An Australian Government Initiative

Regional Development Australia

I L L A W A R R A

The Chair – National Hydrogen Strategy Review
The Department of Climate Change, Energy, the Environment and Water
GPO Box 3090, Canberra, ACT 2600

Via online submission

18 August 2023

Dear Madam / Sir,

National Hydrogen Strategy Review – Submission from RDA Illawarra

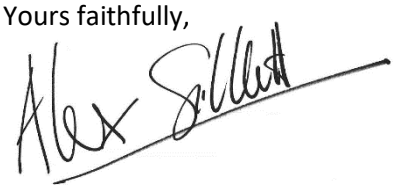
Thank you for the opportunity for comment on the National Hydrogen Strategy Review; our submission follows on six pages.

In summary, our comments focus on the following key themes:

- The need for speed in developing Australia's hydrogen industry. If we are to be world-leaders, we must rapidly develop our emerging hydrogen industry
- Recognition that a significant increase in power generation is required by the hydrogen industry, and that offshore wind will play a crucial role in delivering this
- Acknowledgement that a transition period may be needed, and this could require the commercialisation of early hydrogen production using power generated by fossil fuels
- It is crucial to link hydrogen production to 'green' power generation. Eventually all hydrogen will be generated using sustainable energy, and the need for power must be linked to hydrogen production
- Remain neutral on technology especially during the transition period when marriages of new and emerging technology may be required. Ultimately the market will decide best technology outcome
- Government support will be vital to support the emerging industry and its supply chains. Support will be needed in policy, regulation, training, research and commercialisation, and could include significant funding, incentives, tax breaks and partnerships.

The success of the hydrogen industry is of particular interest to the Illawarra region, which has immediate opportunity for the use of hydrogen in existing industrial processes, transport and heavy haulage. Please contact me if you have any questions or require further clarification.

Yours faithfully,



Alex Spillett,
Policy Manager, RDA Illawarra

PO Box 1152, WOLLONGONG NSW 2520
Phone: (02) 4258 3610 | Email: admin@rdaillawarra.com.au
ABN: 46 389 260 571

Q	RDA Illawarra Response	
1	**Question**:	**Is prioritising the decarbonisation of ammonia production the most prospective way to achieve both hydrogen industry growth and industrial decarbonisation in the short-term?**
	Response:	Given the quantum of current and pending investment in the production of ammonia and hydrogen chemical derivative products, focus on this industry sector would be warranted under a sector-specific strategy. There is an established and certain future market, which reduces risk for investors and provides considerable scale that will prove technology and reduce cost of production. The potential downside is that hydrogen production (and green energy generation) would be located proximate to ammonia-producing facilities, which may not be suitable or sub-optimal locations. Production costs for ammonia and hydrogen chemical derivative products could also increase during a transition period unless there is support for the industry and/or hydrogen producers to retain parity with the price of existing inputs.
2	**Question**:	**What other actions in the other sectors, will have the greatest decarbonisation impacts?**
	Response:	Transport, freight and easily transitioned industries. Whilst potentially unsuitable for passenger vehicles currently, the use of hydrogen to power buses, coaches, prime movers, trucks, forklifts already exists. A further benefit of this substitution will be the reduction in the number of diesel-fuelled vehicles on the road.
3	**Question**:	**What sectors are best placed to be early adopters of hydrogen?**
	Response:	Chemical manufacture, metals refining, transport, Defence
4	**Question**:	**Are there specific barriers that may limit hydrogen uptake in each of these sectors?**
	Response:	Cost, availability and the supply of 'green' energy to produce hydrogen
5	**Question**:	**What are the actions required to overcome those barriers and realise the opportunities?**
	Response:	The production of hydrogen needs to be coupled with the generation of green energy to support it. There also needs to be recognition of a transition phase during which hydrogen is produced using non-sustainable sources of energy (gas/coal) to rapidly gain economies of scale in hydrogen production. Whilst it would be optimal to deliver sufficient green power to produce all the hydrogen required, this seems unlikely to happen and speed is of the essence in developing our hydrogen industry. The Australian Government has recognised that the industry will need support to invest in new technology and to deliver production at scale that will deliver a cost-competitive outcome. The '**Hydrogen Headstart'** program is a good starting point but at $2.0B is dwarfed by the incentives being offered by other countries. In comparison the USA's Inflation Reduction Act is committing $369.0B in subsidies and tax incentives to the generation of green hydrogen (i.e. hydrolysers and the sustainable energy production to power them). This is equivalent to $1,100 per capita, against the Australian equivalent of $77 per capita. Further, targeted government support may be required.

Q	RDA Illawarra Response	
6	**Question**:	**Should Australian governments adopt a more sector driven approach to hydrogen industry development??**
	Response:	Perhaps not entirely sector-driven but there should be a recognition that some sectors have an immediate and on-going requirement for larger quantities of hydrogen as a fuel or a feedstock. Those are sectors that can deliver immediate economies of scale for potential hydrogen producers and those investing in green power generation – including solar arrays and off-shore wind. Certainty in off-take agreements reduces risk for investors.
7	**Question**:	**Should Australian governments adopt national hydrogen production and/or use targets for hydrogen?**
	Response:	Yes. This is in line with what other countries are doing and will assist in providing certainty for investment decisions.
8	**Question**:	**If targets are adopted, what type of activities and/or sectors should this target be tailored towards? For example, production targets, demand targets for sectors such as transport, renewable gas target. Please describe how such targets would attract investment**
	Response:	RDA Illawarra has no response to this question
9	**Question**:	**Should Australian governments use regulatory mandates to drive demand for hydrogen? If mandates were adopted, what type of activities and/or sectors could mandates be directed towards? Please describe how such mandates would attract investment.**
	Response:	No. Regulatory mandates could have a negative impact – especially in a market environment where the mandated product (hydrogen) has a higher price than the existing alternative. There is also a psychological factor; people don't like being told what to do but respond better to incentives and education. Mandates have the potential to set up an industry focussed on avoiding adoption of hydrogen – certainly until it achieves price parity with existing alternatives. Unfortunately, resistance to uptake makes this goal harder to achieve and longer to deliver.
10	**Question**:	**What are the most significant supply chain barriers being faced by Australia's hydrogen industry? Where should Australian governments focus efforts on securing elements of supply chains needed to enable the accelerated growth of the hydrogen sector?**
	Response:	Hydrolysers, compliant road transport vehicles, fuel cells, refuelling technology, offshore wind generation technology. Whilst we have world-leading technology in hydrolysers (Hysata), it needs to be commercialised at scale and in Australia – not overseas. This will need support, primarily from government and in the form of funding or other incentives. Similarly, hydrogen-powered freight vehicles must be imported from overseas to be cost effective, but do not comply with Australian Design Rules and require modification before use on our roads. Manufacture of compliant vehicles fitted with Australian built fuel cells would augment the existing supply chain. Including refuelling infrastructure in all towns and cities – as well as along the road network – will only assist uptake and develop new supply chains. Production of hydrogen is intrinsically linked to the generation of sustainable energy – in heroic quantities. Whilst the development of an offshore wind supply chain has probably passed us by, transmission and storage (lithium / sodium batteries) capability are other parts of the supply chain where Australia has the raw material and capability to excel.

Q	RDA Illawarra Response	
		Finally, skills development is a supply chain that cannot be ignored. The emergence of sustainable energy (wind/solar/gravity/bio/other) and hydrolysis will require new knowledge and skills to operate and maintain equipment or processes. Australia needs to begin training this future workforce – or obtaining the skills from overseas. Review of training requirements and skilled migrant intake occupations is warranted.
11	**Question**:	**Should Australia develop and support local manufacturing capabilities to secure the hydrogen supply chain? What are the specific areas of opportunity (e.g. fuel cell or electrolyser manufacturing or hydrogen transportation related manufacturing)?**
	Response:	As for Q 10: Hydrolysers, compliant road transport vehicles, fuel cells, refuelling technology, offshore wind generation technology, electricity transmission and storage. These are specific areas of opportunity for Australia where we have the capability to be world-leaders.
12	**Question**:	**What are the barriers to developing and supporting local manufacturing capabilities?**
	Response:	Underfunding, skilled labour availability, (lack of, or too much) regulation, global competition and political uncertainty. Australia is part of the global marketplace and will be competing with many others to develop supply chains for these new industries; starting early, embedding logistics and gaining economy through scale are critical. Development of supply chains will require investment – and especially for the establishment of new supply chains required for emerging industries (hydrolyser, offshore wind). This will need to be public or private investment and where the support comes from will be determined by the risk profile. The private sector may perceive that a change in Federal (or State) government – or a hung parliament – could see a change or reversal of direction and a move back to fossil fuels, or a removal/reduction in government support. Similarly, there may be a perception that yet-to-be-enacted regulation (say, in offshore wind) presents a risk and therefore a deterrent to investment – especially where two (or three) levels of government are involved in its creation and implementation. Finally, there is a lack of skilled labour available to design, build, operate and maintain the local supply chains – an issue that is increasingly clear and beginning to delay investment decisions. These factors, and others, act as a deterrent to private investors unless the rewards are substantial; leaving public money as the alternative funding source to 'kick-start' local supply chain activity.
13	**Question**:	**What is the role of industry and governments to ensure the hydrogen industry has access to an appropriately sized and skilled workforce?**
	Response:	Lack of a skilled workforce is critical to the development of local supply chains, and to investment in local projects. Industry (including peak bodies) and government both have a role to play: **Industry** – identify and communicate the skills needed now and in the foreseeable future (5-10 years) and the location where they will be required **Government** – support the development of training and education required to deliver the skills, at o near the location they are needed. This will require targeted investment in TAFE/VET and universities (including postgraduate and research). Both state and federal governments have a responsibility in this regard.
14	**Question**:	**In addition to electrolysers, where do you see a role for domestic hydrogen related manufacturing to address supply chain risks and ensure Australia meets its decarbonisation targets such as hydrogen buses/heavy vehicles**
	Response:	The development of manufacturing capability for buses and heavy vehicles that are compliant with Australian Design Rules.

Q	RDA Illawarra Response	
		Similarly, the development of fuel cells that replace existing petrol/diesel motors in cars/buses/trucks could be a key part of the supply chain over the next 20years and support or accelerate the transition to hydrogen vehicles. The local production of lithium batteries is another area for the development of a local supply chain that would address supply chain risk, as is the manufacture of solar panels.
15	**Question**:	**What in addition to the commercial cost gap is preventing Australian hydrogen projects progressing beyond a financial investment decision?**
	Response:	In addition to the responses in Question 10, investment by overseas governments (esp. USA) is significantly higher than that available in Australia (see also response to Question 5). Investment will be made where the best returns are available – and that is currently not in Australia. We are also behind other countries in the development of legislation and implementation. For example, investment in offshore wind is dependent on a (potentially lengthy) process of developing new legislation (involving federal and state governments), further research on potential locations, community engagement and education. The UK and EU have resolved these issues and commercial offshore wind has been their reality for nearly two decades.
16	**Question**:	**What signals are effective overseas and can apply to unlock greater investment?**
	Response:	The Inflation Reduction Act in the USA is an example of what can be done but represents a considerable amount of government support. However, it supports the development of both hydrogen AND the sustainable (green) energy required to produce it. Significant tax benefits and supplements are available for over a decade to early movers – thus incentivising early investment. Other overseas governments have introduced production or usage targets – or both.
17	**Question**:	**Are there any other measures needed to unlock investment in the development of the Australian hydrogen industry including from international and Australian institutional investors?**
	Response:	As above, it's about having the right policy settings (preferably with bi-partisan support), fast-tracking legislation and developing an attractive support package that will give investors the opportunity to consider Australia as a 'location of choice'.
18	**Question**:	**When would it be appropriate to take a 'tech neutral' approach to developing hydrogen, and when would a more directed approach be warranted?**
	Response:	Ultimately the market will decide on which technology is 'best' and a tech-neutral stance will provide the environment for research into a variety of technologies, rather than just choosing one. This is especially so during the transition phase where marriages of existing and new technology (e.g. hydrogen produced using fossil-fuel generated power) may be necessary to build scale in early stages. Ultimately, production of hydrogen using green power will be the norm, and the optimal method to do this will emerge.

Q	RDA Illawarra Response	
19	**Question**:	**What further regulatory work is required as we accelerate the development of the hydrogen industry? What barriers do you currently see?**
	Response:	It is clear the offshore wind will play a key role in delivering the amount of power required for the future hydrogen industry. Completion and implementation of laws and regulation for the offshore wind industry is urgent and crucial. Australia lags the world leaders in this regard but has several overseas models that could be quickly adopted/adapted to our needs.
20	**Question**:	**What actions do you view as being critical to build and maintain community support for Australia's developing hydrogen industry?**
	Response:	Develop community support for offshore wind is critical, and further onshore wind as well as local solar arrays. Without this source of 'green' power generation, a viable hydrogen industry will not be possible.
21	**Question**:	**How should the interests of the emerging hydrogen industry with respect to water security be balanced with other users?**
	Response:	RDA Illawarra has no response to this question
22	**Question**:	**How else can Australian governments ensure that First Nations communities are resourced to effectively participate, benefit and be empowered by the development of the hydrogen industry?**
	Response:	RDA Illawarra has no response to this question
23	**Question**:	**Is there more information that First Australians would like to receive about the renewable energy and hydrogen sector? What information should be provided?**
	Response:	RDA Illawarra has no response to this question
24	**Question**:	**What regulatory barriers will become more prominent as we accelerate the development of the hydrogen industry?**
	Response:	It is clear the offshore wind will play a key role in delivering the amount of power required for the future hydrogen industry. Completion and implementation of laws and regulation for the offshore wind industry is urgent and crucial. Australia lags the world leaders in this regard but has several overseas models that could be quickly adopted/adapted to our needs. The use of hydrogen as a fuel will need to be regulated and it may be that it is unsuitable for residential use, leading to the need for further regulation and ultimately a switch by residents to wholly electric homes.
25	**Question**:	**What market conditions would indicate the need for a hydrogen reserve, price cap or other fuel security measures?**
	Response:	RDA Illawarra has no response to this question
26	**Question**:	**How can Government/s ensure that the early strong investment in sector transitions to government revenue as the sector matures?**
	Response:	RDA Illawarra has no response to this question

Q	RDA Illawarra Response	
27	**Question**:	**How can the next infrastructure assessment be delivered to maximise the value to governments and industry?**
	Response:	RDA Illawarra has no response to this question
28	**Question**:	**How can Australian governments ensure the efficient use of existing infrastructure, and delivery of new infrastructure, including common user infrastructure?**
	Response:	RDA Illawarra has no response to this question
29	**Question**:	**How should the infrastructure needs of the hydrogen industry be balanced with other infrastructure users including electricity generators?**
	Response:	RDA Illawarra has no response to this question
30	**Question**:	**What are the trade-offs (or synergies) of developing a hydrogen industry with other government goals?**
	Response:	Clearly there are synergies between developing the hydrogen industry and the government's environmental 'Net Zero' goal. However, it is increasingly clear that development of the hydrogen industry in a timely manner and where Australia can be a world-leader will require significant government support. This comes at a time where national debt levels are at historic highs and there are many calls on the public purse: housing; aged and disability support; healthcare; defence. Further financial support for the hydrogen industry will require some trade-offs.
31	**Question**:	**How can existing gas infrastructure be repurposed to address priority use cases for hydrogen?**
	Response:	RDA Illawarra has no response to this question
32	**Question**:	**How can agreements with other nations best support Australia's hydrogen industry?**
	Response:	Providing certainty in demand (even for export) is an incentive for investment but must be carefully managed to ensure domestic demands are met.
33	**Question**:	**How should Australia ensure that the necessary foreign investment in hydrogen industry, and export projects leads to lasting benefits for all Australians?**
	Response:	RDA Illawarra has no response to this question
34	**Question**:	**What other issues should Australian governments consider in relation to revising the National Hydrogen Strategy?**
	Response:	RDA Illawarra has no response to this question