

28/07/2021

Department of Environment, Land, Water
and Planning (DELWP)
Victoria's Gas Substitution Roadmap
Gas.Roadmap@delwp.vic.gov.au

Dear Sir or Madam,

Re: Submission to Victoria's Gas Substitution Roadmap Consultation Paper

We are academic researchers and teachers from RMIT University's Centre for Urban Research and the School of Property Construction and Project Management. We have significant expertise in household energy efficiency, energy justice and sustainable transitions. Together, we have extensive experience working with households, industry and government on the opportunities and challenges of transitioning Australia's urban centres and regions to more be more environmentally and socially sustainable and achieve just futures.

We have undertaken research on both new housing and existing housing and explored the lived experiences of a range of different cohorts of households, including low-income, vulnerable and tenant households. Our research has included an international focus and collaborations with key researchers in this space across Europe, Asia, and North America. We are currently undertaking several research projects looking at the issue of how to improve the sustainability, performance, and liveability of new and existing housing in Australia.

We welcome the opportunity to comment on Victoria's Gas Substitution Roadmap Consultation Paper. Please find our submission below.

We start this response by agreeing with the premise of the Consultation Paper that Victoria, and Australia more broadly, must be planning a pathway to decarbonise gas consumption as part of the broader transition to a low carbon future. This pathway is important to give policy makers, industry, and consumers confidence about what will happen over the coming years and to be clear about the timeframes over which this transition will occur.

We recognise that the Victorian Government has set strong shorter-term emissions targets; but there is more to be done if longer-term emissions reductions are to be achieved in a timely manner as well as ensuring equity in the transition. As the Consultation Paper highlights, any pathway to decarbonise gas has a range of potential challenges which must be overcome.

We believe that these challenges are not insurmountable and if addressed will place Victoria on a strong path to a sustainable and resilient future. It will also ensure Victoria is a leader in this space for other Australian states and will be part of the global community transitioning to this low carbon future. If done right, it will

be a future which provides significant employment and other opportunities for residents in Victoria, along with the clear environmental, affordability and health and wellbeing benefits.

Given our expertise, we are focused on the gas pathway as it relates to the residential sector. We want to emphasise that improving energy efficiency and thermal performance of houses (new and existing) should be a first step of any energy transition.

In response to the consultation paper, we wish to emphasise the following points.

Energy efficiency

Energy efficiency is the lowest hanging fruit and should be a priority in any transition away from gas. There is a growing body of evidence from research around the world across different housing types and climate zones that this is the most efficient pathway.

Improving energy efficiency by improving dwelling quality and thermal performance will reduce energy demand and, therefore, demand for primary fuels, making it easier to deliver alternative energy pathways. Improving the energy efficiency of people's homes is particularly important and urgent given the poor thermal performance of much of Victoria's building stock (existing and new), rising energy poverty and vulnerability, the changing impacts of climate change, and the significant health and wellbeing impacts of living in cold and hot homes.¹⁻⁶

Delivering energy efficiency is not just about improving the energy performance of technologies (e.g. heating and cooling) but must start with a focus on improving the thermal performance of dwellings. This improved thermal performance will provide more options and opportunities to transition away from gas.

For example, improving the thermal energy efficiency of a dwelling may reduce the size requirements of heat pumps, both lowering initial capital costs but also reducing operating costs across the life of the appliance and dwelling. It will also mean that mechanical heating and cooling is required for fewer hours each year helping not just householders to manage energy bills, but also with broader challenges with the energy network, such as peak energy events.

While there are some programmes offered to help improve energy efficiency in Victoria, a much more scaled up programme is needed that provides universal and holistic energy efficiency upgrades and addresses energy and housing inequity at the same time.⁷ Part of the challenge here remains that the retrofit industry is typically a siloed industry. This presents challenges for consumers who want to seek out more holistic retrofit and for reaching climate change mitigation that require deep retrofits of housing. The Victorian government must do more to support the broader retrofit industry to become more collaborative and integrated.

Making household retrofit easier for householders and more collaborative for industry also relates to new housing where more can be done to improve the performance of new dwellings.³ While proposed changes to the National Construction Code 2022 offer a promising next step for performance improvements, the Victorian government and local councils have several additional levers at their disposal to improve outcomes further.⁸

For example, ensuring in the planning stage that new block allotments are designed to optimise orientation for passive solar design will help improve thermal performance at reduced costs, or allow for improved performance at the same cost. Research undertaken by the authors of this response has found up to a 2 star difference for some houses, depending on their orientation.⁹

Energy efficiency will also be a key requirement in a changing climatic future. With the climate changing we know that we are likely to experience more extreme weather and peak weather events. This will put increasing pressure on our dwellings and wider energy networks which will likely disproportionately impact on vulnerable households. Energy efficiency will not only improve thermal comfort moving forward but will also help to provide a more secure and stable energy network.

Equity

Housing, energy poverty and vulnerability are linked, but are only relatively recently being discussed and considered in energy policy and programmes of support.⁷ There is an increasing percentage of households in Australia who find themselves in energy poverty or face other housing affordability challenges.^{5,10,11} The

research shows that such households often have to make trade-offs against things such as education or health and wellbeing to meet energy payments. The impact of COVID-19 in terms of loss of jobs and people spending more time at home has exacerbated some of these issues.¹² We also know that many vulnerable households are in some of the poorest quality housing stock in Australia.¹³

While the Victorian government has taken steps to improve outcomes within the public housing space and recently introduced some minimum rental requirements, more can be done to ensure that all households have access to a certain quality and performance of housing and that this continues to improve over time. The UK's requirements to lift the bottom performing rental housing over time is just one example of policy driving change elsewhere.

Any transition away from gas, or to use a gas substitute, needs to ensure that those householders already vulnerable are not further impacted by distributional or other inequities of energy policy. This includes considerations not just of appliances and technologies being changed but the associated practices which sit alongside those. For example, induction cooktops may not be suitable for all cook ware and therefore households may need to replace them. Any programs of change must consider all elements to be funded as part of this change. Resource tax and tax pricing are regressive and have equity implications, as do expectations for people to replace or contribute to new appliances.

Landlords will pass through any costs to renters – also regressive unless there is a carefully designed compensation package. There could be different financial opportunities to help fund this gas transition, but also to protect any costs being passed on to those who can least afford them. In the rental space, for example, there could be a requirement that landlords must upgrade equipment/appliances with more energy efficient ones if any rebates/tax incentives are to be claimed, rather than defaulting to a like for like outcome. To ensure costs are not passed onto consumers, protection could be introduced giving consumers certainty that their rents will not increase after key upgrades are undertaken on the dwellings. For those who are low-income but not tenants, the cost of changes could be spread out over time, either paid for with energy savings or across council rates or using other innovative financing mechanisms.

Transition technologies

As discussed above, energy efficiency is the lowest hanging fruit and should be a priority in any transition away from gas.

Hydrogen and biogas should be regarded as gap-filling technologies, based on their uncertain trajectories, unresolved carbon or greenhouse gas issues in supply chains, and cost. Any changes to technologies or appliances at the household level may lock in future high costs or challenges for households as the transition unfolds.

Electrification will require a massive social marketing campaign to encourage and position electricity as equal, if not superior, to gas; for example, in cooking, and in the immediacy of heat release, etc. This will need to be accompanied with proven technology alternatives, and probably also gas appliance bans. This could also be guided through programmes such as VEU and others which have a focus on supporting the types of technologies or appliances which are part of that low carbon future. There should also be clearer information for people who want to make this transition from gas to all electric in terms of how to disconnect gas from their dwellings. Ideally, there would be no cost to the household to have that done. Currently the energy providers charge for this which can deter people making that final disconnection.

Managing the transition

A shift away from natural gas use is important to address issues and impacts of climate change, local environmental damage and public health.^{14,15} However, a move to all electric homes also includes risks that will need to be managed. For example, a single energy supply could contain increased risks for reliable energy supply, and particularly in remote and regional areas, the impacts of electricity outages need to be prepared and planned for, and ultimately reduced. The recent storms in the Dandenongs and power outages are one example illustrating that broader systems of support need to be in place if there are other failures in the system.

The transition to renewable energies also involves a shift in physical infrastructures and business models. In addition, the low carbon transition of electricity has shown that the relationship between buildings and energy

is undergoing a paradigm shift as buildings increasingly play an active role in demand management and energy generation.

More than 20 per cent of Australian homes now have access to roof-top solar PV electricity microgeneration.¹⁶ Decentralised energy resources, digitalisation, prosumerism and peer-to-peer trading of electricity challenge the traditional centralized energy distribution and retailer business model. Householders move from passive consumers to empowered and equal players in the supply and trading of electricity which may be based on social values and economic self-interest.¹⁷⁻²⁰ New business models²¹⁻²⁴, householder preferences and practices^{18,23-25} and regulatory reforms²⁶ need to be considered to support householder outcomes and maintain a secure and reliable electricity supply.

Energy flows become bi-directional, and householders become empowered participants in energy markets. Energy flexibility refers to the capacity of buildings to store energy in batteries, thermal mass or water and the potential to release electricity into the grid. Energy flexible buildings promise to increase the reliability of electricity from renewable sources that may introduce volatility in the energy supply.²⁷ Householders can contribute to energy flexibility by managing demand, for example by adjusting the time of use of appliances, when they charge their electric vehicles and their thermostat settings.^{28,29} Hence, the transition to low carbon gas or away from gas needs to consider the ramifications of the changing models of energy use in the home and who is capable of participating in this shift.

Any transition away from natural gas to response needs to be sensitive to location and social context. Hydrogen and biogas can play a role in facilitating energy democracy and providing access to community energy in remote areas until renewable technologies can replace these. European case studies, e.g. on the Orkney Islands^{30,31}, have shown that infrastructural challenges may be addressed by locally produced hydrogen and tackle fuel poverty. Fuel cell technology may also help overcome energy precarity and the social effects of electricity power outages for example in high -rise buildings, such as the breakdown of lift services.

Yours faithfully,

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