

Summary of feedback on the CPC Hydrogen Case for Change

The Construction, Plumbing and Services Industry Reference Committee (IRC) has put forward a Case for Change to the Australian Industry and Skills Committee (AISC) to develop 19 new units of hydrogen-based competency to support plumbing and gas technicians.

The Case for Change was consulted with a cross section of industry stakeholders and will be considered by the AISC 21 July 2021.

For information on the project, [visit the Hydrogen webpage](#).

Below is a summary of the industry feedback provided during the consultation phase.

Stakeholder Type	Feedback	Response to feedback
Peak Industry Bodies	The industry needs to have access to training requirements that support hydrogen activity downstream of the gas meter.	The IRC has supported the development of the Case for Change, which address the identified competency gaps.
Employers (Non-IRC)	The industry needs skilled/qualified workers that can support/service current hydrogen technologies (e.g., Green Energy Hydrogen Battery, Lavo).	The IRC has supported the development of the Case for Change to ensure unit development is approved by the AISC.

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Regulators	<p>No issues raised.</p> <p>The units should include Biofuels and Biogas. We expect a strong growth in the use of biofuel and biofuel appliances.</p> <p>The fuel cell stream should include an introductory module on fuel cells and electrolysers which explains the different types, e.g., PEM (Proton Exchange Membrane), Alkaline, Solid Oxide, etc. and how they work.</p> <p>Given our interest in Hazardous Chemicals safety, we would be keen to ensure the chemical and physical properties of Hydrogen are clearly and comprehensively communicated along with what can go wrong, emergency planning and response actions tailored to the various work activities and quantities involved or within the scope of the training.</p> <p>We also draw your attention to the development of various Australian Standards which should be considered where they are within the scope/relevance of the training. We would expect those sorts of</p>	<p>The IRC, SSO and Working Group considers the feedback regarding during unit development.</p>

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	<p>references/guidance to feed into future courses. The 5 standards being drafted are to include:</p> <p>Hydrogen (standards.org.au)</p> <ol style="list-style-type: none"> 1. Production, Handling and Storage 2. Pipeline and Gas Distribution Networks 3. End Use Utilisation 4. Fuel Cell Applications 5. Mobility Applications <p>In terms of the document reviewed, these competency units are broad and do not specify details as referred to above. The key information should be in the Standards. The following broad comments were made but no details to validate if they have been adequately covered. These should be considered and covered to the extent possible.</p> <ol style="list-style-type: none"> a. Hydrogen may be transported as liquid form and the engineering controls are different. For example, Production, Storage to Export (Liquid hydrogen (LH2) is the preferred transport mode) – LH2 pipework and plumbing has different requirements 	

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	<p>as it is a cryogenic liquid. Does cooling systems (including pipework) for this liquid hydrogen require a separate training module?</p> <p>b. Oxygen is also one of the products from electrolysis. There should be some recognition that it is classified as a HAZCHEM if contained. E.g., The discharge vent pipe outlet should not lead into a confined area (e.g., closed garage) where the oxygen gas can be accumulated. The training module should at least mention this hazard.</p> <p>c. There appears to be no training module dedicated to Hazardous Area Classification (HAC). There is one module on ventilation for Type A appliances. Ventilation and HAC is closely related and should be addressed not just to Type A but across Type B, LH2, FCS systems, where these risks are higher. E.g., Siting a hydrogen tank and plumbing under a service station canopy with non-intrinsically safe appliances such as lighting, music speakers, etc. A LOC will likely result in the ignition of the "lighter than air" hydrogen gas. The same applies for a domestic FCS</p>	

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	<p>if compressed gas instead of hydride storage is used.</p> <p>d. There appears to be no training modules dedicated to automatic shutdown system and detector system for larger H2 systems. These systems may not be fully applicable to the plumbing side but will definitely have an interface. For example, in LPG terminals, there are excess flow valves as one of the controls to prevent LOC. This may be applicable to LH2?</p>	
Registered Training Organisations (RTOs)	<p>RTO VIC</p> <hr/> <p>Competencies addressing current and emerging market demand relating to hydrogen needs to be developed.</p> <p>TAC member(s) for Hydrogen Gas and UEG package</p> <hr/> <p>The draft paper has proposed the writing of specific units for hydrogen appliances and associated work. Relevant existing units can</p>	<p>A Case for Change to address identified gaps is being developed. The Case is putting forward a framework that supports existing and emerging competency requirements.</p> <p>Type A and B units of competency native to the CPC Construction, Plumbing and Services Training Packages, were assessed to see whether they will support hydrogen. It was determined that including hydrogen to existing Type A and B competencies would not be fit for purposes.</p>

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	<p>be updated so that the skill sets for a gas fitter remains the same no matter what fuel is being used in the gas appliance.</p> <p>In my opinion the following units do not require development as there are existing units in the CPC package that can be updated to include Hydrogen requirements, and the core skills for hydrogen gas – in comparison to using natural gas or LP Gas – are the same:</p> <ul style="list-style-type: none"> • CPCHYD3002 Install and commission for hydrogen Type A appliances • CPCHYD3003 Maintain and service for hydrogen Type A appliances • CPCHYD3004 Disconnect and reconnect for hydrogen Type A appliances • CPCHYD3005 Calculate and install ventilation for hydrogen Type A appliances • CPCHYD3006 Install and commission for hydrogen Type B appliances • CPCHYD3007 Maintain and service for hydrogen Type B appliances 	<p>Plumbing or gas fitters working with hydrogen downstream of the gas meter will require new skills and knowledge (e.g., understanding pressure levels, how products are manufactured, joining techniques and/or threaded joints).</p> <p>The IRC, SSO and Working Group considers the feedback regarding during unit development.</p>

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	<ul style="list-style-type: none"> • CPCHYD3008 Disconnect and reconnect for hydrogen Type B appliances • CPCHYD3009 Safe termination of vent lines for hydrogen • CPCHYD3011 Commission and decommission hydrogen combustion systems • CPCHYD4001 Undertake purging • CPCHYD4002 Size and design consumer hydrogen systems • CPCHYD4004 Size and design flue systems for hydrogen appliances <p>The electrolyser units may not necessarily fall wholly into a gas fitters/plumbers space but I agree that some elements will, especially if more appliances like the “LAVO” unit which is in development come on to the market and therefore these may have standalone commissioning requirements which may be different to a conventional gas combustion appliance.</p> <p>I’m not sure if you are aware but the Gas IRC (Currently I am Acting chair) for the UEG</p>	

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	<p>training package have developed some hydrogen units that have been proposed by artibus.</p> <table border="1" data-bbox="866 464 1426 986"> <tr> <td data-bbox="866 464 1144 624">Proposed CPC unit</td> <td data-bbox="1149 464 1426 624">Equivalent UEG unit (submitted for endorsement)</td> </tr> <tr> <td data-bbox="866 627 1144 783">CPCHYD3001 Store and handle hydrogen</td> <td data-bbox="1149 627 1426 986" rowspan="2">UEGNSG982Y Apply safety practices, procedures, and compliance standards for working with hydrogen</td> </tr> <tr> <td data-bbox="866 786 1144 986">CPCHYD4005 Characteristic and chemistry of hydrogen</td> </tr> </table> <p>In regards to the proposed changes not affecting the existing qualifications, if they went ahead in their proposed format I do not agree that they would be equivalent due to the significant change and the addition of numerous new units of competence.</p>	Proposed CPC unit	Equivalent UEG unit (submitted for endorsement)	CPCHYD3001 Store and handle hydrogen	UEGNSG982Y Apply safety practices, procedures, and compliance standards for working with hydrogen	CPCHYD4005 Characteristic and chemistry of hydrogen	
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Training Boards/Other	No issues raised.	
State and Territory Training Authorities (STAs)	<p data-bbox="864 363 1429 395"><u>NSW STA</u></p> <p data-bbox="864 416 1429 488">The STA supports the Case with following commentary:</p> <ul data-bbox="864 509 1429 1118" style="list-style-type: none"> <li data-bbox="864 509 1429 719">• there needs to be a strong focus on developing qualified/skilled trainers and assessors to deliver the new skills, and consideration given as to how segments of the existing workforce can be retrained or upskilled to meet this need <li data-bbox="864 740 1429 987">• there is an element of crossover with the electrical industry, since working with hydrogen can often involve electrical components. For example, plumbers “Disconnect and reconnect Type A gas appliances” are required to hold an additional restricted electrical license <li data-bbox="864 1008 1429 1118">• consideration also needs to be given to retaining of the industry that refills gas cylinders, currently being LPG cylinders. <p data-bbox="864 1161 1429 1193"><u>VIC STA</u></p> <p data-bbox="864 1236 1429 1339">Thank you for your amendments and inclusions. The document would benefit from further editing before submitting to the AISC</p>	<p data-bbox="1456 363 2157 464">The IRC will ensure the feedback provided on upskilling the workforce is addressed through the development phase.</p> <p data-bbox="1456 485 2157 624">Regarding unit overlap/crossover, this has been addressed by the Working Group. The proposal that forms part of this Case has been developed to ensure there is no duplication of outcomes.</p> <p data-bbox="1456 756 2157 857">A response to the Victorian STA was provided addressing their concerns. The Case was amended to ensure these their concerns have been addressed.</p>

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	<p>(regarding the use of formally/formerly and metre/metre).</p> <p>The Victorian STA is able to support the Case for Change for CPC Hydrogen conditional on the confirmation that the newly developed units will be packaged into qualifications and presented to the AISC for endorsement as a major change.</p>	
Unions	No issues raised.	