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Online submission: Gas.Roadmap@delwp.vic.gov.au

Victoria's Gas Substitution Roadmap Consultation Paper

The [Victorian Greenhouse Alliances](#) (VGAs) are pleased to provide the following submission to the consultation paper on Victoria's Gas Substitution Roadmap.

The VGAs are formal partnerships of local governments driving climate change action across most of Victoria's 79 municipalities. The Alliances work across their networks, communities and partners to deliver regional mitigation and adaptation programs. This includes the implementation of joint initiatives that provide economies of scale and enable projects typically beyond the reach of individual councils. Our project work is complemented by targeted advocacy, capacity building activities and regional partnerships.

Victorian councils welcome the development of a roadmap to transition away from fossil fuels and towards a net zero emissions energy system. The Roadmap process provides critical opportunity for state and local government to align priorities and leverage their roles in facilitating this transition.

Our response is centred around the following three principles:

- **Urgent and full decarbonisation is required** – Action should not be delayed when there are cost effective solutions available today. Actions need to be taken within the timeframes of the state's legislated interim emission reduction targets.
- **Seize the economic opportunity** – The transition presents enormous opportunities to expand the clean energy industry, generate jobs, boost economic productivity, and position Victoria as a leader in clean energy technologies.
- **Ensure the transition is socially inclusive and equitable** – The transition needs to be managed to ensure that the benefits are shared equitably and that the costs are not unduly borne by vulnerable communities and rural regions and those least able to afford it. Gas substitution could only benefit communities with gas reticulation.

The Roadmap identifies a number of pathways for decarbonising gas in Victoria's energy system. Whilst councils recognise that a combination of different pathways will be necessary, we urge the State to consider the following recommendations:

- Electrification and energy efficiency should be prioritised over other options. These are not only opportunities that can be deployed rapidly and at scale but also are robust in the long term. These are proven pathways towards achieving the state's emissions reduction targets, as the grid becomes increasingly renewable. They also offer a range of well understood co-benefits compared with other pathway options.
- Substitution pathways are likely to only be transitional; for example, biogas may be suitable for some commercial and industrial applications, but it is unlikely to be able

to meet the demand of residential and commercial customers at scale and is likely to only be a niche solution rather than a system-wide solution.

- A pathway for emerging technologies and addressing fugitive emissions should also continue to be pursued alongside ambitious electrification and energy efficiency goals.
- Educating the community will be necessary for facilitating the transition. This includes dispelling the myths propagated by incumbent industries that hydrogen will replace natural gas within the existing distribution network. There are three technological leaps required before this could be feasible including:
 - Generating sufficient quantities of green hydrogen and the location of suitable sites within proximity to the existing network
 - The economics of upgrading the existing mains network means that hydrogen will need to be blended (which is at odds with full decarbonisation).
 - The end use of hydrogen as a heating source presents a number of safety risks for households and businesses, as well as a raft of challenges for appliance standards.
- A suite of complementary policy measures and program interventions will be required. This should include actions such as (but not limited to):
 - Phase-out and then ban the sale of new gas appliances alongside existing market-based schemes to support replacement options, and update the Victorian Energy Upgrades program to align with the phase-out
 - Commit to a short-term sunset date for new gas supply infrastructure with necessary support for exposed industries (i.e committed projects within the sunset period)
 - Support the deployment of existing mature and commercialised technologies for appropriate uses, such as renewable energy-based heat pumps for low grade heat in food manufacturing
 - Revise the State's planning system to ensure it can deliver emissions reduction targets and align to planning processes with the energy sector (which currently occur in isolation).

Further detail

Please consider our responses to the key questions below. The three main pathways of Electrification, Energy Efficiency and Substitution have been addressed in the following table. Note that emerging technologies and addressing fugitive emissions have not been considered here as these can occur alongside any of the pathways below:

	Key Question	Electrification	Energy efficiency	Substitution
1	Benefits	Opens up opportunities for rapid shift to renewable energy and utilising distributed energy resources wisely. Can address multiple benefits such as healthier homes and cheaper energy bills.	Reduces need for gas heating by improving thermal comfort through better performing houses and commercial premises.	At low % penetration, does not require addressing consumer preferences or behaviour change as switch out can occur without households needing to shift appliances. Also allows dual fuel system, which is potentially more resilient in the event of power outages.
	Risks/Impacts	Uncertainty as to impact on electricity networks especially if undertaken without strong energy efficiency and demand management measures.	Very low risks associated with this pathway.	High risks associated with higher % blends requiring new networks to be laid or new appliances to be bought at the consumer end. Unlikely to lead to full decarbonisation and instead lock in assets or risk stranded assets as electrification out-competes. Hydrogen production also requires additional large-scale renewable assets to ensure it is emissions-free, and these assets could provide greater benefits by directly

	Key Question	Electrification	Energy efficiency	Substitution
				reducing the emissions intensity of the grid.
2	Scale of opportunities/potential to accelerate	Enormous opportunity to accelerate electrification, alongside energy efficiency pathway, demand management and adoption of renewable energy technologies. For growth regions, with predominantly new residential development and utilities, electrification is the most effective way to reduce emissions. Victoria's current growth represents an immediate opportunity to facilitate electrification at scale.	<p>Significant opportunity across all sectors. This must be governed by regulation (for new builds) and incentives (for retrofits). Once buildings are energy efficient, their ability to transition away from gas becomes even more economical.</p> <p>Electrification and energy efficiency, combined with renewable energy, allows every rural and regional household and businesses to participate and benefit.</p>	Limited scale for opportunity beyond industrial settings. Only larger cities in Victoria have access to gas reticulation system.
3	Roles to be played by government, industry and how consumers' preferences will be accounted for in the transition	<p>Strong opportunity for governments not only to promote individual consumer choice for electrical appliances and DER but facilitate electrification at scale.</p> <p>Electrification can be promoted and accelerated through incentives and policy, and for state and local government programs to trial and showcase electrification examples, and policy and regulation to 'catch up' to ensure that planning and</p>	Same as electrification.	Less emphasis from governments on pursuing substitution pathways unless they can address full decarbonisation quicker than an electrification pathway.

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		built environment is actively seeking to electrify. Planning guidance to support electrification for new developments is critical.		
4	Likely timings of technical maturity and economic viability	Technically mature for most residential and commercial settings now, and solid business case especially with existing government rebates and incentives.	Technically mature for all applications now and economically viable for most applications.	Still in early R&D phase and unlikely to be able to address significant technical issues when higher % of blends is encountered, economically unviable.
5	Best ways to maintain social acceptability and consumer confidence?	Align messaging about the benefits of electrification for individual consumers with the state's facilitation of emissions reductions at scale; broad-scale electrification programs and incentives should lead the messaging about them. Demonstrate that elec appliances (e.g. heat pump hot water, stoves, space heaters) are more economical and safer than gas appliances, and will grow cheaper with time. Also, align electrification with promotion of solar, e.g. allowing combined grants for heat pump hot water and solar. Link messaging around electrification to benefits of solar. Support low	Is politically benign, and is something that makes sense for most applications, i.e. there are usually energy efficiency opportunities. Demonstrate benefits through continuing incentive programs like Small Business Energy Saver program, and enforcing regulations for higher star rating builds for new housing.	Gas networks will be making the case for this pathway as a way of utilising their assets; however maintaining social acceptance will be difficult if this pathway does not allow for a rapid 100% decarbonisation.

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		income households, e.g. higher grants for changeover to heat pump hot water.		
6	The inter-dependencies and trade-offs with other pathways (Are pathways complementary or alternatives?)	Electrification goes hand in hand with energy efficiency, however conflicts with substitution in most residential and commercial settings. Also, addressing electrification and energy efficiency addresses many fugitive emissions and allows for emerging technologies.	Same as electrification.	Substitution risks conflicting with electrification pathway, and potentially could lead to stranded assets as electrification out-competes the need for hydrogen gas in residential and commercial settings.
7	The key uncertainties and potential for unintended consequences	Impact of rapid broad electrification on the distribution networks is an area of uncertainty; however this could be mitigated with strong incentives for energy efficiency and demand management. The electricity networks are already planning for rapid electrification, and with the continual evolution of DER technologies these risks can be managed.	There are few uncertainties associated with energy efficiency in the residential sector and in most commercial settings. In some industrial applications energy efficiency may not be possible due to cost if 'low hanging fruit' have already been achieved.	Very large uncertainty associated with long term prospects for full decarbonisation. Research suggests getting blends higher than 20% in the existing gas networks for residential and commercial is highly unlikely. Substitution may be possible in smaller niche applications or for bespoke industrial settings.

Councils and contacts

This submission was prepared by the following Victorian Greenhouse Alliances, partnerships of councils working to address climate change in their regions:

- Central Victorian Greenhouse Alliance (CVGA)
 - Ararat Rural City Council
 - Ballarat City Council
 - Buloke Shire Council
 - Central Goldfields Shire Council
 - Gannawarra Shire Council
 - Greater Bendigo City Council
 - Hepburn Shire Council
 - Loddon Shire Council
 - Macedon Ranges Shire Council
 - Mildura Rural City Council
 - Mount Alexander Shire Council
 - Pyrenees Shire Council
 - Swan Hill Rural City Council
- Eastern Alliance for Greenhouse Action (EAGA)
 - City of Boroondara
 - City of Glen Eira
 - City of Knox
 - Maroondah City Council
 - Monash City Council
 - Stonnington City Council
 - Whitehorse City Council
 - Yarra Ranges Shire Council
- Goulburn Murray Climate Alliance (GMCA)
 - Alpine Shire Council
 - Benalla Rural City Council
 - Campaspe Shire Council
 - Greater Shepparton City Council
 - Indigo Shire Council
 - Mansfield Shire Council
 - Mitchell Shire Council
 - Moira Shire Council
 - Murrindindi Shire Council
 - Towong Shire Council
 - Strathbogie Shire Council
 - Wangaratta Rural City Council
 - Wodonga City Council
- Northern Alliance for Greenhouse Action (NAGA)
 - Banyule City Council
 - City of Darebin
 - City of Melbourne
 - City of Whittlesea
 - Hume City Council
 - Manningham City Council
 - Moreland City Council
 - Nillumbik Shire Council

- Yarra City Council
- Western Alliance for Greenhouse Action (WAGA)
 - Brimbank City Council
 - City of Greater Geelong
 - Maribyrnong City Council
 - Hobsons Bay City Council
 - Melton City Council
 - Moonee Valley City Council
 - Moorabool Shire Council
 - Wyndham City
- Barwon South West Climate Alliance (BSWCA) (in process of establishment)
 - City of Greater Geelong
 - Golden Plains Shire
 - Surf Coast Shire
 - Borough of Queenscliffe
 - Corangamite Shire
 - Colac Otway Shire
 - Warrnambool City Council
 - Moyne Shire
 - Glenelg Shire
 - Southern Grampians Shire
 - Barwon Water
 - Wannon Water
 - Corangamite Catchment management Authority
 - Glenelg Hopkins Catchment management Authority
 - Deakin University

The submission has been approved through the Greenhouse Alliances' formal governance structures but may not have been formally considered by individual members. The submission does not necessarily represent the views of all councils.