AIRAH

PRE-BUDGET SUBMISSION 2025

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AIRAH • Level 3, 1 Elizabeth St, Melbourne Vic 3000
03 8623 3000 | airah.org.au

AIRAH

AIRAH and the HVAC&R building services industry

AIRAH proudly represents a sector that is central to Australia's productivity and wellbeing: the heating, ventilation, air conditioning, and refrigeration (HVAC&R) and building services industry.

In our modern world, HVAC&R systems are indispensable. They keep our indoor spaces liveable, they allow us to store and transport our food, they keep critical facilities such as data centres and hospitals running, and they underpin many of our industrial processes.

Not surprisingly, the HVAC&R sector is experiencing strong growth. According to the latest *Cold Hard Facts* report, the stock of vapour compression driven equipment that provides refrigeration, cooling, heating, comfort and utility services grew by around 15 per cent from 2016 to 2022, reaching a total of more than 62 million pieces of equipment.

These systems are also carbon intense. Turning again to the latest *Cold Hard Facts* report, published in December 2024, Australian refrigeration and air conditioning equipment is responsible for 12 per cent of total national CO_2e emissions, and uses around a quarter of electricity nationally.

The HVAC&R industry therefore has a dual responsibility: to provide critical services to a society already experiencing the impacts of climate change, and to do so in a way that does not overburden the environment. To achieve this, we need a capable workforce supported by effective codes, standards and regulations. AIRAH strategic goals – and this pre-budget submission – reflect these interrelated needs.

Through knowledge building, professional development, industry events and advocacy, AIRAH aims to lead an Australian HVAC&R industry that is highly skilled, safe and sustainable.

We are a long-standing and respected voice. Established in 1920, we have represented the industry for more than 100 years. We have a direct membership of around 4,000 professionals, and reach to more than 25,000 industry participants, including engineers, trades, educators, students, manufacturers, regulators, business leaders, and other industry experts. This pre-budget submission is informed by their comments and perspectives.

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Healthy and productive occupants

Australians spend 90 per cent of their time indoors, meaning that HVAC&R building services are vital for ensuring we are healthy and productive. Heating and cooling systems protect building occupants from extreme heat and cold, while ventilation systems maintain the quality of the air we breathe indoors. Mechanical fire safety systems, meanwhile, help protect people if there is a fire.

HVAC&R systems also support the health and productivity of Australians more broadly. We rely on refrigeration systems, to store and transport food safely, and our data centres and health facilities need sophisticated cooling systems to operate.

INDOOR AIR QUALITY

Indoor air quality has a huge impact on our wellbeing. There is a growing body of research quantifying the health and economic benefits of better indoor air quality. And although we spend billions of dollars to maintain the quality of the water we drink, we invest very little in maintaining the quality of the air we breathe. Australia has the opportunity to be a world leader in this space – and reap the health and productivity benefits.

In the 2025 budget, AIRAH calls for:

- The establishment of an inter-disciplinary taskforce to support the development and implementation of a national strategy for improving indoor air quality, including an Australian Standard for indoor air quality.
- A national campaign to raise awareness about the importance of indoor air quality and guidance on how to improve it.
- Investment in a NABERS indoor air quality rating system for measuring and comparing indoor air quality in buildings.
- Government leadership in measuring and reporting on indoor air quality in government buildings.

HVAC&R RESILIENCE

Against a backdrop of a changing climate, HVAC&R systems will become increasingly important to maintain liveable indoor conditions. As the grid decarbonises and energy supply patterns change, HVAC&R systems can also help shape demand, making our infrastructure more resilient.

In the 2025 budget, AIRAH calls for:

- Complete the development and roll-out of a national disclosure system for homes. This includes funding to update the climate data used by NatHERS to ensure that thermal performance of homes matches their ratings.
- Funding to update information and correct issues with CSIRO climate files used for modelling of office buildings.

Sustainable HVAC&R systems

Australia has committed to reduce greenhouse gas emissions by 43 per cent below 2005 levels by 2030, and to achieve net zero emissions by 2050.

As noted in *Every Building Counts*, buildings account for over 50 per cent of electricity use in Australia and almost a quarter of its emissions. The built environment has the technology to decarbonise now, but we must do this at speed and scale to smooth the way for other hard-to-abate sectors and meet our emissions reduction commitments.

AIRAH applauds the government's decision to develop a sectoral plan for the built environment in the Net Zero Plan, and supports the work under way to update the Trajectory for Low Energy Buildings. Heating and cooling accounts for around 40 per cent of energy use in buildings, so we anticipate providing important input to this process.

In the journey towards net zero, AIRAH is focusing on three areas: refrigerant transition, building sustainability, and maintenance and tuning of HVAC&R systems.

REFRIGERANT TRANSITION

Most HVAC&R systems today are based on vapour compression technology that use refrigerants as working fluids. Over the years, refrigerants have evolved in response to greater understanding of their environmental impact. When scientists identified that chlorofluorocarbons (CFCs) were destroying the ozone layer, we transitioned to hydrofluorocarbons (HFCs).

These were subsequently found to contribute to global warming, leading Australia to undertake a statutory phase-down of HFCs that will reduce bulk imports (based on CO_2e) 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 HFCs by 2050. It is estimated that this will avoid up to 0.4°C of global warming this century. Unfortunately, as highlighted in the latest Cold Hard Facts report, the current regulatory approach is not on track to achieve its objectives and requires strengthening – see recommendations below.

The industry now stands at another turning point when it comes to refrigerants. Links have been established between the newest variety of refrigerants – hydrofluoroolefins (HFOs) – and PFAS, also known as forever chemicals. Other alternatives exist, including so called natural refrigerants such as hydrocarbons, carbon dioxide, ammonia, air and water, but some are flammable or toxic, and others work at high pressures. It is vital that professionals have adequate training to work with these refrigerants.

These questions are especially pressing when Australian buildings are electrifying, increasing the use of heat pumps and other electrical appliances that contain refrigerants.

In 2024, AIRAH continued strong engagement with the Department of Climate Change, the Environment and Water (DCCEEW) and various industry stakeholders on the topic of refrigerant management. With the support of DCCEEW, we were able to update the Refrigerant Handling Codes of Practice – key documents under the Ozone Protection and Synthetic Greenhouse Gas Management Regulations 1995. We look forward to continuing this work.

In the 2025 budget, AIRAH calls for:

- The development of a long-term vision for refrigerants that supports Australia's goal of achieving net zero by 2050, and contemplates the health risks associated with HFOs, and the need for investment in training to equip our workforce with the skills to manage and handle alternative refrigerants.
- A national approach to tracking refrigerant use and reducing Scope 1 emissions via mandatory leak detection strategies and reporting.
- Adjustments to the HFC phase-down program to address the ongoing use of high-GWP refrigerants such as R404A, for example, through limiting the import of particular types of equipment.
- 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.
- Strengthening of the national ARCtick licensing scheme for refrigerants to allow for more effective compliance activities and better analysis of data on licence holders and refrigerant usage.

BUILDING SECTOR SUSTAINABILITY

Achieving a sustainable built environment will require us to reduce operational emissions through a number of measures.

Electrification: Electrification is the lowest cost, fastest emissions reduction pathway for Australia's built environment. According to the ASBEC report *Unlocking the pathway*, electrification would save $49 billion between 2024 and 2050 compared to a mixed strategy of electrification, gas and offsets. It would also save 199 Mt CO_2e before offsets. Achieving this requires a commitment to investing in electrification and a clearly communicated commitment to move away from gas. AIRAH takes a keen interest in electrification because much of the work is related to heating and cooling buildings.

Energy efficiency: Research commissioned by the Energy Efficiency Council (EEC) and ANZ estimates that energy efficiency will deliver 19 per cent of the emissions reductions Australia requires by 2030, and 14 per cent by 2050. AIRAH recognises the need for HVAC&R systems to be as energy efficient as possible. To achieve this, we need robust ratings systems for equipment, good design, installation and commissioning practices, and effective maintenance and tuning strategies.

Flexible demand: As the grid decarbonises, patterns of energy supply are changing in line with availability of renewable energy. And as our built environment grows and relies increasingly on renewable energy, we must ensure that the grid is capable of handling peak demand. This can be addressed at both the supply and demand side. HVAC&R equipment offers opportunities to smooth out peaks in demand in grid-interactive buildings.

Embodied carbon: As well as reducing operational emissions, we must reduce embodied emissions that are locked into materials and equipment when they are manufactured, transported, installed, repaired, and disposed of at end of life. This applies to HVAC&R and other building services equipment.

Strong codes, standards and frameworks: The measures above rely on effective codes, standards and frameworks. The National Construction Code in particular is central in ensuring our new buildings perform well. Systems such as NABERS and a national scorecard for residential energy efficiency are also vital for measuring and verifying performance during the life of a building.

Maintenance and tuning: Buildings in general and HVAC&R systems in particular are complex systems that require ongoing attention. This includes regular checking of physical equipment, and improvement of controls systems. Maintenance and tuning strategies can improve energy efficiency, and extend the life of assets, helping reduce embodied carbon.

In the 2025 budget, AIRAH calls for:

- Strong continued funding and support for the Australian Building Codes Board and the three-yearly review cycle of the National Construction Code.
- Continued expansion of the National Australian Built Environment Energy Ratings System (NABERS), including the development of an Indoor Air Quality rating system that can be linked to the existing ratings system for energy efficiency.
- Expansion of the Compulsory Building Disclosure (CBD) Program, based on feedback from industry consultation in 2024.
- Finalisation of the Sectoral Net Zero plan for the built environment, and an updated Trajectory for Low Energy Buildings.
- Continued support to establish minimum energy performance standards for hot water heat pumps and other cooling and heating appliances.
- Harmonised targeted incentives and coordinated programs between states and territories to accelerate action, and to motivate and support higher performance, including incentives and the use of government market power.
- Incentives for solutions in thermal storage that offer demand flexibility, increasing the resilience of the electricity grid.

Capable workforce

The overarching goals of healthy building occupants and sustainable HVAC&R systems can only be achieved with a capable workforce.

HVAC&R is experiencing challenges in attracting engineers and technicians. This is partly due to a lack of visibility, and partly due to shortages affecting all parts of the building and construction sector. HVAC&R also continues to be predominantly male. AIRAH and many other industry bodies are working towards making the sector more diverse and inclusive.

AIRAH seeks to strengthen the HVAC&R workforce by focusing on two areas.

REGISTRATION AND LICENSING

In response to the recommendations in the *Building Confidence* report, state and territory governments have been rolling out professional registration schemes for engineers.

AIRAH is supporting these efforts through its AIRAH Professional Engineers Register (APER) program. This is a professional accreditation for engineers operating in the HVAC&R industry and is designed to meet the requirements of the state-based schemes.

Meanwhile, states and territories are also refining occupational licensing frameworks for air conditioning and refrigeration technicians and other mechanical services practitioners. Overlaying this is the national licensing scheme administered by the Australian Refrigeration Council (ARC). AIRAH is involved in these conversations, supporting better understanding of the trade and its scope of work.

Across both registration of engineers and licensing of technicians, AIRAH promotes consistency and harmonisation of rules across jurisdictions.

In the 2025 budget, AIRAH calls for:

- Harmonisation and mutual recognition of state and territory professional registration and licensing schemes through mutual recognition and automatic mutual recognition, to reduce barriers and expenses for practitioners working across jurisdictions.
- Strengthening of the national ARCtick licensing scheme for refrigerants to allow for more effective compliance activities and better analysis of data on licence holders.

ATTRACTING AND RETAINING TALENT

Despite the scale of the HVAC&R sector and the opportunities it offers, it often remains invisible for people considering career options. Partly this is due to a bias in the education system that places university education over VET. Partly, it is because within the established pathways, students are drawn towards higher-profile sectors, for example, other branches of mechanical engineering, or electrical or plumbing work.

AIRAH is committed to raising awareness of HVAC&R and building services, and providing pathways into the industry through professional development and networking.

Current offerings include the 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 2025 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.

At the trade level, although government initiatives such as free TAFE and incentive payments have been very welcome, completion rates remain unacceptably low – around 50 per cent. More needs to be done to support the students and the registered training organisations (RTOs) where they learn. There is also an urgent need to upskill HVAC&R technicians already in the field on how to work with flammable refrigerants.

In the 2025 budget, AIRAH calls for:

- Investment in VET infrastructure to support the additional places provided by government and lift completion rates. Specific funding is needed to ensure that RTOs have the skills and equipment to teach students about handling flammable refrigerants.
- Investment in updating the training package for refrigeration and air conditioning trades to reflect the latest technologies and industry practices.
- Strengthening of the national ARCtick licensing scheme for refrigerants to introduce compulsory CPD, particularly in the area of flammable refrigerants.
- Continued investment in promoting STEM in schools and making it accessible for all students.
- Promoting VET as an option and running a campaign to change the perception of it as a poor cousin to university education.