



# **AIRAH**

## **PRE-BUDGET SUBMISSION 2022**

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**TABLE OF CONTENTS**

<b>About AIRAH</b>	<b>2</b>
<b>About the HVAC&amp;R building services industry</b>	<b>3</b>
<b>Transition to a net zero future</b>	<b>4</b>
The HFC phase-down	4
The Innovation Hub for Affordable Heating and Cooling	5
Building sector sustainability	6
<b>Professionalism and safety</b>	<b>7</b>
Professional registration of engineers	7
HVAC&R licensing	7
Industry training	8
<b>Resilience in the built environment</b>	<b>9</b>
Epidemic preparedness and response	9
HVAC&R resilience	9

## About AIRAH

The Australian Institute of Refrigeration, Air Conditioning and Heating (AIRAH) is Australia's peak body for professionals working in the heating, ventilation, air conditioning and refrigeration (HVAC&R) and building services industry. This covers all aspects of the sector, from the tradesperson onsite through to university-educated engineers and business leaders; from those involved in manufacturing and importing equipment, to those who maintain and service it.

AIRAH's overarching perspective – and reach to more than 25,000 industry participants – positions the Institute well to develop and promote the most efficient, productive and resilient HVAC&R industry for Australia's future. We are a long-standing and respected voice. Established in 1920, we have represented the industry for more than 100 years.

The 21<sup>st</sup> century imperatives of emissions reduction and energy productivity present our nation with significant challenges and opportunities. More recently, health has also been a focus, as we deal not just with the pandemic, but also issues such as smoke from bushfires, and the impacts of extreme weather events. Stakeholders from the built environment and HVAC&R sector have a key role to play in meeting these challenges and providing a healthy, low-emissions environment.

AIRAH is keen to work with all levels of government to improve the environmental performance of existing and new HVAC&R systems – and the built environment in general. We envisage a collaborative effort to get and keep positive action firmly on the agenda. It is important for all stakeholders to understand not only the vital role the HVAC&R building services industry has in the wider economy, but also the role the industry can play in helping Australia achieve its environmental aspirations and international, national and local commitments.

This paper sets out AIRAH Budget recommendations on the three key strategic topic areas that the Institute is focussed on for 2020–2022 namely:

- Transition to a net zero future
- Professionalism and safety
- Resilience

Note. See ***AIRAH Policy and Advocacy Positions 2020–2022*** for more detail on AIRAH's strategic positions [www.airah.org.au/Content\\_Files/Advocacy/2020-22\\_AIRAH\\_Advocacy\\_positions\\_v3.pdf](http://www.airah.org.au/Content_Files/Advocacy/2020-22_AIRAH_Advocacy_positions_v3.pdf)

## About the HVAC&R building services industry

Australian HVAC&R is carbon-intensive. According to the latest Cold Hard Facts report, prepared for the Department of Agriculture, Water and the Environment, Australian refrigeration and air conditioning equipment is responsible for 11.5 per cent of total national CO<sub>2</sub>e emissions, with more than 57.2 million individual pieces of equipment consuming more than 64.8GWh of electricity – or more than 24 per cent of all electricity used nationally. When you consider heating and ventilation usage, even more energy is consumed.

Our sector is vital to the economy. The HVAC&R industry consists of about 20,000 businesses nationally, employing 298,000 people across Australia. In 2019, direct spending on hardware, consumables and energy, plus employment in the sector, was estimated at more than \$41 billion, or around 2.1 per cent of Australian gross domestic product.

These are big numbers, illustrating how deeply embedded HVAC&R is within every aspect of the Australian economy. As Australia and the developed world acts to control and contain carbon emissions, it is clear that low-emission HVAC&R has an essential role to play. Future HVAC&R must therefore be low-impact and low-carbon.

Over the past two years, we have also seen the HVAC&R sector come to the fore as a key measure for dealing with the pandemic. Since health authorities recognised that COVID-19 was primarily spread by airborne transmission, there has been greater public awareness of the importance of ventilation and good indoor air quality. While this is indeed critical in preventing the spread of COVID-19, it is a wider issue that relates to the ongoing health and wellbeing of our people not just in pandemics, but also during extreme weather events such as bushfires. Australians spend about 90 per cent of their time indoors, so improving indoor air quality offers huge opportunities.

## Transition to a net zero future

As a signatory to the Paris Climate Change Agreement COP21, Australia has committed to the global transition to net zero emissions. Ahead of COP26 in November 2021, the government committed to doing this by 2050 with the release of *The Plan to Deliver Net Zero – The Australian Way*.

In moving to meet this challenge, it is becoming clearer that the built environment, including the HVAC&R building services sector, has a vital part to play. The main sustainability impacts of HVAC&R building services are energy consumption, water consumption, indoor environment quality, and refrigerant-related atmospheric changes, all of which are inter-related. Before clean energy can be effectively used in the built environment, the systems using the energy have to be optimised and efficient.

The operation of refrigeration and air conditioning systems consumes almost a quarter of all electricity generated in Australia, and is responsible for almost 12 per cent of Australian total national emissions (Cold Hard Facts 2020). To reduce these emissions AIRAH notes that:

- Buildings and refrigeration infrastructure must become more energy efficient and more energy productive. This includes higher standards for fabric thermal performance and building sealing, as well as performance benchmarks for ongoing operation and maintenance.
- HVAC&R systems must be designed, installed, commissioned and maintained for high efficiency and low emissions. Measurement, monitoring and ongoing maintenance are the keys to improving energy efficiency and productivity of the existing HVAC&R systems. Direct emissions of high global warming potential (GWP) refrigerants must remain a focus.
- The energy used to run high-efficiency HVAC&R in highly efficient buildings and the cold chain must be from a clean low-carbon source.

Through these three key improvements – more efficient buildings, more efficient and lower-emission systems, and cleaner low-carbon energy sources – the emissions associated with HVAC&R, buildings and the cold chain can be dramatically reduced. Education and training of all supply chain participants is vital for achieving these goals.

In terms of the transition to net zero, AIRAH is focusing on three areas.

### THE HFC PHASE-DOWN

Australia is undertaking a statutory phase-down of HFC imports that will reduce HFC imports (based on CO<sub>2</sub>-e) by 85 per cent by 2036. This work represents our government's commitment to the Kigali Amendment, a worldwide agreement to a global 85 per cent phase-down of hydrofluorocarbons (HFCs) by 2050. This is anticipated to avoid up to 0.4°C of global warming this century. AIRAH has been partnering with industry and government to help achieve this goal.

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**In the 2022 budget, AIRAH calls for:**

- Licensing and registration change to support regulatory compliance and the transition to low-GWP refrigerants, in line with AIRAH's licensing position statement ([airah.org.au/licensing](http://airah.org.au/licensing))
- Funding for the development of new trade technical resources and training for all low-GWP refrigerants and their associated technologies
- Incentives and communications activities to raise awareness about the HFC phase-down among owners of HVAC&R equipment and encourage them to transition to low-GWP refrigerants
- Adjustments to the HFC phase-down program to facilitate the phase-down, for example, through limiting the import of particular types of equipment, particularly in sectors where the transition to lower-GWP refrigerants needs to be accelerated
- Funding to develop training for engineers on the implementation of AS/NZS 5149 (Refrigeration Safety Standard).

**THE INNOVATION HUB FOR AFFORDABLE HEATING AND COOLING**

The Innovation Hub for Affordable Heating and Cooling (i-Hub) is 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.

The objective of i-Hub is to support the broader HVAC&R industry with knowledge dissemination, skills development and capacity building. By facilitating a collaborative approach to innovation, i-Hub brings together leading universities, researchers, consultants, building owners and equipment manufacturers to create a connected research and development community in Australia.

AIRAH applauds the Australian government's ongoing support of i-Hub via ARENA. The results of this work can be seen at [ihub.org.au](http://ihub.org.au)

**In the 2022 budget, AIRAH calls for:**

- Support for an industry-government research forum to facilitate three key aspects that are central to generating value and supporting innovation for the Australian HVAC&R and wider building industry
  - Establishing key HVAC&R research needs and developing a HVAC&R Research Roadmap for Australia
  - Engaging industry in HVAC&R research nationally and internationally
  - Effectively communicating findings from national and international research that are relevant to Australian HVAC&R issues.
- Support for low-emission demonstration projects – government can support innovation and commercialisation of low emission HVAC&R technologies
- Support for low-emission technology learning
- Incentives to reward innovation.

## BUILDING SECTOR SUSTAINABILITY

AIRAH advocates for government and all industry stakeholders to commit to achieving net zero emissions buildings through a range of programs and measures.

**In the 2022 budget, AIRAH calls for:**

- The implementation of COAG Energy Council's *Trajectory for Low Energy Buildings*, which outlines a pathway towards "zero energy- (and carbon-) ready buildings", increases to the energy-efficiency provisions in the National Construction Code and further consideration of options for existing buildings
- The implementation of *Every building counts: a practical plan for emissions reduction in the built environment*, which provides a set of recommendations for how the Australian government can help reduce emissions in the built environment
- Expansion of the National Australian Built Environment Energy Ratings System (NABERS), which has grown awareness of the benefits of energy performance of commercial buildings and driven better comfort and bill-saving outcomes for occupants. A nationally harmonised rating system for residential buildings is also required.
- Strong mandatory minimum standards for new buildings, equipment and appliances, with the long-term goal of net zero emissions via design integration through commissioning and validation testing but also strong minimum standards for the operation and maintenance of existing buildings and infrastructure
- Harmonised targeted incentives and programs between states and territories to accelerate action, and to motivate and support higher performance, including incentives and the use of government market power
- The development of climate-zone-specific energy policies requiring measurement, benchmarking and disclosure of energy use.
- Implementation of the advice in *Opportunity knocks – Accelerating energy efficiency for mid-tier buildings* – a set of recommendations developed by AIRAH and a range of industry and government stakeholders that aims to accelerate improvements to mid-tier buildings and harness their emissions-reduction potential
- Continued improvement, promotion and uptake of the Calculating Cool building HVAC online rating tool, including an expansion of the tool to cover low-emission technologies.

## Professionalism and safety

AIRAH's mission is to create an Australian HVAC&R industry that is highly skilled and professional, safe, sustainable and environmentally effective.

The HVAC&R industry operates under a wide range of legislation and regulatory requirements and regimes from all levels of government. AIRAH informs and works with all regulators to help bring an HVAC&R voice to the development of the environmental, energy, building, WHS, plumbing, electrical and health regulations that impact the HVAC&R industry.

AIRAH seeks to improve professionalism and safety in the industry by focusing on three main areas.

### PROFESSIONAL REGISTRATION OF ENGINEERS

The *Building Confidence* report, published in 2018, provided an independent assessment of problems in the building and construction industry. This highlighted the need for a nationally harmonised registration scheme for building practitioners, including engineers, to “restore community confidence in Australia’s building and construction industry”.

Since then, the Building Ministers’ Forum has set out a roadmap for reform, and a number of states have launched, or are preparing to launch professional registration schemes, including New South Wales, Victoria and Western Australia. Queensland already has a professional registration scheme. The Australian Building Codes Board has also developed a National Registration Framework, to promote harmonisation of the different schemes across the country.

AIRAH is supporting the establishment of these schemes through its AIRAH Professional Engineer Register (APER) program. This is the professional accreditation for engineers operating in the HVAC&R building services industry and is designed to meet the requirements of the Registered Professional Engineer of Queensland (RPEQ) and other state-based schemes as they are released.

As the details of the various registration schemes are released, AIRAH is also providing feedback to regulators to ensure that the regulations effectively support and strengthen Australia’s HVAC&R industry, as well as the wider building and construction industry.

#### **In the 2022 budget, AIRAH calls for:**

- Greater efforts towards harmonisation and mutual recognition of state and territory professional registration schemes, to reduce barriers for registered practitioners working across jurisdictions.

### HVAC&R LICENSING

While professional registration of building practitioners will cover engineering work, the industry also comprises tens of thousands of VET-trained technicians who design, install, commission, maintain, repair, and decommission refrigeration and air conditioning plant every day.

Better governance for the HVAC&R trade including a skills-based, nationally harmonised licencing system for refrigeration and air conditioning technicians that covers the application of all



refrigerants in all sectors and every jurisdiction. Skills maintenance and continuing professional development is also essential.

**In the 2022 budget, AIRAH calls for:**

- Licensing and registration change to support regulatory compliance and the transition to low-GWP refrigerants, in line with AIRAH's licensing position statement ([airah.org.au/licensing](http://airah.org.au/licensing))

## INDUSTRY TRAINING

AIRAH is committed to providing the tools to advance the knowledge and skills of HVAC&R professionals, and raise awareness of changing legislation and regulatory requirements. AIRAH develops and offers training and learning opportunities in technical (HVAC&R) skills, leadership, business and personal development.

Current offerings include AIRAH Accredited Professional Diploma of Building Services – HVAC&R; the Professional Diploma in Sustainable HVAC Design and Operation; the AIRAH Professional Certificate in HVAC&R Fundamentals; courses on Essential Safety Measures and Smoke Control and Fire Dampers; and focused training on NCC Volume 1 Section J.

From AIRAH's experience, practitioners entering the industry, usually after completing a Bachelor of Mechanical Engineering, do not have the knowledge they need to hit the ground running in the HVAC&R building services industry, hence the high demand for post-graduate training, such as the courses above. There is a need to strengthen both the post-graduate offerings, and the teaching of HVAC&R building services within university engineering departments.

**In the 2022 budget, AIRAH calls for:**

- Funding for the development of further post-graduate courses for the HVAC&R building services industry
- Greater support for university education in the area of HVAC&R building services.

## Resilience in the built environment

In the current global physical, social and environmental situation, the ability of a building to deal with external and unusual impacts due to pandemics, bushfires, climate change, extreme heat and cold, severe storms, earthquakes, social unrest, terrorist attack or criminal misadventure, is becoming more important and more valued.

### EPIDEMIC PREPAREDNESS AND RESPONSE

The pandemic has increased general appreciation of HVAC&R and other building systems and the role they play in preventing the spread of COVID-19. More broadly, this has led to analysis of these systems to determine how they may help the spread of other infectious diseases, and improve indoor air quality in general.

As an expert body, AIRAH advocates for improvements to ventilation systems, and develop and disseminate resources to support this work. This includes resources aimed at ventilation in schools, and in operating theatres. AIRAH is working with government and industry to share this information.

#### **In the 2022 budget, AIRAH calls for:**

- Development of credible, government-endorsed, public information regarding the airborne transmission of COVID-19 and the importance of indoor air quality
- Support for the Australian Standard for indoor air quality that AIRAH is proposing
- Support for the QUT proposal to the Australian Research Council: "Training Centre for Advanced Building Systems Against Airborne Infection Transmission".

### HVAC&R RESILIENCE

The resilience of Australian buildings, the cold chain, IT infrastructure, health services, manufacturing facilities and processing sectors all depend on the resilience of the HVAC&R systems that support them. The resilience of these systems has to be addressed to safeguard the built environment and its occupants during extreme events.

AIRAH applauds the Australian government's support of the AIRAH Resilience Checklist developed in 2021.

#### **In the 2022 budget, AIRAH calls for:**

- More research, particularly into the magnitude of impacts and change in future climate design data over the typical 10 to 20 year "useful life" of an HVAC&R system
- Strong governmental policy platforms around resilience, including strong minimum standards as well as incentives for best practice and support for training and professionalism.