



RP2.3-04: Gasfitting practices for future fuels: Opportunities for training and upskilling in Victoria and South Australia

Numerous trials are currently being undertaken in Australia to test domestic household appliances with hydrogen and inject hydrogen into the natural gas supply for use in homes. The potential use of hydrogen as a future fuel in Australian households means that gasfitters working downstream of the meter on household (Type A) gas appliance installations, servicing, maintenance and conversion, are essential skilled practitioners. Hydrogen provides an opportunity for the long-term viability of the gasfitting trade in a low carbon energy future. However, despite the opportunity presented by the transition to a decarbonised gas, the required skills for gasfitters are largely absent from research on upskilling for hydrogen and government policies regarding green, clean or low carbon skills. As such, the skills and associated learning and training needs of domestic gasfitters in the transition to hydrogen have been the focus of this two-year study which sought to:

- Investigate the capacity of gasfitters to support a transition to hydrogen in Australian households in terms of numbers and existing skills;
- identify the emerging knowledge and skills required for gasfitters and potentially other trades in a transition to hydrogen in Australian households;
- assess the capacity of the existing training, certification, registration and licensing frameworks for gasfitters in Victoria and South Australia to deliver these skills for a successful transition to future fuels, and;
- identify barriers and drivers for gasfitters to undertake future training to work with hydrogen.

Research method

To address these aims, the research collected data on training and regulatory frameworks via a desktop review followed by interviews with VET sector and industry stakeholders about current training practices and future hydrogen training and upskilling. Sixty-seven interviews were undertaken with engineers, technicians and researchers working on hydrogen pilot projects (n=6), industry regulators (n=4), gasfitters (n=40), Vocation Education and Training (VET) sector trainers (n=11), and plumbing industry associations (n=6). A national survey of 1001 plumbers/gasfitters was then completed to determine training behaviours and ways to support training and upskilling for hydrogen. This was complimented by a review of training and associated regulatory frameworks in ten occupations outside of gasfitting to provide an understanding of how training and upskilling occurs in other occupations. The research results were presented in four interim reports and summarised in a 12-page final project report.

Hydrogen and the gasfitting trade

The skills requirements and training implications for gasfitters to work with hydrogen differ depending on the approach taken to transition away from natural gas. Three potential end use hydrogen scenarios were established based on existing research and industry and government plans. The implications of each scenario for gasfitting practice were identified. These scenarios are:

1. Low percentage hydrogen blend of up to 10 per cent in existing reticulated gas networks
2. 100 per cent hydrogen in reticulated networks
3. Home electrolyzers and fuel cells

The three scenarios have differing implications for the type of training or upskilling needed to adequately prepare gasfitters to work with hydrogen fuel. The first scenario has little impact on gasfitting practice and would be supported by information sessions or other awareness raising communications. The

second scenario would require those working with hydrogen to undergo formal, accredited training as part of initial training for those entering the trade or as part of an upskilling program for existing practitioners. The third scenario would require specific training/upskilling in areas traditionally outside of gasfitting. Multidisciplinary knowledge and skills requirements for working with electrolyzers/fuel cells may also necessitate upskilling in other trades.

Principles for hydrogen training and upskilling

The research developed a set of key principles that can be used to focus and guide decisions regarding hydrogen training and upskilling. Overall, the research results show that training and upskilling must be:

- *Coordinated*
- *Affordable and accessible*
- *Well informed and timely*
- *Well resourced*
- *Hands on*
- *Effectively communicated*
- *Supported by regulation*
- *Consistent*
- *Ongoing*

Further detail on each of these principles is presented in the project's Final Report.

Implications and Recommendations for industry

While the transition to hydrogen is being pursued by the gas industry and members of the Future Fuels CRC, much of the work regarding training and upskilling of gasfitters for domestic hydrogen work sits outside the industry in the training sector and associated government bodies. As such, while the gas industry is not responsible for updating training package materials or regulating or licensing domestic gasfitting work, it does have a key role to play to ensure there is adequate competency and capability within the domestic plumbing and gasfitting trade to support the roll out of hydrogen. As such, this research recommends that the gas industry take the following steps:

- Continue to develop standards and ensure that updates are communicated to relevant stakeholders such as RTOs, Industry Skills Councils and Skills Service Organisations (soon to be replaced by industry clusters) in the training sector.
- Maintain engagement in updates to the national training package to ensure they are progressing and assist in any coordination of stakeholders and knowledge sharing that is required.
- Provide regular communications about hydrogen trial projects and technologies to key stakeholders.
- Engage key stakeholders for input into any future training plans and initiatives.
- Support regulators, manufacturers and suppliers to provide ongoing information about hydrogen, associated technology and training opportunities to gasfitters.
- Communicate the research findings and principles outlined in Section 0 above to key relevant stakeholders in the gas industry and training sector.
- Maintain a 'watching brief' over trades training more generally to ensure that the gas sector's interests are front of mind for any changes that can impact gasfitter licensing or training requirements.

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