

National Hydrogen Strategy Taskforce
Department of Industry, Innovation & Science
Industry House
10 Binara St
CANBERRA ACT 2600

25th July 2019

Submitted online via

<https://consult.industry.gov.au/national-hydrogen-strategy-taskforce/national-hydrogen-strategy-issues-papers/consultation/>

Dear Sir/Madam,

National Hydrogen Strategy Issues Papers

The Australian Energy Council (the “**Energy Council**”) welcomes the opportunity to make a submission in response to the COAG Energy Council’s *National Hydrogen Strategy Issues Papers*.

The Energy Council is the industry body representing 23 electricity and downstream natural gas businesses operating in the competitive wholesale and retail energy markets. These businesses collectively generate the overwhelming majority of electricity in Australia, sell gas and electricity to over ten million homes and businesses, and are major investors in renewable energy generation.

Discussion

The Energy Council supports the development of a National Hydrogen Strategy. Coupled with excess renewable energy, it offers an opportunity for the development of a new Australian industry which can have success in export markets, and also fulfil needs in the domestic economy. The topics explored by the Issues Papers confirm that there are opportunities which would benefit from government assistance, but it will need careful management to ensure that “assistance” does not become “incentives”, which interfere with markets, jeopardising competition and compromising other technologies.

One of the most important ways by which Government could facilitate the hydrogen industry would be to ensure that the different origins of hydrogen are well-defined and companies using labels of origin are appropriately accredited, whether this be via government agency or industry code of practice. It would be helpful if these certifications aligned with overseas practices, to ensure that hydrogen produced in Australia is readily able to be traded, and quicker to come to market.

Following on from this, the power of government lies in its ability to provide a stable regulatory regime which encourages competitive behaviour, provides a framework for free trading, and fosters efficiencies such as the sharing of infrastructure using open access regimes. In addition, government is able to ensure frameworks complement related markets, e.g. hydrogen and electricity.

Support for industries in their infancy, coupled with obligations to share the findings of pilot projects is another important benefit of government participation. Agencies such as the Australian Renewable Energy Agency (“**ARENA**”) make a valuable addition to industry development, and the Energy Council encourages hydrogen industry development using this or similar vehicles.

However this support should not be so strong that it incentivises hydrogen industry development to the detriment of other markets. For example, Issues Paper 6 states, “With appropriate market incentives, it can also strengthen the energy security and reliability of electricity systems and diversify fuel supply options for transport” [emphasis added].¹ The Energy Council strongly believes that the use of such incentives should be limited to ensure that hydrogen participates on a technologically-neutral equal footing to other fuels and technologies, to supply the needs of the nation’s electricity systems. On this basis measures such as feed-in

¹ Issues Paper 6, p.2

tariffs,² which are an impost on buyers and ultimately increase the cost to consumers, are not supported due to their distortionary effects. Instead decisions on initiatives such as hydrogen blending in gas networks should be made by the project proponents using rational economic analysis of the costs of doing so, against the tangible benefits to be obtained, taking into account the risks of the enterprise and the proponents' individual risk appetites.

Making rational decisions in this way is especially important with fledgling technology such as hydrogen blending. As Issues Paper 6 sets out, there are significant reservations regarding the introduction of hydrogen into gas transmission systems,³ and important infrastructure such as gas turbines may not be able to accommodate increased hydrogen proportions readily.⁴ It would be particularly helpful if government could support the research necessary to determine whether hydrogen blending in natural gas transmission systems would be technically viable or not.

Hydrogen could potentially be very valuable by complementing existing arrangements in the electricity market, and developing new ones. The market is undergoing a significant transition from majority conventional generation to variable renewable energy generation, at the same time as significant market rules are changing (e.g. five minute settlement) and market designs are being reviewed.⁵

That said, the Energy Council believes that hydrogen industry infrastructure, such as electrolysers, will be able to work with existing electricity market arrangements and be valued according to their ability to contribute to optimum market outcomes, compared with other competitive sources of demand response, such as industrial loads. For example, retailers already work with price-responsive customers to successfully optimise their consumption in the market. It is therefore unnecessary to provide additional incentives for hydrogen electrolysers, since it is able to complement other technologies efficiently under existing frameworks, and will be able to contribute further under the proposed wholesale demand response rule change.⁶

To facilitate this participation, it is important for electrolysers to be integrated with the electricity market and the power system. The suggestion that "purpose-built networks may be developed to serve large electrolysers with no direct interaction with current electricity systems"⁷ will fail to take advantage of such synergies, and hamper the development of efficiency between the different markets.

This integration with electricity means that issues of location need consideration. As Issues Paper 7 points out,⁸ the electricity system provides economic signals in the form of connection costs and marginal loss factors. The paper goes on to suggest that these signals "may be inadequate to provide optimal locations from a whole-of-system perspective in the scaling up of hydrogen production",⁹ alleging this is due to "quite static cost signals".

The Energy Council disagrees with this perspective. As it wrote in its submission to the *Transmission Loss Factors Rule Change Consultation Paper*,¹⁰ while static loss factors are inaccurate in the short-term, they provide reasonably accurate locational signals over the long-term as they are weighted against actual consumption or production. Furthermore, there is sufficient information available via AEMO for prospective hydrogen electrolysers to assess their ability to integrate with the power system, and make a balanced decision taking into account other locational factors such as the cost and availability of fuel, land, transport and a skilled workforce.

² *ibid.*, p.10

³ p.3

⁴ *ibid.*, Figure 1

⁵ See <http://www.coagenergycouncil.gov.au/publications/post-2025-market-design-national-electricity-market-nem> and <https://www.aemc.gov.au/market-reviews-advice/coordination-generation-and-transmission-investment-implementation-access-and>

⁶ See <https://www.aemc.gov.au/rule-changes/wholesale-demand-response-mechanism>

⁷ Issues Paper 7, p.6

⁸ p.5

⁹ *ibid.*

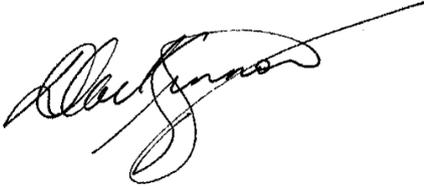
¹⁰ Available at <https://www.aemc.gov.au/rule-changes/transmission-loss-factors>

Conclusion

In conclusion, the Energy Council urges the COAG Energy Council to support the development of a hydrogen industry in Australia in a way which complements existing gas and electricity market frameworks, and limits support to a level which does not distort markets.

Any questions about this submission should be addressed to the writer, by e-mail to Duncan.MacKinnon@energycouncil.com.au or by telephone on (03) 9205 3103.

Yours faithfully,

A handwritten signature in black ink, appearing to read 'Duncan MacKinnon', with a long horizontal line extending from the end of the signature.

Duncan MacKinnon
Wholesale Policy Manager
Australian Energy Council