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Electrification and equity

July 2023

**Presentation to Climate Action
Subcommittee**

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Electrification and equity themes

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- The discussion today will contain reflections from my time as a senior researcher working on the evaluation of the **Sustainability Victoria Healthy Homes** project.
- Some of the themes to be discussed:
 - Moving from supporting deployment to **targeted support and changing recruitment**,
 - **Helping with the transition away from gas**, incl. replacing gas heaters and carbon monoxide testing,
 - Barriers to overcoming **initial capital cost** outlays,
 - **Social impact investing** and other co-funding.

Targeted support and changing recruitment

Box 1 Eligibility criteria for trial participants

- ▶ Adult ≥18 years of age.
- ▶ Living in a single family dwelling of any housing tenure type (home ownership, private rental or managed by state housing authority) within one of the designated local government areas of Western Melbourne or Goulburn Valley (refer to [figure 2](#)).
- ▶ Is low income defined as having one of the Australian Government welfare cards.*
- ▶ At least one person is receiving home care support services through local council or community organisations.
- ▶ Has lived in the current home for at least 1 year† and plans to remain there for another 2 years or more.
- ▶ Mental capacity to provide informed consent.

*Commonwealth (Centrelink) Health Care or (Centrelink) Pensioner Concession Card or Department of Veterans Affairs (DVA) Pensioner Concession or Gold Card.

†To ensure they have some experience of how the house performs in winter.

- Key issue is to identify those who are vulnerable or may have difficulty adjusting to external factors:
 - **Wealth versus income** – assets versus concession cards,
 - **Health services** – chronic sufferers of asthma, respiratory, and cardiac diseases,
 - **Home care support services** – other health conditions.
- Some programs may be reframed as health interventions – co-benefits.

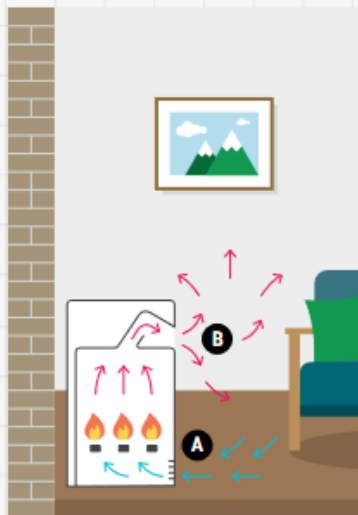
GAS HEATING RISK FACTORS

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Replacing gas appliances: health co-benefits

UNFLUED HEATERS

Cold air is drawn from the room, and fumes are released directly into the living area.

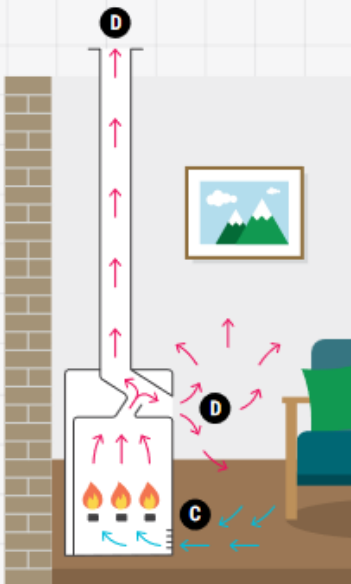


A Flames are fed with cold air from inside the room.

B All exhaust from the fire goes back into the living space. While the air is filtered, this can nonetheless lead to serious consequences.

OPEN FLUE HEATERS

Cold air is drawn from the living area, and fumes are mostly released outside. However, fumes may be released into the living space, with potentially fatal consequences.

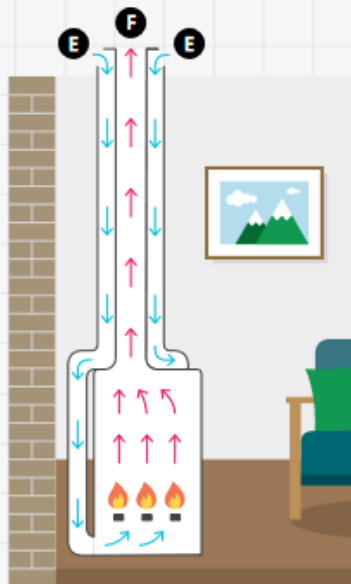


C Flames are fed with cold air from inside the room.

D Potentially deadly exhaust should go up the flue to the outdoors, but under many circumstances, can feed into the room instead.

ROOM SEALED HEATERS

Cold air is drawn from outside, and fumes are released outside. When in good working order, these are less likely to lead to elevated indoor air pollution.



E Flames are fed with cold air from outside.

F When properly maintained with clean flues and intact seals, these heaters pose the lowest level of risk, though continual maintenance is key.

- Numerous studies have associated gas appliances with health issues:
 - Asthma and other respiratory infections – particulates,
 - Airborne benzene – link to cancer,
 - Carbon monoxide poisoning – can be deadly.
- Issue for:
 - Homes – heating & cooking,
 - Public facilities – heating,
 - Schools – heating.

<https://www.climatecouncil.org.au/wp-content/uploads/2021/05/Kicking-the-Gas-Habit-How-Gas-is-Harming-our-Health.pdf>

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Carbon monoxide poisoning in the home

What has happened?



Key messages

- Inhaling carbon monoxide can cause serious chronic health problems, and high levels of carbon monoxide in the air may cause people to pass out or even die.
- There is a risk of accidental carbon monoxide poisoning from domestic gas heaters and smouldering wood.
- All gas heating appliances, and especially open-flued gas heaters, should be serviced and tested by an appropriately trained and licensed gasfitter at least once every two years.
- The Department of Health is working with Energy Safe Victoria to ensure Victorians are aware of potential health risks associated with gas heaters.
- The department is testing all open-flued heaters in its public housing properties to prevent health risks from potential carbon monoxide exposure.

What has happened?

A number of open-flued gas heaters have been identified as posing a serious health risk. The Department of Health Victoria and Energy Safe Victoria advise that you do not use a Vulcan Heritage or Pyrox Heritage gas heater in your home until it has been tested and serviced by a qualified gasfitter. Vulcan Heritage and Pyrox Heritage space heaters have been withdrawn from sale and their manufacturer has ceased production.

Open flue gas heaters are particularly sensitive to negative pressure in the room environment, as in certain circumstances exhaust fans can draw carbon monoxide back into the room. Open flue heaters are not designed to operate in better-sealed, newer houses that may have less ventilation.

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Environmental Health Management Unit

50 Lonsdale Street, Melbourne

Phone 1300 761 874

environmental.health.vic.gov.au

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Product Safety Alert: Vulcan and Pyrox Heritage gas heaters

Released 06/06/2018

With the cooler weather upon us, we draw to the attention of Canberrans safety concerns around the use of Vulcan Heritage and Pyrox Heritage gas heaters, they should not be used until tested by a qualified gas fitter.

There is a risk that the affected heaters produce increased indoor carbon monoxide levels under certain conditions.

In addition, the combination of inadequate ventilation, as well as operating bathroom exhaust fans or kitchen range hoods at the same time as the heater, can draw carbon monoxide into living areas.

The risk is increased if the heater and associated components such as the flue are not regularly serviced.

Carbon monoxide (CO) is an odourless, colourless gas that may affect health if breathed in. Symptoms can include tiredness, shortness of breath, headaches, dizziness, nausea, weakness, confusion or chest pain. Seek medical advice if you are experiencing any of these symptoms.

Anyone with a Pyrox or a Vulcan heritage gas heater should call Climate Technologies on (03) 8795 2462.

For people living in ACT public and social housing who think they may have one of these heaters installed, please call Total Facility Manager, Spotless call centre immediately on (02) 6207 1500.

For more information visit Access Canberra www.act.gov.au/fairtrading.

https://www.unicd.edu.au/open_government/inform/act_government_media_releases/access-canberra/2018/product-safety-alert-vulcan-and-pyrox-heritage-gas-heaters

Open-flue heater ban – news alert

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Date 1 August 2022

Category [News alerts](#)

The sale of open-flued gas heaters without specific safety features has been banned in Victoria.

The ban comes into effect on 1 August and affects new and second-hand gas heaters which cannot automatically shut down if they start spilling potentially deadly carbon monoxide.

Energy Safe Victoria (ESV) has introduced the ban in response to a recommendation by the Victorian Coroner that the heaters be phased out.

Consumer Affairs Victoria > Latest news

If you:

have recently bought an open-flued gas heater

- you cannot arrange for it to be installed – gasfitters are no longer permitted to do so. Speak to your retailer or installer to see whether you can obtain a refund. This may depend on the terms of sale or installation, or the retailer’s refund policy. You can also [Contact us](#) for further advice if you cannot reach agreement.

have one of the banned models in your home

- you do not need to have it removed but you should make sure it is inspected every two years by a licensed gasfitter. Ensure there is adequate ventilation in your property and avoid having exhaust fans, such as a kitchen rangehood or bathroom fan, running while your heater is on.

are living in a rental property with one these heaters

- your rental provider must ensure a safety check is carried out every two years, by a licensed or registered gasfitter qualified to perform the work. See our information about [rental provider obligations](#).

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<https://www.consumer.vic.gov.au/latest-news/open-flue-heater-ban>



Whole house weatherization

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<https://www.energy.gov/scep/wap/weatherization-assistance-program>

Wholistic approach for electrification:

- Mechanical,
- Health and safety,
- Building shell,
- Energy efficiency



MECHANICAL MEASURES

- Clean, tune, repair, or replace heating and/or cooling systems.
- Install duct and heating pipe insulation.
- Install programmable thermostats and other HVAC controls.
- Repair/replace water heaters.
- Install water heater tank insulation.
- Insulate water heating pipes.
- Install solar water heating systems.
- Install waste heat recovery devices.



HEALTH & SAFETY MEASURES

- Complete combustion appliance safety testing.
- Repair/replace vent systems to ensure combustion gas draft safely outside.
- Install mechanical ventilation to ensure adequate indoor air quality.
- Assess fire hazards. Install smoke and carbon monoxide alarms when needed.
- Evaluate mold/moisture hazards.
- Perform incidental safety repairs when needed.



BUILDING SHELL MEASURES

- Install wall, floor, ceiling, attic, and/or foundation insulation.
- Complete Blower Door Testing.
- Perform air sealing.
- Repair/replace primary windows/doors.
- Install storm windows/doors.
- Install window film/solar screens/window louvers and awnings.
- Repair minor roof and wall leaks prior to attic or wall insulation.



ELECTRIC BASELOAD MEASURES

- Install motor controls.
- Install efficient light sources.
- Replace refrigerators and freezers with energy efficient models.

Presentation to the ACT Cabinet Subcommittee on Climate Action

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Initial capital cost outlays

- Upfront costs are a key issue for low-income households, some initiatives that could be used include:
 - **rebate swap** – in NSW you can swap the Low-Income Household Rebate (10 years) for a free 3kW solar system installed on their home.
 - **income contingent loans** – proposal to pay for panels via tariff revenue.
 - **attracting cheaper vehicles** – for EVs, a key issue is getting access to cheaper options (EV Discovery centre).

<https://www.service.nsw.gov.au/transaction/apply-rebate-swap-offer>
https://ccep.crawford.anu.edu.au/sites/default/files/publication/ccep_crawford_anu_edu_au/2015-08/ccep1508.pdf

Home / Browse services / Concessions, rebates and assistance

Apply for a rebate swap offer



On this page

- [Introduction](#)
- [Eligibility](#)
- [What you need](#)
- [How to apply](#)
- [More information](#)
- [Documents](#)
- [Links](#)

Introduction

The [rebate swap offers](#) are designed to help [eligible](#) NSW residents cut their energy bills.

The 'rebate swap for solar' offer (also known as the solar for low income households offer) enables eligible households to swap their Low Income Household Rebate for a free solar system

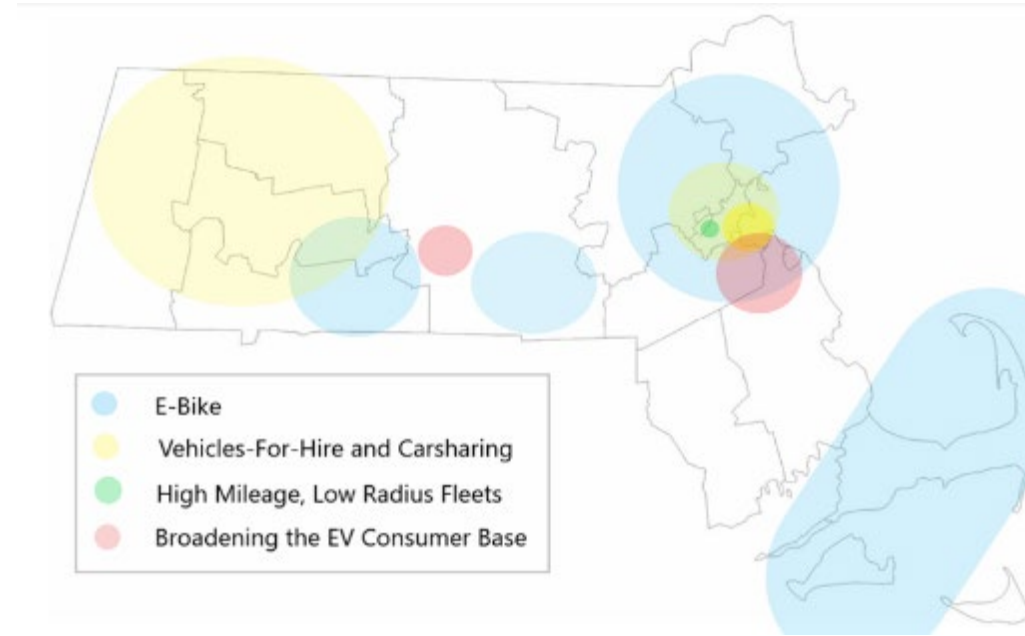
If your household is not suitable for solar, you may be eligible for the 'rebate swap for energy upgrades'. This offer provides you with a free household energy assessment, and you can then swap your Low Income Household Rebate for energy efficient appliances or minor home upgrades, as recommended in the assessment.

The application process decides which offer is suitable for your household.

Supporting e-bike and EV adoption

Open call for \$5 million for 10 projects in Massachusetts (community organisations and port authority)

- Pilot Incentive Programs
 - E-bikes: point-of-sale e-bike **rebate program** with bike shops
 - Vehicles-For-Hire and Carsharing: infrastructure (airport) and **targeted incentives** for taxis and ride-share
- Broadening the Base of Electric Vehicle Consumers: new **EV Discovery Centre** plus education program
- Innovative Models for High-Mileage, Low-Radius Fleets: transportation service organization **switch from diesel fleet.**



Supporting EVs across all groups

- **Private charging**
 - Building code requirement for power to all residential car parks
 - Support and targets for retrofitting residential car parks in private rental market.
- **Public charging**
 - Functionality – penalties for out-of-order charging points,
 - High-demand and universal locations – low-cost overnight parking,
 - encourage businesses to install – charging at shops and centres.
- **Support adoption via a second-hand market**
 - Offering a standardised battery test for secondhand ZEVs.
 - Commercial fleet adoption with view to selling secondhand.

Seeking co-investment – social impact

- **Social impact investing** is an outcomes-based approach that brings together governments, service providers, investors and communities to tackle a range of policy (social and environmental) issues.
- It provides governments with an alternative and innovative mechanism to **address social and environmental issues** while also leveraging government and private sector capital, building a stronger culture of robust evaluation and evidenced-based decision making, and creating a heightened focus on outcomes.

Warmer Kiwi Homes programme

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Warmer Kiwi Homes is a Government programme offering insulation and heater grants to low-income home owners.

CHECK YOUR ELIGIBILITY

WARMER KIWI HOMES PARTNERS →

What the grants cover

- **80% of the total cost of ceiling and underfloor insulation.** In some areas the cost to you may be even lower, thanks to generous funding from community organisations.
- **Up to 80% of the cost of an approved heater.** This could be a heat pump or an efficient wood/pellet burner for the main living area. Heater grants are capped at \$3000 including GST.



*Presentation to the ACT Cabinet
Subcommittee on Climate Action*

<https://www.eeca.govt.nz/co-funding/insulation-and-heater-grants/warmer-kiwi-homes-programme/>

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- Things to discuss:
 - **Targeted support and changing recruitment:** getting community organisations and health professionals involved in identifying ‘at-risk’ groups,
 - **Helping with the transition away from gas:** removing the risk of gas appliances as a ‘stranded asset’ by promoting removal or different decisions via health concerns,
 - **Funding change and investment:** swapping rebates, EV Discovery centres, support charging everywhere, co-funding switch to electric vehicles/appliances.