

### renew.

# **Acknowledgement of Country**



We acknowledge the Wurundjeri Woi Wurrung people as the Traditional Owners and true sovereigns of the land. We also acknowledge the significant contributions made by other Aboriginal and Torres Strait Islander people. We pay our respects to Elders from all nations and to their Elders past, present and future.





# Yarra Council's climate emergency response - 100% Renewable Yarra



- Yarra Council has a strong role to play in building our community's capacity to respond to the climate emergency including helping to reduce carbon emissions
- '100% Renewable Yarra' will assist residents and businesses to switch to renewable energy in order to move the municipality towards 100% renewable energy by 2030
- This campaign includes webinars like this one, but may also include...
  - Partnerships with energy retailers/other organisations to provide access to affordable renewable energy to Yarra residents and businesses
  - Support for Yarra residents and businesses to go solar
  - Trusted advice and actions you can take
- For more information visit <u>www.yarracity.vic.gov.au/climateaction</u> or email <u>climateemergency@yarracity.vic.gov.au</u>

# Flick the Switch - Agenda:

- 1. Buying Renewable Energy at Home
- 2. Home Energy Efficiency



# **Buying Renewable Energy at Home**



# How can I access renewables?

- Rooftop Solar (PV)\*
- 2. Solar/efficient hot water
- 3. GreenPower
- 4. Carbon Offsets
- 5. Solar Gardens



# How can I access renewables?

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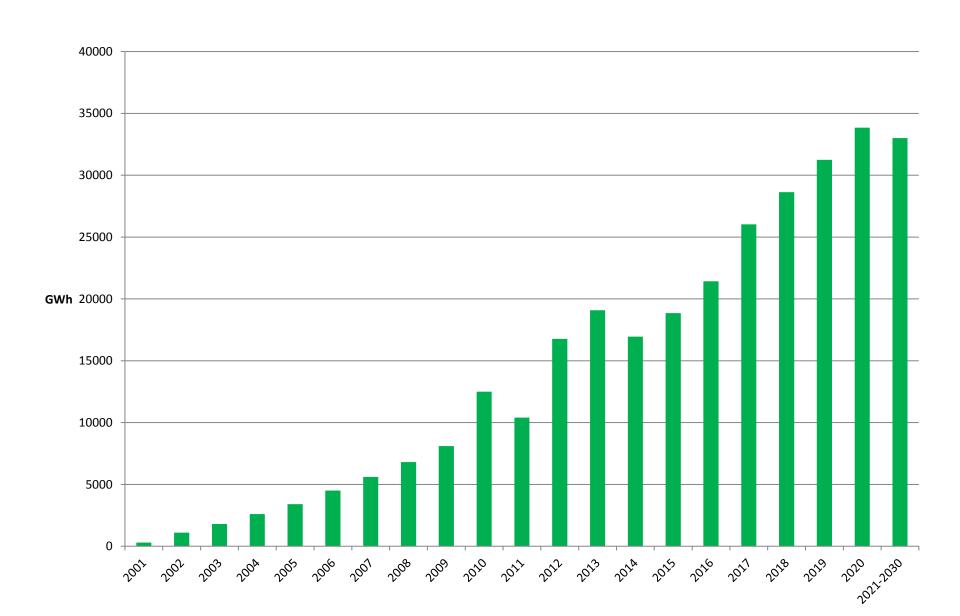
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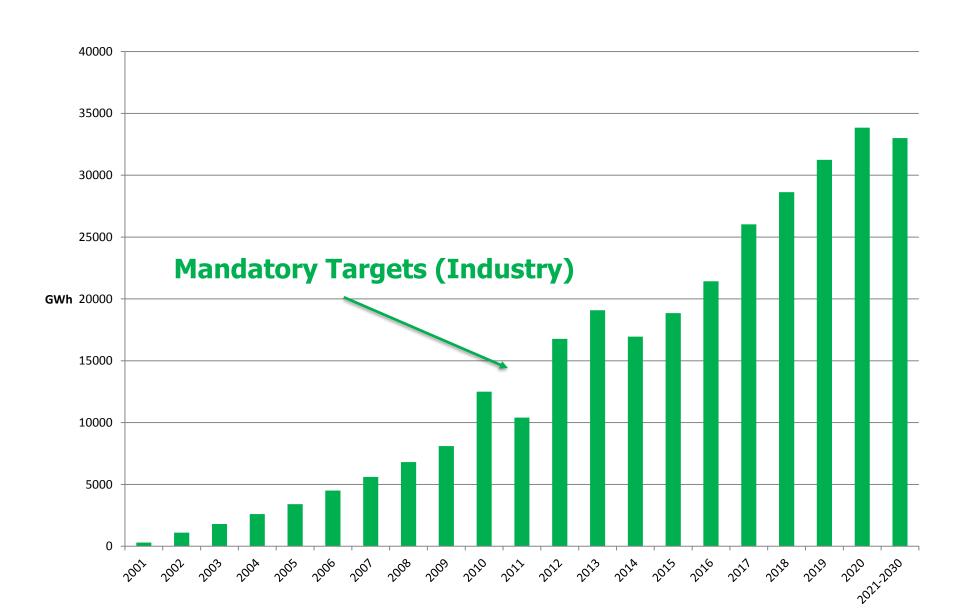


What is it?

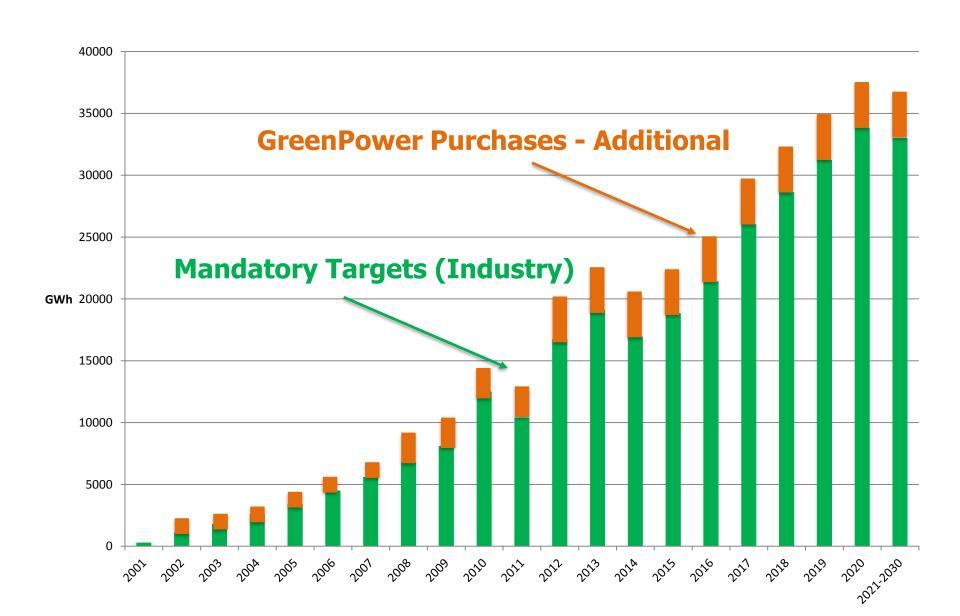
# **Renewable Energy Target**



# **Renewable Energy Target**



# **Renewable Energy Target**







- Facilitates <u>voluntary</u>, <u>additional</u> investment
- Australian-based RE projects
- Audited annually





- All types of large-scale renewable energy can be GP:
  - but it's mainly large wind farms
  - not small tech (solar PV, SHW etc)

### **Electricity Charges: Peak**

ı	Applicable Charges	Price (excl. GST)	Price (incl. GST)
ı	Usage - Peak usage per day	24.17 cents per kWh	26.587 cents per kWh
ı	Daily Supply Charge	109.00 cents per day	119.90 cents per day

### Electricity Charges: Peak + Dedicated Circuit 1

Applicable Charges	Price (excl. GST)	Price (incl. GST)
Usage - Peak usage per day	24.17 cents per kWh	26.587 cents per kWh
Usage - Dedicated Circuit usage per day (if applicable)	15.01 cents per kWh	16.511 cents per kWh
Daily Supply Charge	109.00 cents per day	119.90 cents per day

### **Electricity Charges: Peak plus Demand**

	Applicable Charges	Price (excl. GST)	Price (incl. GST)
	Usage - Peak usage per day	19.98 cents per kWh	21.978 cents per kWh
ı	Daily Supply Charge	109.00 cents per day	119.90 cents per day
	Usage - Capacity Demand Charge per day	22.54 c/kW/day	24.794 c/kW/day

### **Electricity Charges: Residential Time of Use**

Applicable Charges	Price (excl. GST)	Price (incl. GST)
Usage - Peak usage per day - Between 7am & 11pm, Monday to Friday AEST	31.16 cents per kWh	34.276 cents per kWh
Usage - Off-Peak usage per day (if applicable) - All other times	16.60 cents per kWh	18.26 cents per kWh
Daily Supply Charge	109.00 cents per day	119.90 cents per day

Price Changes	Prices may be varied in line with your terms and conditions and we will provide you with notice of these not
Price Changes	later than your next bill.

### **GreenPower options**

You can add on a GreenPower accredited renewable energy option to your plan for an additional charge

	Tod can add on a dicem one decreated renewable energy option to your plan for an additional energe		
A	Add-on option	Price (excl. GST)	Price (incl. GST)
	PureEnergy 10%	\$0.0770 x (10% x total usage)	\$0.08470 x (10% x total usage)
	PureEnergy 20%	\$0.0770 x (20% x total usage)	\$0.08470 x (20% x total usage)
	PureEnergy 100%	\$0.0770 per kWh	\$0.08470 per kWh

#### **Benefits**

Pay by due date discount	33% off your market usage charges set out above on each bill that you pay by the due date. The discount excludes overdue amounts, reconnection or disconnection fees, or any charges passed on by your distributor. Our rates will generally be adjusted annually, and we'll notify you when this happens. Your discount percentage won't change during your benefit period.
Bonus Online sign-up credit	You will receive a \$50 credit (incl. GST) on the first bill which is non-transferable and non-refundable for cash when you sign up online via energyaustralia.com.au.
Benefit Period The Benefit Period is for 1 year. We will provide you with notice of your options prior to the end Period. Your contract will continue until it is ended by either party.	







# All Vic electricity retailers offer GP





























- All Vic electricity retailers offer GP
  - and it's the same product
  - potentially differently priced





























- Also offered by "de-coupled" providers
  - many of whom sell carbon offsets







www.climatechest.org.au/





Does it make a difference?





- Does it make a difference?
  - More renewable energy? YES

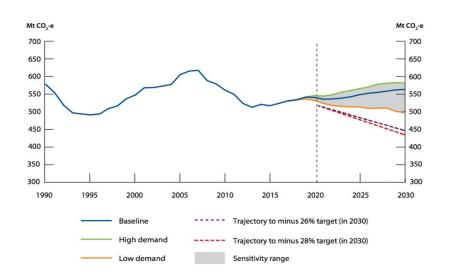






- Does it make a difference?
  - More renewable energy? YES
  - Additional emissions reductions? NO





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# **Carbon Offsets**



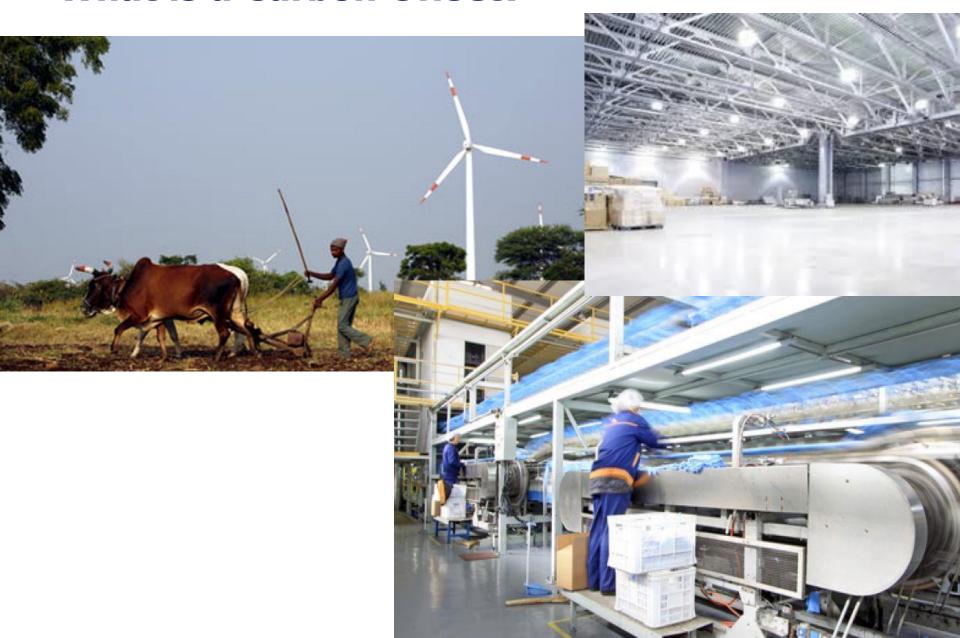
- A carbon offset is:
  - generated from an activity that <u>prevents</u>, <u>reduces</u> or <u>removes</u> greenhouse gas emissions from being released into the atmosphere.

- Practically, an offset is:
  - a Certificate
  - <u>accredited</u> under a scheme
  - equates to 1 tonne of CO2e reduced

















### Life-cycle of a carbon offsetting project

Illustrated here is a simplified life-cycle of a real carbon offsetting project, which has been verified under the **VCS**. When you pay to offset a tonne of carbon by buying **VCU**s, you're retrospectively funding the project and providing for its long-term maintenance.

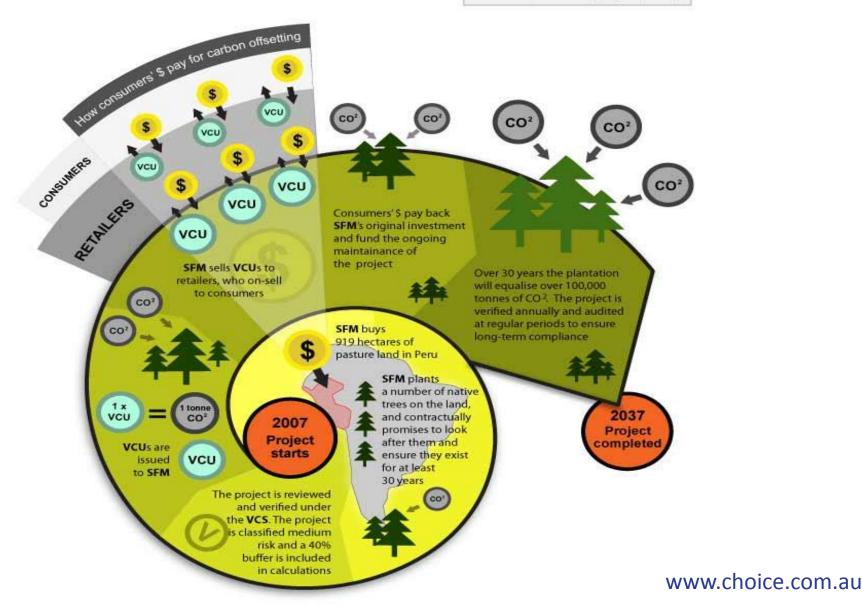
VCU - Verified Carbon Unit

VCS - Verified Carbon Standard

SFM - Sustainable Forest

Management Ltd (project operator)





Context: renew.

- In Australia No mandatory requirement for <u>individuals</u> to reduce emissions
  - Some companies have to...

Offsets bought <u>voluntarily</u> by consumers

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Are offsets dodgy?

Do they actually make a difference?

What do they cost?



Where can I buy one?

# **Are Offsets Dodgy/Real?**



# **Are Offsets Dodgy/Real?**

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Has it been accredited under a Standard?



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Has it been accredited under a Standard?

Multiple Standards exist

Most are international



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## Why have Standards?

- Must be real, measurable
- Additional (beyond BAU)
- Permanent (not temporary displacement)
- Independently verified



- International Standards:
  - Verified Carbon Standard



- International Standards:
  - Verified Carbon Standard
  - Gold Standard
  - Social Carbon Standard







- Australian Standard:
  - National Carbon Offset Standard
  - Not that many certified projects in Australia







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Generally speaking:



- Generally speaking:
  - Less than GreenPower



- Generally speaking:
  - Less than GreenPower
  - \$ International < \$ Australian</li>



- Generally speaking:
  - Less than GreenPower
  - \$ International < \$ Australian</li>
  - e.g:
    - GP = \$30/tonne (Vic)
    - Australian = \$20 \$25/tonne
    - International = \$2 \$10/tonne





How much CO2e does a home emit?



- How much CO2e does a home emit?
  - per capita, each Victorian person = 18.4 tonnes p.a.
  - e.g. 2-4 person household = 40-80 tonnes p.a.



Victorian Greenhouse Gas Emissions Report, 2018
National average = 21.7 tonnes p.a.
Each house can vary considerably

- Cost for 2-4 person home:
  - \$1,000 to \$2,500 (GreenPower)



- Cost for 2-4 person home:
  - \$1,000 to \$2,500 (GreenPower)
  - \$700 to \$2,000 (Australian offset)



- Cost for 2-4 person home:
  - \$1,000 to \$2,500 (GreenPower)
  - \$700 to \$2,000 (Australian offset)
  - \$70 to \$1,000 (International Offset)



# Where can I buy a Carbon Offset?









Home About us V Our forests V Organisations V Individuals V Landowners CarbonCover 365

Search.... Q

You are here: > Home > Individuals > Offset your carbon emissions

#### Offset your carbon emissions

Select between offsetting as an individual or on behalf of an organisation.





1. Homepage

www.greenfleet.com.au/







About us V Our forests V Organisations > Individuals V Landowners CarbonCover 365 Search... Home You are here: > Home > Individuals > Offset your carbon emissions

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1. Homepage

www.greenfleet.com.au/

**Since 1997!** 





https://carbonneutral.com.au/

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https://carbonneutral.com.au/

**Since 2002!** 

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www.climatechest.org.au/



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# My retailer says all their energy is green?



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Really? How?



- Really? How?
  - What specific accredited offset certificate are they selling?



- Really? How?
  - What specific accredited offset certificate are they selling?
  - Under what international or Australian program?



- Really? How?
  - What specific accredited offset certificate are they selling?
  - Under what international or Australian program?
  - Or is it GreenPower?



- Really? How?
  - What specific accredited offset certificate are they selling?
  - Under what international or Australian program?
  - Or is it GreenPower?
  - Ask some questions....



## Is My Retailer "Green"?

- Total Environment Centre & Greenpeace's
   Green Electricity Guide
- www.greenelectricityguide.org.au





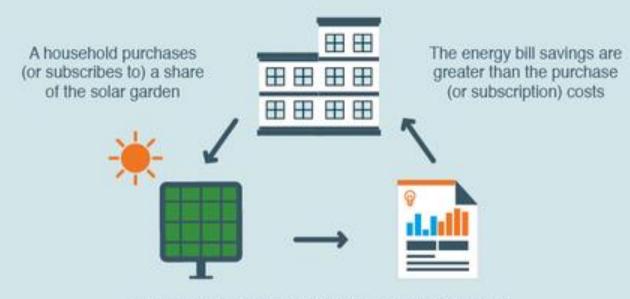
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 You can access renewable energy without solar on your roof

- You can either:
  - own a share of the panels; or
  - subscribe to the program;
  - and get a credit on your bill (or financial return)

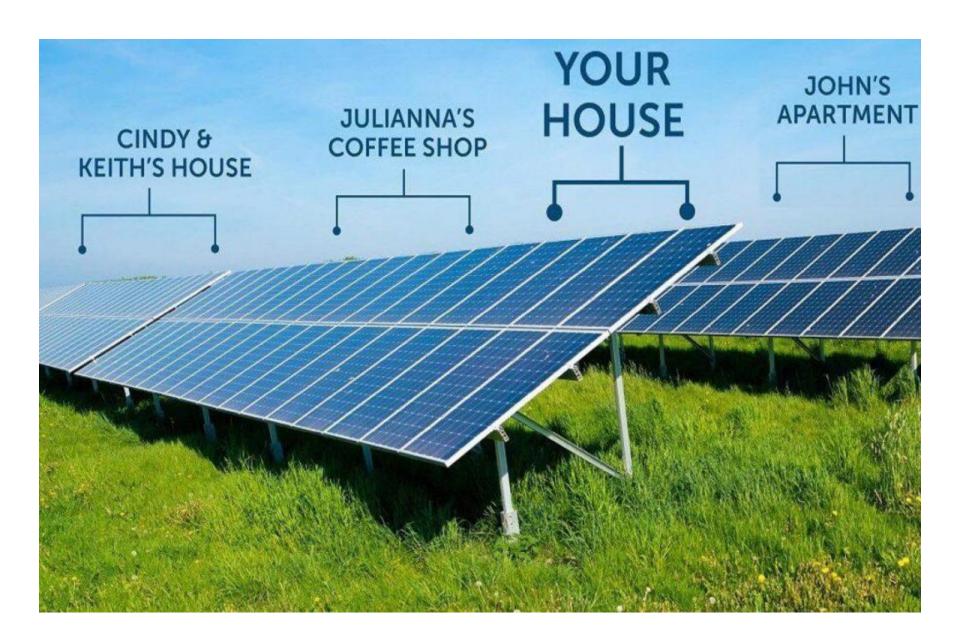
Facilitated by an energy retailer

## WHAT IS A SOLAR GARDEN?



An electricity retailer provides an on-bill credit for the electricity produced by the household's solar panels





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Where can I sign up?



renew.

Where can I sign up?

Unfortunately, early days.



renew.

Where can I sign up?

- Unfortunately, early days.
- Enova Energy:
  - North Coast Community Housing Solar Garden

www.enovaenergy.com.au



#### What is a Solar Garden?

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Where can I sign up?

- Unfortunately, early days.
- Enova Energy:
  - North Coast Community Housing Solar Garden

www.enovaenergy.com.au

www.renew.org.au/renew-magazine/solar-batteries/solar-gardens/

https://cpagency.org.au/solarforall/



#### **Other Programs:**

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#### Local Govt program:

- For Solar PV
- Borrow and repay thru Council rates
- 9 Councils currently in Vic

https://solarsavers.org.au/



#### For more information....



www.yarracity.vic.gov.au/climateaction

www.yef.org.au

### **Saving Energy at Home**



In Victoria: renew.



Welcome to Victorian Energy Compare	
Welcome to Victorian Energy Compare  To get the most out of this tool, you need a recent energy bill or smart meter data file.	
Get started	
What energy are you looking to compare?	
<b>F</b> Electricity	<b>&amp;</b> Gas

https://compare.energy.vic.gov.au/

#### **Energy Concessions:**

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- Delivered by Vic Govt
- Through your energy retailer
- Bill credit (20-30%)

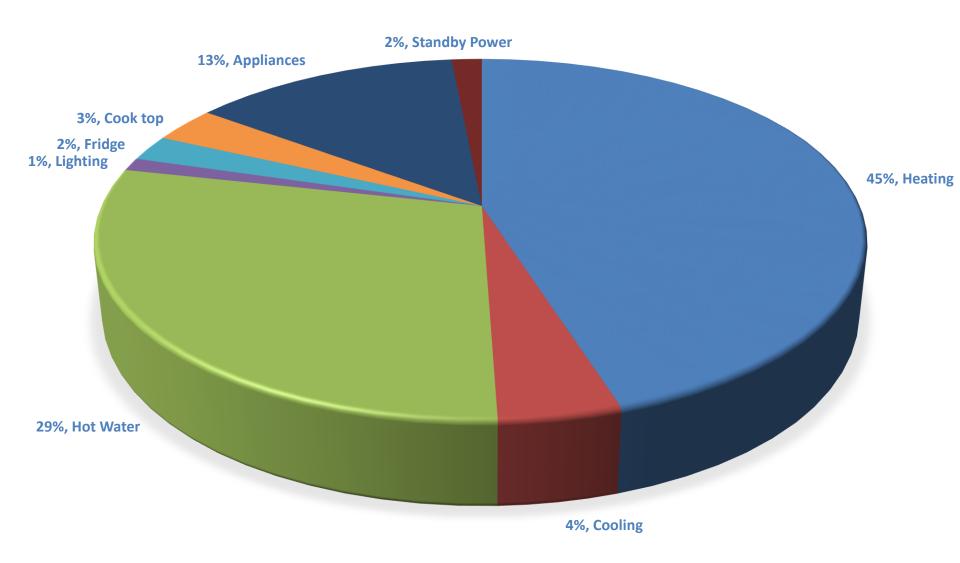
www.services.dhhs.vic.gov.au/energy



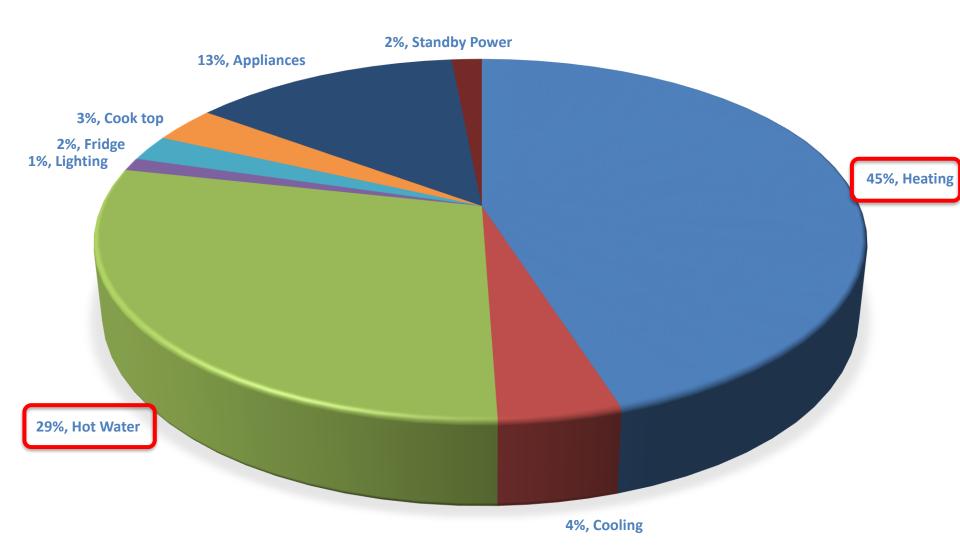
# What are the major household energy users/costs?



#### ENERGY USE, **MELBOURNE**



#### ENERGY USE, MELBOURNE

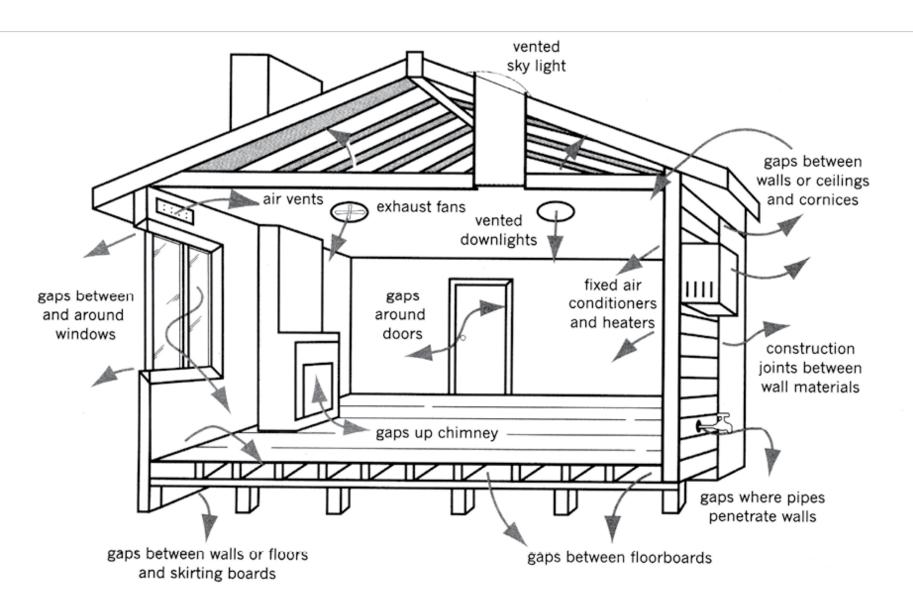


# What can I do about heating?



# ...or thermal comfort

#### **Heat transfer in homes....**



#### **Newer homes:**

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- - Energy standards started 2005
    - Improved 2010

...better than old ones:





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Think about how you use each room



renew.

Think about how you use each room



What are your most frequented spaces?

renew.

Think about how you use each room



- What are your most frequented spaces?
- Do u need whole-of-house, 24/7 heat (or cooling)?

renew.

Think about how you use each room



- What are your most frequented spaces?
- Do u need whole-of-house, 24/7 heat (or cooling)?
- Can you ZONE rooms?

## For more frequented spaces...

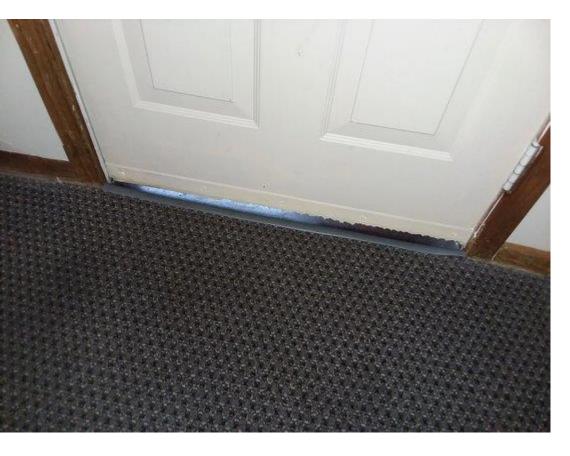


### For more frequented spaces...

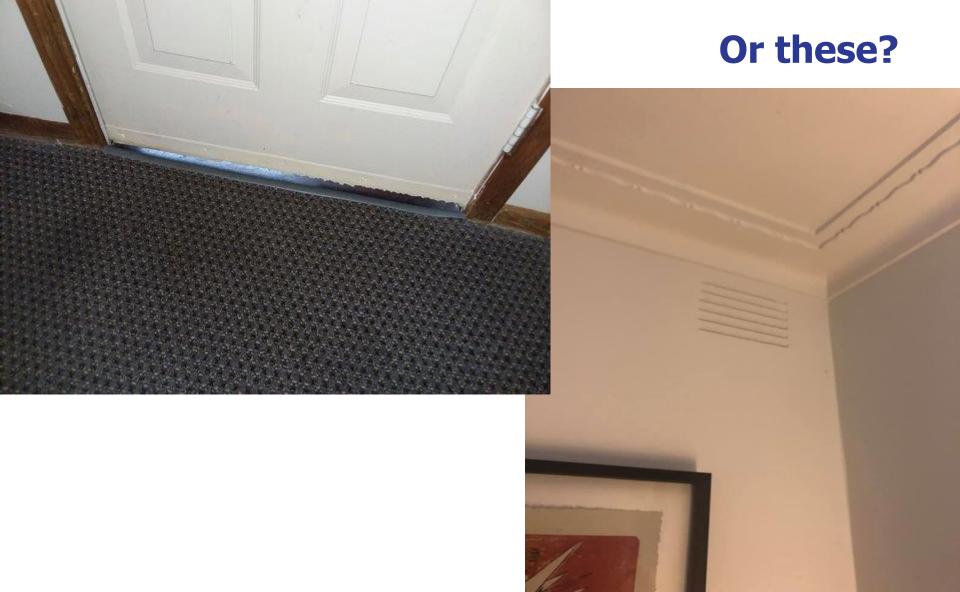


...have a good look at them

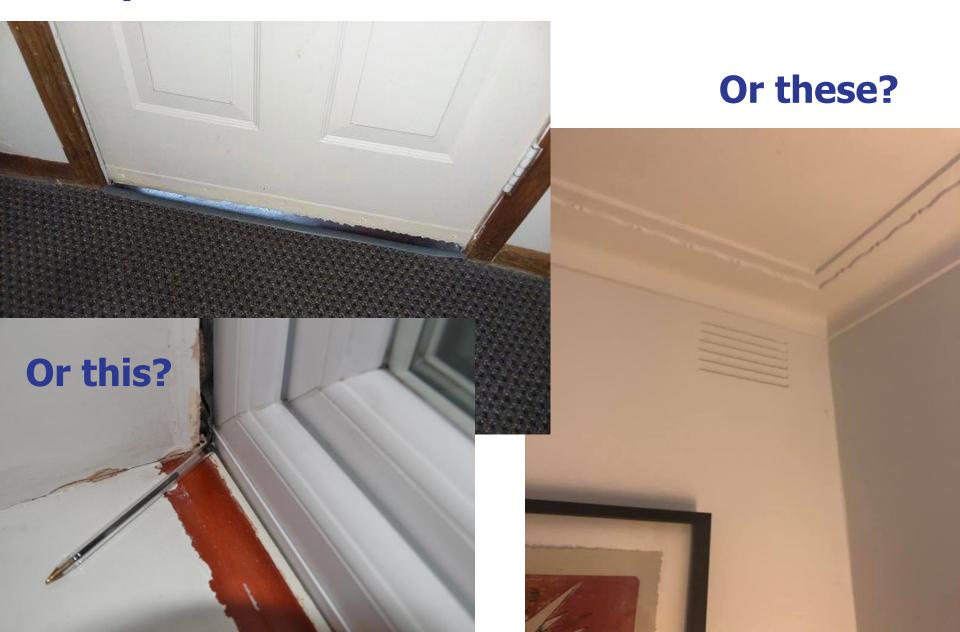
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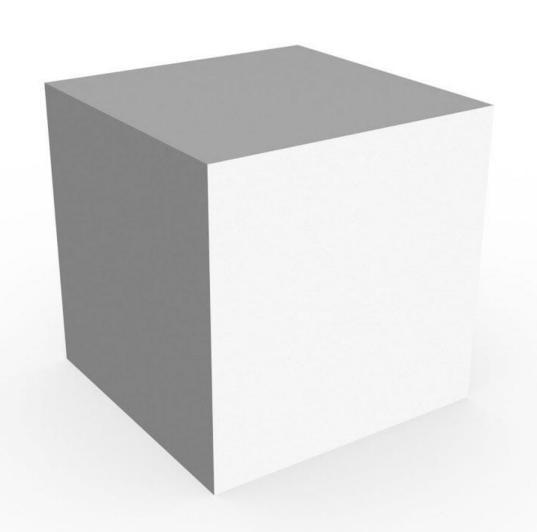
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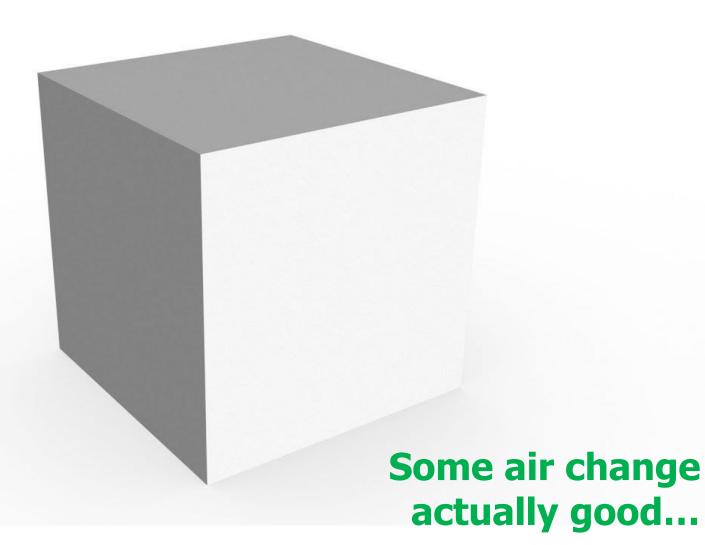
### What are we trying to achieve?



#### What are we trying to achieve?



#### What are we trying to achieve?



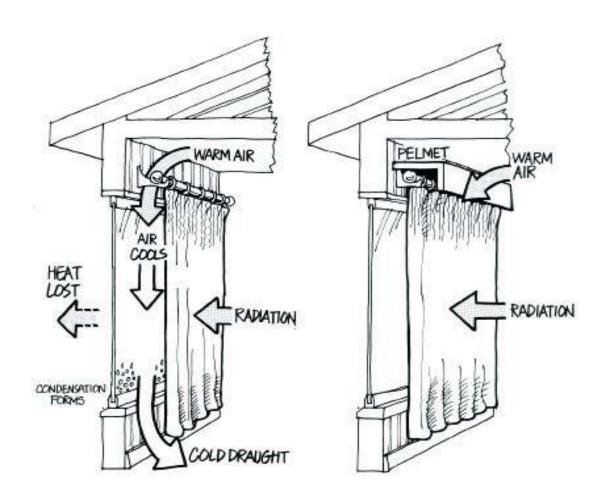
#### **Managing Draughts**

renew.

Draught proof everywhere you can



#### For winter but also help in summer...



**Other little tricks:** 

renew.

Draught Stoppas:

Close vents when not in use





Other little tricks:

renew.

#### Vent directors

Push the heat into middle of the room



Other little tricks:

renew.

Turn down the thermostat:

1 degree = 10% of energy use



Insulation renew.



#### **Underfloor Insulation**





Reduce your bills

Stay cool in summer, warm in winter

Solar for renters

Ways to work with your landlord

renew.

### RENTERS GUIDE TO SUSTAINABLE LIVING

Tips for a more comfortable and energy efficient home





www.renew.org.au

### And then, heating Appliances



#### **LOTS & LOTS of different types:**

#### **LOTS & LOTS of different types:** renew.



# **LOTS & LOTS of different types:** renew.





# **LOTS & LOTS of different types:** renew.

























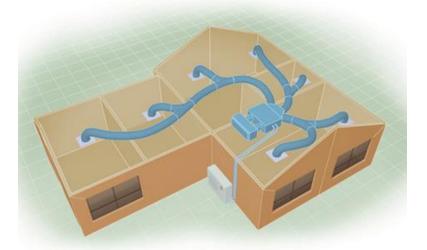






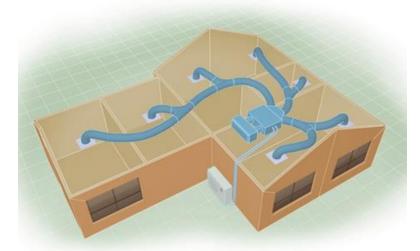
renew.

## **Whole of House:**



renew.

### Whole of House:



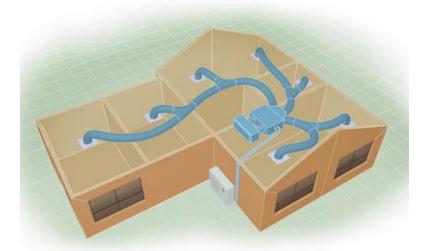
### **Room Heaters:**





#### renew.

## Whole of House:



#### **Room Heaters:**





## **Personal Heaters:**





renew.

## Reverse cycle air con:

5x more efficient than resistive/panel





renew.

## Reverse cycle air con:

- 5x more efficient than resistive/panel
- 6-13x more efficient than gas





renew.

## Reverse cycle air con:

- 5x more efficient than resistive/panel
- 6-13x more efficient than gas
- Can do whole room or whole house





renew.



renew.

- Resistive technology
- No efficiency gain



renew.

- Resistive technology
- No efficiency gain





renew.

- Resistive technology
- No efficiency gain
- Good for small rooms for a few hours
- Expensive for large rooms for 6-10 hrs





## Gas heaters: renew.





## **Gas heaters:**







Gas heaters: renew.

- Generally low efficiency
  - Depends on age
- Existing units good for individual rooms







Gas heaters: renew.

- Generally low efficiency
  - Depends on age
- Existing units good for individual rooms





- Old Gas ducted:
  - ducts leaky
  - burner inefficient
  - can be expensive to run



Upgrade Measure	Ave. Energy Saving (MJ/yr)		Ave. Cost (\$)	Ave. Bill Saving (\$/yr)	Ave. Payback (yrs)
	Gas	Elec		(\$/ \( y \) \( 1 \)	
Low flow showerhead	1,333	69	\$49	\$65.3	0.7
Swimming pool pump	0	231	\$34	\$16.6	2.0
Ceiling insulation (easy)	958	32	\$79	\$24.9	3.2
Lighting	0	1,202	\$363	\$110.6	3.3
Ceiling insulation (difficult)	1,630	68	\$278	\$43.6	6.4
Heating	6,239	215	\$1,111	\$162.7	6.8
Draught sealing	5,779	164	\$1,020	\$147.4	6.9
Clothes washer	135	16	\$191	\$26.0	7.4
Refrigerator	0	1,202	\$1,104	\$110.6	10.0
Reduce sub-floor ventilation	589	12	\$167	\$14.6	11.4
Seal wall cavity	903	24	\$270	\$22.9	11.8
Gas heating ductwork	1,126	9	\$350	\$26.6	13.1
Ceiling insulation (top up)	853	22	\$335	\$21.5	15.6
Underfloor insulation	1,803	10	\$785	\$42.2	18.6
Dishwasher	0	112	\$258	\$12.0	21.6
Cavity wall insulation	5,283	130	\$3,959	\$132.9	29.8
Drapes/Pelmets	2,209	54	\$2,036	\$55.6	36.6
Clothes dryer	0	124	\$728	\$11.4	64
Double glazing	2,278	66	\$12,145	\$58.2	209
External shading	0	9	\$464	\$0.8	587

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www.yarracity.vic.gov.au/climateaction

www.yef.org.au