating and cooling will be leaking out of your home.

So what are the other ways to reduce your heating and cooling costs? This section will show you:

- the things to look for when buying new HVAC equipment
- how fans can help to reduce your heating and cooling costs
- how to maximise the efficiency of your heating and cooling equipment.

1 Cold Hard Facts 2, p.85, prepared by 'The Expert Group' on behalf of the DCCEE.

2 Source: SA Energy Advisory Service

The six HVAC rules that will save you money

When it comes to heating or cooling your home or business, there are six basic rules:

1. Get as much heating, cooling and ventilation as possible from natural sources. The warming winter sun and the cool summer breezes are free!
2. Watch your thermostat. Having the wrong settings can make a really big difference to your energy bills.
3. If you have a reverse cycle system, keep doors, windows and vents closed when your air-conditioning is on. To keep heat in, you should also draught–proof your building, maximise your insulation and shut your curtains, shutters or blinds at night.
4. Ensure your equipment is properly maintained. This maximises its longevity and efficiency. Your electrician can advise you here.
5. Take the 'Goldilocks' approach when buying heating or cooling equipment. You don't want it too big or too small. You need a system that's 'just right' for your home or business.
6. Only heat the rooms you need. This saves money as it reduces the area you have to heat. You can do this by closing doors and dividing your home into heating zones. If you have a ducted heating system with zone controllers, turn off the rooms that are not in use.

Using natural sources of heating, cooling and ventilation

To save money, use natural sources of heating, cooling and ventilation.

Natural ways to cool: If it's cool outside and hot inside, open your windows and doors – ideally on opposite sides of your building – this will help to facilitate cross ventilation. Just remember to turn off the air-conditioner.

Natural ways to heat: Keeping warm can be as simple as maximising the winter sun that comes through your windows. Open your sun-facing curtains and blinds during the day and move away any external shading that blocks the sunlight.

> **Use the economy cycle**
>
> **When it's cool outside, use the economy cycle on your air-conditioner. This brings in cooler air from outside and circulates it in your building.**
>
> **This air is not artificially cooled so it reduces your air-conditioning bills.**

How maintenance saves on HVAC running costs

Poorly maintained air-conditioning equipment can increase its energy consumption by up to 30%.

In order to minimise these running costs, you need to ensure that your air-conditioner is regularly serviced in line with the manufacturer's recommendations.

From an efficiency point of view, you or your maintenance technician should regularly:

- clean your condenser coils, evaporators, and fans
- adjust your heater's louvres towards the floor, as hot air rises. Then keep the louvre blades dust free and regularly clean the filters
- check valves, belts, refrigerant levels and insulation
- check that your economiser is working correctly
- check the bearings, motors and speed drives. When there are issues with your bearings, the motor has to work harder
- make sure any power outages have not affected your thermostat clock
- ensure that your dampers are operating correctly. This will stop hot or cold air coming in to your building when it's not required
- make sure the outside air grills are not blocked with plastic bags or other materials
- lubricate fan bearings and fix refrigerant gas leaks. Remember that your technician must have a refrigerant handling license
- fix any air leaks in your ducting.

In addition to saving you money, maintaining your equipment will make it more efficient and reliable. It will also prolong its service life and the time until replacement.

Where to find a qualified maintenance technician

Air-conditioning appliances need to be maintained by a qualified technician. To find an authorised business in your area, check out this searchable database from the Australian Refrigeration Council (ARC): LookForTheTick.com.au/business-search/

When booking a technician to install or fix your air conditioner, fridge or freezer, check that they hold a valid licence: LookForTheTick.com.au/licence-check/

Are you on a 'time-of-use' contract?

If you're on a 'time-of-use' contract with your energy provider, you'll be paying more for electricity during 'peak' periods.

If this is the case, it pays to minimise the use of your air-conditioning equipment during late afternoon or early evening 'peak' times, as this is when electricity is at its most expensive.

Use fans to cut your heating and cooling bills

Fans only cost about two to five cents per hour to run and they can use up to 50 times less energy than air-conditioning units.

They're also very versatile – you can mount them on your ceiling, on your walls or move them from room to room. Regardless of what type of fan you use, they're an extremely cheap way to reduce your air-conditioning bills.

Using fans in summer

You can use ceiling, wall, or free-standing fans to increase the cooling efficiency of your central air-conditioning.

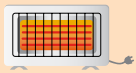
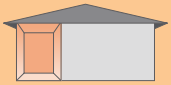
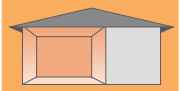
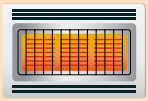
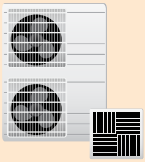
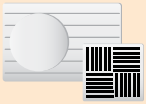
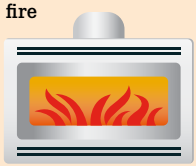
Thanks to the wind-chill effect from fans, people can can set their air-conditioner thermostats a few degrees higher in summer. It's a simple way to save money.

Using fans in winter

Because hot air rises, in winter you should set your ceiling fan on a low speed in a clockwise direction. This sends warm air near the ceiling back down to where people are sitting. It's a very cheap way to redistribute heat and can potentially reduce your heating costs.

What are your heater options?

The typical South Australian home uses more energy for heating than cooling. Here are your different options for saving on heating costs.

I want to heat	Hourly running costs			
1 or 2 people in one place 	Electric radiant heater (1kW)  36¢	Electric heated rug  4¢	Electric blanket  4¢	
Small room floor space 12m² 	Small reverse cycle air conditioner  13¢	Electric panel heater  43¢	Electric portable heater (2.4kW)  43¢	
Large room floor space 36m² 	Reverse cycle air conditioner  36¢	Gas heater  43¢	Electric heat bank (off-peak)  61¢	Small combustion fire  51¢
Whole of house floor space 200m² 	Zoned ducted reverse cycle air conditioner  $2.12	Zoned ducted gas heating  $1.45	Large combustion fire  $1.31	

Source: the Government of South Australia's Energy Advisory Service. The running costs detailed above are to be used as guidance only and are based on standing retail contracts.

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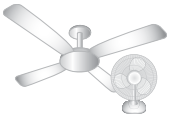
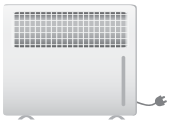
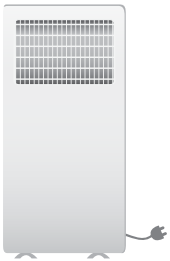
When to upgrade your air-conditioning system

If your air conditioner is more than 10 years old or you're still using an old window-box air-conditioning unit, try and upgrade your equipment. If finances allow, buy an energy efficient split-system, or a reverse-cycle inverter air conditioner.

Newer heating and cooling systems can be 20–40% more efficient than these older ones. For many homes and small businesses, upgrading your air-conditioning can save you hundreds of dollars a year. Some businesses can save thousands.

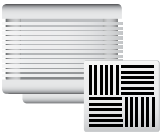
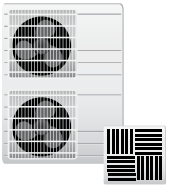
Cooling appliance indicative running costs and operating tips

Use the table below to help you select the best cooling appliance for your needs.

Cooling appliance	Hourly running costs	Works best in	Operating tips
Ceiling and portable fans 	2–5¢ depending on size	Models available for all room sizes and spaces	• Can be used on their own or in combination with other cooling appliances. • Can assist with moving cool natural breezes through your home. • Reversible ceiling fans can also help with winter heating.
Portable evaporative 	6–7¢ energy 1–2¢ water	Rooms up to 20m^2	• Evaporative cooling systems use up to 75% less energy than normal refrigerative air conditioners. • Needs good air flow to operate effectively, so place near an open window or door. • Use in drier less humid climates..
Portable refrigerative 	45–55¢	Rooms up to 20m^2	• Not as energy efficient as split systems but more effective in well-insulated homes. • Includes indoor and outdoor components connected by a hose passed through a partially open window. • Setting the thermostat to 24–27°C, or as high as is comfortable for you, will reduce running costs. • Direct louvres at the ceiling, as cold air falls.

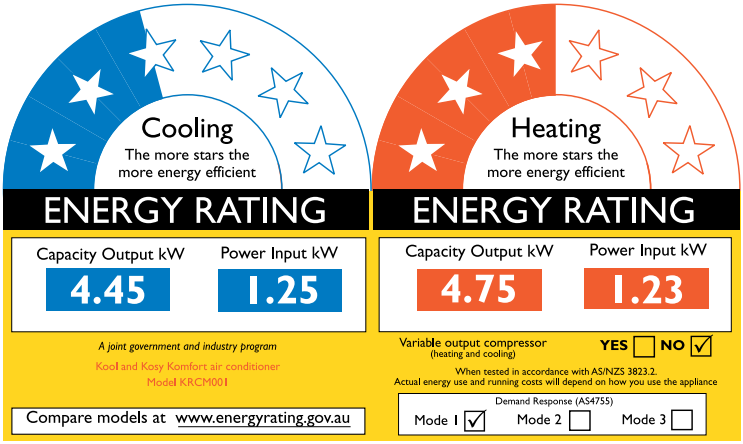
Cooling appliance indicative running costs and operating tips

Use the table below to help you select the best cooling appliance for your needs.

Cooling appliance	Hourly running costs	Works best in	Operating tips
Window and split refrigerative systems 	25–35¢ (room up to 20m²) 50–70¢ (36m² room) 70–95¢ (50m² room)	Window systems – rooms up to 36m² Split systems – rooms up to 75m²	• Work best in well-insulated and draught-proofed homes. • The outdoor compressor should be in a well ventilated and preferably shaded area. • Setting the thermostat to 24–27°C, or as high as is comfortable for you, will reduce running costs. • Direct louvres at the ceiling, as cold air falls. • Systems more than 10 years old typically use more energy and cost more to run.
Ducted evaporative systems 	45–60¢ energy 7–10¢ water	Whole-of-house (200m² home with 125m² cooled)	• Effective in South Australia's dry climate. Can also be used as a large fan. • Systems need good air flow to operate effectively; opening some windows or doors will help.
Ducted refrigerative systems 	$2.45–$3.45	Whole-of-house (200m² home with 125m² cooled)	• Work best in well-insulated and draught-proofed homes and with good quality ductwork. • The outdoor compressor should be in a well ventilated and preferably shaded area. • Systems with zoning can reduce the size of the area being cooled, using less energy. • Setting the thermostat to 24–27°C, or as high as is comfortable for you, will reduce running costs. • Systems more than 10 years old typically use more energy and cost more to run.

Source: the Government of South Australia's Energy Advisory Service. The running costs detailed above are to be used as guidance only and are based on a standing retail contract.

Look for the money-saving stars on air-conditioners



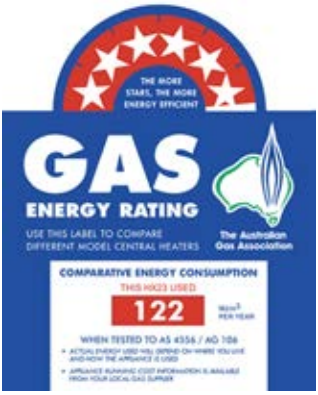
Buying new energy efficient equipment eradicates the need to maintain old equipment that uses too much energy.

When purchasing new air-conditioners, take notice of the energy rating label. The more stars, the lower the heating and cooling bills.

- Every extra star on an air conditioner can reduce your running costs by up to 10%.[3]
- The star rating for air-conditioners can go as high as 10 stars.
- The blue stars show you how efficient the machine is at cooling. If an air conditioner has the same star rating, look at the number in the blue 'Power Input' box. The lower it is, the cheaper your cooling costs will be.
- If you have a reverse-cycle system, the red stars will show you how efficient the machine is at heating. After you've settled on the size of the unit that you need, look for the lowest possible number in the red 'Power Input' box.
- To compare the running costs of new air-conditioners, go to the Energy Rating website: EnergyRating.gov.au/calculator

3 Source: Sustainability Victoria 'Smarter Choice' leaflet

Look for the money-saving stars on gas heating systems



Electrical goods are not the only appliances with energy rating stars. Gas heating systems have them too (they're also on gas water heaters).

Look out for gas heating appliances that have a maximum number of energy rating stars and the lowest MJ (megajoules) gas consumption figure. Each extra star on a gas heater will save you around 10% on running costs. The MJ figure will tell you the annual gas consumption of the product.

If you're investing in a gas space heater or a ducted gas heating system, make sure it has a minimum 4-star rating. Super-efficient systems are also now available that have a 6-star rating.

If you are buying a ducted gas heating system, you can also maximise the cost efficiency of the system by insulating the ducts.

Further advice on gas heating

CHOICE has a detailed guide to buying gas heaters. You can access this at: sa-energy.info/choice-gas-heaters

With gas appliances, safety is critical as inadequate ventilation can create a serious health hazard. For health and safety tips from the Government of South Australia, visit: sa-energy.info/gasheaters-tips

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In extreme heat or cold, people should always put safety first and use their air-conditioning or heating systems.

> **Before buying any air-conditioning equipment, it pays to get good independent advice. A good source is CHOICE at:** sa-energy.info/choice-aircon

Did you know?

By 2020 it's estimated that Australians will be using 40 million computers.

Screen savers can prevent your computer from entering sleep mode. To save money, you should disable all the screen savers on your computers.

A sleeping computer will save you money as it uses as little as 10% of full power.

'Think before you print'. Going paperless saves on printer energy costs. It saves on postage, paper and printer cartridge costs as well.

Reducing the brightness of your monitors can reduce the energy used and save you money.

STEP 7

Cut your IT and home office costs

These days, more of us have home offices than ever before. We're also using a greater number of computers, tablets and smartphones.

In Australia there are already more computers than people. And by 2020 it's estimated that Australians will be using 40 million[1] of them.

With more and more people using two monitors, the number of monitors being used is likely to be higher still.

The big rise in our use of computers, monitors and other information technology (IT) equipment has led to a big rise in energy use.

However, the amount of money that we spend on IT equipment and energy costs can be reduced. Many small business owners have a desktop computer at work and another one at home. Purchasing a portable laptop instead can reduce the number of computers to one and reduces the amount of energy being used.

In addition to buying energy efficient IT equipment, we also need to turn the equipment off when we're not using it. This section will show you the different ways to save with IT.

1 http://www.energyrating.gov.au/products/computers

Switch it off!

Most people leave their WiFi on all the time. They also fail to use the energy-saving options on their IT equipment.

To ensure that your computers, monitors, laptops and printers are drawing zero power when they're not being used, turn them off at the power point when you're finished using them.

A typical IT set-up for one person might include a computer, monitor and multi-function printer. Why not connect them all to a single power board and turn them off with one switch?

When the power point is in a hard-to-reach location, you can make your power board easier to switch off by connecting it to one of the following:

- a Wi-Fi enabled plug or a remote-control plug
- an EcoSwitch
- a foot switch power board.

You can also plug in your computer, monitor and multi-function printer into a 'smart' power board. They detect when your 'master' device has been turned off and kill the power to connected 'slave' devices.

In plain English, this means then when you turn off a computer, a 'smart' power board will automatically cut power to the monitor and printer that are also plugged in to it. See 'Step 2 - Switch off and save' for other ways to turn off IT equipment.

Use your energy settings

Activating power-saver modes on your equipment will reduce energy use when it's idle. Refer to your user manuals to see how to activate these power-management features.

Most manuals are now available in PDF format. If you've misplaced an equipment manual, then type the make, model number and the word 'manual' into a search engine. This should help you to locate the manual and your power-saver settings.

Buy energy efficient monitors

What type of screen?

When it comes to upgrading your monitors, it's worth remembering that:

- LED flat screens consume less energy than LCD screens
- energy efficient LED and LCD monitors can use up to 50% less energy than a cathode ray tube (CRT) monitor
- you can now buy portable lightweight computer monitors that are powered by a USB 3.0 port. A cheaper option is to use an app such as Duet. The Duet app enables you to use your iPad as a high quality second monitor for your PC or Mac computer.

Screen size and brightness levels

Where possible, use the smallest monitor for the task. Big monitor screens may look good but they use up more energy. Only use them if a big monitor is critical to your work. Reducing the brightness of your monitor will also save energy and money.

Check the monitor's energy rating label

With monitors, each additional star makes them 20% more energy efficient than the previous star. So the more stars, the lower the running costs.

This label also shows the monitor's average energy consumption in kWh. When you see this figure, just multiply it by 35 cents to approximate its daytime running costs.[2] If it uses 260kWh per annum it will cost you approximately $91 a year in electricity.

To compare monitor energy use visit: EnergyRating.gov.au/calculator

2 35 cents is a rough average. For greater accuracy, use the price tariff listed on your bill.

Save energy with your printer settings

Some printer companies now allow you to set up a schedule where you automate the 'wake' and 'sleep' periods for your printers. This enables you to program your printers so they automatically turn off at the end of the working day and over weekends.

When buying a printer, check whether you can schedule it like this. That way, if you forget to turn it off at the plug, the printer will at least put itself into the most efficient sleep mode and save you money.

> **Enabling energy saving on Mac and Windows computers**
>
> **For details on how to enable the energy saving features on Windows and Mac computers, go to the ENERGY STAR® website:** sa-energy.info/sa-macpc-settings

Save energy with your computer settings

To maximise your savings, adjust your computer sleep settings as follows:

- Set your monitor to dim and enter a low-power sleep or standby mode after five minutes or less of inactivity.
- Put your computer into standby/sleep or hibernate mode after 30 minutes or less of inactivity.
- Treat your monitor like a light. Turn it off if you're going to be away from your computer for more than a few minutes.

Buy laptops and save money on energy use

Using a laptop instead of a desktop computer and monitor can save a lot of energy. Laptops are also portable, so you can use them when you're on the road.

Computers that meet the ENERGY STAR specification can use up to 60%[3] less energy. So before you buy a computer, check out the models with the ENERGY STAR label at EnergyStar.gov/products/office_equipment/computers

3 Depending on how it's used, an ENERGY STAR compliant computer uses about 60 percent less energy without sacrificing quality or performance.

Look for the ENERGY STAR label

Printers and other imaging equipment that have earned the ENERGY STAR label are 30% more efficient than standard models that are not certified.[4]

Being certified by ENERGY STAR also means that printers have to enter low-power 'sleep' mode when they're inactive. This means they're saving you money when they're in use and when they're not.

They will also save you on paper costs. With ENERGY STAR certified imaging equipment, certain sized equipment is required to print on both sides of the paper.

Save money on printing costs

When you're writing a document or creating an invoice, your computer is already on. So if you can email a PDF to people instead of printing the document, you will save energy by not having your printer on.

Going paperless in this way saves on printer energy costs, postage costs, paper costs and cartridge consumables.

In a business, when you switch off or get rid of your printers you also reduce the heat that they generate - this can potentially reduce air-conditioning costs.

Printers and other imaging equipment that have earned the ENERGY STAR label are 30% more energy efficient than standard models that are not certified.

4 Source: EnergyStar.gov

Did you know?

The average Australian household saves between $90 - $190 a year as a result of appliance energy efficiency.

Last year the Energy Rating Label scheme saved the Australian economy $1.2 billion.

If you use a clothes dryer on a daily basis, a heat pump dryer may cost more upfront, but over its lifetime it could save you hundreds if not thousands of dollars in your energy bills.

Kettles and irons use a lot of energy. Only boil the water you need and don't leave the iron on when it's not in use.

Before you buy any equipment, visit EnergyRating.gov.au to check out the energy running costs.

STEP 8

Reduce equipment energy costs

The equipment in our homes and small businesses has a big impact on the energy bills that we receive. This chapter will tell you how to reduce that cost.

Equipment energy efficiency is an area where Australians have made positive progress.

The Energy Rating Label scheme for equipment has been a big success. Last year, it was responsible for saving the Australian economy around $1.2 billion. In fact, the average Australian household saves between $90-$190 a year as a result of appliance energy efficiency.

You'll find an energy rating label on every TV, computer monitor, air-conditioner, clothes dryer, dishwasher, washing machine, refrigerator and freezer currently sold new in Australia. We'll show you how to use these labels to save money.

This section will also show you how to assess and reduce the running costs of your existing equipment. It will also show you how to purchase energy efficient appliances.

The average Australian household saves between $90-$190 a year as a result of appliance energy efficiency.

Saving money in your kitchen

In general, small kitchen appliances are cheaper to run than ovens and cooktops because they use less energy and cook faster than larger appliances. To maximise your energy savings in the kitchen, consider the following:

- Where possible, use a smaller appliance instead of a large one
  - use a toaster oven instead of a grill
  - use a microwave instead of an oven
  - use a kettle instead of a cooktop
  - use a slow cooker instead of the oven or cooktop.
- Microwaves cook quickly, use about 75% less energy than ovens and cooktops and don't heat up your kitchen in summer like an oven can.[1]
- To save on energy, thaw frozen food in the fridge instead of defrosting it in the microwave.
- If you're using an oven, make sure the door seals aren't broken or pressed out of shape, and keep the oven body and seals clean.
- Don't pre-heat ovens unnecessarily and don't open the door too often while cooking - the oven will use more energy to replace the lost hot air.
- If possible, cook several things at once in the oven, and consider cooking in bulk and freezing your food. This makes life easier - after a busy day you can save time and reheat that food in a microwave.
- When you use the cooktop, match the size of the saucepan to the size of the hotplate or burner. With a gas cooktop, the pan should cover the burner so that none of the flames run up the sides.
- Using the correct-fitting lid on pans keeps the heat in and cooks things faster.
- When using a kettle, only boil the water that you're going to use. When you boil a whole kettle full of water for one cup of tea, you're wasting a lot of energy.
- Don't over fill your pots with water. Just use the amount needed to cook the food.

1 https://sa-energy.info/sa-kitchen

More stars equals more savings

Dishwashers, washing machines and dryers are rated from one to six.

TVs, refrigerators/freezers and air conditioners are rated from one to ten stars.

When buying new equipment, you need to know how many rating stars are used on each type:

- Dishwashers, computer monitors, washing machines and dryers are rated from one to six stars.
- TVs, refrigerators/freezers and air conditioners are rated from one to 10 stars.

Regardless of whether the equipment goes up to six stars or 10 stars, when it comes to energy rating labels, remember that more stars equals more savings.[2]

How to calculate the lifetime running cost using the energy rating label

If you're in a store buying an appliance and you can't access the internet, then you won't be able to access the comparison ratings on: EnergyRating.gov.au/calculator
If this happens, then the energy rating label itself can tell you the lifetime running cost of the appliance.

2 This graphic is adapted from Sustainability Victoria 'How much will that appliance really cost you?' Licensed under a Creative Commons Attribution 3.0 Australia

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How to calculate the lifetime running cost:

1) Look at the middle of the label where it tells you the energy consumption kWh per year.
2) Multiply this kWh figure by 35 cents, and it will give you an idea of the annual running costs. If it says 400kWh per year, then the annual running cost is 400 x 35 cents = $140 pa.[3]
3) Multiply this annual figure by around 10 years to get the approximate lifetime running cost of the appliance. If it is $140 per year, then it would be $1,400 over 10 years.

What's the 'true cost' of the appliance?

It's important to add this 10-year running cost figure to the purchase price. This will give you the 'true cost' of the appliance.

You'll often find that the more expensive energy efficient equipment will cost you far less in the long run than the cheaper model.

Although energy efficient equipment sometimes requires a greater financial investment initially, this pays off over the life of the product due to reduced running costs.

Use the above method to compare the running costs of the different models on display at the store. You can then buy the model that will save you the most money over its lifetime.

> **When you're buying equipment, you should also use an independent advice service such as CHOICE to research the equipment before purchasing it.**
>
> **See:** www.choice.com.au

3 35 cents per kWh is a rough approximate cost. For greater accuracy, use the price tariff listed on your electricity bill.

How the energy rating label can save you money

You'll find an energy rating label on every new TV, computer monitor, air-conditioner, clothes dryer, dishwasher, washing machine, refrigerator and freezer.

When buying electrical appliances for your home or small business, make sure you buy the models with the most efficiency stars on them. More stars mean more energy savings.

By going to EnergyRating.gov.au/consumers you can see how many stars an appliance has and you can compare the running costs of different appliances. You can also use their money saving equipment calculator and download their apps:

Costs calculator: EnergyRating.gov.au/calculator

Downloadable apps: EnergyRating.gov.au/apps

Reducing energy use with your swimming pool

On a per capita basis, Australia has more swimming pools than any other country! There are more than 1.2 million household swimming pools and around 90,000 pool pumps are sold every year.

When it comes to running a swimming pool, the cost of the pump represents only 20% of the total expenditure. The ongoing energy costs to run the pump can be up to 80%.

Installing a variable frequency drive pool pump can offer a significant reduction in energy use, as well as less maintenance and noise.

Every extra star on a new pool pump can lead to a 20% saving in energy costs. More stars equals more savings.

For other information about reducing the running costs of your pool visit: sa-energy.info/vic-pool-pumps

Where else can you find money saving info on equipment?

The Government of South Australia has energy saving information about a wide range of equipment: sa-energy.info/sa-general-advice

Plug-in appliance monitors

An appliance monitor can tell you the energy running costs of individual appliances.

They're simple to use. You insert the appliance's plug into the monitor. Then you insert the monitor into the wall plug socket. In real time, it gives you the appliance's energy usage and how much it's costing you to run.

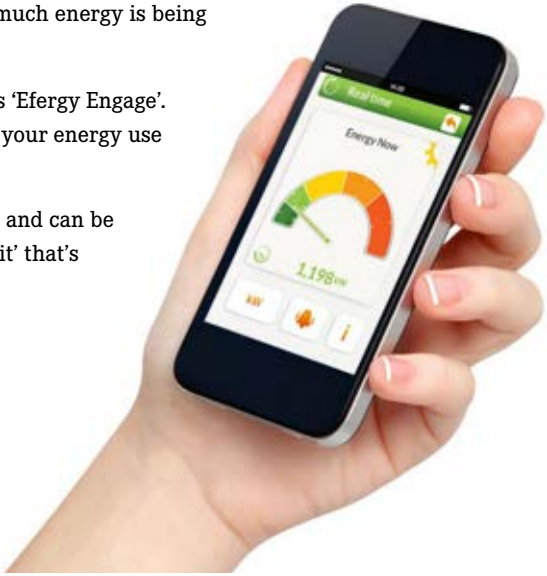
You can buy an appliance monitor for $20–$35 online or at major hardware stores. You can also borrow one for free in the 'Home Energy Toolkit' available from your local library.

Tablet and smartphone electricity monitoring apps

Just by picking your phone out of your pocket, you can immediately see how much your current energy use is costing you. It also enables you to see how much energy is being used by your equipment.

One high quality app in this space is 'Efergy Engage'. Every 5-6 seconds, this app updates your energy use and costs on screen.[4]

The app can be downloaded for free and can be used with the Efergy 'Engage Hub Kit' that's available from Efergy.com/au/



4 Efergy.com/au/

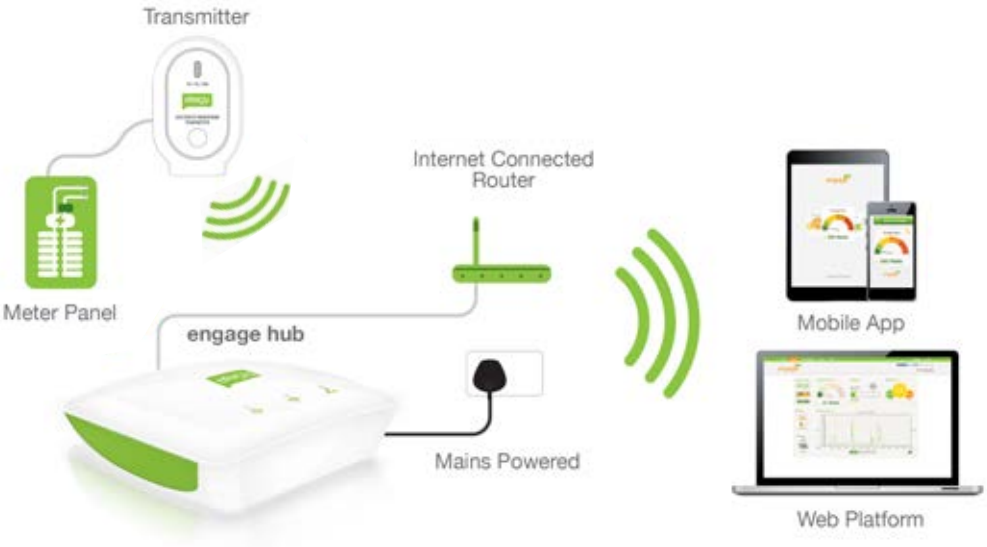
What other information can you get?

The 'Efergy Engage' app account also allows you to analyse your energy information in more detail in a web browser. You can analyse electricity use over the last week, month or year, so you can easily track whether it's going up or down. You can also see your usage history and budget how much you want to spend.

If your energy retailer charges you more for peak period electricity, the Energy Demand widget can help you to reduce costs during these times.

How does it work?

The Efergy Engage app and online account are free. To use it, you first need to order the Efergy Engage hub kit. This kit sends electricity use information from your meter panel to the app (it does this via your Wi-Fi). The kit is available for around $150 and represents a low-cost way to monitor your immediate and ongoing electricity use.



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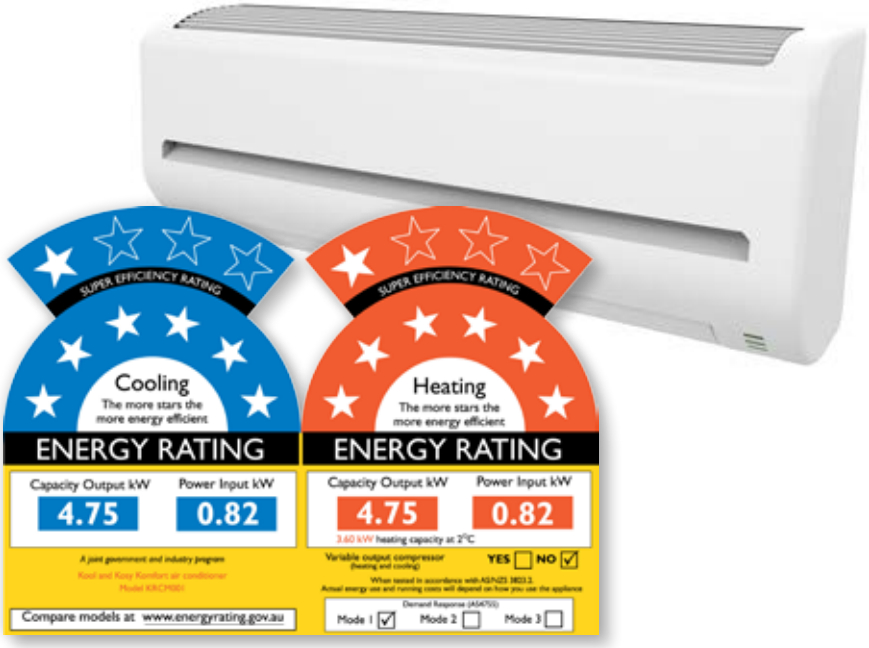
Air conditioners



- Every extra star on an air conditioner can reduce your running costs by up to 10%.[5]
- The star rating for air conditioners can go as high as 10 stars.
- The blue stars show you how efficient the machine is at cooling. If you have a reverse-cycle system, it will also show you red stars – these rate how efficient it is at heating.
- To compare the running costs of new air conditioners, go to EnergyCut.info/aircon-ratings
- For more details go to 'Step 6 - Lower your heating, ventilation and air-conditioning costs'.

5 Source: NSW OEH

Dishwashers

- Every extra star on a dishwasher will save you water and reduce your running costs by 30%.[6]
- If your home or business has a time-of-use tariff, get a delay-start dishwasher that can turn itself on during cheaper off-peak times at night.
- You should only use dishwashers when they're full. Where possible you should also get a unit with an 'Economy Wash' or 'Eco' setting (an 'Eco' setting is where the machine uses less water or washes in cooler water).
- Keeping the filters clean helps the appliance to run at maximum efficiency and reduces the risk of the machine breaking down.
- To compare running costs before you buy, click here: EnergyCut.info/dishwash-ratings

TV sets

- Every extra star on a new TV will save you up to 20% in running costs.[7]
- When buying a TV, look for an energy efficient LCD/ LED/ OLED model. They use less energy.
- Bigger TV screens can lead to bigger energy bills. A smaller energy efficient TV will reduce your energy costs.
- If nobody is watching the TV, turn it off.
- Keep your TV out of direct sunlight - turning up the screen brightness to overcome this makes the TV use more energy.
- To compare the running costs of TV sets click here: EnergyCut.info/TV-ratings

6 Source: NSW OEH

7 Source: sa-energy.info/washing-stat

Running equipment with cheaper energy

Select equipment can be run at a time of day when the energy is cheaper to buy.

Electric storage water heaters over 125L, underfloor heating, pool and spa heaters, battery storage and electric vehicles can be connected to the cheaper off-peak (controlled load or J-tariff) period.

Contact the Energy Advisory Service for more information.

Washing machines

- Every extra energy star reduces the lifetime running cost by 27%.[8]
- The label also tells you how much energy is used when you use hot or cold water.
- When you wash clothes in cold water instead of hot water, you reduce your energy costs by up to 80–90%. It's an easy way to save a lot of money.
- Front loaders can use about half the water of top loaders.
- To compare running costs before you buy, click here: sa-energy.info/wash-machines

Download The Energy Rating App

If you want to find out the running costs of these appliances, download The Energy Rating App. It's available free of charge from all major app stores and runs on iPhone®, iPad® and Android™ phones.

8 sa-energy.info/washing-stat

Clothes dryers

- Every extra star on a dryer reduces running costs by 15%.[9]
- You can save money by getting a dryer with an auto-sensor – this avoids over-drying your clothes and uses less energy.
- To compare their running costs before you buy, visit: EnergyCut.info/dryer-ratings
- Heat pump and gas dryers are much less expensive to operate (though they are more expensive to buy upfront). For more information about these types of systems, check out the Sustainability Victoria information page at: EnergyCut.info/heatpumps-gasdryers

Use the clothes line – it's free!

Drying linen and clothes on a clothes line costs nothing.

In winter, reduce your drying costs by giving the clothes an extra spin in the washing machine, then hang them outside. If they're still damp, just finish them off in the dryer for 15 minutes.

Be efficient with your equipment

- Switch off your equipment when it's not in use
- Use existing equipment more efficiently
- Replace machines and appliances with more energy efficient models.

9 Source: sa-energy.info/washing-stat

Fridges and freezers

- Every extra star on your fridge and freezer will save you up to 23% on its energy costs.[10]
- The energy star rating system now recognises refrigerators/freezers, that are 'super-efficient'. As a result, these appliances now show a rating out of 10 stars rather than the usual six.
- To compare their running costs before you buy, click here: EnergyCut.info/fridge-ratings-
- When buying a two door fridge, chest freezer or upright freezer, try and buy a unit with the most stars. The NSW OEH also advise that chest freezers are more energy efficient than upright models.
- Other energy efficiency attributes to look out for are easy to read thermostat controls, adjustable defrost, inverter technology and a door alarm.
- You should also buy a unit that's just the right size for your home or business. Don't buy a unit that's too big as it will use more energy than you need it to.

10 Source NSW OEH: EnergyCut.info/nsw-fridges-freezers

Saving money with refrigeration

Australians spend nearly $5 billion a year on refrigeration-related energy bills. However, there are ways to reduce these costs:

Fitting new door seals can improve energy efficiency by 10%.

- **Retrofit your fridge:** Your fridge and freezer units need to be airtight. If not, fitting new door seals can improve energy efficiency by 10%.
- **Food safety and energy efficiency:** If you have meat or dairy in a fridge, the temperature should be at or below 5°C. With a freezer, the temperature should be set between minus 15°C and minus 18°C. For every degree you set your fridge or freezer colder than these levels, you increase your running costs by 2–4%.
- **Keep your freezers frost-free!** Any ice build-up greater than about 5mm in thickness will act as an insulator, leading to increased energy consumption and cost.
- **Turn off the spare fridge:** Turning off an unused fridge can save a lot of money. Only turn on a 'beer' fridge when you have to.
- **Maintain your fridge and save:** When it comes to installing, repairing or maintaining your refrigeration equipment, use a qualified technician. For authorised technicians in your area, check out: EnergyCut.info/arc-search When you book a technician to install or fix your fridge or freezer, check that they hold a valid licence by visiting: EnergyCut.info/arc-tick
- **Upgrade and save:** If your fridge or freezer is more than 15 years old, try and replace it. Today's models use up to 40% less energy.
- **Place fridges away from heat:** When you put a fridge near sunlight or heat-producing equipment, it will use more energy to maintain adequate temperatures.
- **Give it some space!** Leave sufficient clearance space (generally at least 50–80mm) between the wall and the back of your fridge.

  A fridge works best when it's at least two-thirds full and a freezer when it's at least three-quarters full. The more empty space you have, then the more energy you'll use in cooling the air inside.

Did you know?

If your hot water system is electric, make sure it's heating your water during off-peak periods when it's cheaper.

Replacing an inefficient showerhead can save you up to 18 litres of hot water every minute.

If you have an old electric water heater, switching to solar hot water and heat pump hot water systems can reduce your hot water costs by up to 75%.

Hot water is often unnecessarily overheated, costing you money. Storage hot water systems need to be set to at least 60°C in order to stop bacteria breeding, but there is no need to go any higher than 65°C. Instant hot water systems can be set up to 50°C.

The Water Efficiency Labelling Scheme (WELS) can tell you which products are more water efficient than others. Devices receive a rating to a maximum of six stars.

STEP 9

Reduce hot water costs

Heating water accounts for 23% of the energy used in the average home. Reducing your use of hot water is a good way to save money.

It takes a lot of energy to heat water, so when you use hot water you're paying two costs – one for the water you use and another for the energy to heat it.

Reducing hot water costs can be relatively easy. Saving money can be as simple as buying a water efficient showerhead and having shorter showers. Washing your clothes in cold water is another way to save money with little effort. By using cold water instead of hot water, you can reduce your clothes washing energy costs by up to 80-90%.

If your electric water heater is old and needs replacing, you can reduce your hot water costs by up to 75%. This chapter will tell you the most energy efficient alternatives.

By using cold water instead of hot water, you can reduce your clothes washing energy costs by up to 80-90%.

Where can you cut down on using hot water?

The first rule with hot water is to reduce its use as much as possible.

Wherever you use hot water, try to:

- switch to cold water
- use water that is not as hot, or
- reduce the amount of hot water that you use.

What are the easy things you can do?

In an average South Australian home, 60% of the water used indoors is for the bath, shower and laundry.

These are the basic things that you can do to save water and energy:

- wash your clothes in cold water
- try to keep your showers to four minutes or less. You can use a shower timer to see how long you've taken
- take showers instead of having baths
- install a water efficient shower head that uses nine litres of water per minute or less – an inefficient shower head can use up to 25 litres of water per minute
- turn off the taps while you're washing the dishes
- only boil the kettle when you're really going to use it or only fill it to the level of water required
- fix any dripping taps
- insulate external hot water pipes with foam (polyurethane) tubing/lagging to prevent heat loss – it's easy to install and it's available from most hardware stores.

Set the water temperature correctly

Is your hot water system still on the original factory setting? If so, you may be heating your water more than you need to.

Hot water systems often overheat water and in doing so cost you money. If your system has an adjustable thermostat, you may be able to save money by reducing the temperature.

Storage hot water systems need to be set to at least 60°C in order to stop bacteria breeding. However, there is no need to go any higher than 65°C. Instant hot water systems can be set up to 50°C.

If you're unsure about what to do, get professional advice from a licensed plumber or electrician.

What if the boiler has no temperature reading?

If there is no temperature reading on your water boiler, run your hot water tap for five minutes over a water thermometer. That will tell you how hot your water is. If it's well above 60–65°C, you can turn down the boiler thermostat until you get the correct reading at the tap.

Heat your water in off-peak periods

If your hot water system is electric, and has over 125 litres of storage capacity, make sure it's heating water during cheaper off-peak (or controlled load) periods. If you're not already heating your water this way, this can save you a lot of money on your energy bills.

If you're not sure what to do here, talk to your energy company or get advice from a licensed plumber or electrician.

Install flow regulators and sensors on your taps

When you install a flow regulator or sensor on a tap, you can help to restrict excessive hot water flow. This will reduce your hot water costs.

Normal taps can use up to 18 litres of water a minute, however when you install a low-flow or an aerating tap, you can reduce the flow down to as little as 2 litres per minute.[1]

When you put an aerator or flow restrictor onto an existing tap, you can restrict the water flow to less than a third of standard taps.[2]

Flow regulators are inexpensive to buy and are available at hardware and plumbing supplies stores. They can be self-installed, but if you're not confident in such matters, get a friend or plumber to do it for you.

Water Efficiency Labelling Scheme (WELS)

The Water Efficiency Labelling Scheme (WELS) can tell you which products are more water efficient than others.

Devices receive a rating to a maximum of six stars. More stars mean less water is used and there is an associated saving on water and energy costs – particularly when you're using hot water.

When it comes to hot water, the label currently applies to washing machines, dishwashers, showers, taps and flow controllers. The WELS label also shows you how much water is used.

For more info visit: WaterRating.gov.au/

1 Energycut.info/govt-water-efficiency

2 Energycut.info/govt-water-efficiency

Service and maintain hot water systems

ENERGY STAR research indicates that improved boiler maintenance can lead to energy savings of up to 10%.[3]

Ensuring that your hot water heaters are properly maintained and serviced according to the manufacturer's instructions will ensure they're running at optimum efficiency.

Draining and flushing your water heater can also optimise its lifespan. Your plumber can advise you on how regularly this needs to be done.

Look out for leaks

A dripping tap can waste more than 2,000 litres of water a month. Left unfixed, that's 24,000 litres of water a year.[4] If it's a hot water tap, that's a lot of money going down the drain.

The solution? Fixing a leaking tap needs a $1 tap washer and advice from your local hardware store as to how to install it. Many hardware stores teach this skill in after-hours education evenings.

Alternatively, type "fix leaking taps" into the search bar at YouTube.com. This will bring up videos that show you how to do it.

Alternatively, you can get your plumber to fix it and then check all your other water devices for leaks when they're next doing maintenance work.

3 EnergyCut.info/boiler-maintenance

4 EnergyCut.info/tap-leak

What to do when a hot water system breaks down

When a hot water system breaks down, the priority is to get your hot water supply back up and running immediately.

When this happens, the need to get hot water back on often comes well ahead of the need to buy an efficient hot water system. However, it does not have to be this way.

If your hot water system breaks down, some companies can install a temporary water heater to supply your home or business. This will save you money as it gives you time to choose a solar hot water, heat pump or instant hot water system that maximises your energy savings.

In the event of a breakdown, here are the questions to ask an installer:

- Can they install a temporary water heater to give you more time to choose and install an energy efficient hot water system? If not, you may want to find a supplier who will – after all it's your household or your company that will have to pay the ongoing hot water bills.
- Is the installer appropriately qualified? Any system that requires an electricity supply will need a licenced electrician and plumber involved in the fitting. Similarly, if a natural gas hot water system has been chosen, your installer must be qualified to fit it.

> **How to choose the water heater that's best for you**
>
> **The average life of a domestic water heater is around 12 years, so choosing the right system for your needs is a long term investment and can make a real difference to your energy bills.**
>
> **The Government of South Australia has developed an interactive water heater calculator to help you find the most appropriate type of water heater for your home.**
>
> **The calculator helps you to compare up-front costs, annual running costs, life-cycle costs and greenhouse gas emissions produced by different types of heaters.**
>
> **For more info: sa-energy.info/sa-water-heaters**

Advice for purchasing and installing solar hot water systems

If you make the switch to using solar hot water you'll be in good company. In 2017 there were more than 830,000 solar hot water systems in operation in Australia.

When you decide to get a solar hot water system, check with your local retailer/installer for details of any government incentives that will help you to make the switch.

Then shop around for two or more quotes. Ask the solar hot water retailers to identify any government incentives and grants that are included in their quotes.

A retailer or installer will need to take the following into consideration when giving you a quote:

- how much hot water you use (this will dictate the size of the system you need)
- whether you have enough roof space
- whether your roof can support the system you need
- whether the orientation of your roof will suit a solar hot water system
- what kind of auxiliary boost you will need.

Finally check whether their warranty includes frost protection.

For detailed advice about purchasing a solar hot water system, check out this Clean Energy Council fact sheet: EnergyCut.info/cec-solar-fact

Solar hot water can reduce hot water bills by up to 75%.[5]

Why should you have electricity or gas to back up your solar hot water system?

During a period of cloudy or overcast weather, having an electric or gas booster attached to your solar hot water system will guarantee that you get hot water.

5 EnergyCut.info/susvic-solar-water

What type of solar hot water systems exist?

The EnergyRating.gov.au website has the following advice regarding the two different types of solar hot water systems.[6]

Flat plate panels

Flat plate panels have been used for around 40 years and are common around Australia. They operate at maximum efficiency when the sun is directly overhead at midday but are less efficient at other times of the day when the sun's rays hit the panels at different angles.

Flat plate panels:

- may require a special anti-freeze fluid for very low temperatures
- are generally less expensive than evacuated tube systems.

Evacuated tube systems

Evacuated tube collectors use an array of glass tubes that insulate in a similar way to a thermos flask where the heat energy is retained in the tube. This makes them more efficient at retaining heat throughout the day and when the sun is not directly overhead.

They can be much more efficient than flat plate panels in some conditions, such as cold climates. The technology was invented in Australia in the late 1980s and the collectors have been fully commercialised in the last decade.

Evacuated tube systems:

- make more efficient use of the sun's energy
- are lightweight and can be easily installed on the roof
- can withstand very low temperatures without the need for an anti-freeze fluid
- are generally more expensive than flat plate panels
- can have individual tubes replaced if damaged.

6 This text is reproduced with permission from: EnergyCut.info/solar-types

Install a heat pump hot water system

Some homes and small businesses can't use solar hot water systems because:

- they don't have a north-facing roof
- their building is surrounded by trees, or
- they want solar hot water but don't have access to gas to boost the system.

In such situations, heat pump hot water systems are ideal. They use 60%-70% less electricity than a conventional electric water heater.

They work like a refrigerator in reverse. Using a heat exchange system, a heat pump hot water system takes heat out of the air and uses it to help heat water. They're so efficient that they can even heat water on a winter's night.

They are simple to install and can reheat your water within as little as three hours. In 2017 there were over 217,780 heat pump hot water systems in use around Australia, so if you get one installed, you'll be using tried and tested technology.

The Department of Industry has a useful guide for people who want to switch to heat pump hot water heaters – you can check it out here: EnergyCut.info/heat-pump-water

Did you know?

An inefficient showerhead can use up to 25 litres of hot water a minute. A WELS 3-star rated showerhead, however, can use as little as 7 litres a minute.

Replacing an inefficient showerhead can therefore save you up to 18 litres of hot water every minute.

Many people take up to eight minutes to shower, so the hot water savings from water efficient showerheads become substantial in a very short space of time.[7]

7 EnergyCut.info/efficient-showerheads

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Install a gas hot water system

If the installation of a solar or heat pump hot water system does not meet your needs, you can install a natural gas water heater system.

These are currently more cost-effective than existing electric hot water heaters and come in two types – instant gas hot water systems and gas hot water storage systems.

When buying a gas hot water system, buy a system with a minimum 5-star rating.

A qualified plumber can advise you as to which one of these will give you the most cost-effective hot water for your home or business.

You can also use LPG gas where natural gas is not available, but according to CHOICE, this is more expensive than natural gas or electricity.

If your gas hot water system has a pilot light, make sure you protect it from draughts.

What water heater is best for you?

The Government of South Australia has an interactive water heater calculator that can help you to find the most appropriate type of water heater for your home or small business.

The calculator helps you compare up-front costs, annual running costs, life-cycle costs and greenhouse gas emissions produced by different types of heaters.

Visit: sa-energy.info/sa-water-heaters

Look for the money saving stars on gas hot water systems

Electrical appliances are not the only things with energy rating stars. Gas hot water systems have them too.

Gas labels give you a star rating for energy efficiency – they also give you the annual energy consumption of the product with a MJ (megajoules) per year figure. You should look out for appliances that have a maximum number of energy-rating stars and the lowest MJ figure.

For more information and advice on buying energy efficient gas hot water heaters go to the CHOICE website: sa-energy.info/sa-choice-hotwater

> **When buying a gas hot water system, buy a system with a minimum 5-star rating.**

Utilising instant hot water systems

Some homes and businesses need guaranteed hot water all the time. Others only need hot water occasionally. If that sounds applicable, you may need a gas or electric instant hot water system.

This type of system only consumes energy when it's being used. If you buy a gas instant hot water system, you should look for one that has at least six stars. According to CHOICE, gas models with electronic ignition are more economical than units with a pilot light.[8] You can also run them with natural gas or the more expensive LPG.

8 Source: CHOICE

Did you know?

Since 2008, the cost of solar PV modules has fallen by 80%.

Solar PV panels now generate electricity on more than 1.7 million Australian rooftops.

When you buy a solar PV system, you can expect a payback period of 5-7 years. As the panels should last for 25 years, when your payback period is over they should continue reducing your power bills for at least another 18-20 years.

You can receive funds for the excess solar energy that you export to the grid. These feed-in payments are usually available through your electricity retailer.

Rather than exporting excess solar power to the grid, new battery storage systems allow you to store your solar power on-site and use it in your own home or business.

STEP 10

Save money with solar

Solar photovoltaic (PV) panels are a great way to reduce your energy bills.

Since 2008, the cost of solar PV panels has fallen by 80%[1]. Government incentives such as Small-scale Technology Certificates (STCs) and feed-in tariffs also provided financial assistance for people who invested in solar power.

Since then, there has been a surge in the installation of solar PV panels – they now generate electricity on more than 1.7 million rooftops around Australia.[2]

As a result, many Australians have now realised that solar power is a great way to future-proof their home or business against rising energy prices.

If you haven't yet done so, why not install solar and start saving? This section will show you how to make the switch. It will also give you advice on storing your solar power in batteries.

Solar panels are generating electricity and reducing energy bills on more than 1.7 million rooftops around Australia.

1 EnergyCut.info/economy-report

2 sa-energy.info/sa-solar-rooftops

What financial assistance is available?

Small-scale Technology Certificates (also called solar credits)

When installing solar PV, the main financial incentive is the federal government's Small-scale Technology Certificates (STCs). They reduce the cost of solar PV systems by around 20-30% and are available for systems up to 100kW.

Most companies that sell solar PV systems include this government financial incentive in their pricing as a point of sale discount. As they handle all the paperwork, this makes it easier for you to get the benefit of cheaper solar power.

Feed-in payments for new solar PV systems

Your electricity retailer may offer you a retailer feed-in tariff for any excess electricity that your solar PV system generates and exports to the electricity grid. The payments you may receive will differ between retailers. To compare the amounts being offered to solar customers from different energy retailers visit: EnergyMadeEasy.gov.au

If you have an existing solar PV system and want to install a battery, speak to your retailer about how adding a battery may affect any feed-in tariff you currently receive. If you're receiving the 44 cent tariff speak to SA Power Networks.

What if you want solar but can't afford it?

- **Some companies offer interest-free payment plans for solar installations. Some local councils also offer help.**
- **Some major banks now have loans for energy efficiency or renewable energy upgrades.**
- **Call around the energy retailers and solar suppliers and ask them if they do solar power purchase agreements - sometimes called PPAs. These enable small businesses to get solar power with no upfront cost.**

Do your research to ensure that these options will benefit your situation.

Origin Energy installed an 82kW solar PV system at Tapanappa Wines with no upfront cost to the winery. The AFR reported that this solar PPA is saving Tapanappa at least $10,000 a year in their energy bills.

Getting a solar PV system with no upfront cost

If your small business wants solar power but can't afford the upfront cost, you might benefit from a solar Power Purchase Agreement (PPA). A solar PPA enables small businesses to get the money saving benefits of solar power with no upfront capital cost.

With a solar PPA, an energy retailer or solar supplier will install a solar system on the rooftop of the business customer. There is no upfront cost and they also look after the ongoing maintenance of the system.

In return the business customer enters an agreement to purchase the power from that solar system at a cost that's much lower than what they're paying for grid energy.

For Tapanappa Wines near Adelaide, their solar PPA is saving them at least $10,000 a year on their energy bills.

Businesses can keep the same solar electricity rate for up to 15 years, protecting them against any possible future electricity price hikes, or they can choose a CPI indexed rate.

Depending on the terms of agreement, business customers can also purchase the solar system for as little as $1 at the end of the term.

> ### Can households enter into a power purchase agreement?
>
> **Some energy retailers and solar suppliers do enter into solar PPAs with households. However those households need to use a lot of energy during the day to get the most value out of the agreement.**

Advice for purchasing and installing solar PV systems

When you decide to purchase and install a solar PV system, it pays to research who you're dealing with.

- Look for a company with a strong track record.
- The person installing a solar PV system or battery must be a licensed electrician. You can check if your electrician is licensed in South Australia by searching the licensing public register: sa-energy.info/sa-electricians
- In order to be eligible for government incentives such as Small-scale Technology Certificates (STCs) your supplier will need to be accredited by the Clean Energy Council. You can find a CEC approved installer here: SolarAccreditation.com.au/consumers/find-an-installer
- Ensure that the company uses quality products. Ask them if they sell 'Tier 1' level solar panels. These are well made, reliable, durable and high performing panels.
- Check the fine print of their warranty and service offerings (make sure it matches the verbal assurances given to you by their salesperson).
- Look at the products and services that are included in their offer.

As with many other products and services, when it comes to solar PV, you tend to get what you pay for. If you are choosing the lowest cost option, do your homework to ensure you're getting a good system.

> **Switching energy retailers – what happens to your solar feed-in scheme tariff?**
>
> Before switching energy retailers, check that the new retailer knows you are a solar feed-in scheme tariff customer and is willing to accept you as a customer.
>
> Not all retailers will recognise and contract with solar customers. As long as your new retailer has agreed, you will continue to receive your solar feed-in scheme tariff payments.

What is the difference between solar PV and solar hot water?

Solar PV

Photovoltaic technology turns the free energy of the sun into electricity. At the moment, it's mainly found on rooftops where it powers individual buildings.

This form of energy has really taken off – solar PV now generates electricity on more than 1.7 million buildings around Australia.[3]

Solar PV can reduce power bills and protect households and small businesses against energy price rises.

You can use the solar energy that you generate within your own home or business. This can help to reduce your usage of grid electricity.

You can also sell your excess solar energy back to the grid and receive an 'export price'. These 'export price' offers are usually available through your electricity retailer and are often called a retailer feed-in tariff (RFiT).

Solar hot water

Solar thermal technology has been in use since 1941. While solar PV systems have been designed to create electricity for use in your house, solar hot water systems have been designed to heat water directly.

More and more homes and small businesses are now using solar hot water to save energy and reduce bills. There are now more than 830,000 solar hot water systems installed in Australia.

More information on solar hot water is included in 'Step 9 - Reduce hot water costs'.

3 Source: sa-energy.info/sa-solar-rooftops

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Questions to ask a solar installer

When it comes to installing solar PV or solar hot water at your home or business, there are a few questions that you need to ask.

Questions for solar PV and solar hot water systems

- Can your company provide a written quotation?

  > **Tip: If you decide to proceed, don't agree to anything until you receive a formal contract of sale detailing all the terms and conditions.**

- How long have you been in business and how many installations have you carried out?
- Is there a deposit required and what are the refund conditions? (If a deposit is required, this should not be more than 10% of the overall cost).
- What is your policy if the date you promise to deliver and install the equipment is not met?
- Do you offer a warranty on the equipment? Can the warranty be extended? Is it backed by an insurer or a distributor in the event that the panel or inverter manufacturer becomes bankrupt?

  > **Tip: When comparing different quotes, compare the length of the warranties being offered. You should look for a minimum 10 years on the panel and 5 years on the inverter. Also check if the manufacturers of the equipment have an office in Australia. This could be useful if something goes wrong.**

- What happens if a repair is needed during the warranty period? Who handles this?
- Do you install yourself or use subcontractors?
- If you use subcontractors and something goes wrong, who is responsible?
- Can you provide me with references for installations that you've undertaken for homes or businesses in my area?
- Do you provide a maintenance plan for systems that you install?

- Will you come back in six months to check that the installation is working as claimed and generating the right amount of power? If not, can you put in a monitor so I can check the system is working properly?
- Will shading from trees, chimneys or power lines lower the performance of this solar equipment?
- Does the price being quoted include all available rebates and grants? If it does, are you handling all the associated paperwork for them?
- Is the price fixed or will you charge extra if you run into difficulty during the install or identify a problem at a pre-install inspection?
- How long will it take for the system to pay for itself?
- What size of solar PV system do you recommend and how much electricity will it be able to generate?

> **Tip: If you want to self-consume the energy produced by the solar panels, let the installer know how much energy you use and when you're using it throughout the day. This may affect their system recommendation.**

- Down the line, can I add a solar battery system to this set up? Can I expand the number of solar panels at a later date?
- What brand of panels are you proposing to install?
- What brand of inverter are you proposing? Does it meet Australian standards and what warranty do you offer with it?
- Will this system work during a power cut? Most don't, but they can be set up to do so.
- Who is responsible for managing SA Power Networks approval to connect?
- Is the cost of electricity metering included? If not, how much will it cost and who is responsible for arranging it?
- Who is responsible for negotiating with the electricity retailer to get the best deal for me? What help can you provide, if I am responsible for this?
- If something goes wrong, what costs might I be expected to pay for?

Your solar PV post-installation checklist

Once your solar PV system has been installed, you should check that:

- you have received all necessary documentation from your accredited installer including an operation manual and warranty documentation
- your electricity network provider and retailer have been advised and have approved the installation and the meter has been changed or properly reconfigured
- the correct solar tariff has been applied to your electricity bill by your energy retailer
- ensure that all of the system's cables are secured and properly enclosed to protect them.
- you have been provided with clear shut down instructions, as well as a label placed on your main switchboard and meter box identifying that your home has multiple energy supplies.

Further help and advice

The Clean Energy Council has some very helpful online solar PV resources:

- Guide to purchasing household solar systems: sa-energy.info/solar-households
- Guide to purchasing solar systems for business and industry: sa-energy.info/solar-business

For further information about solar panels or battery storage visit: Choice.com.au/home-improvement/energy-saving/solar

You can also contact the Government of South Australia's Energy Advisory Service between 9am - 5pm on weekdays. Phone 1800 671 907 (free call from fixed lines) or email energyadvice@sa.gov.au.

How I'm using solar battery storage

My solar battery system is the size of a small fridge and contains batteries that are recharged by the solar panels on my roof.

During peak periods, I run my whole house and home office on battery power. This saves me money as it reduces my use of expensive grid electricity. We're using stored solar power instead.

I also recharge these batteries overnight with cheap off-peak electricity. I use this cheaper stored energy to power my house and office first thing in the morning before the solar power kicks in.

This system also gives me the flexibility to add more batteries at a future date. This is useful as the cost of these lithium-ion batteries is dramatically coming down in price.

By reducing my usage of expensive peak electricity, this technology is making a real dent in the energy bills of my home-based business. My next step is to look at powering my house with the far bigger battery in my electric car. This car battery could power my home and business entirely with solar and cheap off-peak power.

When will the time be right to use solar battery storage?

Battery storage costs are coming down very quickly. Over the next few years, this technology will become cheaper and far more mainstream.

Households and businesses have already begun installing batteries to store their excess solar power for later use.

Households and businesses are also recharging these batteries using cheap off-peak electricity to offset the cost of expensive daytime grid electricity. Both of these approaches are helping to reduce energy bills.

If you're interested in off-peak charging of battery systems and electric vehicles in South Australia, contact SA Power Networks on 13 12 61.

For general information about battery storage, contact the Government of South Australia's Energy Advisory Service (contact details are on the previous page).

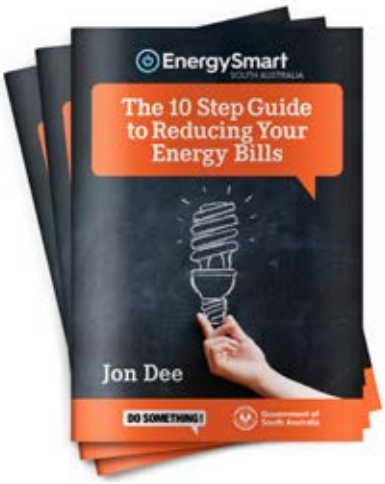
You can also download a battery storage guide for businesses from: sa-energy.info/sa-battery-storage-guide

Further information

The energy efficiency space is constantly changing, with innovations and new initiatives happening all the time.

That's why we have put our 'further information' listing online.

Visit EnergySmartSaver.com.au/further-info for a list of organisations, government bodies and experts that can help you to reduce your energy use.



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About the author

On SKY NEWS Business channel, Jon Dee is the Anchor Host of Smart Money, a TV programme that shows businesses how innovation, efficiency and sustainability is good for the bottom line. To date he has written and presented over 100 episodes of the programme.

As an author, Jon's business guidebooks have shifted over 140,000 copies. Within Australia and overseas, Jon regularly gives keynote speeches and consults to companies on efficiency, sustainability and change management.

As a philanthropist, he is the Founder and Managing Director of the Australian charity DoSomething.

His environmental initiatives have created lasting and positive change. In June 1991, he founded Planet Ark in partnership with Pat Cash. He headed up the organisation for 15 years, turning it into a household name and a powerful force for good.

In 1988, he also founded Rock Aid Armenia which led to the building of a music school for 220 children in the Armenian earthquake zone. Together with Olivia Newton-John he also founded Australia's National Tree Day and the international One Tree Per Child initiative.

Jon was Australian of the Year 2010 (NSW) and in 2009 was the recipient of Armenia's highest award, The Order of Honor, for his long-term work in Armenia. He lives in the Blue Mountains with his wife Leanne and their two daughters.

For more information visit JonDee.com or follow Jon on Twitter via Twitter.com/JonDeeOz.

The 10 Step Guide to Reducing Your Energy Bills

If you're worried about rising energy costs, you need to read this book.

Written by energy expert Jon Dee, it's a simple 10 step guide that shows you how to cut your energy use and save money.

It's also jargon-free and easy to follow.

Targeted at households and small businesses, it's full of real-world solutions that show South Australians the many ways they can reduce their energy bills.

Government of South Australia

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