



MY EFFICIENT ELECTRIC HOME

Victorians are getting their homes off gas

Tim Forcey

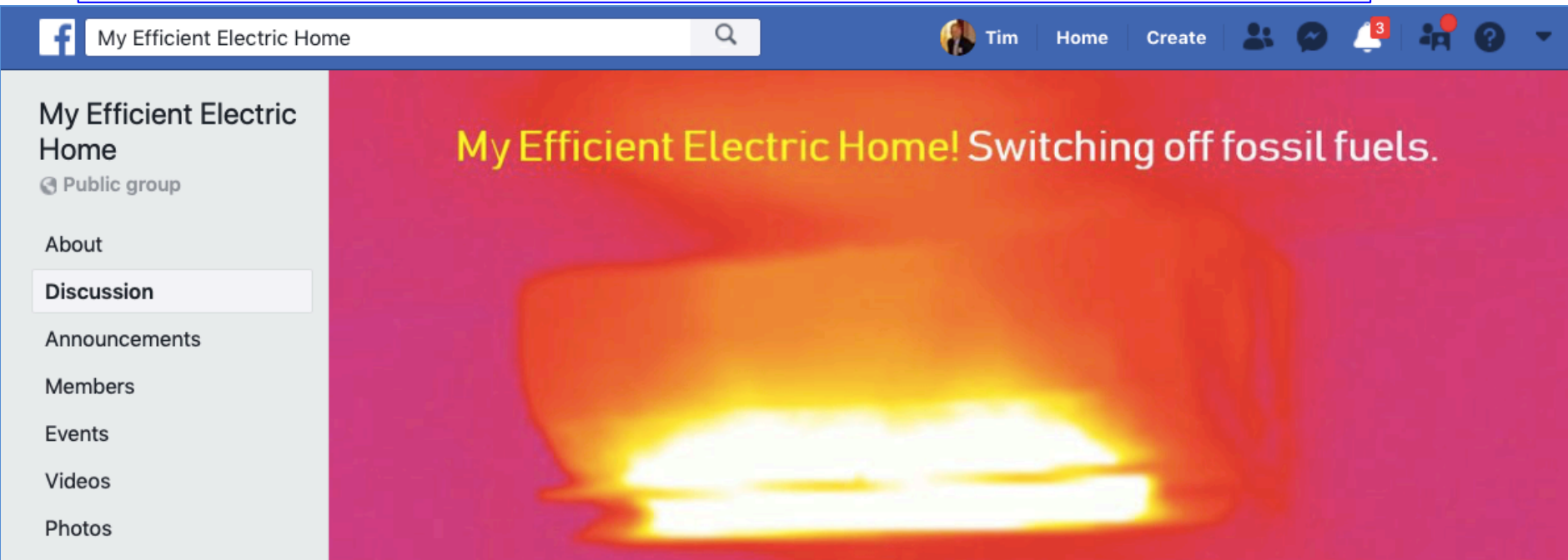
May 2023



Facebook group “My Efficient Electric Home”

Now > 86,000 members.

A free searchable database of home-improvement information



"This is the first winter I haven't turned on the gas heater. Working from home and we had aircon installed in lounge last spring so I decided to use it." - Fiona

"We haven't used the gas since installing RCAC two weeks ago." - Jane

"We used our RCAC this winter in Canberra, worked great. On track to save \$1,100." - Jacqui

PRESENTATION OUTLINE

1 Gas isn't cheap - anymore

2 Gas supply isn't assured - anymore

3 Gas isn't a "clean" fuel

4 Some Victorians are getting their homes off gas

Why?

How?

5 Other Victorians could use help

Barriers to electrification

AUSTRALIAN GAS

81% will be going overseas

Australian government forecast for 2020

Chart by Tim Forcey



■ Gas for producing and exporting LNG (% of total)

■ Gas for domestic use within Australia (% of total)

The interconnected Eastern Australian gas production and transmission system

VIC gas can flow by pipeline **all the way** to QLD for export.

People in eastern Australia must now pay international prices for gas... as we do for oil.



Figure 1: Eastern and south-eastern Australian gas basins and infrastructure [source: AEMO²²]

From me in 2020!

Bass Strait gas production winding down.

In winter 2025, we have no idea from where ~ half of the gas for NSW, VIC, TAS, SA, and the ACT will come.

Another price shock coming? Anytime before then... is a good time to get off gas!

Charts from AEMO March 2019
"Gas Statement of Opportunities".



Figure 19 Historical actual daily supply and demand balance in the southern states, 2018

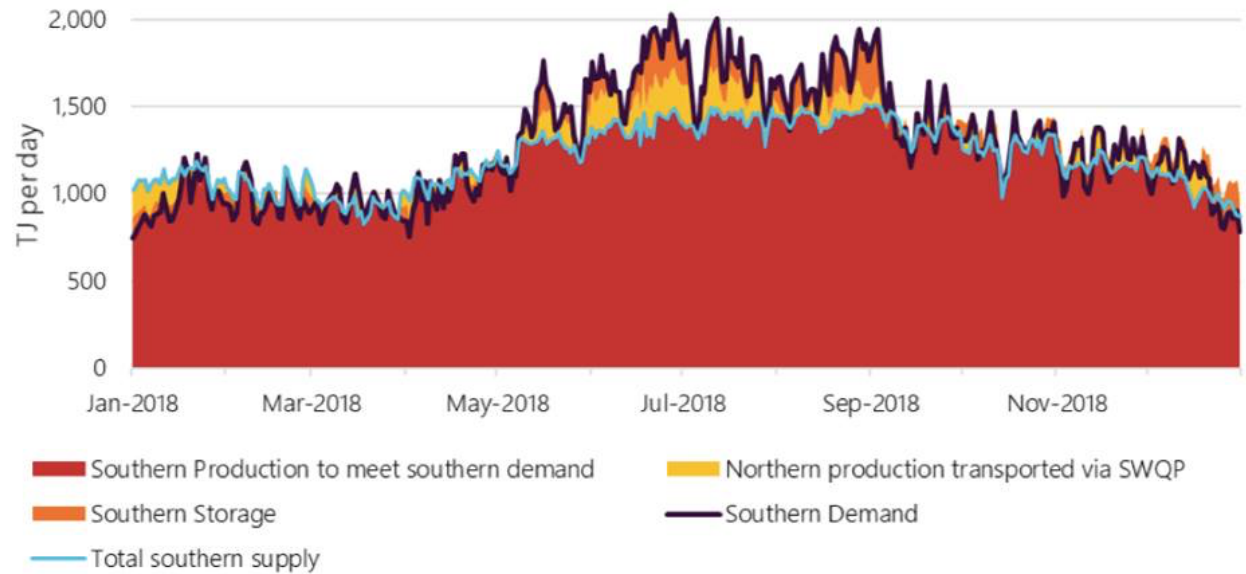
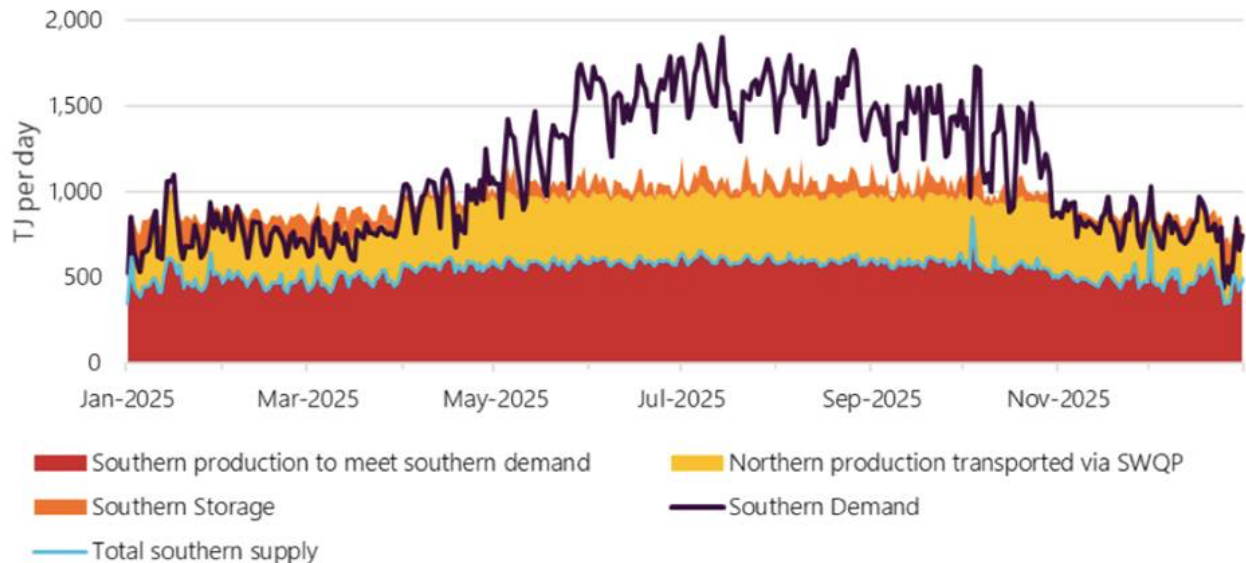


Figure 20 Forecast daily supply and demand balance in the southern states including existing and committed projects, 2025



**FOSSIL GAS:
IT'S NO CLEAN FUEL.
IT MIGHT BE THE DIRTIEST FUEL.**

Gas flaring in the
Coonawarra
wine region



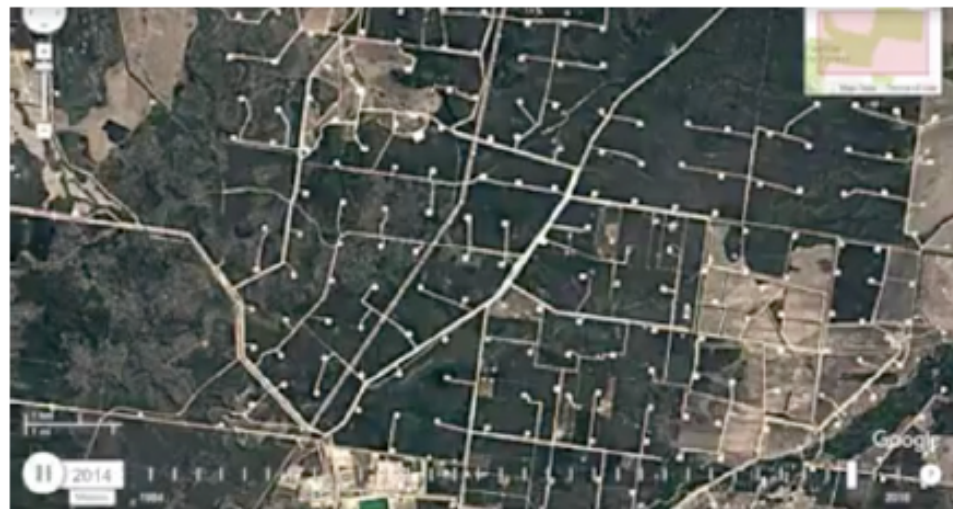
Climate, environment, and societal impacts

Queensland coal seam gas (CSG) fields

before...

|

after. 150 wells



40,000 wells planned.

|

So multiply this.... 300 times.



Gas Fallacy – Sally Hunter QLD CSG Wellpads



LIVE

on Custom Live Streaming Service

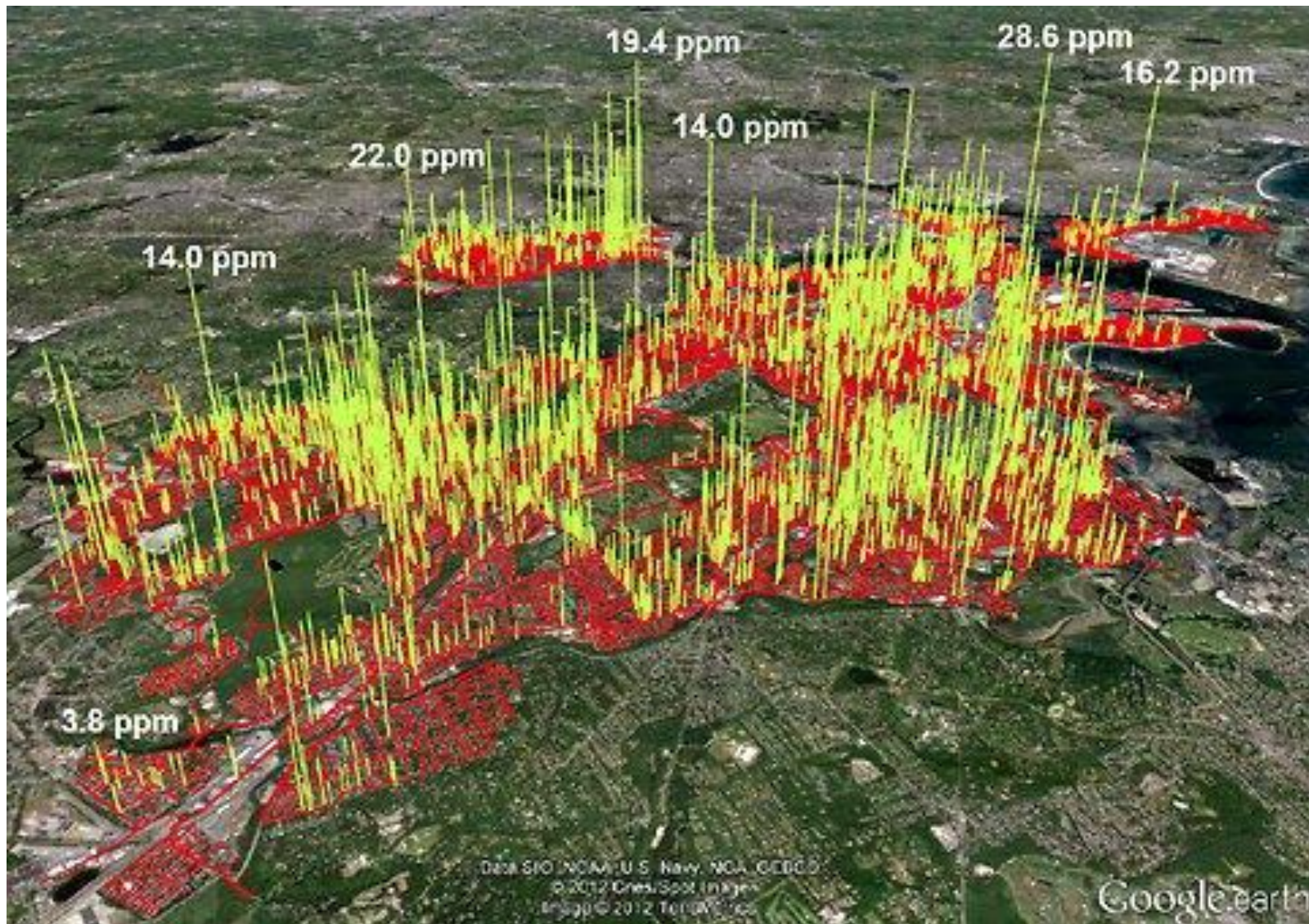


Recording

Impacts to Agriculture



Thousands of gas leaks identified in the U.S. city of Boston





SOMETHING IN THE AIR

Relative atmospheric methane concentrations in Melbourne, showing an urban network gas leak near Brighton (now fixed), landfill emissions near Clayton and domestic wood burning emissions near Chelsea Heights.

Hidden gas leaks 'worse than coal'

Nick O'Malley Environment and climate editor and urban wetlands. It spewed from two leaks they discovered in natural gas pipelines in residential streets. It... time, measure how much methane we leak into the atmosphere. While some tell-tale methane... explains. When they are burnt to make energy they tend to produce around 40 to 50 per cent less carbon... Petroleum Production and Exploration Association, said CSIRO research has revealed by...

By Nick O'Malley
September 13, 2020 – 12.15pm



The AGE - 29 Aug 2020

Sydney Morning Herald
– 13 Sept 2020

It was back in 2016 that Professor Bryce Kelly first discovered that Sydney's air was thick with plumes of methane.

It was not that the leaks themselves were dangerous, what shocked him was the number of them, and the evidence backed growing fears that far from reducing greenhouse gas emissions, the world's increasing enthusiasm for natural gas could prove to be as toxic for climate change as the use of coal.

ENVIRONMENT CLIMATE CHANGE ENERGY

Sydney awash with leaks as research shows the climate cost of gas



A natural gas plant in the Cooper Basin. BRENDAN ESPOSITO


Finding methane emissions from space


Smithsonian
MAGAZINE

SCIENCE

A New Generation of Satellites Is Helping Authorities Track Methane Emissions

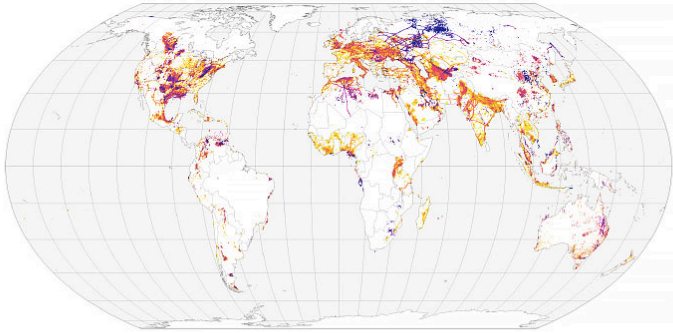
Efforts to identify leaks of the harmful greenhouse gas are improving with advances in technology

 **Jim Morrison**
Science Correspondent
January 19, 2022



Images Global Maps Articles Blogs NASA earth observatory EO Explo

Mapping Methane Emissions from Fossil Fuel Exploitation



Methane Emissions from Oil, Gas, and Coal Exploitation (Mg/year/km²)

0.1 1 10

Heating with your air con

(Shhhhh.... it's a heat pump!)

Inside unit



Outside unit



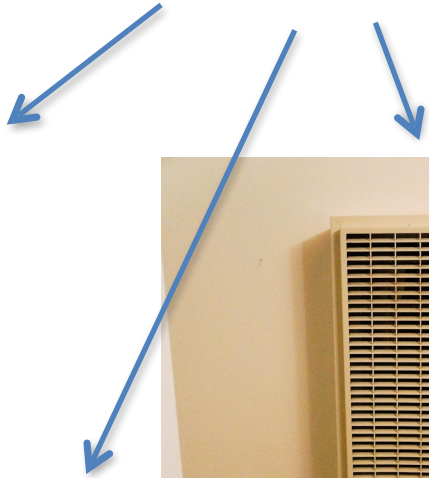
Winter “reverse-cycle” operation.
Collects **free renewable heat**
from the air outside your home.

A good thing about free heat
is that no one will send you a bill for it!

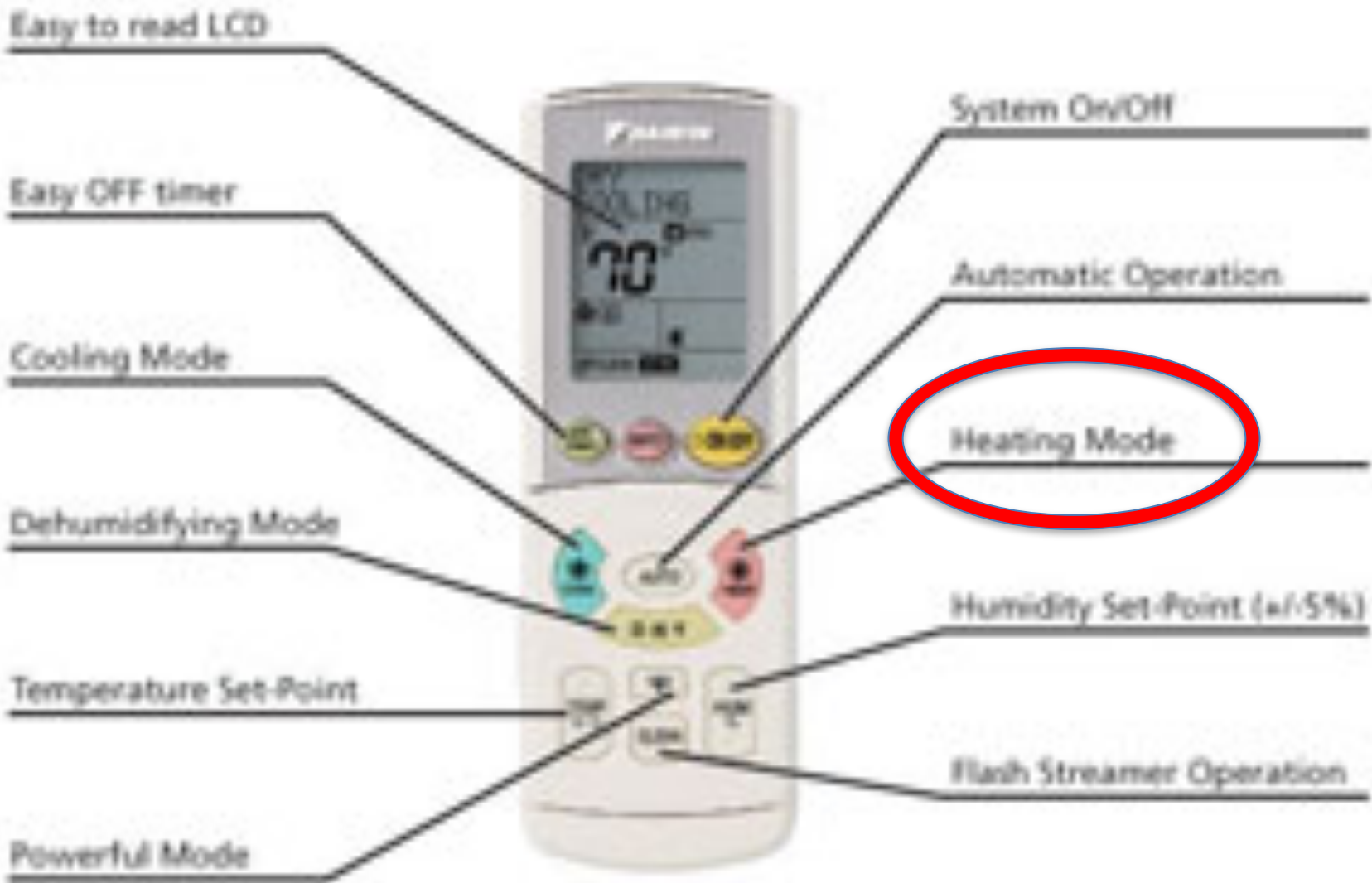
***1 part of electricity used =
5 parts of heat coming out***

HOME HEATING – Air con vs gas

Heating with reverse-cycle air con, can be **1/3rd** the cost of heating with gas.



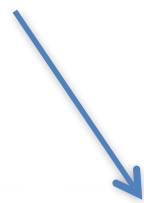
Find the **heat button**... and start saving



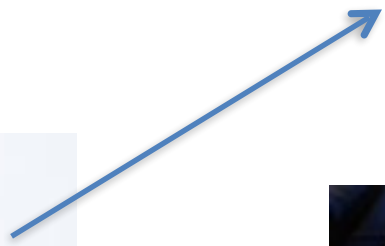
Note: To switch from °C to °F display (& vice versa) hold Temp Up/Down for 5 seconds



Economical
winter heating,
summer cooling



... in winter, warms the air...





Hot-water heat pump example.
1 part of electrical energy produces
4 parts of hot water energy.

How? 3 parts of renewable heat
collected out of “thin” air.



In Australia, hot-water
heat pumps receive
renewable energy certificates,
just like solar PV.

And... induction cooktop...



WHAT A WASTE!

Victorians wasting \$2 to 3 billion / year
burning gas in buildings.

We don't have to do that anymore.

Heat pumps to 1/3rd the cost of burning gas.

Burning gas is an economic
waste... when we have
cheaper options.



HEALTH AND SAFETY

Avoiding gas is safer and healthier

Fire / burn risk

Carbon monoxide: toxicity

Chronic air pollution

in the home

particulates/asthma/etc.

Environment Climate change Pollution

I measured gas pollution in my kitchen and this is what I found (yikes)



By Miki Perkins

June 18, 2022 – 5:00am



Share

A A A

178

View all co

Was it the vegetarian sausages? I'd left them cooking and they were lightly singed (we ate them anyway). Maybe it was the geriatric extractor fan; I'd been meaning to replace it.

The gas hob might have needed maintenance, I guess. Or that time we'd (profligately) used smoke-producing olive oil, rather than vegetable. Did that count? It was impossible to narrow it down.



Environment reporter Miki Perkins in her kitchen with a three-year-old gas cooktop. Perkins monitored the air quality for a week and was surprised by the results. JOE ARMAO



**Abolishing the gas meter
- is a thing!**



AND DON'T FORGET THE THERMAL ENVELOPE!

Draught proofing

Insulation

Window coverings – internal

Windows / glazing

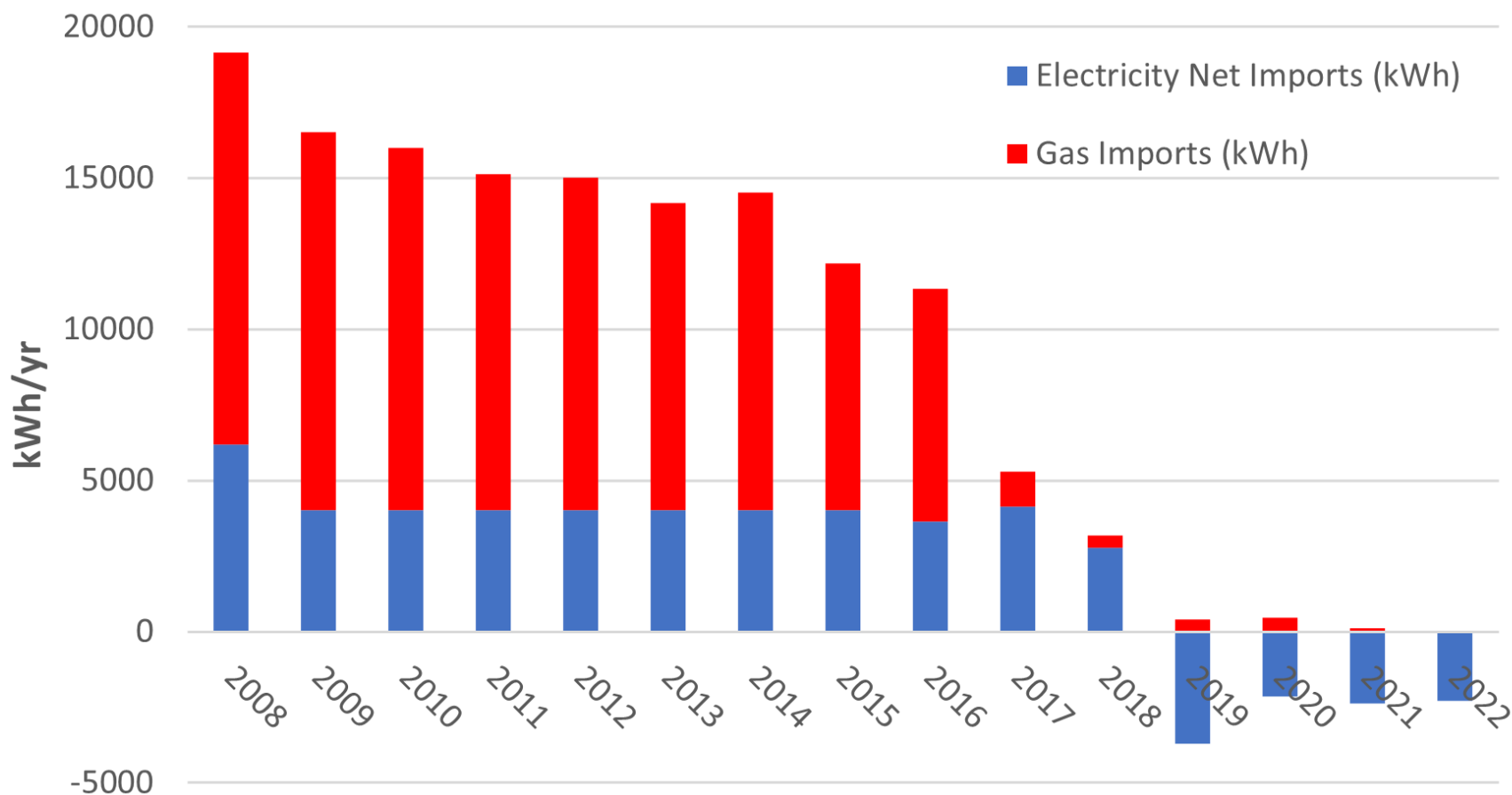
**Also don't forget ventilation / moisture
management**

HOME ELECTRIFICATION IN ONE CHART

As the gas (red) disappears... electrical energy used (blue) hardly increases.

Excludes the impact of any electric vehicle (EV). Saving ~ \$3,000/year.

Melbourne house - Net imports of electricity & gas



Victorian Roadmap may see gas use fall to less than half within eight years

TIM FORCEY, MY EFFICIENT ELECTRIC HOME 28 FEBRUARY 2022 UPDATED 2 MARCH 2022



- “Electrification is a safe, effective and proven technology that can be implemented now.”
- “Energy efficiency and electrification are best placed to reduce emissions and energy bills immediately and free up more affordable gas supply for gas-reliant users, including industry.”

Victorians save when heating with air cons

- Using ducted reverse cycle air conditioning, an all-electric home (without solar panels) could save **\$360 per year**
- Using more efficient split system air conditioners, an all-electric home (without solar panels) could save **\$840 per year**
- Biggest savings achieved by using both solar & efficient split system air conditioners, that could save **\$1,160 per year** (compared to an all-gas home with solar)

Victoria's Gas Substitution Roadmap
Stakeholder Forum



February 2022



5 Barriers to electrification

- a) Gas industry spin, advertising**
- b) Fed / state / local gov hesitancy, fence sitting, conflicts**
- c) Access to quality information**
- d) Owner household constraints on money, time, enthusiasm**
- e) Rental / landlord relationship constraints**
- f) Technical constraints: power supply, physical space**
- g) ...**

Rebates and assistance

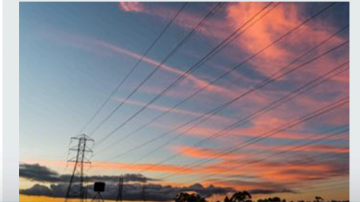
home / rebates and assistance

News



Improving the energy efficiency of commercial ice makers

Tuesday 16 May 2023



Rebates and assistance

Find available assistance from the Australian Government and state and territory governments.

To find what's available, fill in the search boxes with some information about yourself and where you are in Australia.

You can add more information about the topic you're interested in (like solar PV or energy efficiency) and what type of help (like rebates, concessions or advice).

You could also see if there's additional support available during COVID-19 from the [Australian Government](#) or the [state and territory governments](#).

Displaying 1 - 20 of 143

I am a **I am located in**

I am interested in these areas (optional)

Groups calling for electrification and energy efficiency



THE END