

HEAT PUMP HOT WATER SYSTEMS IN AUSTRALIA

Building quality,
confidence,
and the market

Roadmap

ACKNOWLEDGEMENTS

Thank you to the group of committed industry leaders that contributed their expertise and time to this project.

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VISION AND COMMITMENT

On our path to achieving net zero emissions by 2050, every individual step towards that target counts. Heat pump hot water systems are a critical technology. They empower Australians to do their bit to address climate change by allowing for electrification and emissions reductions. As an industry, we aspire to provide Australian families with access to clean, healthy hot water at low cost. We believe that heat pump hot water systems can help families save money and reduce their greenhouse gas footprint using products that meet and exceed the expectations of consumers and governments alike.

This roadmap sets out the key steps required for our industry to establish heat pump hot water systems as the pre-eminent water heating technology by 2030, by detailing the actions required to ensure a safe, sustainable, and successful scale-up of heat pump hot water system deployment.

Signatories are committed to taking meaningful action to:

- Build industry leadership in Australia.
- Foster excellence through quality products and professional installation.
- Promote a sustainable industry for the long-term.
- Accelerate emissions reduction and support an equitable transition.



INTRODUCTION

Australia must ensure our homes are healthy, affordable and zero emissions compatible by 2050. In the residential sector, a handful of key appliances influence both the comfort and cost of running a home, as well as the emissions it generates. Electrification of these appliances combined with their use of renewable electricity can deliver substantial emissions reductions and bill savings.¹

Domestic hot water use is responsible for around a fifth of Australian residential greenhouse gas (GHG) emissions and a quarter of household energy use.² Rapid electrification of water heating could reduce related emissions by 80% compared to the current trajectory.³ Given the higher energy efficiency of heat pump hot water systems (HPHWS)⁴ compared with other technologies, this product offers an attractive opportunity to reduce energy use and emissions quickly and effectively.

Domestic HPHWS⁵ have a high degree of technological and commercial readiness for standalone units, with many off-the-shelf options available. However, for decades, the Australian hot water systems market has been dominated by gas and electric resistive systems, with gas instantaneous and electric storage hot water systems being the most common.

WHY WE NEED A ROADMAP TO TRANSFORM THE MARKET FOR HPHWS IN AUSTRALIA

We know we need to reduce our GHG emissions to reach net zero, and HPHWS represent a significant opportunity to cut emissions from domestic hot water, whilst supporting the wider electrification of the residential sector.

While government⁶ incentives can play a prominent role in market transformation, the need for sensible standards and regulatory activity to underpin it will also contribute to a successful scale up.

Another core element to success is increased consumer confidence in HPHWS, which the industry can develop by taking steps to safeguard the market. The challenges of scaling-up a technology can be managed and overcome, but it will require a sustained, collaborative effort from industry with support from government.

This roadmap sets out recommended actions across five key areas to support the successful scale-up of the HPHWS market as identified by a diverse-cross section of industry players.

There is an opportunity to scale up the Australian HPHWS market through the following steps:

- Building consumer confidence.
- Ensuring the quality of the Australian HPHWS industry.
- Unlocking a trusted and highly skilled workforce.
- Empowering Australians to access the benefits of HPHWS.
- Creating a sustainable industry.

Some of the measures identified against these steps will only be required over the short term to build quality in a rapidly evolving market, others will require a more sustained effort to deliver success.



If rolled out at scale in residential and other settings suitable for off-the-shelf solutions, HPHWS could quickly:

- Offer substantial emissions reductions.
- Deliver energy bill savings.
- Support the efficient electrification of Australia's built environment.

HOW THE RECOMMENDATIONS IN THIS ROADMAP WERE FORMULATED

The recommendations in this roadmap were developed in consultation with an industry steering group (ISG) consisting of 29 members including manufacturers, Accredited Certificate Providers (ACPs), financiers, industry, and trade associations. The Energy Efficiency Council (EEC) also undertook over 20 one on one expert interviews with industry, government, and international organisations in support of the roadmap's development. You can read more on the background and context of the recommendations in the *HPHWS Roadmap Report*.

Action will differ for governments, particularly in cases where incentives or other programs do not yet exist.

HPHWS ROADMAP

Building consumer confidence

Ensuring the quality of the Australian HPHWS industry

Unlocking a trusted and highly skilled workforce

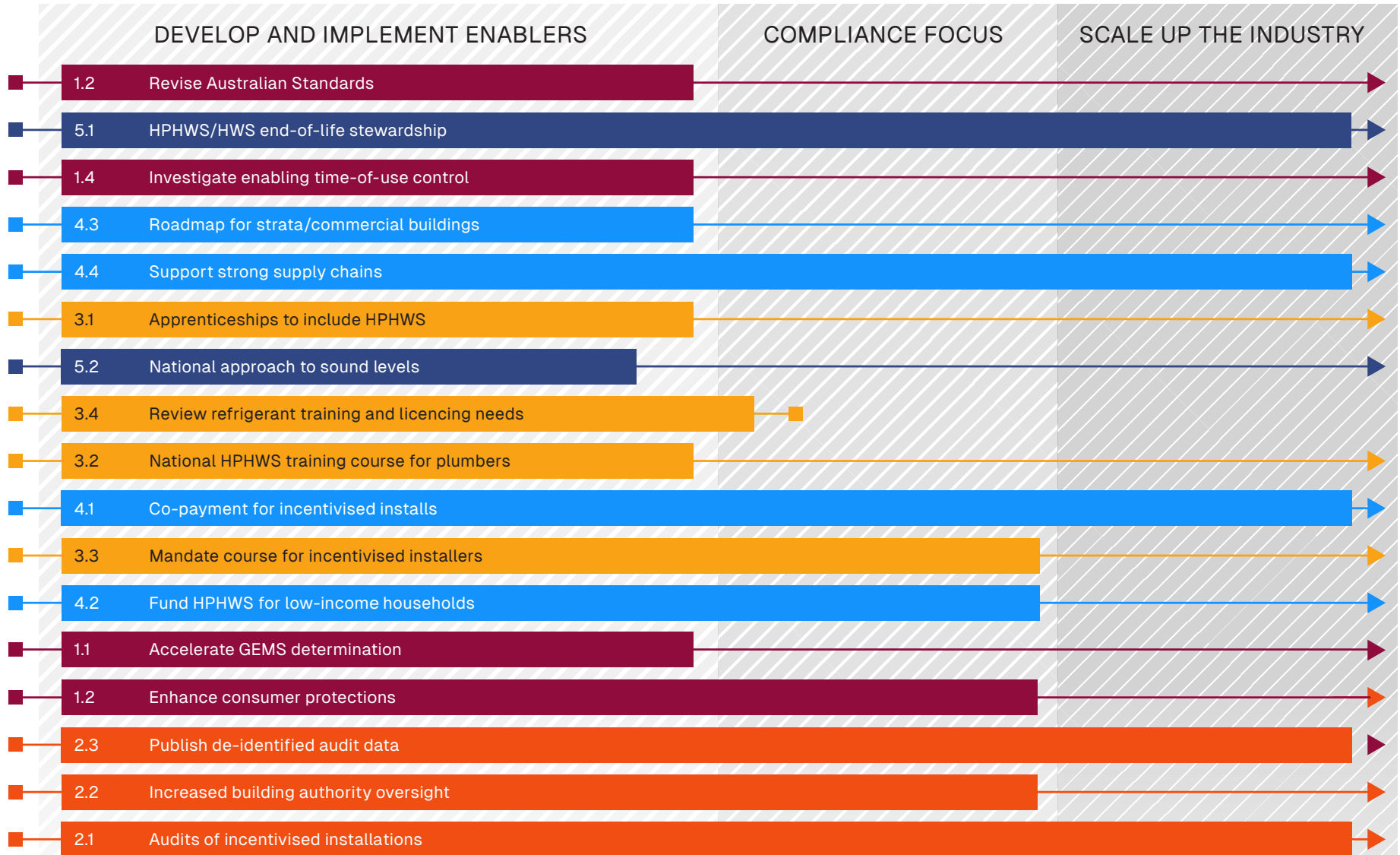
Empowering Australians to access the benefits of HPHWS

Creating a sustainable industry

INDUSTRY – GOVERNMENT PARTNERSHIP

Industry Leading

Government Leading



RECOMMENDED ACTIONS

0. INDUSTRY-GOVERNMENT PARTNERSHIP

No.	Recommended action	Detail
0	A consultative group should be formed to build industry leadership in Australia, monitor roadmap progress, and create opportunities for governments to implement recommended actions.	A consultative group made up of industry, professional and union bodies should be formed to develop industry leadership, and support governments and other stakeholders as necessary. This group can contribute to many of the recommended actions in the roadmap and should meet regularly with governments interested in collaborating with industry.



1. BUILDING CONSUMER CONFIDENCE

To scale up the HPHWS industry, consumer confidence is essential. This can be achieved through standards and regulation, consumer protections, and technical innovation to make life easier for households and network operators. Industry can play a role through offering innovative, good quality products, installed to a high standard.

No.	Recommended action	Detail
1.1	Prioritise a Greenhouse and Energy Minimum Standards Determination under the Greenhouse and Energy Minimum Standards Act 2012 (GEMS) for HPHWS, minimum energy performance standards and labelling requirements and leverage existing high-integrity standards in the interim.	Minimum Energy Performance Standards (MEPS) and energy rating labels for HPHWS should be introduced under the GEMS Act. This should be completed as swiftly as possible, without compromising collaborative consultation with industry.

No.	Recommended action	Detail
1.2	Enhance consumer protections for recipients of HPHWS installed with support from government incentives.	<p>Governments and consumers have a reasonable expectation that business activities associated with incentive programs have a high level of quality and integrity. Sensible consumer protections can enhance confidence in these programs and ensure their success as they scale up. Government and industry should consider collaborating on measures such as:</p> <ul style="list-style-type: none"> ▪ Industry development of standardised consumer information to be provided both before and after a HPHWS is installed using government incentives (and ideally, any time a HPHWS is installed). ▪ Rules around the advertising of HPHWS direct to consumers that prevent high pressure sales tactics and misleading conduct. ▪ Ensuring an excess warranty period for HPHWS products and services of at least five years, especially when funded by government incentives, and that warranties are enforceable.

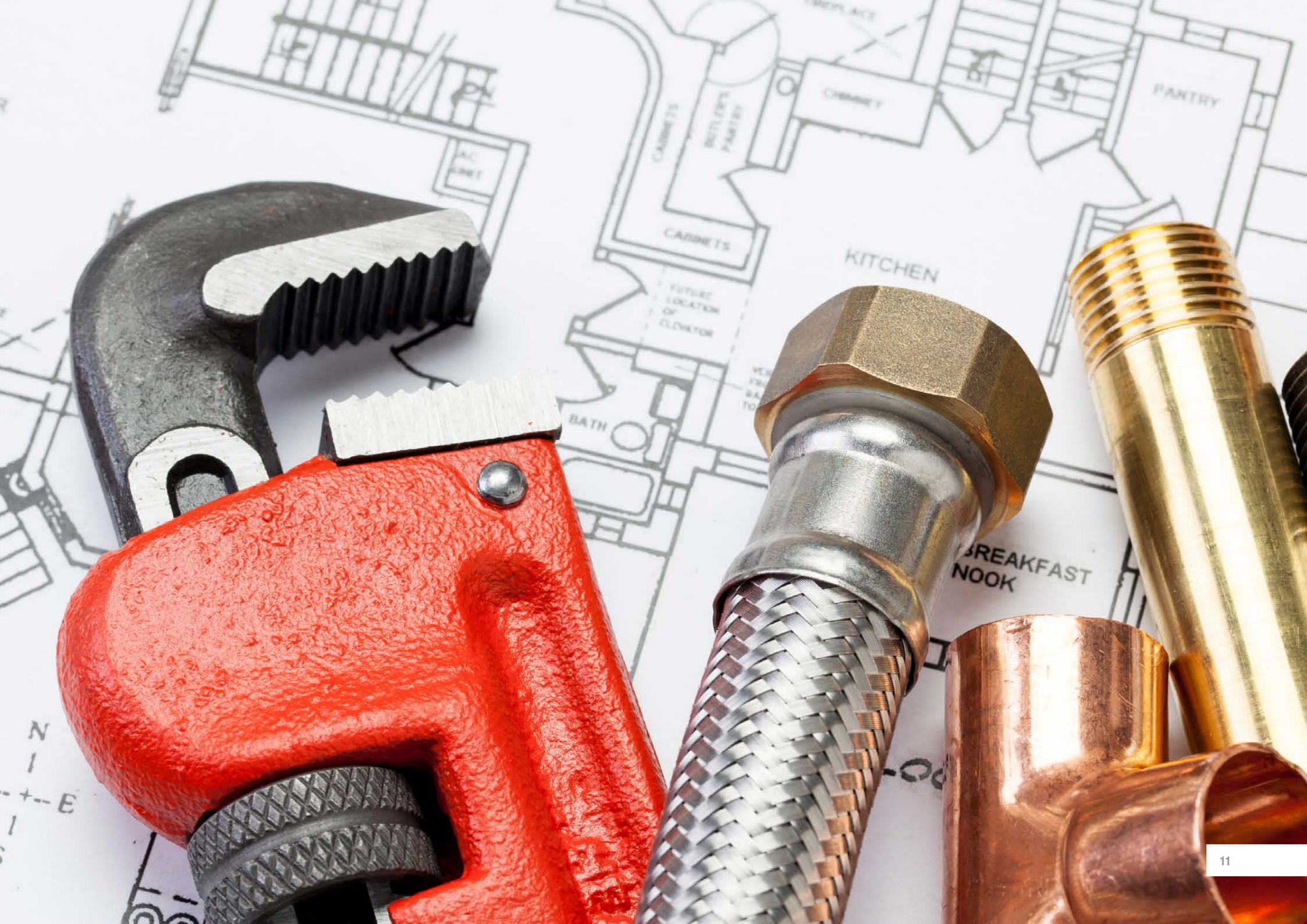
No.	Recommended action	Detail
1.3	Explore the value of revising the applicable Australian Standard(s) to include specifications for HPHWS.	Australian Standard AS/NZS 3500.4:2003 Plumbing and drainage Part 4: Heated water services includes specific provisions relating to the installation of solar hot water systems but currently remains silent on HPHWS. The value of updating the standard to include provisions relating to HPHWS should be explored by Standards Australia and the committee responsible. Any update should be reflected in the Plumbing Code of Australia.
1.4	Examine options for requiring HPHWS to incorporate technologies that enable end users or networks to control their time of use.	Examine options to require HPHWS to include safe, fit-for-purpose technologies that enable remote control through industry-standard interoperable communications protocols to support their use in demand management initiatives.

2. ENSURING THE QUALITY OF THE AUSTRALIAN HPHWS INDUSTRY

To support a successful HPHWS industry, appropriate steps must be taken to support world class installation practice and the quality assurance measures that underpin it.

No.	Recommended action	Detail
2.1	Governments with HPHWS incentives should ensure an adequate number of high-quality, independent audits of HPHWS installations are undertaken.	<ul style="list-style-type: none"> As with any rapid technology scale-up, additional short-term oversight of HPHWS installations is reasonable to monitor quality and safety standards and provide the data necessary to address any issues that are found. There are auditing and compliance requirements associated with many existing government incentives which can be leveraged to deliver on this recommendation.
2.2	Governments should examine the need for building authorities to increase regulatory oversight of hot water system installations as part of plumbing and electrical regulations.	<ul style="list-style-type: none"> All new installations should be subject to regular audits being carried out by qualified professionals. Existing plumbing and electrical regulation compliance activity in all states and territories should be examined to ensure auditing provisions are adequate to provide confidence that hot water systems are being safely installed.

No.	Recommended action	Detail
2.3	Governments should publish de-identified audit data with enough granularity to identify trends associated with specific products, such as HPHWS.	<ul style="list-style-type: none"> Regularly releasing information on audit outcomes and complaint volumes would increase transparency, enabling industry, academia, consumer groups and other stakeholders to discern the severity (or lack thereof) of quality issues related to the installation of HPHWS. Publishing this data would increase the accountability of all stakeholders and support continuous improvement in both industry and government practices.



3. UNLOCKING A TRUSTED AND HIGHLY SKILLED WORKFORCE

Successful market transformation for HPHWS requires a knowledgeable, engaged, and robust workforce of skilled professionals.

No.	Recommended action	Detail
3.1	Review plumbing apprenticeships to ensure they include HPHWS.	HPHWS are in the national competencies referred to for plumbing apprenticeships. They are listed as one of five systems to learn about. An apprentice is only required to pick three, meaning that it is still possible to complete a plumbing apprenticeship without ever handling a HPHWS. This gap should be reviewed and closed to create a pipeline of plumbers that have the skills they need in a future with high HPHWS market penetration.
3.2	Industry should develop a national training course for plumbers on the correct installation of HPHWS.	Leveraging national units of competency, a national training course for HPHWS installation should be developed by industry, professional associations, and unions. This course should be available to fully qualified plumbers in all states and territories.

No.	Recommended action	Detail
3.3	Make the completion of a national training course mandatory for all installers accredited to provide services funded by government incentives and programs.	This requirement would leverage incentive programs to build the capability of plumbers. The solar industry provides a strong precedent for the role that incentive programs can play in driving capability and capacity building around novel technologies.
3.4	Review training and licensing needs for workers handling refrigerants for HPHWS.	Given the growing market share of HPHWS, a review of training and licensing needs of workers should be completed to ensure current issues with HPHWS, including risks associated with natural refrigerants, are accurately reflected in training packages and through targeted education resources.



4. EMPOWERING AUSTRALIANS TO ACCESS THE BENEFITS OF HPHWS

The scale up of HPHWS in Australia requires diverse affordable products and services to be available to households of all types.

No.	Recommended action	Detail
4.1	Require an appropriate co-payment from the consumer when accessing government incentives, so that HPHWS are not provided for 'free.'	Ensuring all HPHWS incentives are accompanied by a co-payment will improve consumer engagement with the products being installed in their homes. The need for a co-payment should be reviewed over time as other regulatory safeguards are put in place, and market conditions change.
4.2	Governments should introduce and/or continue to fund HPHWS upgrades for vulnerable and low-income households.	Incentive programs may not be accessible for vulnerable and low-income households. This cohort should receive additional support to access the benefits of HPHWS. Some work is already underway to support these households.
4.3	Governments should fund a HPHWS roadmap for commercial and residential strata buildings.	HPHWS for commercial buildings (including residential strata) are not covered by this roadmap, but industry has identified the need for a separate roadmap to cover these buildings.
4.4	Business support for the HPHWS industry to understand and manage Australia's global and local supply chain challenges.	Australian suppliers of HPHWS need greater support to navigate and adapt to challenging global conditions and firm up supply chains.

5. CREATING A SUSTAINABLE INDUSTRY

A focus on sustainability ensures the longevity of the industry.

No.	Recommended action	Detail
5.1	Develop a national approach to the stewardship of HWS and HPHWS at end of life.	There is a product stewardship scheme in place for refrigerants, operated by Refrigerant Reclaim Australia (RRA). However, there is no stewardship option for the remainder of the refrigerants not subject to the scheme, or for heat pump products at end-of-life. Supporting circular economy principles, Australia should introduce an integrated stewardship approach for hot water systems, including HPHWS (and ideally heat pumps, air conditioning equipment and refrigeration equipment more broadly). Whilst this is a longer-term aspiration, discussions about an industry-led approach could commence in the near-term.
5.2	Develop and agree a national approach to the determination of sound levels for HPHWS.	States and territories should coordinate an agreed approach to sound levels until such time as a national standard can be agreed and legislated for under MEPS or the National Construction Code (NCC). Industry can support governments in the selection of an appropriate standard to work to.

ENDNOTES

- 1 EEC, [Harnessing Heat Pumps for Net Zero](https://www.eec.org.au/EEC.org.au/harnessing-heat-pumps-for-net-zero), 2023. (<https://www.eec.org.au/EEC.org.au/harnessing-heat-pumps-for-net-zero>)
- 2 Institute for Sustainable Futures for ARENA, [Domestic Hot Water and Flexibility](https://www.uts.edu.au/isf/explore-research/projects/domestic-hot-water-and-flexibility), 2023, p. 1. (<https://www.uts.edu.au/isf/explore-research/projects/domestic-hot-water-and-flexibility>)
- 3 Ibid, p.2.
- 4 EEC, [Harnessing Heat Pumps for Net Zero](https://www.eec.org.au/EEC.org.au/harnessing-heat-pumps-for-net-zero), 2023. (<https://www.eec.org.au/EEC.org.au/harnessing-heat-pumps-for-net-zero>)
- 5 Throughout this document HPHWS refers to off-the-shelf products used primarily for domestic hot water heating in buildings that do not use shared hot water services. Larger-scale commercial HPHWS solutions are not covered in this roadmap, despite being used to provide hot water services for many households in the context of apartment buildings and strata living.
- 6 Throughout this document reference to the word 'government' includes the Australian Government and/or state and territory governments as applicable.

**READ MORE ABOUT
THE BACKGROUND
AND CONTEXT OF
THESE RECOMMENDED
ACTIONS BY VISITING
THE LINK BELOW**



www.eec.org.au/policy-advocacy/projects/projects-overview#/Roadmap-for-Heat-Pump-Hot-Water-Systems-in-Australia-2024

