



Appendix A:

AHC commentary on NHS v1 agreements and mapping to the AHC position paper

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NHS v1 #	Overall topic heading	NHS v1 agreement detail	AHC commentary	AHC paper topic discussion
1	An adaptive pathway to clean hydrogen growth	2.1 Support an adaptive approach to industry development that means Australia can be ready to move quickly to scale up as signs of large-scale markets emerge. A ‘review–revise-adapt’ feedback loop will support and refine actions as technology and markets change. This adaptive approach will focus on actions that remove market barriers, efficiently build supply and demand, and accelerate the global hydrogen cost-competitiveness of Australia’s hydrogen industry.	This is reasonable in principle, but this would be most effectively put into practice with plans and timely feedback mechanisms built into an overarching planning and implementation process. We have not seen this to date.	Chapter 2 Also Planning and coordination – 1.1
2	An adaptive pathway to clean hydrogen growth	2.2 Support an approach guided by four underpinning principles, namely to: <ul style="list-style-type: none"> • Take an adaptive and nationally coordinated approach to support industry development, including regular reviews • Prioritise regulatory consistency and a coordinated approach to project approvals • Support partnerships to activate the market • Put safety, environmental sustainability, and benefits to Australians at the forefront. 	Support, but this needs to be further supported by tangible planning and more transparent implementation.	Chapter 2 Also Planning and coordination – 1.1
3	An adaptive pathway to clean hydrogen growth	2.3 Support actions themed around seven areas: developing production capacity, supported by local demand; responsive regulation; international engagement; innovation and R&D; skills and workforce; community confidence; and national coordination.	This is again reasonable, and perhaps useful to set expectations in 2019. But we know more now: <ul style="list-style-type: none"> • Production capacity needs to be further clarified: more is required to connect with renewables build, water and workforce. • Responsive regulation does not mean much here. • International engagement is key but has lacked emphasis. • Innovation and R&D – if this is a priority then need much clearer priorities and leadership, including a clearer role for the Chief Scientist and CSIRO. 	Chapter 2 Also <ul style="list-style-type: none"> • Clarifying objectives – 2.1 • Priorities – 2.2 • Chapter 3 – International engagement

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			<ul style="list-style-type: none"> • Skills and workforce is now gaining traction but has been slow to move without government sponsorship and coordination. • There has been no tangible work on community confidence other than work AHC led. • National coordination requires a much stronger approach that brings together various political portfolios, data and analysis and a better Team Australia support of Austrade and DFAT. 	<ul style="list-style-type: none"> • Chapter 4 – Building the ecosystem
4	An adaptive pathway to clean hydrogen growth	2.4 Support a pathway for developing a local industry, initially by removing regulatory barriers to hydrogen use and encouraging it through policies to help early movers overcome investment barriers. Mandating use of hydrogen will require evidence that a net benefit to consumers will result, or there is a consumer willingness to pay where appropriate, and that industry can meet regulated requirements.	<p>Agree with the principle but on its own does not appear to acknowledge how much is with government to create the market.</p> <p>On the consumer front, government needs to be more explicit about who these end consumers can and should be. Ideally small consumers don't pay directly for hydrogen. However, as part of the overall transition some socialising of costs will be necessary – a much larger question then of what is the transition and who pays that government really needs to engage on.</p>	Chapter 2 Also Community engagement and acceptance – 4.3.2
5	Large-scale market activation	3.1 Agree that early actions will focus on developing clean hydrogen supply chains to service new and existing uses of hydrogen (such as for ammonia production) and developing capability for rapid industry scale-up.	Agree, but this has been underdeveloped. ARENA and CEFC have led the way but this is by necessity project based – we have lacked clear policy to date.	Funding and the financial system – 4.3.1
6	Large-scale market activation	3.2 Agree to consider the most appropriate support to scale up the industry and activate markets in light of global signals.	Far too high level and lacks commitment. We have been pleased to see the 2023 budget commitment via Hydrogen Headstart and look forward to the next stages.	Funding and the financial system – 4.3.1
7	Large-scale market activation	3.3 Agree that mandatory national targets would not be appropriate at this time but should be re-considered periodically as the market develops.	Reasonable for 2019 but needs to be amended now to provide direction to investors.	Funding and the financial system – 4.3.1

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8	Hubs and sector coupling	3.4 Support the hub model as a prospective early-stage approach to achieve the scale needed for a competitive industry.	The hubs were an important start but too slow. Value is perhaps more in experience gain than in enabling investment at scale. That requires a market mechanism with opex coverage.	Demand centres and regional development – 4.1
9	Hubs and sector coupling	3.5 Agree to consider each governments’ respective planning and funding timelines, and to the extent possible, harmonise funding application processes for hub projects.	Some states contributing to hub funding applications but it is not clear from the outside how coordinated and harmonised the process has been.	Demand centres and regional development – 4.2
10	Assessing our hydrogen infrastructure needs	3.6 Agree to complete an inaugural National Hydrogen Infrastructure Assessment by 2022 led and coordinated by the Commonwealth Government. The assessment will consider hydrogen supply chain needs such as electricity and gas networks, water supply networks, refuelling stations, roads, rail and ports, while taking into account local community concerns and priorities.	The NHIA release was extremely delayed. It is a useful benchmark and should be repeated, but must be more agile for next time.	Physical infrastructure – 4.2
11	Assessing our hydrogen infrastructure needs	3.7 Agree to review and update the Hydrogen Infrastructure Assessment at least every five years, to highlight priorities for future infrastructure needs for competitive hydrogen supply chains.	The assessments may need to be every two years, in which case an easier process would seem warranted.	Physical infrastructure – 4.2
12	Supporting research, pilots, trials and demonstrations along the supply chain	3.8 Agree that while other innovation priorities may emerge, the following areas should be priorities for research, pilot projects, trials, and demonstration projects: <ul style="list-style-type: none"> • Switching current industrial hydrogen users to clean hydrogen • Investigating new opportunities for clean hydrogen such as clean ammonia exports, clean fertiliser exports, industrial heating, iron ore processing and steel making • Using hydrogen in remote applications, such as in microgrids for mining and remote communities, in farming 	The list was useful at the time but there are too many applications to truly be ‘priorities’. It is also not clear how this agreement was to be delivered: by ARENA, CSIRO and/or jurisdictions? There is a need to upgrade this to prioritise particular project types and to clarify how it is delivered (and with what funding). Priorities from the NHS v1 list should be: - Switching current industrial hydrogen users to clean hydrogen	Priorities - 2.2 Also: <ul style="list-style-type: none"> • Funding and the financial system - 4.3.1 • RD&D - 4.3.5 • Chapter 5

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		<p>and marine applications, at remote defence facilities and as a fuel for heavy-duty mining vehicles</p> <ul style="list-style-type: none"> • Opportunities for backup power supply, such as for mobile phone towers, hospitals and other types of critical infrastructure • Enabling blending of hydrogen with natural gas and eventual use of 100% hydrogen in gas networks • Using hydrogen for transport, with a focus on heavy and long-range road transport, rail and shipping • Optimising hydrogen and electricity system interactions, such as through timing hydrogen production to match variable renewable generation and through use of hydrogen for storage and dispatchable generation • Testing and proving of technologies that reduce the cost of making, moving, storing and using hydrogen • Using water from sustainable sources, such as waste water or seawater for hydrogen production • Developing cross-sector linkages and deriving value from sector coupling. 	<ul style="list-style-type: none"> - Investigating new opportunities for clean hydrogen such as clean ammonia exports, clean fertiliser exports, industrial heating, iron ore processing and steel making - Using hydrogen for transport, with a focus on heavy and long-range road transport, rail and shipping - Testing and proving of technologies that reduce the cost of making, moving, storing and using hydrogen 	
13	Supporting research, pilots, trials and demonstrations along the supply chain	3.9 Support improved knowledge sharing from hydrogen-related projects, to help remove some of the information barriers the hydrogen industry faces and improve community awareness and rate of scale-up.	Improving knowledge sharing is vital but an action here needs better articulation and ownership.	Supply chains and connections - 4.3.4
14	Supporting research, pilots, trials and demonstrations along the supply chain	3.10 Agree to consider options to facilitate larger hydrogen projects through coordinating respective funding arrangements.	<p>Agreement is reasonable in principle but lacks decisiveness (e.g., “agree to consider”).</p> <p>Activity since 2019 has also not seen delivery of this agreement – there has been little coordination other than where states supported some hub funding applications. A lack of</p>	<p>Funding and the financial system – 4.3.1</p> <p>Supply chains and connections – 4.3.4</p>

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			coordination in funding opportunities has regularly been identified (by AHC members and others) as a major issue.	
15	Using clean hydrogen in Australian gas networks	<p>3.11 Support continuing pilots, trials and demonstrations of hydrogen in gas distribution networks, where distributors can satisfy relevant regulators that:</p> <ul style="list-style-type: none"> • The distribution network is comprised of materials confirmed to be safe and suitable for hydrogen blending • End user gas supply infrastructure (including installations and appliances) is safe and suitable for hydrogen blending • The distributor has adequate safety and training procedures in place • The effects of blending for gas network users of natural gas as chemical feedstock or for compressed natural gas have been considered and mitigated. 	Support was provided by ARENA and some jurisdictional governments, as well as funding to the Future Fuels CRC to assess most of these points. Work is ongoing.	Pipelines – 4.2.4
16	Using clean hydrogen in Australian gas networks	<p>3.12 Agree to complete a review by the end of 2020. The review would:</p> <ul style="list-style-type: none"> • Consider the application of the National Gas Law and relevant jurisdictional laws and regulations to hydrogen and advise the COAG Energy Council of recommended options to best address regulatory ambiguity, remove unnecessary regulatory barriers and improve the consistency of laws across jurisdictions. • Consider the economics of blending and of eventual use of 100% hydrogen in Australian gas networks. • Advise the COAG Energy Council recommend options for setting and allowing updates of upper limits on the volume of hydrogen allowed to be blended in gas networks. This will focus on keeping consumers safe, encouraging innovation and 	Changes to the law have been made to allow for hydrogen in pipelines/networks. Different jurisdictions have considered their policy, with some shifting away from hydrogen in the home in the long term and inconsistent approaches to blending. The NHIA and Net Zero Australia have demonstrated the importance of 100% transmission pipelines for hydrogen.	Pipelines – 4.2.4

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		effectively managing any appliance readiness end user and market effect issues.		
17	Using clean hydrogen in Australian gas networks	3.13 Agree to consider changes to gas networks and markets to allow widespread blending, and later sole use of hydrogen, where such changes: <ul style="list-style-type: none"> • Take place after the review at 3.12 and any actions that might arise from the review are completed • Carry acceptably low levels of safety risk • Are broadly supported by affected communities, and • Minimise impacts on gas prices and are in the long term interests of gas consumers. 	See above.	Pipelines – 4.2.4
18	Using clean hydrogen in Australian gas networks	3.14 Agree that, amongst other objectives, any government incentives to support the widespread blending of hydrogen in Australian gas distribution networks will: <ul style="list-style-type: none"> • Where appropriate, encourage blending to occur in a manner that supports the development of hydrogen hubs • Be consistent with the COAG Principles of Best Practice Regulation, in particular with respects to net benefits to consumers. 	See above – not clear how hubs are now relevant (or affected).	Pipelines – 4.2.4
19	Using clean hydrogen in Australian gas networks	3.15 Agree to not support the blending of hydrogen in existing gas transmission networks until such time as further evidence emerges that hydrogen embrittlement issues can be safely addressed. Options for setting and allowing for ongoing updates of safe limits for hydrogen blending in transmission networks will form part of the review in 2020.	Materials assessments being undertaken by the industry and FFCRC. Blending is not as big an issue as the 100% hydrogen transmission pipes needed for hydrogen in the future.	Pipelines – 4.2.4
20	Initial steps towards using hydrogen for transport	3.16 Agree to a shared vision of hydrogen being a clean, cost competitive fuel option for Australian land and marine	The prioritisation should now be more explicit.	Application priorities – 2.2.1

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		transport, in particular for heavy duty and long range transport applications.		
21	Initial steps towards using hydrogen for transport	3.17 Support an adaptive approach to building demand for hydrogen as a transport fuel. The initial focus will be on transport tasks that do not require an extensive network of refuelling stations and offers compelling performance and industry development advantages.	Unclear what was intended; possibly for back-to-base buses. There has not been sufficient government support in this area, and unclear what coordination has eventuated.	Heavy road transport – 5.1
22	Initial steps towards using hydrogen for transport	3.18 Support refuelling stations on major freight and passenger road corridors, to support greater range for hydrogen vehicles.	The states have pursued MOUs and some funding for the Hume Highway. The process is ongoing but requires greater support.	Refuelling – 4.2.7
23	Initial steps towards using hydrogen for transport	3.19 Agree to include fuel infrastructure priorities in the proposed National Hydrogen Infrastructure Assessment so Ministers can periodically reconsider the need for action and calibrate relevant support mechanisms.	Addressed.	Refuelling – 4.2.7
24	Initial steps towards using hydrogen for transport	3.20 Agree to consider opportunities for new vehicle technologies, including hydrogen vehicles, in government fleets and large government contracts.	Consideration may have occurred but this is not evident. A stronger commitment is preferable but we note the regional/state-based nature of these decisions.	Heavy road transport – 5.2
25	Initial steps towards using hydrogen for transport	3.21 Support consortium based approaches to building refuelling infrastructure, with industry contributing to associated costs to promote long-term commercial viability.	Agree with principle but not clear what support was considered if different from agreement 22. There is room for more risk sharing and government involvement.	Refuelling – 4.2.7
26	Initial steps towards using hydrogen for transport	3.22 Agree to promote open access to any government supported refuelling infrastructure, wherever practical.	Agree with principle and hope it is not necessary to continue to state explicitly.	Refuelling – 4.2.7
27	Responsive regulation	4.1 Agree for each jurisdiction to review its existing legislation, regulations and standards as needed to determine whether their respective legal frameworks can support hydrogen safety and hydrogen industry development.	Agree with approach but this has taken a long time. There was a need for an overarching framework, which has now been developed by the Australian Government in consultation with the jurisdictions – see response to 29. The next stage is to make the outcomes of the review public, or at least provide a form of gap analysis.	Regulation – 4.3.6

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28	Responsive regulation	4.2 Agree to consider the principles and prioritisation criteria set out in the preliminary legal review, and the legislation, regulations, and standards it identified when undertaking the reviews outlined in 4.1.	No longer relevant.	–
29	Responsive regulation	4.3 Agree to coordinate reviews of legal frameworks where practical, and work together to: <ul style="list-style-type: none"> • Support the development of standards for the hydrogen industry, including technical safety standards, noting the role of Standards Australia • Consider and evaluate regulatory models to address and support: <ul style="list-style-type: none"> – hydrogen safety, noting the role of SafeWork Australia and state-based safety agencies – hydrogen industry development with the aim of developing a nationally consistent approach as far as practicable <ul style="list-style-type: none"> • Where necessary, amend existing legislation and regulations or draft new legislation to address hydrogen safety and support hydrogen industry development. 	<p>The principle is sound but the jurisdictions have nonetheless ended up acting separately. We welcome the recently announced coordinated work on non-statutory codes of practice – this is an important step. However, it is about existing regulation and does not cover reform.</p> <p>With ongoing separate state consultations plus the federal consultation, we see consultation fatigue setting in. This is particularly problematic given the industry is pre-commercial and there are not generally specialist staff in industry who can commit to participating. There is a need for a much stronger commitment to coordination and harmonisation if industry is to provide meaningful contributions to the process.</p> <p>We also support the work of Standards Australia but note that standards developed are behind a paywall.</p> <p>As noted above, there is also no (public) gap analysis that can help direct attention and efforts to necessary regulatory reform, or to at least provide transparency to stakeholders on the work undertaken to date.</p>	Regulation – 4.3.6
30	Shared principles for nationally consistent regulation	4.4 Agree to seek national regulatory consistency for any new regulations associated with hydrogen, that follows the COAG Principles of Best Practice Regulation.	Consistency has already been implicitly covered above. There is no evidence of adherence or otherwise to the COAG Principles of Best Practice Regulation.	Regulation – 4.3.6
31	A coordinated approach to planning and regulatory approvals for hydrogen projects	4.5 Agree to develop and incorporate ‘hydrogen-ready’ capabilities into planning and regulatory approvals mechanisms where required.	<p>Unclear what, if anything, has occurred with this.</p> <p>‘Hydrogen ready’ definitions have been raised elsewhere – we are hearing concern from high temperature process businesses on this matter.</p>	Regulation - 4.3.6

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32	Integrating hydrogen into energy markets	4.6 Agree to ask energy market bodies to account for the possible effects of hydrogen industry growth in their planning and future reforms.	Agree but this is a basic principle and if it is to be of value it should establish responsibility and a means of accounting. Modify for current environment.	Energy - 4.2.2
33	Integrating hydrogen into energy markets	4.7 Agree to a future review, drawing on experience from pilot projects, trials and demonstrations, to consider options for energy market reforms to improve the integration of hydrogen into energy markets and to deliver additional benefits from hydrogen to consumers.	This needs to be better articulated to provide direction and ownership. It can also be more precise about the issues to be addressed, with storage standing out as a particularly important matter.	Energy - 4.2.2 Storage – 4.2.6 Electricity – 5.4
34	Integrating hydrogen into energy markets	4.8 Agree the review in 4.7 will be completed by 2024.	No evidence this has commenced. See response to 33.	–
35	Hydrogen’s role in secure and affordable energy supply	4.9 Agree to consider the role of hydrogen in supporting Australian energy security by 2025. Areas for consideration will include: <ul style="list-style-type: none"> • National Energy Security Assessments • Electricity, gas and liquid fuel emergency provisions • Mandatory reporting requirements, such as those under the Petroleum and Other Fuels Reporting Act 2017. 	This does not seem to have been addressed at all; however, energy security is also now a much more salient topic and so hydrogen has been rolled up into regional security discussions.	–
36	Hydrogen’s role in secure and affordable energy supply	4.10 Agree to monitor impacts of hydrogen on energy costs, and where necessary, consider the need for changes to energy affordability and consumer protection policies.	This has not happened, but it is also too soon. There is risk to rolling the cost of hydrogen into bills for essential services. Ideally, hydrogen for industry priorities becomes part of the larger supply chain and passed through as any input to a larger process would be, such as any other process improvement. For businesses who need to switch fuels for broader legislative and/or ESG reasons, this should be less about energy affordability via the lens of hydrogen and more about how government supports businesses more broadly, such as through grants and transition or concessional finance.	Community engagement and acceptance – 4.3.2

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37	Hydrogen's role in secure and affordable energy supply	4.11 Agree to not apply market constraints, such as domestic hydrogen reservations or price caps, at this time, but to revisit this stance periodically as the market develops.	<p>This is a challenging issue because it is arguably too soon to be talking about reservation policies for an energy source that no one uses yet, and where government co-funding is required to bring the clean/green hydrogen industry into existence. However, market commentary in recent months has also started to raise this as a concern, and it would seem that a government indication on likely reservation requirements is required sooner, rather than once an industry is established and major international contracts are locked in.</p> <p>Of course hydrogen is not naturally constrained in the same way as natural gas (for example) because it can be made in many more places (compared to the locations where fossil fuels are extracted) and with a theoretically endless supply of solar/wind energy and (desalinated) water. Constraints in the system are still possible though, as there is the need for infrastructure, workforce and equipment and this may be more limited.</p>	Regulation – 4.3.6
38	Certainty around taxation, excise and other fees or levies for hydrogen	4.12 Agree to continue with the revenue arrangements that now apply to hydrogen, with the option to review them in the future.	Unproblematic as a placeholder for the matter in 2019, because it was too early to design taxation/fees. Assuming this agreement is about future royalties, it is still too early – the industry remains dependent on subsidy instead.	Regulation - 4.3.6
39	Certainty around taxation, excise and other fees or levies for hydrogen	4.13 Agree to consult with industry and the community before making any changes to current revenue arrangements that are specific to hydrogen.	See above for 38. Unclear why this is a separate agreement.	Regulation – 4.3.6
40	Bilateral partnerships to build markets	4.14 Support development of bilateral agreements to indicate our commitment and capability as a hydrogen partner of choice and ensure arrangements meet our national interests.	Agree with principle and we have seen some progress here, with a range of partnerships and MoUs. However, Team Australia is not prevailing, even within the Australian Government. The fragmentation of ownership/management of	International engagement – 3

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			<p>relationships is frustrating our trading partners and confusing our message.</p> <p>Australia has also not contributed as much to these relationships as our partners, particularly in terms of effort and money.</p>	
41	Bilateral partnerships to build markets	4.15 Agree to work with bilateral partners to promote trade and investment in hydrogen, including advocating for Australian industries' engagement in the design of market settings that facilitate trade, long-term investment, regional price transparency, efficient market operation, and commitment to sharing industry knowledge and skills between partners.	Agree – see above.	International engagement – 3
42	Hydrogen certification	4.16 Agree that Australia will seek to play a lead role in the design and development of an international guarantee of origin scheme.	The Australian Government has led the way and this is on track.	Regulation – 4.3.6
43	Hydrogen certification	4.17 Agree that, as far as practicable, any Australian domestic scheme should build on or harmonise with international certification schemes.	As above.	Regulation – 4.3.6
44	Hydrogen certification	4.18 Agree to initially develop an international certification scheme that verifies and tracks: <ul style="list-style-type: none"> • Production technology • Carbon emissions associated with production (scope 1 and scope 2) • Production location. 	As above.	Regulation – 4.3.6
45	Hydrogen certification	4.19 Agree that in addition to the above, any subsequent expansion of an international certification scheme could include water consumption and other factors.	Work is continuing to extend the remit, but before we look at water (some way away) there is a need to address green gases and ammonia etc.	Regulation – 4.3.6

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46	Building community knowledge and engagement	5.1 Agree to develop a community education program to provide clear and accessible information about risks, benefits and safe use. The program will communicate the particular benefits hydrogen development can bring to regions as well as more general benefits such as economic growth, lower carbon emissions and reduced air pollution.	This was not adequately led or funded by the Australian or jurisdictional governments. However, it is arguable that it was too early anyway. In 2022 AHC undertook work on public communications – the content is now on the CSIRO website. It is not clear what is intended now.	Community engagement and acceptance – 4.3.2
47	Building community knowledge and engagement	5.2 Support best practice for community engagement and its use to build community awareness and ensure community engagement for large or significant projects.	A new model is required here. Given that much of the future community engagement is about renewables it makes sense to liaise closely with the electricity infrastructure processes. AHC and CEC are also exploring how we can work together to go beyond principles and into supporting delivery.	Community engagement and acceptance – 4.3.3
48	Responsible industry development	5.3 Support the development and implementation of a set of industry undertakings to guide the development of Australia’s hydrogen industry. This work will be led and designed by the Australian Hydrogen Council in collaboration with governments. It will specify appropriate principles to safeguard the community, communicate issues and engage with regulators.	As above. AHC did work with governments and stakeholders, and developed a set of principles for working in communities. We received views from key parties that the work overlapped too much with other similar undertakings, which is why we are seeking to develop the work with the CEC (whose charter was the original inspiration for the NHS v1 on agreement 48).	Community engagement and acceptance – 4.3.4
49	Skills and training for the hydrogen economy	5.4 Agree to develop nationally consistent training materials and guidelines for procedures to do with the production, handling, transport and use of hydrogen. The South Australian Government will work with agencies and industries from other states and territories to develop these guidelines and training materials and facilitate knowledge sharing on safe work practices.	This has not progressed significantly. A workforce assessment was initiated but was taken over by federal employment and skills department and did not meet needs. SA handed back responsibility to DCCEEW, and the work is now being progressed by NSW, leveraging outputs from SA Department of Industry, Innovation and Science hydrogen workforce taxonomy and model.	Workforce – 4.3.3
50	Skills and training for the hydrogen economy	5.5 Agree to ask the Australian Industry and Skills Committee to bring forward the hydrogen-related reviews and updates of training packages if Industry Reference Committees recognise an urgent need for this work be completed.	We understand the request to the chair of the AISC was not sent. PwC report was undertaken on behalf of Department of Employment and Workplace Relations and this left key questions unanswered. JSCs now set up as replacement for	Workforce – 4.3.3

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			ISCs. Three qualifications were revised in November 2021 to respond to the emerging hydrogen industry - Certificates II, III and IV in Gas Supply Industry Operations. Changes included: <ul style="list-style-type: none"> • Six new units of competency • 13 revised units of competency were revised for contextualisation to hydrogen and other gases • Three skill sets. 	
51	Skills and training for the hydrogen economy	5.6 Agree to work together with industry to ensure in the longer term (2025–2030): <ul style="list-style-type: none"> • Industry Reference Committees are reviewing, updating and developing units of competency and qualifications, as hydrogen becomes relevant to the training packages of more industry sectors • Clear pathways are established between hydrogen-related education and training and hydrogen-related employment, including recognition of prior learning and credit • Clear and accurate information is available to anyone interested in hydrogen-related education, training and careers. 	As above; limited work done.	Workforce – 4.3.3
52	Skills and training for the hydrogen economy	5.7 Agree that state and territory governments could consider a system of automatic mutual recognition across jurisdictions for hydrogen-related occupations under equivalent occupational licenses or registration.	As above, limited work done.	Workforce – 4.3.3
53	Hydrogen training for Australian emergency services	5.8 Agree to ask the Australian Industry and Skills Committee and Public Safety Industry Reference Committee to update training packages for hydrogen safety, including the Public Safety Training Package that contains training materials and guidelines for managing of emergencies. This training package will be updated by creating or importing hydrogen-related	APAC commissioned to do scoping study. Further money allocated to proceed with trial. DEWR has budget to develop training packages.	Workforce – 4.3.3

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		units, drawing on work by the International Association for Hydrogen Safety (HySafe) and the U.S. Center for Hydrogen Safety. To enable this process, COAG Energy Ministers will write to the Chair of the Skills Council, which directs the work of the Australian Industry and Skills Committee.		
54	Hydrogen training for regulators	5.9 Agree to review training and upskilling arrangements for regulators to ensure they have adequate understanding of hydrogen infrastructure, projects and technologies.	Members advise this remains a gap. Absence of regulatory standards needs to be resolved first, as this guides identification of competencies and training development.	Workforce – 4.3.3
55	National coordination	6.1 Agree that establishing Australia as a major player in a global hydrogen industry by 2030 requires all jurisdictions to work cooperatively towards this goal.	Need to see commitment. The 2030 timeframe also needs to be extended.	Planning and coordination – 1.1
56	National coordination	6.2 Recognise that jurisdictions will progress actions in line with their own priorities and areas of strategic advantage.	Unnecessary to state in 2023.	–
57	National coordination	6.3 Note that the Commonwealth will coordinate and publish an annual ‘State of Hydrogen’ report, informed by rigorous and objective technical advice.	State of Hydrogen requires more clarity on what it to achieve.	Clarifying objectives and accountability – 2.1