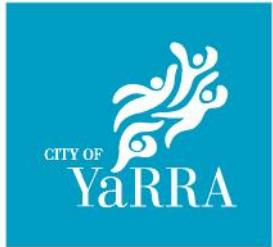


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Victoria's Gas Substitution Roadmap Consultation
Department of Environment, Land, Water and Planning (DELWP)
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Yarra City Council submission on Victoria's Gas Substitution Roadmap Consultation Paper

Yarra City Council (YCC) welcomes the opportunity to comment on the Victorian Government's Gas Substitution Roadmap Consultation Paper.

The views expressed in this paper are those of Council Officers; they have been prepared in line with commitments in the Council adopted [Yarra Climate Emergency Plan \(2020\)](#). In this regard, the Council advocates to the state government for strong climate action including a rapid transition to 100% renewable grid-supplied electricity.

Yarra CC policy context: A strong commitment to 'getting off gas'

Recognising the urgency and speed of climate action required, in its [first Climate Emergency Plan \(2020\)](#) (CEP), Council set an ambitious target to achieve zero-net emissions across the entire Yarra community by 2030. The Council has begun transitioning its own operations away from gas and using other roles as a planning authority, community educator and advocate to drive a broader take up of renewable energy and all-electric homes and businesses.

YCC has long had a strong focus on action to reduce operational greenhouse gas emissions, achieving a reduction of more than 70 per cent since 2008/09 and holding carbon neutral certification since 2012. All of the organisational electricity needs are met by 100% renewable electricity through rooftop solar generation across 38 council sites, and grid-supplied electricity via the Melbourne Renewable Energy Project (MREP).

The focus now is to further reduce the organisation's emissions by transitioning away from gas (which comprises around 40 percent of emissions). With another 46 councils recently signing on to buy renewable electricity through the Victorian Energy Collaboration (VECO), this transition is likely to be a priority for a growing number of councils. We are aware that there are several Victorian councils currently going through the feasibility stage for shifting their aquatic centres off gas.

It is in this context that we share our perspectives as one of a growing number of councils that are focussed on a transition away from gas. YCC encourages the state government to support early adopters so they can share learnings and smooth the path for others to follow. This would also incentivise development of specialist all-electric expertise in the mechanical services industry.

Facilitate early adoption of all-electric technologies by local councils

In the YCC Climate Emergency Plan, Council set a target that ‘before 2030, all Council buildings to be ‘all-electric’ — powered by 100% renewable energy with no use of gas’. This involves transitioning the small sites that council operates by 2022, with larger, more complex facilities to be transitioned by 2030.

The electric technologies for small sites (mainly space heating, water heating and cooking) are readily available and asset replacement is underway. For our large sites, including libraries, aquatic centres and town halls, the work to transition off gas to all-electric is more complex. Council proposes to ultimately replace the current heating and cooling systems at aquatic centres with high efficiency heat pump systems that have the potential to reduce operational costs and improve user comfort.

The main barriers have been:

- a lack of industry expertise and experience in the design of all-electric heat pump systems for aquatic centres and commercial HVAC applications;
- significant upfront capital costs to upgrade assets, and
- long times for power supply upgrade approval from electricity distributors.
- site constraints, noting additional space required for electric plant – particularly where there is a high heat load requirement (e.g. outdoor 50 metre pool for all year-round use)
- the need to undertake these works as part of broader redevelopment of facilities (and the associated costs)

Going off gas: Barriers to be overcome

Victorian industry expertise in the application of heat pump technologies in aquatic centres and commercial HVAC applications is limited.

In Victoria, all aquatic centres and most large HVAC systems currently use gas as the primary energy source for heating. With decades of access to cheap, abundant gas, there has been little incentive for the building owners and the mechanical services industry to explore better and more efficient solutions to provide heat.

Yarra has found the mechanical services engineering sector to lack experience with heat pump systems, as gas-fired systems have long been the default option. While refrigeration engineers are experienced in heat pump system design, they are typically not familiar with aquatic centres or building services design requirements.

Building the capacity of the industry to accelerate a gas substitution would benefit from the sort of whole-of-industry and whole-of-government response seen in response to the millennial drought. This included dedicated education and communications programs for plumbers and other water-related trades and professions to normalise water saving practices such as:

- industry recognition and positive promotion of ‘Green Plumbers’;
- well-publicised financial incentives for installation of water efficient products;
- underpinned by mass public communications, behaviour change initiatives to drive demand, and
- changes to regulatory standards.

While all-electric plant and equipment costs will decrease over time, the government could speed councils’ transitions away from gas through targeted financial support.

Grant funds for gas-free upgrades would help bridge the capital investment gap and create demand for efficient electric technologies, further driving down the costs.

The electrification of a major site, such as an aquatic centre, depends on increased power supply to the site. A power supply upgrade involves a lengthy approval process with the electricity distributor and can take up to one year to complete.

Recommendations:

- Support whole-of-industry capacity building (engineers, installers and maintenance professions) in all-electric technologies and services, especially where gas powered systems are the default option.
- Provide funding towards the replacement of expensive gas assets and electrical upgrades required at large community facilities. This would reduce the financial barriers for councils and speed up the transition.
- Invest in developing new technologies where appropriate all-electric options are lacking for aquatic facilities
- Work with electricity distributors to speed up approval processes for power upgrades.

Enable gas-free, zero carbon new commercial and residential developments

Support zero carbon targets for new developments

In the YCC Climate Emergency Plan, Council has committed to introduce zero carbon standards for new commercial and residential developments, working with local and state government partners to amend the planning scheme.

Together with Moreland Council, Yarra is leading a joint project to raise the Environmentally Sustainable Development (ESD) standards for new commercial and residential developments. This project aims to amend planning policy to include targets for zero carbon developments with no use of fossil fuels. This project with the Council Alliance for a Sustainable Built Environment (CASBE), has grown to involve 29 urban and regional Victorian councils. It demonstrates a growing understanding across the state of the need for stronger planning policy to drive a gas-free, zero-carbon built environment.

Increasingly, the development industry are willing and ready to go all-electric and not connect new developments to gas. In Yarra, developers are responding to a growing demand in the market for zero carbon, healthy and climate resilient homes and workplaces. There are 13 major developments at various stages of the planning approval process that have proposed to meet zero carbon standards, with no connection to gas.

There are also other industry bodies pushing in the same direction. The Green Building Council of Australia (GBCA) is encouraging the industry to go all-electric and is changing their Green Star rating. Newly registered 6-Star Green Star buildings are required to be fossil fuel free, and under the GBCA's new roadmap, that requirement will move to 5-Star in 2023 and 4-Star by 2026. This is also reflected in positions held by the Property Council of Australia *Every Building Counts* (2019), and several other industry groups such as Planners Declare, Architects Declare and Builders Declare.

According to the Green Building Council of Australia, over 17 Australian property giants have voluntarily committed zero carbon property portfolio by 2030. The development industry would benefit from Victorian government leadership on this issue and clear standards for new buildings.

There is now an opportunity for the Victorian government to raise the bar for the whole sector and accelerate gas substitution in new developments. This can be achieved by state and other local governments introducing consistent zero carbon (gas-free) planning policy.

Local ESD planning policies are in place in planning schemes in 18 council areas across Victoria. They are currently not considered strong enough to achieve zero carbon outcomes. The Victorian government in its recent ESD Roadmap flagged the desire to improve building energy efficiency and support the transition to a zero carbon future.

In the YCC submission on the ESD Roadmap it is stated that it would be appropriate and timely for the Victorian government to include a statewide zero carbon performance standard in the Victorian Planning Provisions (VPPs) for the whole state. This could be introduced over a ten year period with clear dates and standards detailed to give industry and decision makers certainty and confidence to invest in a zero carbon economy. However, if a statewide zero carbon policy is considered too ambitious, then the Victorian government should enable councils to include a zero carbon policy and provisions in their planning schemes. This would support leadership in the development sector and meet the expectations of local communities and their Local Councillors.

Deliver gas-free, all-electric public housing

The Victorian government's 'Big Housing Build', presents a one-off opportunity to build gas-free, all-electric public housing that is healthy, climate resilient and affordable for residents to run.

The government has stated that all new public housing will meet 7-star NatHERS efficiency standards and certified as at least a 5-Star Green Star rating.

It is our understanding that the housing renewal program includes all-electric specifications, with efficient appliances and solar photovoltaic systems as standard. The government should ensure that these new buildings have no connection to gas and are powered entirely by affordable, renewable energy.

Educate and support the building and development community

Through Sustainability Victoria, the state government delivers a range of communications and engagement activities to encourage and incentivise Victorians to build or renovate their homes for energy efficiency.

To date, the main programs do not appear to have a strong focus on being all-electric with no use of fossil fuels. These include the information on Zero Net Carbon Homes and the 7-star Homes program for builders and developers. The state government should evolve its information and programs to facilitate best practice, all-electric and fossil-fuel-free housing.

Recommendations:

- Support the CASBE Elevating ESD Targets project to amend planning schemes to require zero carbon, fossil fuel free new developments.

- Facilitate a statewide amendment to planning policy to enable councils to adopt zero-carbon local policies.
- Ensure all homes built as part of the state government's public housing renewal program, 'Big Housing Build', are all-electric, powered by renewables with no use of gas, and meet the highest ESD standards.
- Evolve state government programs for builders and developers, such as Sustainability Victoria's 7-star Homes program to focus on gas-free, all-electric outcomes.

Support the community to go all-electric and drive energy efficiency improvements

Over the past year Yarra City Council has engaged residents about 'All Electric Homes' through educational sessions, case studies and online resources. We have found there to be growing interest in this topic and around a third of engaged participants have said they are keen to create an all-electric home.

The state government has a wide range of regulatory requirements and incentive-based schemes that aim to improve the energy efficiency of buildings and drive the uptake of rooftop solar. There is potential for these initiatives to be modified to incentivise and speed-up a transition away from gas. These initiatives could then be further scaled up to drive rapid and mass upgrades to existing buildings.

Support energy efficiency upgrades

Reducing energy demand through avoiding energy wastage should be a high priority and an integral part of the gas substitution roadmap. If the state can substantially reduce its overall energy demand, this reduces the scale and cost of the challenge to fully replace gas with electrification.

The energy performance of homes plays a key role. The typical Victorian home built before 2005 achieves a poor 2-star energy rating. Victoria's commendable Victorian Energy Upgrades (VEU) program is a key initiative to improve the energy efficiency of existing buildings. It provides rebates for energy efficient upgrades to households and businesses.

As acknowledged on the VEU website, insulation is the most cost-effective way to improve the energy efficiency and comfort of a home. It can help residents save up to 45 per cent on energy bills and emissions. However, rebates for insulation are not available through the current program. Insulation as an activity eligible for a rebate is currently under review and has been for some time. There are still many Victorians living in homes that are under insulated and would benefit from this incentive.

The consultation paper states that the VEU program is increasing the number of opportunities to make '*more efficient use of gas*', including residential space and water heating and commercial gas boilers. The VEU program currently offers rebates for upgrades to install 'efficient' ducted gas heating and gas hot water systems. The program could be adjusted to favour switching from gas to electric, along with educating participants about switching to a renewable electricity. For example, the federal government offers ACT residents rebates of up to \$2,000 to upgrade gas heating systems to reverse cycle air conditioning plus a two year credit on their ActewAGL renewable electricity account of up to \$2,000.

There is a similar issue in the current outdated energy assumptions behind Victoria's 6-Star requirements for new homes (See VBA Technical Solution Sheet 6.13) which is based on the Australian Standard AS4234:2008. These standards benchmark the energy efficiency of hot water systems, and favour gas hot water systems over the current generation of efficiency heat pump hot water systems. This outdated technical reference from 2008 informs the Buildings Code (National Construction Code). The reference needs to be updated to prevent favouring gas hot water systems and clearly support energy efficient heat pump hot water systems.

Encouragingly, the Victorian government's Home Heating and Cooling Upgrades Program, targeted to low income households, offers rebates to replace gas, wood-fired and inefficient electric heating with energy efficient electric reverse cycle split systems. It would be good to see similar incentives extended to other households with outdated gas appliances.

Support the electrification of rental properties

Around half of the Yarra community rent their homes and have little opportunity to switch over appliances to enjoy a gas-free, all-electric home. Changes could be made to the existing and proposed minimal standards for rental properties to favour a transition away from gas, and to avoid locking renters out of a fossil-fuel-free future.

The state government's mandatory minimum standards for heating in rental homes introduced this year are welcome in terms of improving thermal comfort and safety for tenants. They do, however, drive more new gas appliance installations, with one of the four options to meet the new rules being a gas space heater with a 2-star or above energy rating. As the government itself states, the new standards are expected to drive the installation of around 100,000 heaters. As affordable, grid-supplied renewable electricity becomes more readily available, these rules should evolve to exclude the installation of gas space heaters and instead specify energy efficient heat pump systems.

We look forward to the introduction of further rules for rental properties requiring ceiling insulation, draught-sealing and efficient hot water systems.

Support the electrification of apartment buildings

With almost half of Yarra's residents living in apartments, officers are seeing growing interest in solar PV installations on apartment buildings. There are, however, considerable hurdles for solar on apartments due to large upfront costs for additional equipment and metering; complexity navigating strata management and owners' corporation governance structures; and regulatory and network constraints.

Through reforms to the use of embedded networks, the government could reduce impediments to sharing solar on multi-unit developments and the distribution of grid-supplied renewable energy to dwellings. This would avoid gas connections to create fossil-fuel-free, all-electric apartment buildings.

Encouragingly, the government is providing support for innovative, distributed energy systems, through its neighbourhood batteries initiative. There is also a need for further work with electricity distributors and regulators to overcome network constraints to overcome solar export limits for households.

Share information on electricity supply to meet increased demand

We understand that the government has commenced ‘deep-dive’ investigations to inform the development of the full roadmap. This includes a detailed scenario analysis of the costs, benefits, barriers and impacts of different transition pathways on all sectors of the Victorian economy.

It will be useful to see analysis that shows the future electricity supply needed to meet increased demand, and the role that newer technologies like neighbourhood batteries and smart grid-wide demand management are expected to play.

The Distribution Network Supply Providers (DNSPs) currently hold much of the electricity network data as commercial in-confidence. This data, such as information about network constraints and capacity, is needed to work out whether it’s financial desirable to install large solar PV and battery systems. Making electricity network constraint data publicly available is in the public interest to assist policy makers and other decision makers to map out a clear pathway to zero emissions. It will also enable industry to invest in the right technologies in the right locations.

Ensure a just transition away from gas and that no-one is left behind

The major transition ahead needs to occur in a fair, affordable and socially equitable way.

Those who can least afford to transition away from gas should not be unfairly burdened with high costs. The most vulnerable people, such as those living on low incomes, typically have less ability to install solar or efficient all-electric technologies. As more households with the means to disconnect and leave the gas network, the rising gas and infrastructure costs will be borne by a smaller number of lower income households.

The transition should be carefully staged and market mechanisms deployed to encourage gas companies to write down assets progressively over time to spread the costs. There also needs to be on-going financial assistance for those most vulnerable to rising costs, such as people living on low incomes and in housing with poor energy performance.

Recommendations

- Modify the Victorian Energy Upgrades program to provide rebates for insulation and to favour switching from gas to efficient electric appliances.
- Update the AS4234:2008 on hot water energy efficiency that currently favour gas hot water systems.
- Evolve the mandatory minimum standards for heating in rental properties over time to exclude the installation of gas space heaters.
- Reduce impediments to installing solar on multi-unit developments and reform embedded networks.
- Work with electricity distributors and regulators to disclose electricity network constraints and capacity data to support solar PV and batteries, and better manage network constraints to maximise the ability to export excess solar.
- Provide financial support to assist low income households to transition, and ensure gas companies manage a smooth, equitable transition.

Abandon support for new gas development and carbon storage technologies, and use alternative fuels cautiously

The Victorian government's removal of the moratorium on the exploration of onshore conventional gas reserves is at odds with a roadmap to gas substitution.

Furthermore it is inconsistent with its own net zero emissions by 2050 target and directions being set internationally. Significantly, the International Energy Agency (IEA) in their May 2021 report stated that there should be no new fossil fuel development and no approval of new gas fields.

The argument has previously been that onshore gas exploration is needed to bring down gas prices for consumers. With renewables becoming the cheapest, cleanest source of energy there is no environmental or economic justification for supporting further gas development.

Carbon capture and storage

The consultation paper states that there is a role for carbon capture and storage (CCS) as an emerging technology with the potential to decarbonise some existing and new industries.

The paper acknowledges that the cost, technical and commercial viability of these technologies is highly uncertain. It is more accurate to say that CCS is unproven and expensive. Under a best case scenario, CCS technology captures some of the greenhouse gas emissions from fossil fuel-fired power stations. It cannot capture all of them.

The consultation paper acknowledges that residual carbon emissions associated with CCS projects would need to be offset by other strategies. With wind and solar now the cheapest types of new energy to build, gas plants could be replaced, not partially offset, by unproven and costly CCS technologies.

Substituting gas with hydrogen

The use of alternative fuels, such as hydrogen and biogas, enables the existing gas network to be usefully deployed to distribute fuels from low emissions sources.

However a full scale substitution of gas for hydrogen is not ready for roll out in the near term. Such a switch requires further investigations and technology development along with widespread changes to gas pipelines, appliances and meters.

For many applications (cooking, space heating and hot water), there are readily available, cost-effective all-electric options, such as heat pump technologies. The roadmap should ensure that gas-free technologies that are readily available now are prioritised and incentivised, and that action not be delayed while hydrogen solutions are being developed. Furthermore, renewable hydrogen production requires large amounts of water and renewable energy. The roadmap needs to carefully consider the right mix of alternative fuels, including hydrogen, to avoid unintended environmental consequences.

The consultation paper states the proposed ways of producing 'low emissions' hydrogen are by: using renewable electricity to split water into hydrogen and water ('green hydrogen') or by producing hydrogen from fossil fuels and capturing and storing the resulting emissions. Only green hydrogen generated using renewable energy should play a role in gas substitution.

Green hydrogen also provides an export opportunity for Victoria as there is growing international interest in importing hydrogen produced with renewable energy. It has the potential to add significant value to the state's economy, providing the jobs of the future.

Substituting gas with biogas

Biogas can be a useful fuel source for its ability to capture methane emissions and waste from industrial, agricultural and wastewater processes. While biogas can be beneficial as a fuel source in certain applications, it is not recommended that it play a large part in gas substitution. Using it at scale would require more biomass than is currently generated from existing waste processes. This biomass would likely need to come from new crops, which would place pressure on existing arable land and water supplies.

Burning gas in homes for heating and cooking carries some health risks, in particular regarding childhood asthma and carbon monoxide emissions. Biogas presents these same health risks, hence a shift away from all forms of gas in homes would improve health outcomes across the community. An undue focus on biogas has the potential to prolong the use of gas, whereas the main efforts should be on wide scale electrification.

Recommendations:

- Reinstate the moratorium on gas exploration and development activities in Victoria.
- Not support the use of carbon capture and storage (CCS) as an emerging technology.
- Support the production of hydrogen from renewable energy sources only and take advantage of export opportunities.
- Acknowledge that biogas plays a limited, albeit useful, role in future energy supplies and that the main efforts need to be investing heavily in electrification.

Yarra City Council appreciates the opportunity to comment. The above comments are made in the context of the commitments that the Yarra City Council has made in its adoption of a Climate Emergency Plan (2020).

Officers look forward to continue to work with DELWP on a transition away from gas to a bright, fossil-fuel-free future.

Yours faithfully



Bruce Phillips
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