

Energy Audits

- There are a few options for Energy audits
- Simple – Energy Friends download audit sheet from http://www.dtei.sa.gov.au/energy/energy_action/household/saving_energy/easy_ways_to_save.html and press Home Energy Check Print here.
- Allow an hour to complete this survey



HOME ENERGY SELF-AUDIT

Interested in reducing energy costs at home? This self energy audit guide will help you.

This guide will help you identify practical ways in which you can be more energy efficient at home. You will be asked to observe and assess the types of energy using appliances you have and the way you use them. Comparing your current practices with energy efficient ways, you will be able to identify steps you can take to becoming an energy star. For a typical household this could mean cutting energy bills by hundreds of dollars per year.

Grab a pen and a cuppa and begin your energy audit.

How to conduct your energy audit

Allow around an hour to complete the audit

Work your way through each of the tables in this guide (A to J).

Answer yourself each of the 'How do you use energy?' questions. Then circle the response that best matches your current energy use practices.

Each response has a star rating. Note the number of stars that corresponds to your answer.

If you scored less than the maximum number of stars, read through the 'energy actions' to identify the actions you can take.

Compare your results for this table. How do you compare?

Once you've completed all the tables, use the space on the back page to summarise your energy star actions. Set a date when you'll do each of these - and try to stick to this.

If you need any further advice, call the Energy Advisory Service - 08 8204 1888 (Freecall 1800 671 907 for Country Callers), visit the web site www.energy.sa.gov.au or email on energy.sa@saugov.sa.gov.au

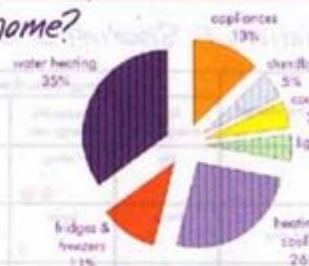
WARNING

Take care to avoid injury or damage during your self-audit. In particular:
 - Take extreme care when handling hot water and water heater pipes as they may be hot enough to burn.
 - Take care when lighting and using incense sticks to avoid fire, burns or damage to property.
 - Take care near any electrical or gas appliance.



Where do I use energy in my home?

This graph shows a breakdown of energy use for a typical South Australian home. Of course all homes and people are different so please use these figures as a guide.



A. Water Heating

B. Shower, baths and taps

How do you use energy?	Your energy use is closest to...			Energy Star Action
	high energy use	moderate energy use	energy efficient	
What type of water heater do you have?	Electric storage	Gas	solar 5-star gas, or heat pump	3-4 tonnes of greenhouse gases are produced per year to power electric heaters. If you need a new water heater, the most environmentally friendly are solar, 5-star gas or heat pumps.
Check your hot water heater temperature?	65°C or more	62°C	60°C	Australian standards require storage water heaters to be set at no less than 60°C. Instantaneous gas water heaters can be set to lower temperatures. Most tanks require adjustment by a qualified tradesperson.
What is your shower's hot water flow rate?	15 litres per minute or more	12 litres per minute	9 litres per minute or less	AAA rated showerheads give a great shower with less water. They also reduce pressure gas and electric storage heaters. AAA rated tap aerators can also be used to reduce flow.
How do you shower and bathe?	Long showers & deep baths	Showers only or shallow bath	Short showers (3 min or less)	A bath can use over 100 litres of water. A short shower can use less than 10 litres.
Is there insulation (lagging) on your water heater pipes?	None	Some	Lagging on cold and hot pipes	Insulating exposed copper pipes with rubber tubing (known as lagging) can reduce heat loss from storage water heaters. Pipes that are used for both hot and cold water pipes should be lagged, at least for the section from the tank. Lagging is available from hardware and plumbing suppliers.
Your total	0			= 1/11 stars

C. Clothes Washing & Drying

How do you use energy?	Your energy use is closest to...			Energy Star Action
	high energy use	moderate energy use	energy efficient	
What water temperature do you use for clothes washing?	Always hot or warm	Sometimes warm	Always cold	Most of the energy used for clothes washing goes into heating the water. If you need a new clothes washer, check the energy star rating. The more stars the better.
How do you dry clothes?	Always use the dryer	Sometimes use the dryer	Always dry on the line/clothes airer	Use the dryer less. If you do need to use it, spin dry your clothes on the line. Heat dryers also have energy star ratings.
Your total	0			= 1/4 stars

D. Fridges & Freezers

How do you use energy?	Your energy use is closest to...			Energy Star Action
	high energy use	moderate energy use	energy efficient	
Do you have a second fridge or freezer?	Always running	Only on when needed	I do not have a second fridge or freezer	A second fridge or freezer can cost over \$100 to run. Do you really need it? Only run it when needed - such as for parties. New fridges can cost less than older ones. Check the energy star ratings - the more stars the better.
Where are your fridge(s) and freezer(s) located?	In a hot spot	A sometimes warm spot	In a cool spot	Locate fridges and freezers in cool spots, away from direct sun and heat sources, such as stoves.
Check your fridge and freezer temperature?	Running at less than 3°C	Frosts up occasionally	Fridge does not frost up	The recommended operating temperature for a fridge is 3 to 5°C. Freezers should be set to -18°C. Regularly remove any frost buildup.
Are your fridge and freezer well ventilated?	No air gaps on sides and top	Some air gaps	Plenty of space around fridge	Fridges and freezers need gaps to the top, back and sides to shed heat. Appliances with exposed back coils, vacuum or wipe off dust. Also seal well.
Your total	0			= 1/7 stars

Insulation, F. Shading & E. Draught proofing

How do you use energy?	Your energy use is closest to...			Energy Star Action
	high energy use	moderate energy use	energy efficient	
How is your home insulated?	None	Ceiling ★★	Ceiling and walls ★★★	Insulation is measured by its thermal resistance (R). Contact Energy Division's Advisory Service (see details on the front page) for the best R-value for your area.
What is the orientation of your home facing?	None	Some ↓	Shade summer sun only ★★	Well-designed eaves shade summer sun while allowing winter sun in. Alternatively an external blind, pergola or deciduous vine can be used.
How do you shade east and west windows?	None	Some ↓	Well shaded in summer ★★	It is important to externally shade east and west windows in summer. Blinds, verandas or trees can be used.
How do you shade palmets over windows?	None	Good curtains ↓	Good curtains and palmets ★★	Heavy lined curtains and palmets help keep heat in during winter and out on hot summer days. Palmets (covers over the top of curtains) are important to stop draughts caused by airflow between curtains and windows.
How do you seal draughts from external windows etc?	Large gaps	Some gaps ↓	No gaps ★★	Use special door and window seals, gap filler or draught excluders to block draughts. Seal any gaps around skirting boards, ceilings and old air vents. Check that chimney flues and extraction fans can be sealed when not in use. Note: by law, rooms with unflued gas heaters must have adequate ventilation.
Your total	0			= /10 stars

Lighting & Cooling

How do you use energy?	Your energy use is closest to...			Energy Star Action
	high energy use	moderate energy use	energy efficient	
How do you heat your home do you use?	Whole house	All living spaces ↓	Only rooms that people are in ★★	Only heat or cool the rooms you are currently using. Close doors between these rooms and the rest of the house. If heating is required at night (eg for medical reasons) only heat bedrooms.
How do you heat for heating?	Ducted whole of house or many electric heaters	Single room heater ★	Warm clothes and occasional heater ★★	Ducted air conditioning can be very expensive to run. A bar radiator or blow heater can use as much energy as a single room reverse cycle air conditioner or single room gas heater. Wearing warm clothes and only heating when needed can significantly reduce heating costs.
How do you use for cooling?	Ducted whole of house	Single room air conditioner ↓	Ceiling fans and night breezes ★★	Ceiling fans can significantly improve comfort. They also work well with air conditioners. Reversible ceiling fans also offer winter benefits. Opening doors and windows on summer evenings to let in cool breezes can also help cool. Evaporative coolers cost less to run than refrigerative air conditioners.
How do you set living room thermostat?	24°C or more	22°C ↓	20°C or less ★	Lowering the thermostat of heaters by one degree can reduce energy use by 10%.
How do you set living room thermostat?	21°C or less	23°C ↓	25°C or more ★	Raising the thermostat of cooling systems by one degree can reduce energy use by 10%.
Your total	0			= /7 stars

To know your water heater's thermostat setting, measure the delivered water temperature by placing a thermometer under a running hot water tap next to the water heater. Delivered water temperature may be a few degrees lower than tank temperature.

To check shower and tap flow rates, turn the hot water tap on full and let it flow into a bucket for 10 seconds. Measure the amount of water in litres. Multiply flow rate in litres per minute. Take care to avoid spilling the hot water.

To check the temperature inside your fridge or freezer, place a thermometer to the back and bottom of the fridge or freezer and leave it for a few minutes. Draughts, such as gaps and cracks, can be observed by either looking for daylight around the edges of doors and windows, looking for gaps in skirting boards, feeling draughts on a wet finger or using a lit incense stick to observe the flow of air (where there is a draught the smoke will jiggle or then blow vertically).

Room temperature can be measured with a thermometer near where people tend to be in the room or by the thermostat setting on the heater or air conditioner. There may be a few degrees difference between the thermostat setting and the room temperature.

Energy and Your Well Being

Energy to heat and cool our homes can be very important - especially for elderly people, families with young children and people with illnesses. Please ensure your efforts to use energy wisely do not compromise your health and safety.

1. Lighting

How do you use energy?	Your energy use is closest to...			Energy Star Action
	high energy use	moderate energy use	energy efficient	
What types of lights do you have?	Incandescent or halogen lights	Some fluorescents ↓	Mainly fluorescents ★	Fluorescent lights use much less energy than incandescent globes or "down lights". Compact fluorescents can replace incandescent globes not on dimmer circuits - especially those used for a few hours per day very cheap to run.
Do you regularly turn off lights?	Lights left on all the time	Lights turned off occasionally ↓	Lights turned off when no one in the room/area ★	It's OK to turn fluorescent lights off when you leave the room - even for a few minutes (it's an old myth that this is a waste of energy). Motion sensors can be used to automatically control outside lights.
Your total	0			= /2 stars

J. Standby, Cooking & Other

How do you use energy?	Your energy use is closest to...			Energy Star Action
	high energy use	moderate energy use	energy efficient	
Do you have a pool?	Heated and filter always runs	Solar or no heating, filter runs for less than 6 hrs/day and regularly cleaned ★	No pool ★★★	A pool pump running 24hrs/day can cost \$300-\$500/yr. A gas pool heater can cost \$400-\$800/yr. Consider a solar pool heater and blanket. Keep clean and backwash filter when necessary. Salt-water chlorinators can reduce energy use of pump.
Do you heat your bed?	Waterbed	Electric blanket used just before bed time ↓	No heating ★★	Waterbeds can be very costly to run. Making the bed each day reduces energy use. If you need an electric blanket, turn it on just before going to bed and turn it off when you have got into it.
What are your main forms of cooking?	Electric stove and oven	Occasional microwave ↓	Microwave and/or gas cooker ★	The most environmentally friendly cooking options are microwaves and gas cookers. Ensure seals on ovens work well. Place lids on saucepans.
How do you turn off your appliances with remote controls or "soft switches"?	Turn on and off with remote control	Turn off at the wall sometimes ↓	Turn off at the wall most of the time ★	Appliances with remote controls or "soft switches" such as TVs, stereo components, microwaves and some washing machines can consume energy when in "standby" mode. Turn these off at the wall (either manually or with a timer) when not in use.
Do you have a computer? If so, how do you turn computers and computer screens off?	Left on for long periods	Use Energy Star Sleep features ↓	Monitor & PC turned off, or don't have a computer ★	Most modern computers can be set to enter "sleep" mode when not in use for a certain period (such as 15 minutes). Turning the computer monitor off (either manually or with a timer) when away for even a short time can reduce energy use by 10%.
Your total	0			= /7 stars

Energy Star Summary

How you use energy	Your score	What you can do	By when
A/B Water heating, shower, baths and taps	/11		
C Clothes washing and drying	/4		
D Fridges and freezers	/7		
EPG Insulation, shading and draught proofing	/10		
H Heating and cooling systems	/7		
I Lighting	/2		
J Standby, cooking and other	/7		

Greenhouse gas calculator

- The accepted value for greenhouse gas liberated per KWh is 1.2 kg for a fossil fuelled generator. The Australian Greenhouse office uses 1kg per kWh which accounts for the percentage of gas and renewable energy supplied

Complex Audits

- This method identifies the major users of energy,
- gives clues as to which areas to concentrate on,
- Some people want to know more
- But how do you measure how much you use a cooker, a microwave, a washing machine?

The PowerMate

- Measures Power – inc Max and Min
- Cost – Actual, yearly quarterly & hourly
- Energy - Actual, yearly quarterly & hourly
- G-Gas - Actual, yearly quarterly & hourly
- Hours
- Volts
- Amps

Power-Mate

- Can be loaned from the ATA for \$30/week
- Just plug lead into power point and plug unit into it
- You can change Greenhouse gas generation rate and cost/kWh
- If you have greenpower, reduce the rate by % of greenpower purchased.

Sparometer

- An older unit that is no longer loaned out by ATA
- ATA has given a unit to ATA Melbourne for the use of its members
- Measures over 24 hrs, 7 days or 30 days
- Measures kWh and price/year (assuming constant power use)
- Energy input in measured time, High and Low wattages

Standby Power

- While you are sleeping, working etc your appliances are using power, even when they are off.
- When my microwave oven is sitting there, with no displays, it uses 1.7 watts. This equates to 14 kWh/year
- My estimated total use is 128kWh per year
- It has no clock, and the light goes off after a few minutes

Standby Power

- I have 4 TVs (old) DVD, Set Top Box, Computer, Modem, Printer

Standby Power

- I have 4 TVs (old) DVD, Set Top Box, Computer, Modem, Printer
- DVD uses 25kWh/year
- My Set Top Box uses NO standby power when switched off at the back of the unit
- My TVs don't use standby power when switched off at the power switch on the front of the unit

Standby Power

- I have 4 TVs (old) DVD, Set Top Box, Computer, Modem, Printer
- DVD uses 25kWh/year

Standby Power

- My Set Top Box uses NO standby power when switched off at the back of the unit
- My Set Top Box uses 11.7 watts in Standby mode – 105 kWh/year

Standby Power

- My Set Top Box uses NO standby power when switched off at the back of the unit
- My Set Top Box uses 11.7 watts in Standby mode – 105 kWh/year
- My Set Top Box uses 11.7 watts in operating mode – 105 kWh/year

Standby Power

- My main 20 inch TV doesn't use standby power when switched off at the power switch on the front of the unit
- When on it uses 73 Watts
- In standby it uses 6.5 Watts.
- If I left it on standby it would consume 61.4 kWh a year

Standby Power

- My main 20 inch TV doesn't use standby power when switched off at the power switch on the front of the unit
- When on it uses 73 Watts
- In standby it uses 6.5 Watts.
- If I left it on standby it would consume 61.4 kWh a year

The Computer!

- I have a desktop computer, Monitor, printer and ADSL modem
- The computer uses 5.2 watts in standby – 44kWh/year
- The modem uses 1.6 watts in standby 17.5 kWh/year
- The monitor uses 0.2 watts in standby (switched off at front)

The Computer!

- I have a desktop computer, Monitor, printer and ADSL modem
- The computer uses 5.2 watts in standby – 44kWh/year
- The modem uses 1.6 watts in standby 17.5 kWh/year
- The monitor uses 0.2 watts in standby (switched off at front)
- The printer uses no power when off!

The Computer

- When all on it uses 176 watts
- If I left it in standby it would use 131kWh/year
- If I left it on all the time it would use 1546kWh/year

Conclusions

- If I leave everything on I will use 10% more power with my appliances

Conclusions

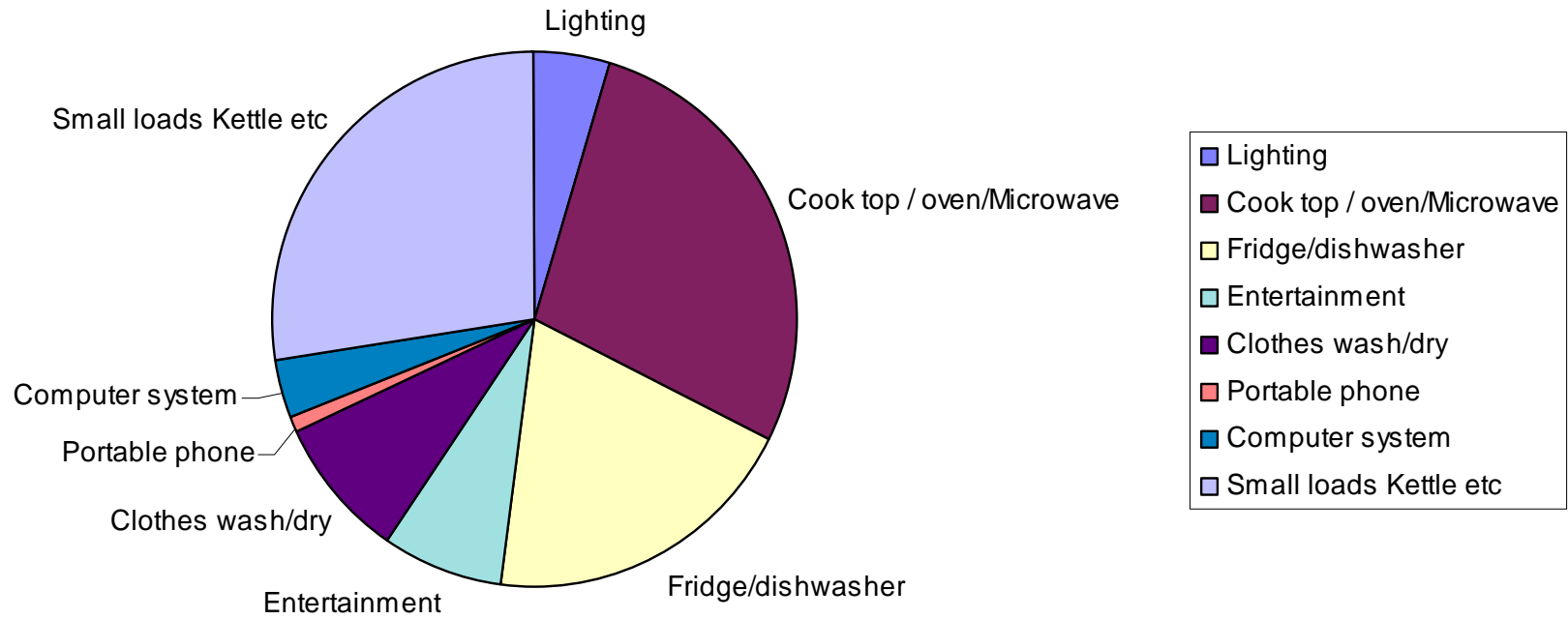
- If I leave everything on I will use 10% more power with my appliances
- New appliances that have power switches sometimes actually switch off the power!

Energy Assessment Sheet

- I have modified an old Audit of my house done some years ago
- You can enter data using the PowerMate or other method, and create charts etc.

Energy Use Chart

Cost / day 13.5c /kWh



Energy Use Chart

Cost / day 13.5c /kWh

