



10 November 2022

**Mr Jai Thomas
Coordinator of Energy
Energy Policy WA**

Submitted via the EPWA website

Dear Mr Thomas

Renewable Hydrogen Target for electricity generation in the South-West Interconnected System

A proud Australian company with balance sheet strength, Fortescue Metals Group (**Fortescue**) is a global leader in large-scale, ultra-efficient and highly complex developments with a proven track record in developing and operating assets in remote and isolated locations. Fortescue has a strong focus on decarbonisation, evidenced by its industry leading target to achieve real-zero carbon emissions across our mining operations by 2030.

Through its subsidiary, Fortescue Future Industries (**FFI**), we are establishing a global portfolio of renewable energy, green hydrogen production and manufacturing projects and operations that will position us at the forefront of the global green hydrogen industry. Fortescue has [recently announced](#) a world leading heavy industry decarbonisation strategy and investment plan, aiming to eliminate fossil fuel use and achieve real zero terrestrial emissions (Scope 1 and 2) across its iron ore operations by 2030. This investment plan will eliminate Fortescue's fossil fuel risk profile by deploying an additional 2-3 GW of renewable energy generation and battery storage for its mining infrastructure assets and will supply green hydrogen and green ammonia to its mining fleet and equipment assets. It will also enable Fortescue to supply its customers with a carbon-free iron ore product. Renewable energy and hydrogen project investments in Western Australia (**WA**) are critical to achieving this target.

FFI welcomes the opportunity to provide comment on the *Renewable Hydrogen Target for Electricity Generation in the South-West Interconnected System (SWIS) Consultation Paper (the paper)*. FFI strongly supports the WA Government's intent to stimulate domestic demand for green hydrogen that will in turn support the development of larger scale export projects across the State. Green hydrogen is a nascent global industry, to which WA has unique competitive advantages in renewable resource, gas industry experience and land availability, facilitating the scale and cost reductions across both domestic and export scale opportunities.

FFI continues to experience strong demand for the supply of future cargoes of green hydrogen and its derivatives from overseas energy markets. The geographic position of WA lends itself advantages for supply to Asia and potentially Europe, like the LNG industry experiences.



To seize this massive economic opportunity for the State, the WA Government must incentivise investment and scale as fast as possible, to ensure we do not fall behind other markets (including other Australian states). FFI believe that supporting policy mechanisms, such as this target proposed for the SWIS, should consider this export scale context and be designed to appropriately incentivise scale required to achieve this goal. To establish an export scale green hydrogen industry in WA sooner, Government policy must be appropriately developed to be successful.

The paper notes that the priority objective for the Scheme is to “*create a source of demand for renewable hydrogen produced in Western Australia, acting as a catalyst for broader industry development*”¹. A SWIS electricity generation target is one policy mechanism that can contribute to this objective. However, FFI suggests a broader approach to the Scheme which is ‘use-agnostic’ is considered to allow industry to efficiently manage the creation and use case for green hydrogen.

While electricity generation from green hydrogen has several applications such as deep seasonal storages, peaking generation, and off-grid electricity generation such as mobile power, the additional costs associated with the round-trip efficiency losses mean that each use case must be considered carefully. Mandating the use of hydrogen fired generation on the SWIS would support green hydrogen demand stimulation, but could lead to inefficient uses of hydrogen, especially on a network that is in the early stages of the renewable energy transition.

It is FFI’s view that expanding the Scheme, an option proposed in the paper, to a use-agnostic approach to green hydrogen applications, would allow for much greater flexibility and likely result in more efficient use of the product. The framework of the policy, aligned to a Renewable Energy Target style certification, is sound and well understood within the market. Similar policies are currently being adopted elsewhere in Australia to support the green hydrogen market, such as the New South Wales Renewable Fuel Scheme.

A use-agnostic Scheme would also unlock opportunities to broaden the liability to surrender certificates to a broader consumer base outside electricity consumers, for example gas retailers. This could also support a higher green hydrogen target, as the SWIS Scheme is likely to have power system and cost constraints that limit its growth over time.

An expanded Scheme, without broader limits on the use-case for green hydrogen, would better align with how the renewable energy and mining industry are approaching green hydrogen developments. Fortescue is approaching the technical elements of decarbonising our operations with efficient use of renewable energy as a key priority. This ensures we use green hydrogen for applications that best suit the use of a molecular fuel. A hydrogen target should incentivise and support these considerations.

Broadening the use case to encourage more efficient green hydrogen uses, extending the liability to a broader base of consumers and lifting the ambition built into the target would see a significant

¹ Energy Policy WA, *Renewable Hydrogen Target for Electricity Generation in the SWIS – Consultation*, October 2022, Available at https://www.wa.gov.au/system/files/2022-10/EPWA-Renewable%20Hydrogen%20Target%20for%20Electricity%20Generation%20in%20the%20SWIS-Consultation%20Paper_0.pdf



increase in the demand for green hydrogen, in turn supporting a much more diverse range of projects through WA and developing a larger and more competitive green hydrogen industry sooner.

We assume that if the Scheme is expanded, the electricity generation target could remain as a foundational pillar of the policy. The following section of our submission provides comments about the implementation of a renewable hydrogen target for the SWIS.

Green Hydrogen Fuelled Electricity Generation

Despite the efficiency concerns surrounding hydrogen fuelled electricity generation, FFI believes limited circumstances exist where it may be feasible to use green hydrogen for long-term energy storage or to replace peaking generation in a fully decarbonised electricity system.

The SWIS has limited opportunities for electrical storage beyond short to medium duration battery storage as WA is relatively flat and pumped hydro sites would be limited to repurposing abandoned mine operations, itself a high-cost proposition. Further, the SWIS is an isolated grid, with limited interconnection options. As the SWIS transitions towards and beyond 100% renewable energy, these limitations will likely force the WA Government to consider other green, firm generation opportunities to provide secure, reliable and emissions free power. FFI supports Government's consideration of these options now, so that industry has time to develop and support government policy, when these network limitations are present.

Regarding if the target should be set between 1% and 10%, FFI's view is that the Government should consider a specific level of demand stimulation and align the target appropriately. To ensure the success of the demand stimulation objective, the target must be set at a level that achieves the required scale to support industry growth, but no higher, to minimise the costs passed onto consumers. Most current government support or subsidy mechanisms – State and Commonwealth - are designed for pilot scale projects to support industry learnings. To break through and support larger commercial-scale projects may require a target at the upper end of the proposed range — which would in turn require an analysis of cost to end consumers. FFI's view is that the Commonwealth should lead on larger scale subsidy programs for green energy and FFI would welcome the opportunity to work with WA to jointly advocate the Commonwealth in this space.

Scheme Eligibility

The paper appears to indicate that the generation types that would be eligible for creating certificates would be current natural gas turbines incorporating a percentage blend of hydrogen, 100% hydrogen gas turbines and fuel cells. FFI suggests to support the development of new infrastructure that will support the transition to 100% renewables, only 100% green hydrogen generation technologies should be eligible to create certificates (e.g., incumbent natural gas turbine blending would be ineligible). Opening the Scheme to current generators, could be considered if the Government were to adopt a mechanism to incentivise the development of new infrastructure, potentially via an uplift in certificates awarded to 100% generators, or via a derating of certificates generated via blended turbines. This will assist in supporting new technologies to transition to a decarbonised power system.



FFI strongly supports the WA policy decision to only accept green hydrogen (hydrogen produced via renewable electricity) as part of this target. FFI agrees that to support this decision, a robust Commonwealth *Guarantee of Origin Scheme* will be required to ensure that certificates created under the WA policy are of the highest integrity. To date, the Australian Federal Government *Guarantee of Origin Scheme* appears to be proceeding towards an emissions intensity calculation and validation scheme. This may mean that the WA Government could be required to consider their own thresholds for their expectations of green hydrogen, which should also be subject to consultation. FFI is committed to meeting the *Green Hydrogen Organisation's [Green Hydrogen Standard](#)*, which requires that emissions do not breach 1kg CO₂-e per 1kg of green hydrogen produced². FFI is also committed to other environmental and social requirements as detailed in the standard for our projects.

FFI suggests that the WA Scheme is limited to hydrogen at this early stage. Other synthetic renewable fuels can be considered in future Scheme modifications. Synthetic renewable fuels other than green hydrogen are of interest to FFI and we are actively exploring them, however, they often require a sustainable source of CO₂ to maintain consistent supply, which may or may not be available in the WA market. Further, it may require a diversity of technologies that are not yet proven or currently too costly to deploy, such as direct air capture and carbon capture and storage. For these reasons, the Scheme should start with a limited scope of green hydrogen.

The WA electricity market has nuances that will need careful consideration in the design of this Scheme. For example, the presence of *Synergy* as a Government Trading Enterprise (GTE) generator and retailer in the market, means the most efficient process to manage certificate generation and surrender would be to vertically integrate and produce green hydrogen as well. This would obviously conflict with the Scheme objectives of encouraging broader industry and market development.

Implementation Timing

FFI encourages the Government to consider creative ways to support market development as soon as practicable, in a globally competitive environment. A small target should be reached long before 2030; a larger one may deserve more leeway.

Electrolyser Load Liability

FFI strongly suggests that electrolyser loads are not captured under the liability threshold and subjected to the requirement to surrender certificates to meet the target. While large loads themselves, it is counterproductive to power hydrogen production with electricity generated via hydrogen fuelled generation, worsening overall efficiency losses.

Further, a liability would create an incentive for projects to locate their electrolysers off grid or creatively behind the metre which would in turn limit their ability to interact with the market. Grid

² Green Hydrogen Organisation, *The Green Hydrogen Standard*, May 2022, available at https://gh2.org/sites/default/files/2022-05/GH2_Standard_2022_A5_11%20May%202022_FINAL_REF%20ONLY%20%281%29.pdf



connected electrolysers can benefit both green hydrogen projects and the market. They can provide system services, flexible ramping and demand response in times of peak stress or prices, all of which will be critical services in renewable power systems.

Thank you for the opportunity to comment on this consultation. FFI would value continuing the collaboration with the WA Government and Energy Policy WA to develop the Scheme. If you would like to discuss any of the issues raised in this submission or to arrange a briefing, please contact tom.parkinson@fmgl.com.au or me on the below details.

Yours sincerely

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