



6th August 2021

Dear consultation team,

The Australian Institute of Refrigeration, Air Conditioning and Heating (AIRAH) appreciates the opportunity to provide input on Victoria's Gas Substitution Roadmap.

AIRAH has operated since 1920 and is the leading specialist membership association for professionals in the heating, ventilation, air conditioning and refrigeration industry (HVAC&R). This hidden, yet innovative and essential industry employs more than 300,000 people in Australia, is worth \$38 billion annually, uses more than 24 per cent of the electricity generated in Australia annually, and accounts for 11.5 per cent of the nation's carbon dioxide emissions.

The consultation paper highlights that by far the largest use of gas in Victoria is for heating. As we move away from fossil fuels towards a net zero future, it is clear that low-emissions HVAC&R has an essential role to play. The Gas Substitution Roadmap is therefore of great interest to AIRAH and our members.

You will find our responses to the consultation below. AIRAH applauds the government for its leadership in this space and looks forward to being involved as we continue along the path to safe, sustainable, healthy and effective environments.

Regards,

A handwritten signature in black ink, which appears to read "Anthony Gleeson".

Tony Gleeson, M.AIRAH
Chief Executive
AIRAH

Overview of pathways

AIRAH believes the best approach is to focus on measures and technologies that are achievable and available now. Many excellent opportunities already exist to slash emissions, improve affordability and safety, and enhance the wellbeing and health of occupants.

Given that space heating represents the largest use of gas in Victoria, reducing the need for heating in buildings should be top priority. The first step is to make buildings more energy efficient. This includes better fabric thermal performance and building sealing, better commissioning of new buildings, and performance benchmarks for ongoing operation and maintenance.

Second, as the consultation paper points out, electrical appliances such as heat pumps for air conditioning and water heating are already available and more energy efficient than their gas equivalents. AIRAH supports measures to promote the uptake of these technologies.

These two pathways in warrant our immediate focus.

In the longer term, AIRAH also supports investment in emerging HVAC&R technologies such as solar thermal and geothermal – as well as integrated design and technologies related to smart buildings, big data and analytics. We are seeing the potential of these technologies in the Innovation Hub for Affordable Heating and Cooling (i-Hub), an initiative led by AIRAH in conjunction with CSIRO, Queensland University of Technology (QUT), the University of Melbourne and the University of Wollongong and supported by Australian Renewable Energy Agency (ARENA) to facilitate the HVAC&R industry's transition to a low emissions future, stimulate jobs growth, and showcase HVAC&R innovation in buildings.

While these technologies require more time to develop and test, they can also play an important role in the gas transition.

What are the scale of opportunities and potential to accelerate uptake?

The potential to improve energy efficiency in buildings is huge.

Some building owners are proactively moving towards low-carbon technologies and embracing green ratings systems, but others continue to build to the minimum standards of the National Construction Code. Existing building stock is often neglected. The owners of many mid-tier commercial buildings do not improve or maintain their systems, seeing this as an unwanted immediate cost rather than an opportunity to reduce long-term running costs and improve the asset.

AIRAH strongly supports government incentive schemes such as the Victorian Energy Upgrades Program. In situations where financial incentives are not working, compulsory disclosure of energy ratings may persuade owners to act. These ratings systems would make occupants more aware of energy use, and could incorporate criteria to highlight any reliance on gas.

What are the key technical, regulatory and economic barriers?

Electrification of gas heating will increase electricity demand in winter. But as the consultation paper notes, Victoria's summer peak electricity demand is higher than the winter peak, and the maximum capacity of the system is lower in hot weather.

Nevertheless, initiatives such as the new Home Heating and Cooling Upgrades Program will see electrical appliances installed that supply not only heating, but also cooling. This may lead to an increase in electricity demand in summer as well as winter.

To counter this, it is important to improve thermal efficiency in buildings to reduce the need for heating and cooling.

In terms of economic barriers, AIRAH strongly supports the Victorian Energy Upgrades program and has been providing input into consultations on new activities. We encourage expanding this already successful model to support the roadmap through improvements to energy efficiency, building fabric and electrification.

What are the roles to be played by government, industry and how will consumers preferences be accounted for in the transition?

Improving energy efficiency in buildings and installing electric technology will require skilled professionals.

In the commercial building sector, professionals who design and maintain mechanical systems would benefit from upskilling to stay abreast of developments in sustainable HVAC. With compulsory registration of engineers now being implemented in Victoria – along with compulsory CPD – there is an opportunity to provide training that focuses on improving energy efficiency. With this in mind, AIRAH has developed a Professional Diploma in Sustainable HVAC Design and Operation, to be launched in September 2021.

In residential buildings, we have a labour force that is proficient in installing electric equipment, but there may be value in developing training that encourages a cross-trade, holistic approach aligned with the roadmap, and that also raises awareness about the incentives and schemes available.

DELWP is currently looking at implementing mandatory continuing professional development for building and plumbing practitioners in Victoria, which would include gas fitting and refrigerating and air conditioning. One of the questions and suggestions that has come up often in stakeholder meetings is the need for CPD to respond to the needs of industry. A very useful type of professional development could include the whole-of-building, roadmap-conscious training described above.

What are the best ways to maintain social acceptability and consumer confidence?

Technology is only as good – and as efficient – as the standards applied during installation and maintenance. This is a wider issue than simply supplying end-users with access to equipment rated by ratings systems they can easily compare. If not installed and maintained correctly, a five-star system may only deliver three-star performance. This applies at both the scale of an entire building, and for small residential appliances.

Investment is required in improving the skills of the professionals who will install and maintain these systems. And end-users will ideally be better educated in the importance of correct installation and maintenance. In particular, maintenance of HVAC&R equipment is generally neglected, incurring large energy penalties.

Finally, it should also be noted that regulations must be supported by strong compliance regimes. Particularly in Victoria, stakeholders have noted low levels of auditing conducted by building authorities. If the government invests more in these activities, regulations will bring greater benefits and improve consumer confidence.