

## Submission on the *Interim Hydrogen Roadmap*

Name	
Organisation (if applicable)	Fortescue
Contact details	

### Release of information

Please let us know if you would like any part of your submission to be kept confidential.

I would like to be contacted before the release or use of my submission in the summary of submissions that will be published by MBIE after the consultation.

I would like my submission (or identified parts of my submission) to be kept confidential, and **have stated below** my reasons and grounds under the Official Information Act that I believe apply, for consideration by MBIE.

I would like my submission (or identified parts of my submission) to be kept confidential because  
[\[Insert text\]](#)

[To check the boxes above: Double click on box, then select 'checked']

### Section 1: Hydrogen is emerging as an important part of the future global energy system

#### Are there other issues we should be considering in our assessment of the strategic landscape for hydrogen in New Zealand?

##### Domestic vs export opportunities

Fortescue supports the proposed approach to focus Government effort and public funds on the domestic industry first and foremost. This approach is pragmatic and allows the Government to continue to monitor the global trade of hydrogen as an energy commodity and reassess this approach in the future. There may be scenarios that require a shift in this approach and Government should not be closed off to these opportunities. The scale of hydrogen projects should not be restricted by a domestic versus export focus – large scale projects mean better economies of scale for both private and public sector investment. We suggest that Government develop sufficient plans that allow for New Zealand to seize the opportunity with pace should it eventuate.

##### Water

Water usage is considered in the strategy however warrants deeper planning due to its importance in regions where hydrogen developments may be considered. As the strategy notes, the water usage across the industry will be comparatively low, however larger scale projects will concentrate water usage in specific regions where water supplies may already be under pressure. To ensure project social licence in regions is maintained water supply must be sustainable and considered well ahead of project development. It is incumbent on project proponents to engage early with Government, water suppliers and local communities to maximise water security and supply.

Further, water logistics represent an opportunity to address water scarcity issues in regions through co-development of water production through desalination providing supply of water that otherwise may not have occurred. This may only be suitable for large scale projects and would require considerable cooperation across Government and industry.

##### Social licence

Hydrogen deployment requires extensive new infrastructure across all parts of the value chain to allow for its production, distribution and use. This includes sufficient electricity infrastructure (transmission and generation), hydrogen production and transport, water, and downstream infrastructure. If the level of electrolysis reaches forecasts noted in the Roadmap (4.5GW) the required supporting infrastructure in upstream and downstream industry will require a significant increase. It is essential this is done in consultation with local community and delivers regional benefits. Community consent for 'energy transition' infrastructure is proving to be a barrier in many markets around the world but can be overcome through novel methods of benefits sharing, such as discounts to power prices for infrastructure impacted

communities. New Zealand is well placed to respond to these issues proactively leveraging its strong support for its already high renewable energy grid.

### **Demand response**

Fortescue strongly supports the proposed approach to the demand response capabilities that electrolysers can provide to the energy market. To efficiently integrate large loads in to evolving energy markets it is essential they are considered as an opportunity to support market operation in balancing ever increasing renewable energy availability in our grids. The ability for electrolysers to help smooth supply peaks and troughs across daily renewable energy supply can be a key support to system stability as we move past 100% renewable energy capacity.

## **Section 2: The role for hydrogen in New Zealand’s energy transition**

### **Do you agree with our assessment of the most viable use cases of hydrogen in New Zealand’s energy transition?**

Yes. The noted opportunities are the current focus of most hydrogen developers and will appropriately balance the economic opportunity, energy/fuel security and decarbonisation benefits the hydrogen industry will deliver.

2

Fortescue is pleased to see our proposed [Marsden Point sustainable aviation fuel project](#) has been noted in the Roadmap. This project, in partnership with Channel Infrastructure, would see synthetic Sustainable Aviation Fuel (eSAF) supply of ~60 million litres per annum into the New Zealand market. Fortescue are now progressing our study to the pre-feasibility phase, which will include more detailed engineering and design studies and developing further detail on the economic viability of the project, following a successful scoping study that assessed the overall viability of producing eSAF for the domestic market at Marsden Point.

### **Do you support some of these uses more than others?**

With Government support mechanisms (heavy fleet and customer offtake) currently focussed on demand incentives, it would be logical to focus support within these industries that are already attracting developer interest to invest to deliver early decarbonisation and industry learnings.

3

Fortescue believes aviation is a key opportunity in New Zealand. We agree with other major global aviation industry stakeholders that aviation will require green hydrogen (and derivatives) to decarbonise over the longer term – and New Zealand can get ahead of the curve - this is why we are developing eSAF at Marsden Point, and investigating liquid hydrogen (LH2) as part of the [NZ Hydrogen Aviation Consortium](#).

### **What other factors should we be considering when assessing the right roles for hydrogen in New Zealand’s energy transition?**

When running economic models for regulated infrastructure planning processes and similar infrastructure there are often benefits that stretch beyond direct economic returns. Energy and fuel security for New Zealand is likely one such benefit that must be considered as part of both the hydrogen and electricity strategies. Recent global instability in energy markets have resulted in dramatic fluctuations in international trade of traditional fossil energy sources

4

exposing countries with significant import exposure to these markets. The security of energy and fuel supply for New Zealand is an economic risk that is difficult to model but must be considered.

### Section 3: Government position and actions

#### 5 Do you agree with our policy objectives?

Yes.

#### 6 Do you agree with our positioning on hydrogen's renewable electricity impacts and export sector?

Yes, as noted above the approach to initially focus Government effort on the domestic sector is supported. Hydrogen production is a considerable opportunity for electricity markets to ensure balance between variable renewable energy generation over supply and traditional demand providing secure offtake. It may also reduce the need for short to medium term storage required to smooth intraday supply and demand mismatches.

#### 7 Do you agree with the proposed actions and considerations we have made under each focus area?

Yes.

#### 8 Is there any evidence we should be considering to better target actions in the final Hydrogen Roadmap?

The New Zealand Government should continue to monitor the global trade of green hydrogen and its derivatives. As trade increases there may be economic opportunities available to New Zealand due to its natural renewable resource advantages and high progression in electricity decarbonisation. Hydrogen standards and certification development across the globe are increasingly favouring green hydrogen production connected to grids with higher renewable energy penetrations of approximately 80% to 90%. This places New Zealand production at an inherent advantage if it were seeking to export to markets such as Europe meeting the Renewable Fuel of Non-Biological Origin (RFNBO) standard.

### General comments

Fortescue strongly supports the proposed approach outlined in the Interim Hydrogen Roadmap. The strategy is pragmatic and leverages New Zealand's established advantages and deeply considers the unique opportunities available across its regions.

Fortescue supports the intent to limit focus to green hydrogen only. With an electricity market that has already reached significant renewable energy levels and strong decarbonisation targets nationally, it would make little sense to consider expanding this approach to include fossil fuel generated hydrogen.

The Roadmap considers the need for standards and certification to deliver consumer confidence in the quality of green hydrogen production including emissions intensity, social and environment performance and electricity market impacts. This is an area of keen interest to Fortescue as it is important to get right in the global context with standards moving away from a focus on colours towards emissions intensity (and other measurables). Fortescue would encourage industry consultation on the establishment of a domestic certification scheme, and there may be opportunities to align with Australian Government approaches to this to create a strong green economic bridge between the two countries.

It will be important for Government to consider a broad range of tools to create an environment that encourages and attracts investment in the hydrogen industry to achieve the necessary decarbonisation outcomes. An example would be to provide developer/investor certainty of demand for hydrogen derivative products such as eSAF, through continued progression of the proposed mandate for Sustainable Aviation Fuel (Cabinet Paper of 15 December 2021 “Sustainable Biofuels Mandate: final policy design”), and consideration of specific inclusion of appropriate eSAF measures within the settings.

**Below we have made comments relevant to the ‘Measures for transition to an expanded and highly renewable electricity system’ consultation paper.**

#### **Investing in renewable electricity generation and infrastructure**

The rate of change in required renewable energy investment is unprecedented to meet necessary further decarbonisation and investment in green hydrogen production, and measures should focus on supporting this rapid and large-scale investment. This includes measures that support demand flexibility through commercial incentives along with firming market options that enable new entrants in renewable generation to be able to manage risks.

The Government should assess (including further industry consultation if necessary) if the electricity market settings and investment environment is suitable to attract the required investment to reach the level of renewable energy needed to meet future sector growth.

Further, national planning and grid resilience will need to be considered in the context of facilitating this renewable energy sector growth. Grid augmentation is typically done once the benefits have been demonstrated and investment can occur. To facilitate a rapid growth in renewables investment, earlier network augmentation may be necessary to ensure new generation can connect. Prioritising network investment in areas of higher renewable resources (i.e Renewable Energy Zones) may be useful to attract investment.

#### **Demand Response**

The world needs to increase its demand response by more than an order of magnitude by 2030. In our judgement, there is no jurisdiction which is appropriately capturing the value of industrial demand response.

It is recommended that a true in-market signal is developed to reward demand response providers. Fortescue are exploring concepts for the Australian energy market that would appropriately incentivise and reward efficient demand response. This is based around a market structure that is designed to ensure that the demand response is only ever called upon if it reduces cost to consumers. Equally, due to the potential issues that this could cause when needed most, in order to

participate, the loads must be fully scheduled – and if not dispatched off, they must consume. This is designed to avoid the risks associated with false baselines.

#### **Firming support options**

Firmed renewables will be required for new industrial loads like green hydrogen or electrification of existing loads. This could be in the form of supply (generation) or demand response, with associated competitive market pricing mechanisms. The critical element is introducing energy options that will be able to support New Zealand consumers in their short duration (i.e variable) and longer duration (i.e seasonal) requirements once the baseload fossil fuel generation is aged off.