

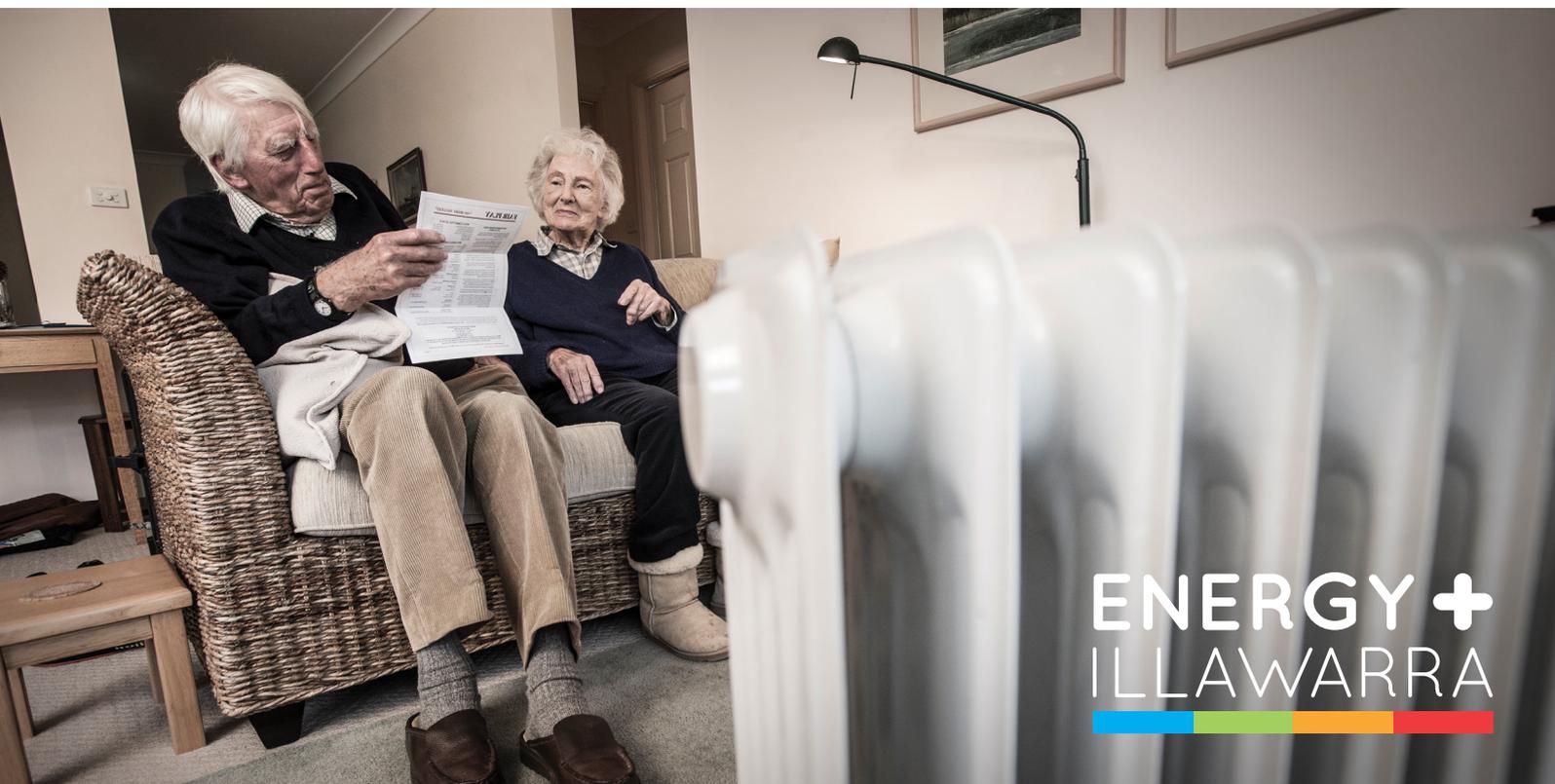


# ENERGY +

## WINTER WARMING

[WWW.ENERGYPLUSILLAWARRA.COM.AU](http://WWW.ENERGYPLUSILLAWARRA.COM.AU)

**SAVE MONEY, SAVE EARTH, LIVE WELL**  
AND CREATE A BETTER WORLD FOR TOMORROW



ENERGY +  
ILLAWARRA

# ENERGY + ILLAWARRA

## WHAT IS ENERGY+ILLAWARRA?

ENERGY+ILLAWARRA is a program developed with the community, for the community. It aims to support energy efficiency in the home, without sacrificing comfort or well-being. The Energy+Illawarra program features a range of activities that will help bust myths and misconceptions about energy use, and provide you with facts and various forms of support to use energy efficiently in the home.

## WHO IS INVOLVED IN ENERGY+ILLAWARRA?

ENERGY+ILLAWARRA is based on extensive engagement and research with community members who are at the heart of the project. The program involves partnerships between University of Wollongong (UOW), Macquarie University, Regional Development Australia Illawarra (RDAI), Warrigal, IRT Group, Royal Freemasons' Benevolent Institution (RFBI), Illawarra Forum, WEA Illawarra, and the Southern Councils Group. This activity received funding from the Australian Government.

## IS THERE A WEBSITE OR FACEBOOK PAGE?

Yes, we have both! You can find the website for the program at:

[www.energyplusillawarra.com.au](http://www.energyplusillawarra.com.au)

The website expands on some of the points in this brochure and contains lots of extra information and resources about energy efficiency. Don't forget to keep visiting the website over the coming months, as additional resources and tools will be added throughout 2015-16 providing key facts on energy use. There will also be educational

videos featuring real people, real homes and real lives from our community.

You can find the Facebook page at:

[facebook.com/energyplusillawarra](https://www.facebook.com/energyplusillawarra)

The Facebook page is constantly updated with energy saving tips, facts and resources to help you save money and maintain your well-being, so be sure to give us a like.

## WHAT DO YOU MEAN BY ENERGY EFFICIENCY?

**ENERGY EFFICIENCY IS USING ENERGY WISELY AND ECONOMICALLY TO SUSTAIN EVERYDAY LIFE, LIVE COMFORTABLY AND SUPPORT WELL-BEING**

Being energy efficient doesn't always mean doing more with less, sometimes it's doing more with what you have. For us it's about maintaining quality of life whilst reducing energy consumption where possible.

## WHY SHOULD I BE ENERGY EFFICIENT? WHAT IS THE VALUE?

There are a number of reasons and benefits to becoming energy efficient:

**SAVE MONEY** - Being energy efficient can save money on your energy bills. It's that simple. The money you save on electricity bills could be better spent elsewhere to help support your well-being.



**SAVE THE ENVIRONMENT** - Using less energy means we save on precious natural resources, cut down pollution, and ensure a sustainable world for future generations.

**LIVE WELL** - Knowing how to use energy efficiently and having the key facts can help you run your home and live the lifestyle you want without hassle. Finding better ways to use energy and your home appliances can help you maximise comfort whilst minimising energy consumption.

**FEEL GOOD** - Knowing that you are using energy efficiently can make you feel happy and confident about how you run your home. You may also feel good about doing your little bit to help create a better world.

**SET A GOOD EXAMPLE** - By using energy efficiently in the home you can set an example to family, friends and for future generations that you know the benefits of being energy efficient. People could see you as a good source of advice and knowledge meaning you can help others as well as yourself.

## **ARE THERE WORKSHOPS I CAN ATTEND?**

Yes! WEA Illawarra are conducting 2-hour workshops across the Greater Illawarra. You can learn about energy efficiency practices, the latest technologies, and what small improvements in your home can make a big difference. For more information on these workshops you can visit:

**[www.energyplusillawarra.com.au](http://www.energyplusillawarra.com.au)**

or contact WEA Illawarra on:

**(02) 4226 1622 - [info@weaillawarra.com.au](mailto:info@weaillawarra.com.au)**

# ENERGY + HEATING

Heating is one of the larger uses of energy in the average Australian home. However there are a number of ways to maintain a comfortable temperature at home whilst being energy efficient.

## BODY TEMPERATURE

We each carry around our own little food-powered engines and heaters inside our bodies that “burn off” a little heat energy when we move around. When we generate more heat than we are getting rid of we feel hot; and we feel cooler when we are losing more heat than we generate.

How warm you feel depends on a combination of body heat generated during physical activity, the surrounding air temperature, humidity and “wind-chill” factor, how fast you allow this heat to escape (by layers of clothing) and any radiated heat.

Personal comfort varies greatly between individuals, but our bodies naturally adapt to the seasons and outdoor temperature each day. You may be comfortable at indoor temperatures of around 18°C during winter and acclimatise to around 25°C during summer.

Clothing helps reduce heat loss and maintain body temperature so dress appropriately and consider lightweight blankets while watching TV. Keeping active is good for your well-being and also generates body heat. Even walking around your home during an ad break will help make you feel warmer.

## DRAUGHTS

In our temperate climate, many people have their windows and doors open a lot of the time, even in winter. But when you want to keep the inside warmer (or cooler) than outside, it is important to seal off draughts.

Particular areas to consider when trying to keep your home sealed are:

- **DOOR AND WINDOW SEALS**

Draughts and air movement make us feel colder. In winter, cold air will come in under external doors and through gaps around windows. By installing draught excluders at the base of doors, as well as draught seals around doors and windows, you can stop the cold air from getting in and the heat from getting out in winter. Don't forget the garage door or internal access door from the garage.

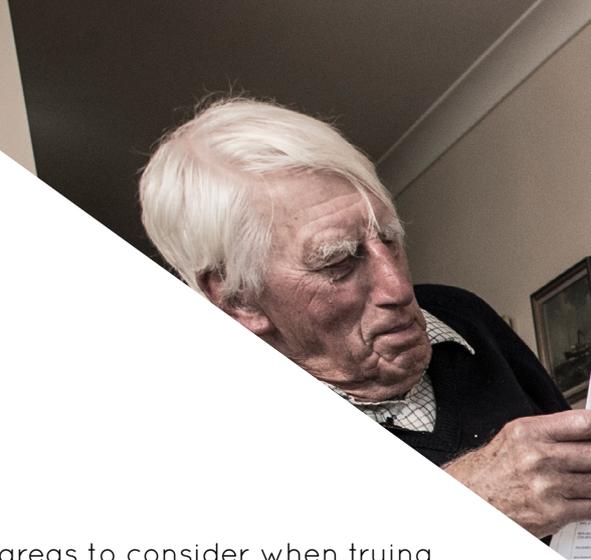
Do-it-yourself, cheap draught stripping can be purchased at local hardware stores. Seal gaps around the outer edges of door and window frames with caulking.

- **DOWNLIGHTS**

Downlights that are recessed into the ceiling promote air leakage to the outside and waste heating and cooling energy. If you have downlights consider installing a downlight cover with insulation safely topped up right around the unit. Contact a certified insulation installer for this; [www.licensedtrades.com.au](http://www.licensedtrades.com.au) will help you find certified tradies in your area.

## FREE HEATING

In winter, try to keep your curtains open during the day to make the most of the sun's heat, especially north and west facing windows. Then close them at sunset to prevent the heat escaping overnight. You might want to leave south facing windows covered on cold days however to limit the amount of heat loss, as these don't capture any direct sunlight.





## INSULATION

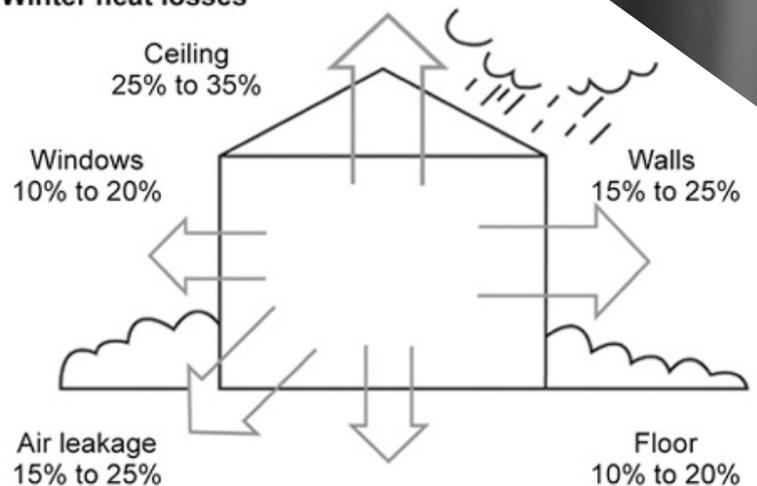
Insulation acts as a barrier to heat loss and gain. In many homes, insulation is the most practical and cost effective way to make a house more energy efficient, keeping it cooler in summer and warmer in winter.

The cheapest and easiest areas to insulate are windows. Window coverings insulate the room by trapping an air pocket between the window and covering. Curtains which extend below the window frame and have fully enclosed pelmets work best. Close fitting top-down bottom-up honeycomb blinds offer an excellent alternative to curtains.

Ceilings are the second priority for insulation as they are a significant source of heat loss. Contact a certified insulation installer for information and advice on your home.

Floorboards promote air leakage and heat loss. Carpets are a great option to insulate a floor. Area rugs are another good option as you can put them away in summer when you want a cooler floor surface. However, be aware of your rug placement as these can be a trip hazard. For under floor insulation installation contact a certified installer.

Winter heat losses



# ENERGY + HEATING

Even with keeping active, dressing in layers, and reducing thermal leaks in your building, you will probably choose to use gas or electricity to heat the air in your home in winter to live comfortably.

## REVERSE CYCLE AIR CONDITIONERS

Reverse cycle air conditioners are a far more efficient way to heat the air in your home compared to an electric heater, such as a fan heater or an oil column heater. For the same heat output, an air conditioner will be 2.5 to 6 times more efficient than an electric heater (see the table below).

Air conditioners are more expensive up front and may not be worth the cost if you do not use very much heating. However if you used

a heater for more than 6 hours a day for 3 months each year, an air conditioner would pay itself back in around 6 years.

Reverse cycle air conditioners heat the air, but can also create airflow that feels cooler for the same air temperature. If it feels cold, try reducing the fan speed or redirecting the air outlet.

## ELECTRIC HEATERS

Electric heaters do not have a star rating system because they all have similar low performance compared to reverse cycle air conditioners and gas heaters. Electric fan heaters are very cheap to buy and can be effective for taking the chill out of the air in a small room, but use a lot of electricity to heat large rooms.

	2 ELECTRIC HEATERS (EXISTING)	Reverse Cycle Air Conditioner		
		20 YEAR OLD (TYPICAL)	NEWER 4.5 STAR	NEWER 7 STAR
INPUT POWER (KW)	3.6	1.5	0.8	0.62
OUTPUT HEAT (KW)	3.6	3.6	3.6	3.6
PURCHASE COST	-	-	\$1200	\$2200
INSTALLATION COST	-	-	\$500	\$500
ELECTRICITY COST (\$/HOUR)	<b>\$0.83</b>	<b>\$0.35</b>	<b>\$0.18</b>	<b>\$0.14</b>
PAYBACK PERIOD (HOURS)	-	-	2600	3900

\*Prices are indicative of market costs at time of publishing (July 2015) and quotes should be obtained from a local installer.



Electric radiators feel good for direct instant warmth on the skin, but will also warm up the walls and furniture rather than the air around you. Sitting directly in front of a radiator can be an effective way of achieving personal warmth in a large room without needing to heat all the air in the room.

## **GAS HEATERS**

Gas heaters are much more efficient than electric heaters but less efficient than modern high efficiency air conditioners. Many people prefer the feel of gas heaters because of the warm radiated heat onto the skin and because they increase moisture in the air, which helps you feel warmer at the same temperature. However gas heaters also remove oxygen from the indoor air and produce carbon dioxide and carbon monoxide, so un-flued (portable) gas heaters require fresh air ventilation for health and safety. This creates a thermal leak to the outside, which makes them less efficient.

## **ZONING**

In every home there are areas that we utilise everyday and some that we rarely visit. When trying to heat up a home there's no point wasting energy heating up rooms that are rarely used. Where possible shut off parts of the house by closing doors and windows to ensure that you only heat the parts you need. Where no doors exist, consider installing curtains or petitions to section off unused spaces.

# ENERGY + HOT WATER

Heating water is the second largest segment of household energy use in Australia, accounting for between 21-50% of your energy bill.

So one of the best ways to reduce energy bills is to reduce hot water consumption. More than half of hot water use in the home happens in the bathroom, so installing water efficient shower-heads and taps is a great energy saver. Washing clothes and rinsing dishes in cold water will also help.

## GOVERNMENT INCENTIVES

Households across Australia that install an eligible hot water system may be able to receive a benefit under the Small-scale Renewable Energy Scheme (SRES) to help with the purchase cost.

To check your eligibility and for more information go to: [yourenergysavings.gov.au/rebates/renewable-power-incentives](http://yourenergysavings.gov.au/rebates/renewable-power-incentives)

## HOW DO SOLAR HOT WATER SYSTEMS WORK?

A solar hot water system could provide 50-90% of your hot water needs by taking advantage of Australia's supply of sunshine to heat water.

Solar hot water systems use solar collectors, usually located on the roof of your home (best positioned facing north), which absorb energy from the sun to heat water for your home. The heated water is then stored in an insulated tank for when you need it.

On cloudy days, or when hot water usage is higher than usual, your hot water system may need a boost. The booster will come on when the temperature of the water in

the storage tank falls below the thermostat setting, and turn off automatically when the water reaches the required temperature.

Boosters ensure that you always have access to hot water and can either be electric or gas.

## HEAT PUMP HOT WATER SYSTEMS

Heat pump hot water systems are a newer, more efficient, type of storage water heater that extract heat from the air to heat water.

They work on the same principle as a reverse cycle air conditioner, but instead of pumping heat from outdoors to indoor air, they pump heat from outdoor air into the water.

They run on electricity but are roughly three times more efficient than conventional electric water heaters. Efficiency decreases significantly in cooler climates.

## IS IT WORTH THE EXTRA UPFRONT COST?

Solar and heat pump hot water systems cost more to buy and install than other types of hot water systems. However the energy savings will recover your costs well within the life of the system, and they add value to your home.

Most people wait until their existing hot water system fails (typically at around 10 years old) before thinking about replacing it, at which point the upfront cost of an energy efficient upgrade seems too high in the urgency of the moment.



If your hot water system is more than 5 to 10 years old, consider getting quotes and advice on energy efficient replacements so you can start saving and be ready to make the best long term decision if your system fails.

## GAS HOT WATER SYSTEMS

Gas hot water systems are more energy efficient and cheaper to run than electric storage systems. All gas hot water systems have an energy star rating to help compare models. Gas-instantaneous systems are generally more efficient than gas storage systems as they only heat the water that is required at the time. A gas-instantaneous boosted solar system is one of the most efficient hot water systems available.

## EXPOSED PIPES

Exposed copper hot water pipes can lose heat energy if they are not insulated. Insulate your pipes, valves and fittings with foam pipe insulating tube and wrapping (13mm thick for external tanks and 9mm thick for internal tanks). Insulate at least 2 metres or to the nearest wall penetration. Cheap insulation can be purchased at local hardware stores.

## WHAT TEMPERATURE SHOULD MY WATER BE?

Hot water safety regulations specify that hot water outlets in bathrooms and kitchens must be no more than 50°C. Tempering valves are now installed on all systems to mix some cold water in with the hot water from the tank to reduce the temperature at the taps. Setting your tempering valve at around 40°C will save significant energy.

Health regulations stipulate that hot water tanks must hold water above 50-60°C.

# ENERGY + COOKING

Cooking accounts for about 4-5% of your total energy bill. By using your cooking appliances efficiently, and changing the way you prepare food, you can make a difference to your energy use, without sacrificing your well-being. After all, food is one of the great joys in life!

## OVENS

When it comes to cooking, one of the largest energy consuming appliances is your oven. But, like most appliances, there are ways to use it more efficiently:

- Check the door seals for any air leakage. Replace the seals to prevent wasted heat, energy and money.
- Try to avoid pre-heating the oven unnecessarily.
- If possible, cook several things at once.
- Reheat food in the microwave instead of the oven.
- Consider using smaller appliances like electric fry pans, slow cookers or microwaves as an alternative.

## MICROWAVES

Microwaves use far less electricity than traditional electric ovens and can cook food much faster. Using a microwave can use up to 80% less energy when reheating food than a standard oven.

Some people think that microwaves can contaminate food. This is untrue. Microwaves cause water molecules in food to vibrate which produces heat needed to cook the food. This makes foods high in water content, like vegetables and soups, great for cooking in the microwave.

## ELECTRIC & GAS STOVE TOPS

Electric and gas stove tops are great for cooking but can be a substantial source of wasted energy.

When cooking on the stove top, using the right size pan matters. You want your pans to be as close as possible to the size of the burners. If your pan is only 6 inches and you are cooking on an 8 inch burner, over 40% of the heat will be wasted. Using the right pots and pans will also help cook food more evenly.

Other things to consider when using an electric or gas stove top are:

- Keep the lid on pots when possible to reduce heat loss. It makes the food cook faster and keeps the kitchen cooler.
- Pots and pans with flat bases allow for more contact with the heating elements, which heats your pan more efficiently.

## INDUCTION COOK TOPS

Induction cook tops heat the surface of the pans directly without needing to heat an element or lose heat to the air. These are around twice as efficient as a standard electric element and the stove top does not get hot so they are safer and easier to clean. They provide very fast cooking with excellent temperature control, but cost more to purchase.

## BOILING WATER

When boiling water for a cuppa, be it on the stove or in the kettle, only boil what you need. The more water you boil, the more energy is required to heat it. If you do





accidentally boil too much, consider using it to wash the dishes when it cools down to a safe temperature.

## SLOW COOKERS

Slow cookers use significantly less energy than a stove top and are great for soups or stews that could take hours to cook. Slow cookers use just a little more energy than a traditional light bulb, and you can leave your food to cook slowly while you get on with other things.

## FREEZING MEALS FOR LATER

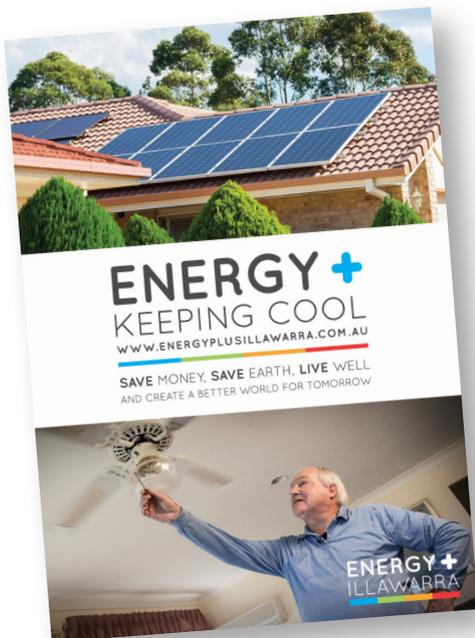
Cooking in bulk and reheating meals later with a microwave is a convenient way to save time and effort but it does use energy to freeze, defrost and reheat the food.

There are some things you should know in order to always ensure the food is safe to eat. When it comes to freezing and thawing food, the NSW Food Authority recommends:

- Never thaw food at room temperature, bacteria grow best at this temperature. Food defrosts safely in the fridge.

- Only thaw food once. Bacteria can multiply when food defrosts.
- Never refreeze raw food, especially meat and poultry.
- Only refreeze food after it has been cooked thoroughly.
- Cooked leftovers should only be frozen once. After defrosting discard what is not eaten and never refreeze a second time.

For more information on food safety visit:  
[www.foodauthority.nsw.gov.au/](http://www.foodauthority.nsw.gov.au/)



## NEXT ISSUE

Keep an eye out for our next issue “Energy+Keeping Cool” where we discuss solar power, options for cooling your home, dishwashers, and the contribution standby power makes to your energy consumption.

 [FACEBOOK.COM/ENERGYPLUSILLAWARRA](https://www.facebook.com/energyplusillawarra)

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