



Sustainable Energy Now Inc.
PO Box 341
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9 November 2022

EPWA

Via email EPWA-info@dmirs.wa.gov.au

**Renewable Hydrogen Target – stakeholder feedback
Submission from Sustainable Energy Now Inc (SEN)**

Dear Sir or Madam,

SEN has elected not to use the template to provide feedback as we do not support the Renewable Hydrogen Target policy. The feedback provided below refers to the policy as a whole (refer <https://www.wa.gov.au/government/document-collections/renewable-hydrogen-target-western-australia>).

Whilst we acknowledge the efforts the state government is undertaking to decarbonise the economy; we think there are better options. These options and the shortcomings with the proposed renewable hydrogen target are outlined below.

SEN remains committed to working with the state government on emissions reduction initiatives and policy development.

- A. SEN does not agree with the policy of setting a renewal hydrogen target for the electricity sector because there is little economic or technical justification for it. Energy is best delivered by electrons not molecules – burning hydrogen does not make economic, engineering, social or political sense in most cases.
- B. The government has not made a case for setting the target - it simply states that it is necessary to support a potential hydrogen industry. That is not enough. There is no analysis of cost and benefit, nor any description of how the target will support the industry. It is imposing costs on the electricity system at a time when we need to be managing costs to assist the rapid transition to renewables.
- C. With this exercise the government is not focused on the core issue of transitioning the SWIS to the best renewable system for providing secure, clean and affordable electricity to Western Australians.
- D. SEN sees hydrogen primarily as a feedstock and not as an energy carrier, when compared to viable alternatives such as electrification and energy storage in other

- forms such as batteries, pumped hydro, compressed air etc. Hydrogen as an energy carrier may have niche application – see Point N below.
- E. Setting targets for hydrogen is ‘picking winners’. Emissions reduction targets and decarbonisation could be better achieved in other ways – e.g., setting renewable energy targets, putting a price on carbon, setting real emissions targets (the Safeguard Mechanism is considered to be largely ineffective, setting interim targets towards 2050) etc.
 - F. Introduction of a renewable hydrogen target will further increase electricity costs for all users for no tangible benefit to the majority of users.
 - G. Hydrogen is not required to decarbonise the electricity sector (see South Australia and the experience from other jurisdictions). This can be done via renewables, transmission, storage (short and more effective long duration).
 - H. Hydrogen could be a potential contender for long term energy storage, but so could a range of options (see point D)– promoting hydrogen as a solution when various other options are feasible is not effective policy development.
 - I. The risk of developing a hydrogen industry should be borne by the proponents not the domestic electricity market and imposing costs on all users (it is neither economic, sensible or advisable from a socio-political perspective).
 - J. If the WA State Government is keen to stimulate a hydrogen industry whilst reducing emissions, why not look at decarbonising the current local black hydrogen market - e.g., the Pilbara Yara plant. Renewable hydrogen could be used to displace current black hydrogen generated by Steam Methane Reforming that is used as a feedstock for fertilizers, explosives etc. Generally, hydrogen is made and consumed locally as present. Seek to use renewable hydrogen to displace black hydrogen as a petrochemical feedstock and not beyond its logical use case.
 - K. Storing, shipping and transporting hydrogen is very inefficient and expensive - even as a derivative such as ammonia. Existing gas pipelines cannot be used ‘as is’. The business case is not clear.
 - L. It is unclear how renewable hydrogen or ammonia could be practical for the SWIS given the geographical distribution of the gas generation assets, the conversion costs / practicality, age of the assets, investment and ROI. Only small amounts of hydrogen can be blended into the existing gas network. Blended hydrogen also affects all users. Distribution by other means are equally impractical.
 - M. It is also not clear how the renewable hydrogen would be generated - direct from VRE via a private network or connected to the SWIS grid. In either case there are temporal challenges (e.g., until the SWIS is ~100% renewable then diverting VRE to

- produce hydrogen to reduce emissions via electricity generation can more easily achieve that objective by displacing fossil fuel from the SWIS).
- N. There is a potential small niche energy market for hydrogen (as ammonia or other forms) in long-distance remote transport: powering large ships over long distances; rail freight; road train transport. If successful, this would become a highly competitive market similar to the current refinery industry with production centralised in lower cost countries.
 - O. Australia is better placed to pursue policies to enhance our natural competitive position - e.g., value add to minerals export through the use of cheap renewable energy to produce green hydrogen and value add other natural resources (e.g., green steel, green aluminium, finished batteries, even green fertilizer).
 - P. SEN's view is consistent with Michael Liebreich's Keynote Speech at World Hydrogen Congress 2022 see <https://vimeo.com/761934482>. He like a number of others see hydrogen as a bubble.
 - Q. Hydrogen as an energy carrier is facing headwinds from well credentialed independent thinkers around the world - see <https://h2sciencecoalition.com/> as one example
 - R. The WA State Government should spend its time, efforts and limited resources in building the common infrastructure (the transmission and distribution network) needed to support the clean energy transition and radically reforming the regulatory regime around electricity.
 - S. Depending on the level of interest from investors, develop strategic industrial areas to allow private investors to build new green industries – renewable hydrogen is but one of many.
 - T. If there is a market for renewable hydrogen and its derivatives (e.g., ammonia) then private enterprises are best placed to develop this and manage the risk. The state can provide common infrastructure in terms of transmission and connections.
 - U. There is a tempting narrative that says renewable hydrogen could be generated from excess renewable energy and then stored for later use in the existing WA gas turbine / gas engine fleet (Long Duration Energy Storage / Reserve Capacity Mechanism) as part of a deep decarbonisation phase. Given the technical difficulties associated with the engine conversion, the cost of producing, storing and transporting renewable hydrogen and the need for investors to make a return, the duration of the decarbonisation transition period and current and future technology developments, SEN does not believe this is a viable option given the wider context and alternatives to achieve emissions reduction.

- V. Our anecdotal information is that existing gas generators may not be suitable for conversion to hydrogen fuel. If new, purpose-built generators are being considered then CAPEX will be higher.
- W. Electrification of all industry sectors (powered by renewable energy - wind/ solar / batteries) would deliver much greater emissions reduction more quickly and easily than trying to use renewable hydrogen in power generation.
- X. Hydrogen electrolyzers would create large loads – energy that would be better spent decarbonising other sectors earlier and to greater effects from an emissions reduction and capital utilisation perspectives
- Y. Perhaps the problem that hydrogen is proposed to solve needs to be reframed and other options considered. the desired outcomes are to reduce emissions across the state whilst making best use of the state’s limited resources. This could lead to developing more appropriate strategies.

Better policy options include industry electrification and an all of industry coordination (e.g., system planning, system operation etc), transmission infrastructure, storage infrastructure, rewiring the nation – home and small business – grants and incentives for electrification, battery storage, VPPs, BEV integration, two- way power flows etc

SEN suggest that EPWA changes policy direction - set a renewable energy target, communicate the policy clearly, build the infrastructure to increase private investor confidence, reduce the cost of capital and reduce overall investor risk. Investors will then build the required amount of generation and storage capacity required.

We look forward to the opportunity to discuss our feedback with EPWA and other state agencies,

Yours faithfully,



Fraser Maywood
Chair
Sustainable Energy Now Inc

Position endorsed by the SEN Committee on 7th November 2022 via circular resolution