

Environment Victoria

Submission to the Senate Standing Committee on Economics inquiry into Residential Electrification

4 October 2023

Dear Committee Members

Environment Victoria is the peak not-for-profit environmental advocacy organisation in Victoria. We welcome the opportunity to make submissions to this inquiry.

Introduction

Environment Victoria strongly supports a national shift to efficient electrification of households.

Phasing out polluting fossil fuels such as methane gas is an urgent climate priority. Communities in Victoria and across the globe are experiencing the escalating impacts of climate change damage caused by burning fossil fuels.¹ As we prepare this submission there is already bushfire burning Victoria,² and for several months our news bulletins have been dominated with terrifying flood and fire events in the northern hemisphere.

As our country transitions its energy source from polluting coal and gas to renewable forms of energy, it is fundamental that all Australian households have access to the benefits of electrification. Victoria is the largest domestic methane gas consumer in the country. There are some 2 million homes connected to the gas distribution network in Victoria, and over 5 million connected nationally.³

The current Victorian government has ambitious 2035 emissions reduction and renewable energy targets (respectively 75-80% and 95%) and is the only state to have prepared a Gas Substitution Roadmap.⁴ The challenges and opportunities in phasing out and replacing gas with efficiency electric alternatives in our state alone are enormous in scope, and are occurring as coal-burning power stations are slated to close by 2035.

Despite Victoria's nation-leading emissions reduction and renewable energy targets, there is a reality in which cohorts of our community are left behind and exposed to the 'death spiral' of rising methane gas costs. Gas bills alone contribute substantially to household and business financial pressures, and as the state that consumes the largest amount of methane gas – mostly in homes and small business⁵ - we are especially vulnerable to the relentless rise in global gas prices.

In addition to consumer exposure to global gas price, the regulatory framework in which consumer contribution to gas distribution capital expenditure is determined locks methane gas consumers into

¹ Wood, T, Reeve, A., and Suckling, E, *Getting off Gas: why, how and who should pay?* Grattan Institute (June 2023)(Grattan Report) p 3. Available at: <https://grattan.edu.au/wp-content/uploads/2023/06/Getting-off-gas-why-how-and-who-should-pay.pdf>.

² See: <https://www.abc.net.au/news/2023-10-02/gippsland-fires-emergency-warnings-weather-conditions-easing/102922444>.

³ <https://www.energynetworks.com.au/resources/fact-sheets/reliable-and-clean-gas-for-australian-homes-2/>

⁴ Noting that the Australian Capital Territory was the first to have done so.

⁵ Grattan Report p 7.

costs that are determined every five years. And investment in electrification must be weighed against the fact that gas distribution companies are constantly incurring capital expenditure costs both to safely maintain the network and to expand it for new connections. In Victoria alone, gas distributors were forecasting to spend more than \$645 million for the period ranging from mid-2023 to mid-2028 on new connections.

Further, the people who are feeling the greatest financial pressure from gas prices also face the biggest barriers to the solution. People who can't install solar and batteries, replace gas appliances with efficient electric ones, or increase household efficiency either because they can't afford it because the upfront costs are too high, or don't own their home, will be exposed to increasing cost of living pressure as more households who can afford to switch their appliances and disconnect from gas.

Instead of using these resources for a network that delivers an expensive and polluting fuel we should be preparing our energy systems to deliver clean and affordable energy.

Given this, our view is that one of the best contributions the federal government can make in the phase out of methane gas and wide-scale electrification roll out is to provide financial support to the states and territories. This will assist in the longevity of state and territory programs to phase out gas use, and clearly signal to both renewable energy investors and the electric appliance manufacturing sector that Australia is serious about breaking its addiction to fossil fuels.

Recommendations

1. The federal government develop a national policy to phase out domestic gas use to encourage nationally consistent timelines and targets to achieve household electrification, and provide financial support to assist states and territories to phase out domestic gas.
2. The Australian Energy Regulatory amends the length of access arrangements to facilitate gas distribution revenue adjustments to reflect decommissioning of the gas network.
3. AEMO should include additional scenarios in its Integrated System Plans to reflect the impact to the consumption levels and adequacy of electricity and gas supply at different rates of household electrification uptake.
4. The federal government provide financial support for state and territory skills training and workforce development to ensure the longevity of training programs.
5. The federal government should work with its state and territory colleagues to audit the number of gas appliances in Australia.
6. The federal government provide financial support to states and territories to assist people facing a high-cost barrier to achieve household electrification.
7. The federal government consider introducing a range of financial and tax incentives for landlords to replace gas appliances with efficiency electric alternatives.
8. The federal government contributes to a national education campaign to help the entire Australian community understand the benefits of household electrification.

1. Macro-barriers to increasing the uptake of home electrification.

Australian states have very different gas consumption profiles, and accordingly, face very different barriers towards residential electrification. For example, Victoria has around 76% of households connected to the gas network yet only around 10% of households are connected in Queensland. The

consumption levels vary widely too: the average Victorian home consumes around 54 GJ per year while the average Queensland home consumes around 9 GJ per year.⁶

The macro-barriers include, then, the extent to which different jurisdictions view household electrification as a policy priority. In Victoria, household electrification is currently a government priority in part because the state is running out of traditionally cheap reserves in Bass Strait, and importing or extracting new gas has demonstrably no social licence.⁷

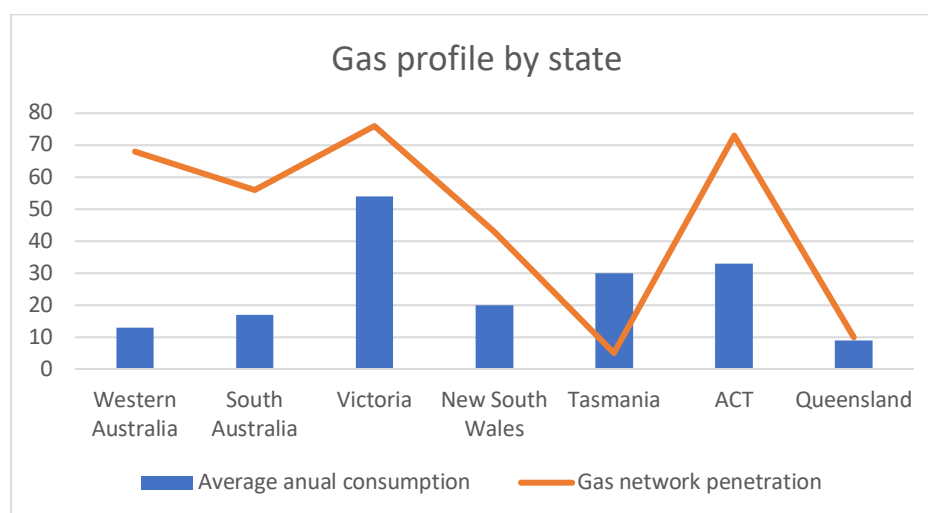


Figure 1 Gas profile by state.
Source: Energy Networks (2021)⁸

In jurisdictions where household electrification is not a priority, the federal government could assist by announcing a policy intention to phase out methane gas use in Australia. This policy could include financial support to states and territories to fulfil existing gas phase-out policy, or to encourage the development of gas phase-out. The policy would require specific timelines and targets to phase out gas and achieve household electrification, with detail on how to develop the necessary workforce and provide support to both domestic electric appliance manufacturers, and outline transition options for domestic manufacturers of gas appliance or related products. We note that there would be associated legislative and regulatory reforms required, including to the National Gas Act.

Recommendation 1: The federal government develop a national policy to phase out domestic gas use to encourage nationally consistent timelines and targets to achieve household electrification.

Other macro-barriers to increasing the uptake of household electrification includes an energy framework that promotes the use of methane gas and expansion of the gas network, does not anticipate phase out of domestic gas use in energy planning, and a lack of workforce to undertake the work of achieving national-scale household electrification.

1.1 Existing policies and legislation promote the use of gas.

⁶ Deloitte Access Economics, Decarbonising Australia’s gas distribution networks (2017). Available at: <https://www.deloitte.com/content/dam/assets-zone1/au/en/docs/services/economics/deloitte-au-economics-decarbonising-australias-gas-distribution-networks-181217.pdf>

⁷ For example, see the community campaigns against AGL’s proposed floating gas terminal at Cribb Point and Viva’s proposed gas import terminal in Geelong.

⁸ See: <https://www.energynetworks.com.au/resources/fact-sheets/reliable-and-clean-gas-for-australian-homes-2/>

The ‘National gas objective’ contained in the *National Gas Act 2008* is clear: ‘The objective of this Law is to promote efficient investment in, and efficient operation and use of, natural gas services for the long-term interests of consumers of natural gas with respect to price, quality, safety, reliability and security of supply of natural gas.’

The National Gas Act impacts the performance of regulators such as the Australian Energy Regulators (AER), Australian Energy Market Commission (AEMC) and the Australian Energy Market Operator (AEMO) who are mandated to consider whether their decisions will contribute to the achievement of the National Gas Objective.

This law, and the obligations imposed on the abovementioned agencies, assume that the gas network will operate indefinitely. This is patent in the access arrangements process, where regulated gas distribution networks revise their access arrangement before the Australian Energy Regulator and where their expenditure and revenue are set for five years intervals.

Much of the approved capital expenditure such as mains replacement and augmentation, paid for by methane gas consumers, essentially cements long-lived assets to the capital base of gas distribution companies. Some level of mains replacement and maintenance is warranted to ensure the safe use of the network. But in the context of a national shift towards electrification, Australia’s gas regulators must ensure that Australian households will not be supporting unnecessary capital expenditure for assets that will be stranded in less than two decades.

The access arrangements periods determined by AER is another macro-barrier to household electrification. As we transition away from methane gas, the five-year access arrangements must be revised more regularly. As new and existing gas connections decrease, assumptions regarding the necessity for capital expenditure on meter replacement, mains replacement and mains augmentation are very likely to become outdated and will need revision. Developing a shorter access arrangement process could provide flexibility for the revenue of gas distributors to be adjusted to ensure they can keep providing their services during the progressive decommissioning of the gas network.

Recommendation 2: The Australian Energy Regulatory amends the length of access arrangements to facilitate gas distribution revenue adjustments to reflect decommissioning of the gas network.

1.2 There is a lack of national energy planning to support household electrification.

Since 2018 AEMO has released its Integrated System Plan (ISP), which outlines a NEM-wide system plan for ‘*supplying affordable and reliable electricity to homes and businesses in the eastern and south-eastern states, while supporting Australia’s net zero ambitions.*’⁹

In considering the many uncertainties to achieve net zero emissions in the energy system, AEMO has prepared four scenarios in its 2022 ISP which depicts the energy transition through different paces and approaches toward the goal to reach net zero by 2050.

While AEMO has acknowledged that electrification of gas consumption will be one of the trends that will affect electricity systems, it is considered as a secondary process, rather than a fundamental part of the much-needed decarbonisation of our energy systems. In fact, the ISP is framed in an

⁹ Australia Energy Market Operator, 2022 Integrated System Plan (2022). Available at: <https://aemo.com.au/-/media/files/major-publications/isp/2022/2022-documents/2022-integrated-system-plan-isp.pdf?la=en>.

inconsistent manner, sometimes referring to the whole energy system’s reliability and affordability, while at others only mentioning the electricity part of the system.

This can be seen in the disparity between the pace of decarbonisation of the electricity and the gas sector under AEMO’s scenarios.

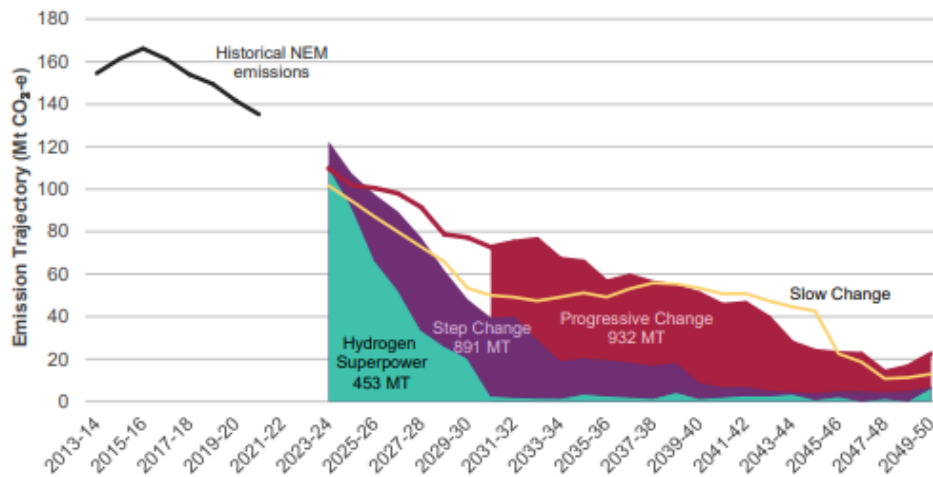


Figure 2: NEM carbon budgets and the resulting emissions trajectories.
Source: Draft 2023 Inputs, Assumptions and Scenarios Report (AEMO, 2022).¹⁰

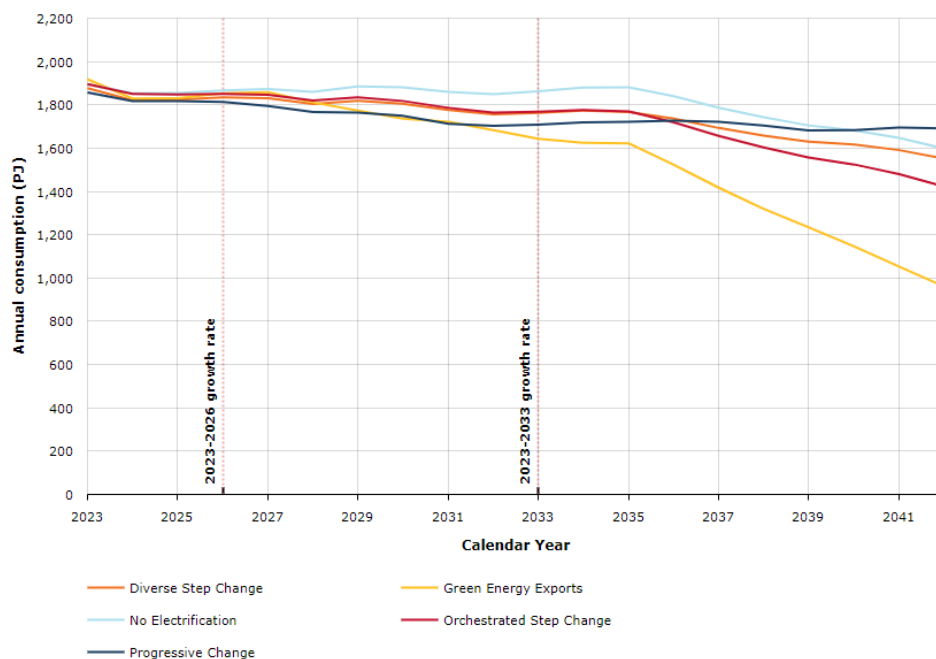


Figure 3: East Coast Gas System’s (ECGS) Gas demand under different scenarios.
Source: AEMO (2023).¹¹

¹⁰ Australian Energy Market Operator, Draft 2023 Inputs, Assumptions and Scenarios Report (December 2022) Available at: https://aemo.com.au/-/media/files/stakeholder_consultation/consultations/nem-consultations/2022/2023-inputs-assumptions-and-scenarios-consultation/draft-2023-inputs-assumptions-and-scenarios-report.pdf?la=en.

¹¹ Australian Energy Market Operator, East Coast Gas System Guidelines Final Decision (13 June 2023). Available at: https://aemo.com.au/-/media/files/stakeholder_consultation/consultations/gas_consultations/2023/implementation-of-east-coast-gas-system-guidelines/final/final-decision--east-coast-gas-system-guidelines.pdf?la=en.

As shown in Figure 2, AEMO's electricity sector scenarios are substantially different from one another and foresee a substantial decrease in NEM carbon emissions (albeit not as fast as what would be needed for a 1.5 global warming consistent scenario).

On the other hand, as shown in Figure 3, four out of five East Coast gas demand scenarios follow a similar route. Green Energy Exports, the most ambitious scenario (also the least likely to succeed as it heavily relies on a hydrogen export market that does not exist) forecasts less than a 50% emissions reduction from gas in the gas sector by 2042.

This raises legitimate concerns regarding the proposed scenarios for the gas sector, as they do not support proper planning for a gas transition. While most scenarios forecast a moderate pace for the transition, only the Green Energy Exports scenario forecasts a rapid transition of the gas industry albeit towards so-called 'renewable gases' such as hydrogen and biomethane. The assumptions in this scenario closely align with gas industry's most optimistic projections, rather than based on existing policy or market forecasts.

AEMO should include in its ISP a scenario to reflect how different rates of household electrification would impact both gas and electricity consumption levels, and the adequacy of supply of both gas and electricity. Failing to do so would impact not only the gas transition, but also risk the electricity transition being achieved at a slower rate than what is already occurring by underestimating the role of clean electricity in the future.

Recommendation 3: AEMO should include additional scenarios in its Integrated System Plans to reflect the impact to the consumption levels and adequacy of electricity and gas supply at different rates of household electrification uptake.

1.3 Australia does not currently have the workforce required for phasing out household gas.

Residential electrification will require not only economic support and legislative changes but also thousands of skilled workers capable of installing and servicing efficient electric appliances in Australian homes.

In Victoria alone, to achieve full residential electrification by 2033 we would need to electrify more than 550 homes per working day. This ramp up in the electrification rollout will depend on Federal and State Governments ability to build a skilled workforce. Recent criticism of the lack of federal government support to train the number of electricians to undertake the necessary work to achieve the energy transition has suggested that Australia needs a specific migration pathway for skilled workers.¹²

To successfully complete the energy transition workers that are likely to be negatively affected by residential electrification, such as plumbers, must have access to retraining to access employment opportunities. Combined with an expansion of training and certification associated with energy generation and transmission, training and reskilling for the installation of energy efficient heat pumps and solar hot water systems could be supported by the federal government to mitigate a looming workforce and skills shortage.

¹² Angus Thompson, 'Tradie migration solution needed to meet renewable energy target: union, industry,' The Age (26 September 2023). Available at: <https://www.smh.com.au/politics/federal/tradie-migration-solution-needed-to-meet-renewable-energy-target-union-industry-20230920-p5e68p.html>.

This support could be achieved by federal provision of financial resources to state-based training and reskilling incentives either currently available or that will need to be established. In Victoria, upskilling programs for plumbers and fourth-year apprentices are fully subsidised through the Solar Victoria program within the Department of Environment, Energy and Climate Action.¹³ Federal support for programs such as this would ensure the longevity of training opportunities and bolster worker confidence that this technical expertise is significant.

Recommendation 4: The federal government provide financial support for state and territory skills training and workforce development to ensure the longevity of training programs.

2. Total upfront cost of household electrification.

A 2021 report published by Renew estimated that the upfront cost of acquiring and installing efficient electric appliances for an average home were as follows.¹⁴

Type	Model	Heat kw	Cool kw	Price	Install cost	Total price
Aircon/Heating Heat pump (large)	Mitsubishi Heavy Industries SRK63ZRA-W	7.1	6.3	\$1,569	\$800	\$2,369
(x3) Aircon/Heating Heat pump (small)	Mitsubishi Heavy Industries SRK20ZSXA-W	2.7	2	\$1,190	\$650	\$1,840 (x3)
Hot Water Heat Pump	Stiebel Eltron 302L	-	-	\$3,700	\$1,000	\$4,700
Induction cooktop	-	-	-	\$750	\$250	\$1,000

Additionally, older homes may need a switchboard upgrade which could cost approximately \$3,000.¹⁵

For an average household needing to replace a stove, water heater and space heater/air con units, this could come at a total cost of \$13,580 for efficient electric appliances, compared to \$11,995 for their gas counterparts. According to this data, the upfront of going all electric would be around \$1,585 higher than having a dual fuel home.

However, there is a gap in data regarding the number of households and appliances that need to be replaced at a national level, making it very difficult to estimate the total upfront cost associated in

¹³ See: <https://www.solar.vic.gov.au/upskilling-plumbers>.

¹⁴ Renew, *Households Better Off: Lowering energy bills with the 2022 National Construction Code* (August 2021) pp. 32 – 34. Available at: <https://renew.org.au/wp-content/uploads/2021/10/Households-Better-Off-full-report.pdf>.

¹⁵ See: <https://www.finnleyelectrical.com.au/switchboard-upgrades-the-ultimate-guide/>.

achieving household electrification. The Australian Bureau of Statistics released data on household fuel of choice and appliance usage for the last time in 2014.¹⁶

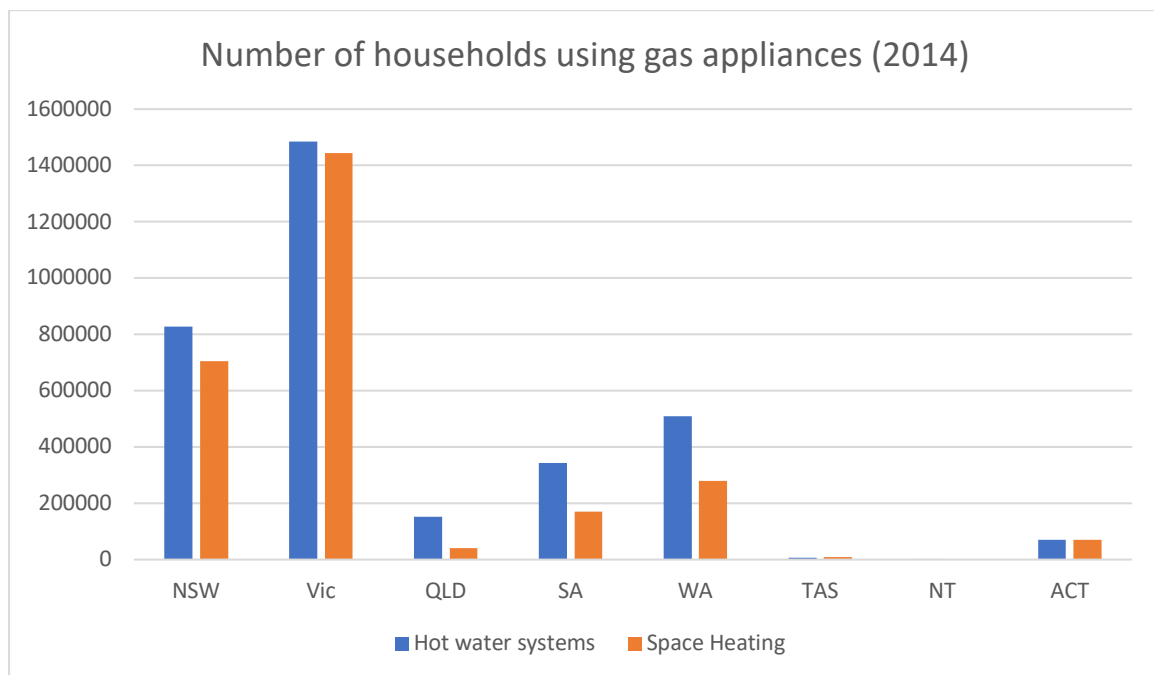


Figure 4 Number of households using gas appliances.
Source: ABS (2014)¹⁷

According to this data, in 2014 there were 3,395,500 households using gas hot water systems and 2,723,100 households used gas as their main source of heating. The ABS did not provide data on cooking appliances.¹⁸

At best, applying Renew’s figures to 2014 ABS data will provide a ballpark figure for the total cost. However, to achieve an accurate estimate of the total cost, the federal government should start by working with its state and territory colleagues to audit the number of gas appliances in Australia. Once that audit is complete, there are a range of factors to consider determining total costs, including costs associated with training and reskilling the necessary workforce, and the efficiency standard of appliances.

There is also a cost in not electrifying households. There is a climate pollution cost associated with the slow roll-out of the energy transition, and significant cost-of-living issues associated with rising methane gas prices. Any cost scenarios must include consideration of failure to rapidly achieve household electrification in time to align with Paris Agreement targets.

Recommendation 5: The federal government should work with its state and territory colleagues to audit the number of gas appliances in Australia.

¹⁶ Australian Bureau of Statistics, 4602.0.55.001 – Environmental Issues: Energy Use and Conservation (March 2014). Available at: <https://www.abs.gov.au/AUSSTATS/abs@.nsf/ProductsbyCatalogue/A38DDA7F40718E43CA25750E00112A97?OpenDocument>.

¹⁷ Ibid.

¹⁸ This includes both mains gas and LPG.

4. Optimal timeline for household electrification accounting for the likely timing of decarbonising electricity.

Electrification, when done properly, can provide carbon emission reductions even when a grid is dominated by fossil fuels. Such is the case in Victoria.

Despite an ongoing increase in renewable energy uptake, Victoria still has the most carbon intense electricity grid in the country at 0.85kg CO₂-e/kWh. And yet, electrifying homes in Victoria already can substantially reduce households carbon emissions.

The difference in favour of electricity will continue to rapidly increase up to 2035 when Victoria reaches a renewable generation energy target of 95%. By then electricity related emissions will be largely negligible while gas consumption emissions would remain broadly the same (Figure 5).

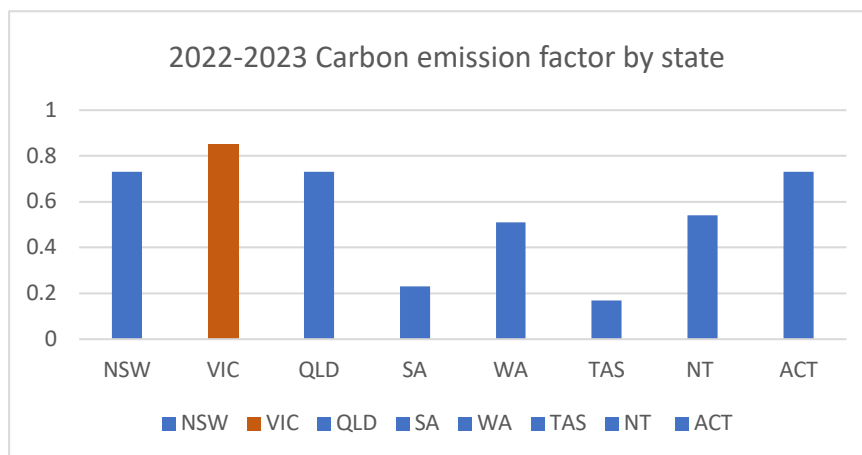


Figure 5: Scope 2 electricity emission factors (kg CO₂-e/kWh) by state. Clean Energy Regulator (2023).¹⁹

¹⁹ See: <https://www.cleanenergyregulator.gov.au/OSR/EERS/eers-current-release>

Emissions from heating over winter months (kg): South East Melbourne (Moorabbin) without insulation

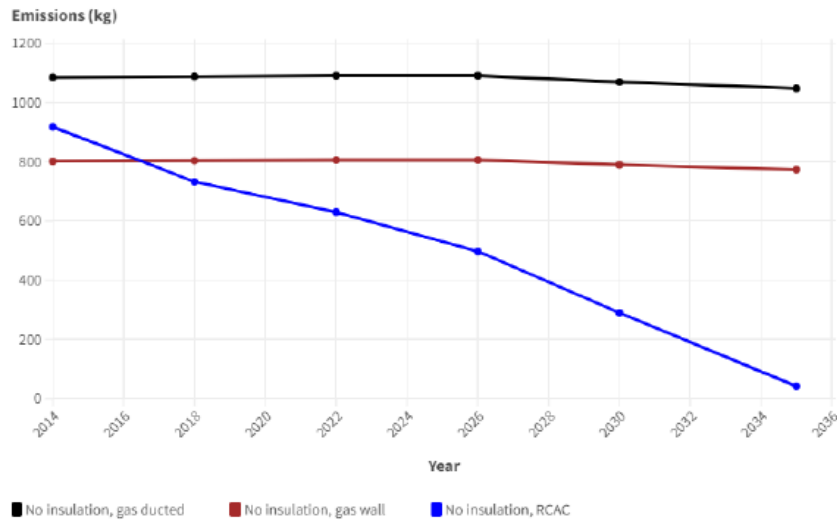


Figure 6 Emissions of heating 50m2 uninsulated space in Moorabbin over winter. Source: Environment Victoria and Renew (2023).²⁰

In this context and considering the time window needed to fully electrify homes, delaying residential electrification is a climate change luxury we cannot afford. This is especially true for states with high penetration of the gas grid like Victoria where the transition will take longer than in Queensland.

Considering the impact of gas consumption on carbon emissions and the high cost of the fuel for households Environment Victoria believes Australia should aim for full residential electrification over the next 10 years.

5. Impacts and opportunities of household electrification for domestic energy security.

According to the International Energy Agency, energy security is the uninterrupted availability of energy sources at an affordable price.²¹ This means that on one hand energy security is dependent on delivering energy when it is demanded by users. On the other hand, the continued availability of energy must be affordable for users.

Regarding the uninterrupted availability of energy security, we note that the Australian grid is extremely reliable, the current reliability standard is at 0.002% of unserved energy, and it has only ever been exceeded in 2008.²²

²⁰ Environment Victoria and Renew, It's a Gas: How ditching gas this winter can cut heating bills by 75% (2023)(Victorian winter gas bill report). Available at: <https://environmentvictoria.org.au/wp-content/uploads/2023/07/Comparing-gas-and-electric-heating-over-winter-FINAL.pdf>.

²¹ See: <https://www.iea.org/topics/energy-security>

²² Australian Energy Market Commission, Final Report: 2022 Annual Market Performance Review (30 March 2023). Available at: <https://www.aemc.gov.au/sites/default/files/2023-03/2022%20Annual%20Market%20Performance%20Review%20%28Clean%29.pdf>.

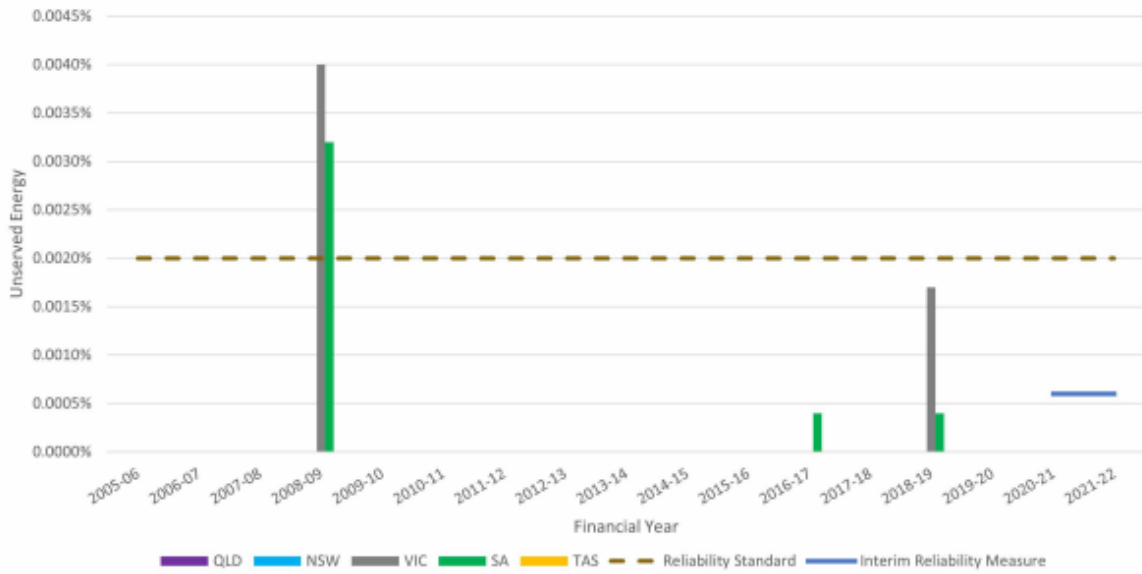


Figure 7 Unreserved energy by financial year for NEM jurisdictions.
 Source: Panel Analysis of AEMO data, AEMC (2023)²³

The main cause of power interruptions is not linked to power generation but to power distribution (pools and wires). More than 95% of the (already low) supply interruption events between 2008/09-2018/2019 were caused by problems with the distribution network and not associated with electricity generation.

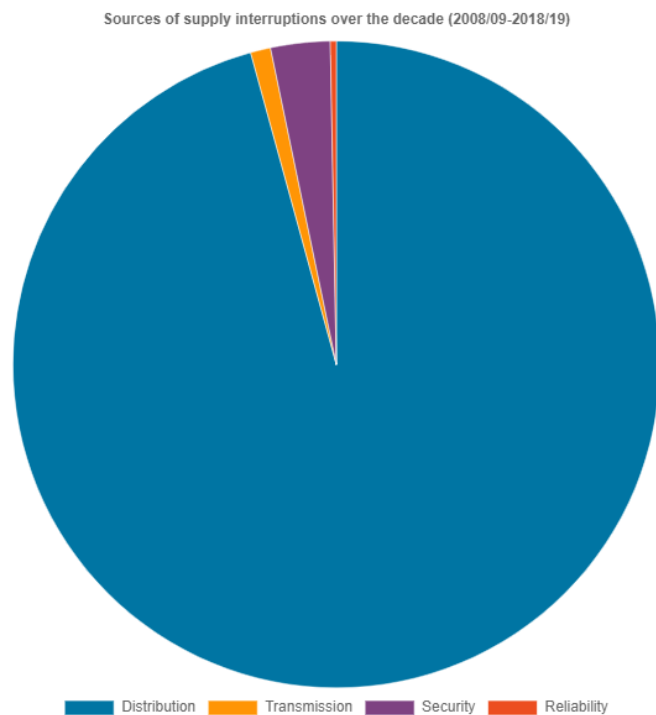


Figure 8 Source of supply interruptions over the decade (2008/09 – 2018/19)
 Source: AEMC (2020)²⁴

²³ Ibid.

²⁴ See: <https://www.aemc.gov.au/data/annual-market-performance-review-2020/sources-of-supply-interruptions-over-the-decade-2008-09-2018-19>

While household electrification will undoubtedly impact energy demand, the reality is that it can actually support reliability in the grid. Water-heating heat pumps and electric vehicles power consumption can be matched with electricity production, increasing the demand at times when solar output is high, increasing the reliability of the grid.

Regarding affordability, household electrification bolsters energy security.

Methane gas is an expensive fossil fuel traded in a volatile market. International gas prices have skyrocketed since the Russian invasion of Ukraine. The 2022 energy crisis was of such magnitude that the federal government, normally opposed to direct market intervention, imposed a 12\$/GJ gas price to limit prices that were severely hurting local consumers. The worst of this international crisis seems to be behind us, but remaining market uncertainty, combined with the overwhelming majority of domestic gas extraction being exported to the international rather than domestic market, has led to the price cap to be extended until 2025.²⁵

Further, dual gas/electric homes connected to gas distribution networks are exposed to both the volatile prices of the gas market and the cost of maintaining that distribution network, and to capital expenditure costs featured in electricity bills. As the number of households switch from gas to efficient electric appliances, those who do not or cannot are increasingly exposed to the 'death spiral' associated with paying for a distribution network that supplies methane gas to fewer consumers. This essentially fails the second limb of energy security that requires uninterrupted energy sources to be affordable.

By phasing out methane gas from the domestic market Australia will enjoy greater energy security through electrification that will, as outlined in more detail below, contribute to gains in energy affordability.

6. Impacts of household electrification on reducing household energy spending.

Household electrification will have, and does have, a huge impact on energy spending. Modelling undertaken for the Victorian Gas Substitution Roadmap estimated that dual-fuel homes converting to all-electric would save around \$1,020 per year and up to \$1,250 if they had solar PV installed.²⁶

Recent modelling has shown larger savings.²⁷ Melbourne households going all-electric would save around \$1,480 per year, and homes with solar PV going all electric would save around \$2,701 per year, representing a reduction of total household expending of 35.4% and 64.7% respectively.

There is broad consensus that using efficient electric appliances significantly reduces household energy bills. The main reason is that heat pumps are extremely efficient. Premium heat pumps can heat a room at 600% efficiency while standard heat pumps have a 400% efficiency. In contrast gas

²⁵ Peter Hannam, 'Labor extends gas price cap to 2025 to protect power bills (the Guardian, 26 April 2023). Available at: <https://www.theguardian.com/australia-news/2023/apr/26/labor-extends-gas-price-cap-to-2025-to-protect-power-bills>.

²⁶ See: https://www.energy.vic.gov.au/_data/assets/pdf_file/0025/586411/Victorias-Gas-Substitution-Roadmap.pdf.

²⁷ Renew, Limiting energy bills by getting off gas: All-electric homes after the 2022 energy crises (2022). Available at: <https://renew.org.au/wp-content/uploads/2022/11/Report-Limiting-energy-bills-by-getting-off-gas.pdf>.

heaters are around 50% to 95%.²⁸ The difference in running costs is such that despite the higher upfront costs associated with switching appliances, efficient electric appliances have a lower cost of ownership compared to gas appliances.

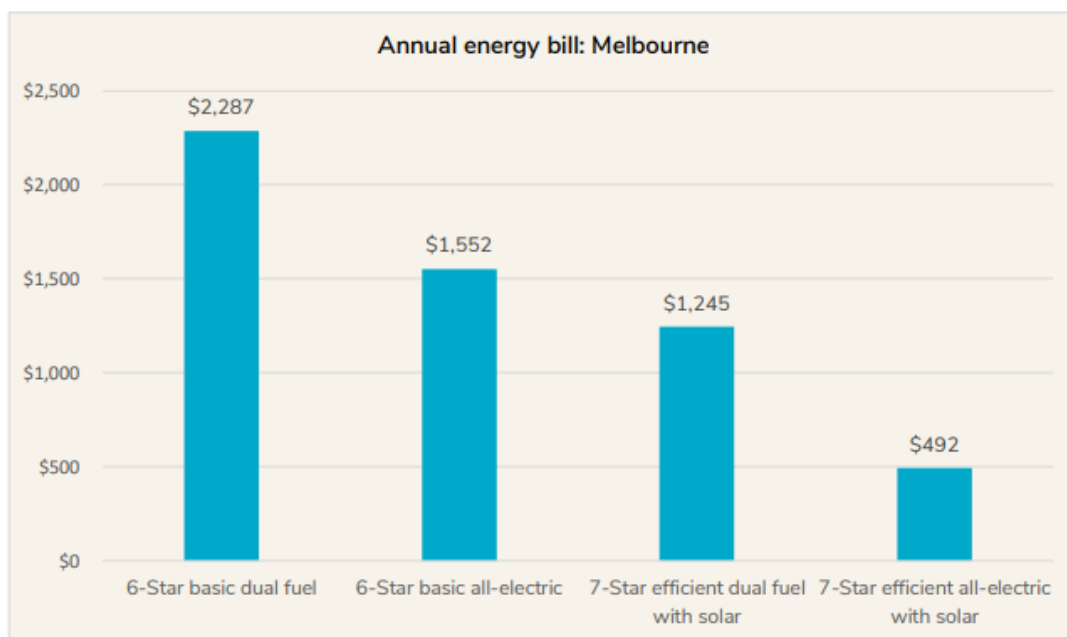


Figure 9 Annual Energy bills
Renew and Environment Victoria (2022)²⁹

Because of their high energy efficiency heat pumps can also deliver emission reductions even at early stages of electricity decarbonisation. As seen in Figure 9, in Victoria, the state with the highest electric emission intensity, household electrification already delivers reductions in carbon emissions, and leave homes net-zero ready for when the electric grid becomes fully renewable.

Environment Victoria commissioned modelling from Renew to look at the costs associated with space heating during the 2023 Victorian winter period. As shown in Figure 10 below, the bill savings that can be achieved by replacing gas appliances with efficiency electric appliances for space heating throughout winter along are significant.

Location	No insulation, gas ducted	No insulation, gas wall	No insulation, RCAC	Insulation, gas ducted	Insulation, gas wall	Insulation, RCAC
Frankston	\$677.88	\$508.40	\$156.81	\$241.77	\$178.58	\$69.36
Moorabbin	\$716.75	\$537.24	\$168.74	\$262.61	\$193.97	\$83.06
Latrobe Valley	\$662.79	\$497.38	\$171.91	\$266.30	\$196.70	\$91.95
Ballarat	\$878.47	\$673.89	\$226.58	\$411.61	\$305.97	\$125.66
Bendigo	\$782.55	\$593.33	\$202.12	\$358.07	\$265.15	\$115.86
Geelong	\$705.96	\$528.15	\$168.41	\$274.18	\$202.52	\$84.62

Figure 10 Difference in costs for space heating in various Victorian locations over the 2023 Winter period.
Source: Environment Victoria and Renew (2023)³⁰

²⁸ See: <https://www.agl.com.au/discover/sustainability/heat-pumps-why-are-they-more-efficient#:~:text=Because%20they%20use%20electricity%20to,around%2050%25%20to%2095%25>.

²⁹ Victorian winter gas bill report, above n 20.

³⁰ Victorian winter gas bill report, above n 20.

We have attached this report as an appendix to this submission.

7. Solutions to the economic barriers to electrification for low-income households.

According to the Grattan Institute less than half of Australian households could electrify their households without support.³¹ The other half will require a range of supports to overcome existing barriers to electrification beyond personal finance. Other groups who face barriers include renters (private, social and community housing), multi-unit dwelling owners, and people with insufficient savings.

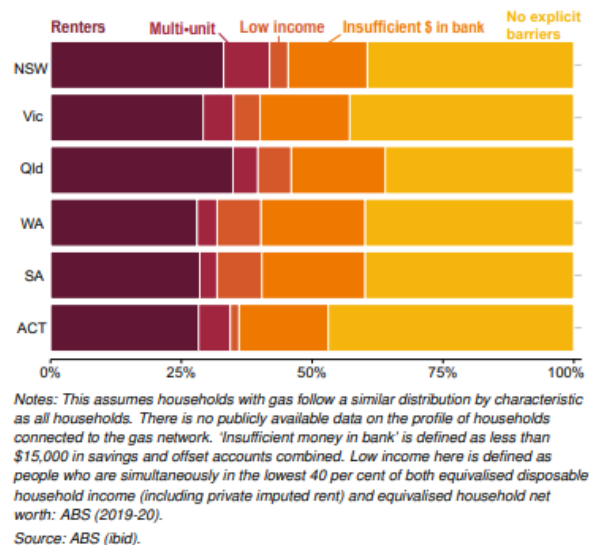


Figure 11 Proportion of household by main barrier to electrification.
Source: Grattan Institute (2023)³²

We make the following suggestions regarding solutions for low-income, renting, and low-savings households to overcome the barriers to electrification.

Low-Income households

Low-income households spend on average 6.4% of their income on energy bills compared to 1.5% for wealthy Australian households, and are the most likely to experience energy poverty. Low-income households will face the most difficulty in upgrading their appliances to efficient electric alternatives. In the absence of effective support, low-income households could be left behind in the transition away from gas, remaining stuck in the network and facing increasing costs as the number of gas users progressively goes down, otherwise known as the 'death spiral'.

The current \$1,000 rebates for water-heating heat pumps, and for reverse cycle air conditioning heat pumps offered by the Victorian Government under its Victorian Energy Upgrade program, while positive, is insufficient to support low-income households to replace end-of-life appliances, let alone to upgrade working gas appliances with an efficient electric alternative.

There is a role for both federal and state governments to support these households. This could include the introduction of rebate or interest-free loans programs to ensure that low-income

³¹ Grattan Report, above n 1.

³² Ibid.

households are able to transition to full-electric as soon as they chose to. These financial incentives could be supported by the federal government through its Household Energy Upgrades fund.³³

As an example of how federal and state support is already being provided, Housing Vic launched the Energy Efficiency in Social Housing Program to support social housing renters to increase energy efficiency. This program received a recent injection of \$92M in state and federal funding for efficient electric appliances and household efficiency upgrades.³⁴

Renters

Around 31% of Australian households live in rental properties.³⁵ While not all renters will have income related limitations, the split incentive between renters and landlords is an economic barrier to household electrification for around a third of Australian households.

For landlords a carrot and stick approach could work. The Federal government could introduce tax breaks for landlords who invest in efficient electric appliances together with an announced new standard requiring all rental properties to be fully electric by 2035. In Victoria, we suggest mandatory minimum energy efficiency standards and minimum electric appliance standards are introduced.

People with insufficient savings

Around 4 million homes across New South Wales and Victoria alone, despite not falling within the low-income household qualification, have less than \$15,000 in liquid assets.³⁶ These households would benefit from access to interest free or low-interest loans to eliminate the access barrier to efficient electric appliances, potentially through a combination of state and federal support including through the federal Household Energy Upgrades fund.

Recommendation 6: The federal government provide financial support to states and territories to assist people facing a high cost barrier to achieve household electrification.

Recommendation 7: The federal government consider introducing a range of financial and tax incentives for landlords to replace gas appliances with efficiency electric alternatives.

8. Effectiveness of existing Australian Federal, state and local government initiatives to promote and provide market incentives for household electrification.

Federal electrification initiatives are very limited. This is probably driven by the, until now, bipartisan support for gas adoption in Australia. This attitude has been enshrined in existing legislation such as the National Gas Law, which contains the 'National Gas Objective', and which is at odds with efforts to pursue household electrification.

Over the last several years, the Victorian Government has introduced rebates and incentives programs to support solar and efficient electric appliance uptake such as the Solar Battery interest-

³³ See: <https://www.cefc.com.au/where-we-invest/special-investment-programs/household-energy-upgrades-fund/>.

³⁴ See: <https://minister.dcceew.gov.au/mcallister/media-releases/joint-media-release-cheaper-cleaner-energy-more-victorians>.

³⁵ ABS 2021

³⁶ See: <https://www.abs.gov.au/statistics/detailed-methodology-information/concepts-sources-methods/survey-income-and-housing-user-guide-australia/2019-20>.

free loans, Solar Panel Rebate, Solar Homes Program, Home Heating and Cooling Upgrades and Victorian Energy Upgrades for households.

These programs, while a step in the right direction, were designed to facilitate access to efficient electric appliances to those already interested in them rather than to promote the electrification of all households in Victoria. Testament to this lack of substantial progress has been the ongoing increase in the number of households connected to the Victorian gas network.

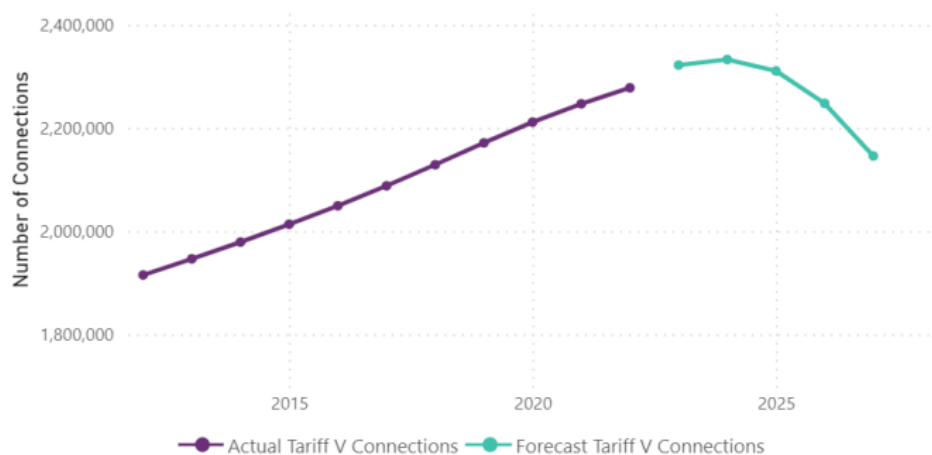


Figure 12 Historical and forecast DTS Tariff V connections 2014-27.

Source: AEMO (2023)³⁷

Victoria's Gas Substitution Roadmap, combined with its ambitious renewable energy and emissions reductions targets, sends a clear signal to renewable energy investors and electric appliance manufacturers that the government is serious about ensuring household electrification is achieved. We have prepared recommendations on how the Gas Substitution Roadmap can contribute to incentivising market investment in household electrification. We have attached those recommendations to this submission.

Further, while the Victorian approach is a great step towards achieving household electrification part of the problem is that there is very little community understanding of why gas is a problem and why electrification is the solution. We suggest that this is likely to be true for the rest of the country.

People generally understand how coal-burning power stations contribute to climate change. But given gas has historically been branded as 'natural' – people are far less familiar with the contribution of methane gas to climate change. And whilst people are experiencing bill stress because of increased gas prices, there's still a lot of education required to help people understand the benefit of switching to electric appliances in their homes.

To overcome the lack of community awareness and understanding of the problems associated with gas and the benefits of household electrification, the federal government should assist state and territories to roll-out a broad-reaching community education campaign. This campaign must be tailored appropriately for a range of audiences, in partnership with sources of information that communities trust, to deliver the information people need to support the government's intention to phase out gas.

³⁷ Australian Energy Market Operator, Victorian Gas Planning Report: Gas transmission network planning for Victoria (March 2023). Available at: https://aemo.com.au/-/media/files/gas/national_planning_and_forecasting/vgpr/2023/2023-victorian-gas-planning-report.pdf?la=en.

Recommendation 8: The federal government contributes to a national education campaign to help the entire Australian community understand the benefits of household electrification.

9. Communities in Australia support a shift towards electrification.

Despite the challenges associated with achieving household electrification, our experience is that there is significant community appetite to shift away from methane gas. Over the 2023 winter period, Environment Victoria volunteers held 582 in-depth conversations with everyday Victorians throughout the state to learn what they think about gas. The results are helping us and government stakeholders to understand Victorian's views on household electrification and their attitudes towards methane gas.

The conversations revealed a strong support for household electrification. 83% of the respondents supported Victoria switching away from gas by 2035, with 76% of them wanting the government to help households electrify. Despite the strong support for household electrification most respondents identified the need for government action to facilitate this transition.

The respondents identified financial support (66%), access to information (48%), and ensuring that gas companies contribute to their fair share to the transition (50%) as the main actions the Victorian Government can take to support the transition away from gas. Another key point identified in the conversations was the need to address renters. Around a fifth of the respondents raised the need to update existing regulations and to create incentives for landlords to electrify properties.

We have attached a copy of the results of this survey to our submission.

For further information please contact Bronya Lipski, Policy and Advocacy Manager, by email: b.lipski@environmentvictoria.org.au