

## What is a Home Energy Audit Kit?

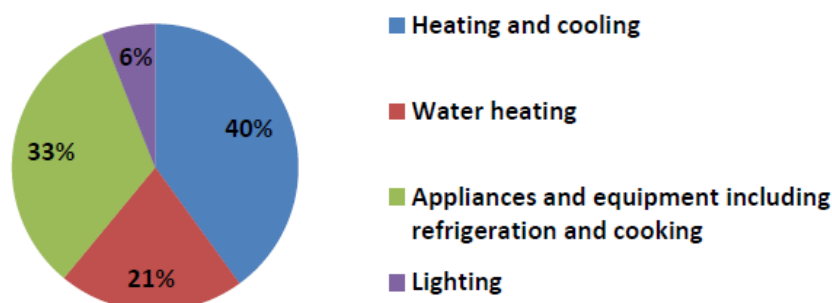
Home Energy Audit Kit has been developed to help residents conduct their own small-scale energy audit within the privacy of their own home. These kits have been developed by the Eastern Metropolitan Regional Council (EMRC) in partnership with the Town of Port Hedland to assist the local community in taking their first steps towards improving energy efficiency and reducing carbon emissions.

## Why was the Home Energy Audit Kit developed?

The Home Energy Audit Kit is an initiative developed to encourage and support Councils to monitor, report on, and reduce their corporate emissions. The kit also provides information and education to the community and local businesses within the region on improving energy efficiency and other climate change-related issues.

## Where do I use the most energy in my home?

The average WA home consumes approximately 17 units (kWh) of electricity per day (Synergy 2016). The chart below is a general guide to which appliances use the most electricity in an average Australian home (DEWHA 2008)



Changes in efficiency and an increase in the number of electrical goods in homes over the past few years mean that this ratio is changing here in WA, with more electricity used for appliances and less for heating and cooling.

Refrigeration makes up nearly half of the energy used by appliances. Refer to Synergy for more information: <https://www.horizonpower.com.au/for-home/energy-saving-tips/>

## What are the benefits of using a Home Energy Audit Kit?

There are a wide range of benefits that may result from using the kit. The exact benefits will depend on your home, your personal circumstances, and the changes you make. Some of the benefits you could achieve include:

- Improving your energy efficiency
- Becoming more sustainable
- Having a healthier home
- Reducing the cost of your electricity bill
- Reducing your carbon footprint
- Helping to do your part in the fight against Climate Change

## How to complete this workbook

This workbook is designed for you to complete in your own time in whichever order you wish. Each page focuses on a separate area of your home. All you need to do is circle the box that best fits your situation and then total the points allocated to your answer. *Example below – Lighting*

How do you use your energy	Your energy usage is closest to.....		
	High (0 points)	Moderate (1 point)	Energy efficient (2 points)
What type of lighting do you have?	Mainly incandescent or halogen lights	Some fluorescents or LED's	Mainly fluorescents or LED's
Do you regularly turn off lights?	Lights are left on all the time	Sometimes remember to turn them off when I leave the room	Lights are always turned off when there is no one in the room
<b>Your total</b>			<b>3 out of 4</b>

*Be honest with your answers. Your results are your own; therefore, it is beneficial to be as accurate as possible to get the most out of the kit.*

## Lighting:

How do you use your energy	Your energy usage is closest to.....		
	High (0 points)	Moderate (1 point)	Energy efficient (2 points)
What type of lighting do you have?	Mainly incandescent or halogen lights	Some fluorescents or LED's	Mainly fluorescents or LED's
Do you regularly turn off lights?	Lights are left on all the time	Sometimes remember to turn them off when I leave the room	Lights are always turned off when there is no one in the room
<b>Your total</b>			<b>out of 4</b>

## Recommendations

- Turn lights off when you leave the room
- Use fluorescent lighting in rooms where light is required for long periods
- Make the best use of daylight, but take care to limit direct daylight during summer
- Use the lowest wattage light needed to adequately light up an area
- Keep lights and fittings clean
- Avoid using downlights (halogen) for general lighting
- Avoid using multiple globe fittings
- Avoid having several lights activated by one switch - use separate switches for each light
- Paint rooms with light colours. Dark wall, ceiling, and curtain colours absorb light, increasing the amount of lighting needed

## Heating and cooling:

How do you use your energy	Your energy usage is closest to.....		
	High (0 points)	Moderate (2 points)	Energy efficient (4 points)
How much of your home uses room heating/cooling at one time?	The whole home	Living spaces only (bedrooms, lounge or sitting rooms)	Only rooms that people are using. Each room is individually adjustable.
How do you cool your home?	Ducted whole of house cooling. Fans in every room.	Single room air conditioning or cooling	Ceiling fans, natural breezes, cooling only rooms that require cooling
* What is the average temperature of your living area with heating/cooling?	24°C or warmer in winter 21°C or cooler in summer	Around 22°C in winter Around 23°C in summer	20°C or cooler in winter 25°C or warmer in summer
How do you heat your home?	Ducted whole of house heating or many electric heaters most of the time	Single room heaters some of the time	Warm clothes and the occasional heater
<b>Your total</b>			<b>out of 16</b>

### Additional Instructions

\* Use the indoor/outdoor thermometer to measure the average temperature of your living areas.

### Recommendations

- Keep your winter heating to between 18°C to 20°C and your summer cooling to between 24°C to 27°C
- Dress appropriately for the weather – if it's cold, put on an extra layer or some socks
- Only heat or cool rooms that are being used – close off rooms that are empty
- Consult a specialist to find out what heating/cooling system would work best for your living arrangements and lifestyle – remember to ask about energy efficiency

## Insulation and shading:

How do you use your energy	Your energy usage is closest to.....		
	High (0 points)	Moderate (1 point)	Energy efficient (2 points)
Is your home insulated?	No	Ceiling only	Ceiling and Walls
* Are areas within your ceiling hotter/colder than the rest of the roof?	Yes there are large temperature variations	Yes there is some variation	No ceiling temperature is constant
+ Do you have shading to the northern facing windows of your home?	None	Some	Shade summer sun only
Do you have shading on your eastern and western windows?	None	Some	Shade summer sun only
Do you have curtains/blinds and pelmets?	None	Curtains/blinds, no pelmets	Good curtains/blinds, and pelmets
<b>Your total</b>			<b>out of 10</b>

### Additional Instructions

\* Use the infrared thermometer to identify if there are any areas within your ceiling that lack insulation or are hotter/cooler than the rest of the home.

+ Use the compass and instructional sheet within the kit to identify the orientation of your home.

### Recommendations

- Replace or add insulation to your roof space, this helps to moderate your home's temperature without the use of heating or cooling appliances – don't forget the manhole cover!
- Install good quality "block-out" curtains or blinds with pelmets to reduce the transfer of heat through windows

- Plant larger shading trees or shrubs to east and west, or build shade structures, or install external blinds to reduce heat to the building during summer
- Consider thermal window film to reduce heat transfer

## Water heating, showers, and baths:

How do you use your energy	Your energy usage is closest to.....		
	High (0 points)	Moderate (3 points)	Energy efficient (5 points)
What type of water heater do you have?	Electric storage	Gas storage or electric instant	Gas instant or Solar (and I turn the booster off)
* What temperature is your hot water set to?	65°C or more	62°C	60°C or less
+ What is your shower's water flow rate?	15L per minute or more	12L per minute	9L per minute or less
~ How long are you in the shower for?	10 min or more	About 5 mins	3 mins or less
How deep/often are your baths?	Full tub and/or bathe every night	About half way and/or bathe most nights	Do not take baths or only every so often
Is there any insulation on your hot water piping?	None	Some (old, falling apart)	Well insulated
<b>Your total</b>			<b>out of 30</b>

### Additional Instructions

- \* Use the generic thermometer to test the temperature of your hot water
- + Use the shower timer and your own measuring bucket to record the flow rate of your shower.
- ~ Use the shower timer to record your shower length.

### Recommendations:

- The largest proportion of energy in an average WA home is consumed through water heating. Try and cut your showers to 3 minutes and this will save not only water but energy as well.



- Adjust your hot water thermostat to 60 degrees (or get a plumber in to do so). This will reduce the energy used to heat the water.
- Insulate your hot water pipes. A large amount of heat is lost through the pipes.
- If you have an older electric storage hot water system, consider upgrading to solar or gas to reduce your energy use and carbon emissions.
- If you have a solar hot water system – make sure that you are not over-using the booster.
- Having the booster on all the time negates the efficiency of having a solar system. In summer, turn the booster off. In winter, use the booster for a set time only.

## Clothes washing and drying:

How do you use your energy	Your energy usage is closest to.....		
	High (0 points)	Moderate (1 point)	Energy efficient (2 points)
What water temperature do you use to wash your clothes?	Always hot or warm	Sometimes warm	Always cold
What star rating is your washing machine? <i>Normally identified by the sticker on the front of the machine</i>	2 stars or below	3 stars	4 stars and above
Do you use a clothes dryer?	Always	Sometimes	Never, always hang clothes on a line
<b>Your total</b>			<b>out of 6</b>

## Recommendations

- Clothes do not need to be washed in hot/warm water. Set your washing machine according to the type of load you are doing and use cold water only.

- Dry your clothes on the clothesline, not in the dryer. Not only will this save you energy, but the sun is naturally antibacterial.
- When upgrading your washing machine (or any other white goods) refer to the star rating on the machine. The higher the star rating the more efficient it is.

## Fridges and freezers:

How do you use your energy	Your energy usage is closest to.....		
	High (0 points)	Moderate (2 points)	Energy efficient (4 points)
Do you have a second fridge or freezer?	Yes, and it's always running	Yes, but it's only used sometimes	No
Where are your fridges and freezers located?	In a hot spot (near stoves, direct sunlight, in garage)	Sometimes gets warm	In a cool spot
* What temperature is your fridge set to? What temperature is your freezer set to?	2°C or below Minus 20°C or below	3 - 4°C Minus 18°C	5°C Minus 16°C
Are your fridge and freezer well ventilated?	No gaps on sides or top, backed up to wall	Small gaps on all sides	Plenty of space around all sides for airflow
<b>Your total</b>			<b>out of 16</b>

### Additional Instructions

\* Use the generic thermometer to test the temperature of your fridge and freezer

### Recommendations:

- Keep your fridges and freezers in a cool location within the home. Direct sunlight and heat will make them use more energy to keep cool.



- Adjust the thermostat of your fridge and freezer. This will reduce the energy used by the unit to keep your food cold/frozen. Your fridge and freezer do not need to be set to maximum.
- Make sure that there is plenty of ventilation around your fridge and freezer to allow air to circulate and assist with efficient cooling. The instruction manual should recommend minimum spacing for airflow.
- When upgrading your fridge or freezer (or any other white goods) refer to the star rating on the item. The higher the star rating the more efficient it is.

## Cooking:

How do you use your energy	Your energy usage is closest to.....		
	High (0 points)	Moderate (2 points)	Energy efficient (4 points)
What do you mainly use to cook?	Electric stove/oven and microwave	Gas stove/oven and microwave	Microwave and small appliances only
How often do you cook?	Twice a day and I love to entertain	Evenings only	Only a couple of times a week
Do you use a lot of small appliances like toasters, kettles, food processors?	All the time, I love gadgets	Sometimes	Only when needed
<b>Your total</b>			<b>out of 12</b>

### Additional Instructions:

\* Use the Power-Mate to examine the different amounts of energy consumed by appliances within your home. Note that some appliances still consume energy on standby.

### Recommendations:

- Turn your microwave off at the wall when not in use, if you can get to the switch easily. Microwaves still consume power when they are on standby.

- Small appliances can use less electricity – consider using a mini-oven or slow cooker rather than the oven or stove.
- If you're only cooking for one, try not to use the oven.
- Boil the kettle with only the minimum amount of water required.
- When upgrading your stove, oven or other cooking appliances, consider energy efficiency as a top priority

## Entertainment, standby power, and other equipment:

How do you use your energy	Your energy usage is closest to.....		
	High (0 points)	Moderate (1 point)	Energy efficient (2 points)
Do you have a pool?	Yes, heated and filter always running	Yes but it is solar heated and filter runs for less than 6 hours per day	No pool
What sort of entertainment do you have?	TVs, DVD players, stereos, tablets, games consoles and phones all over the house	One main TV, DVD player, stereo and games console with some chargers	No TV, just a stereo and phone
* How do you turn off your appliances (e.g. TV, stereo, computer)?	With a remote control – left on standby Computer and monitor always left on	Turn off at the wall sometimes or I use the Energy Star sleep feature	Always turn off at the wall or I don't have one
<b>Your total</b>			<b>out of 6</b>

### Additional Instructions

\* Use the Power-Mate to examine the different amounts of energy consumed by appliances within your home. Note that appliances still consume energy on standby.

### Recommendations:

- If you have a pool, use a pool blanket to retain warmth. Only run the filter for the recommended time – use a timer.

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- Use a hot water bottle if your bed is cold. Also, dress weather-appropriately or add an additional blanket instead of using a heater or electric blanket.
- Only use one entertainment item at a time – turn the TV off if you’re on the tablet or computer.
- Turn your appliances off at the wall when not in use. TVs, computers, games consoles, stereos, etc still consume power when they are left on standby.
- When upgrading your TV, refer to the star rating on the item. The higher the star rating the more efficient it is.

Total score:

How I use energy	My Score	Goals: What I can do to improve	By When	Tick when complete
Lighting	out of 4			
Heating and Cooling	out of 16			
Insulation and Shading	out of 10			
Water Heating Showers and Baths	out of 30			
Clothes Washing and Drying	out of 6			
Fridges and Freezer	out of 16			
Cooking	out of 12			
Entertainment, Standby and Other	out of 6			
<b>Total</b>	<b>out of 100</b>			