2 November 2023

For the Ministry of Business, Innovation and Employment (hydrogen@mbie.govt.nz)

Submission on the Interim Hydrogen Roadmap 2023

The New Zealand Hydrogen Council (Hydrogen Council) was formed in September 2018 by public and private sector organisations and with seed funding from the Ministry of Business, Innovation and Employment (MBIE) to support the progression and uptake of low emission hydrogen in New Zealand.

The Hydrogen Council is New Zealand's peak hydrogen agency with 65 Members, and increasing (see Appendix 1), spanning New Zealand's economic and geographic spectrum including commercial, academic, research and governmental organisations.

Members of the Hydrogen Council include representatives from across the electricity and gas generation and distribution networks, fuel distributors, vehicle manufacturers, road, maritime and aviation transport providers, hydrogen technology manufacturers & suppliers, roading and electrical engineering specialists, professional service providers, R&D institutions as well as economic development agencies and regional and local government.

A Vision for Hydrogen in New Zealand 2019

The Government's hydrogen policy work programme commenced with the release of its *Green Paper: A Vision for Hydrogen in New Zealand* in 2019. This consultation document set out the role that hydrogen can play in New Zealand's economy, what can be done to accelerate its use, the opportunity that hydrogen offers to create new jobs, convert heavy transport away from fossil fuels, enhance security of electricity supply and generate export revenue.

As part of New Zealand's Emissions Reduction Plan, the Government committed to developing a Hydrogen Roadmap to set objectives for hydrogen and its potential to reduce emissions and maximise economic benefits. The Roadmap is intended to outline the future role of hydrogen and set the pathway for establishing a hydrogen industry that will support New Zealand's transition to net zero 2050.

Interim Hydrogen Roadmap 2023

In 2022 and 2023 the Hydrogen Council collaborated with MBIE in the delivery of five stakeholder engagement workshops in Wellington, Auckland, Christchurch, New Plymouth and Invercargill, with more than 250 senior industry participants attending across the country.

The purpose of the workshops was to engage with key industry stakeholders to determine the existing barriers to hydrogen deployment in Aotearoa and to identify the priorities for the Government in establishing the Hydrogen Roadmap.

The collective output from these workshops is clearly reflected in the Interim Hydrogen Roadmap, which provides both a good situational analysis of the state of play of hydrogen initiatives under development in New Zealand, as well as a summary of the potential opportunities and applications for hydrogen as we progress to a low emission future.

The Hydrogen Council welcomes the opportunity to submit on the MBIE consultation on the Interim Hydrogen Roadmap 2023.

We agree that much of the emissions abatement we need to meet our net zero emissions target in Aotearoa New Zealand will be most efficiently met through electrification.

We agree that a range of critical activities and sectors that underpin the New Zealand economy cannot be electrified. These include long-haul heavy vehicle trucks, passenger coaches and aviation, which are all vital to the basic functioning success of Aotearoa domestically, the success of our world-class tourism proposition and the export of our high value products to the rest of the world.

We also agree that some critical industrial processes are also unable to be electrified, including those that rely on fossil fuels for high-temperature heat and chemical feedstocks.

Given the widespread support from the Hydrogen Council and our Members for the government's 2019 *Green Paper: A Vision for Hydrogen in New Zealand* positioning statement, our Members were hopeful that the long awaited Interim Hydrogen Roadmap would set out a clearly defined and unambiguous pathway to stimulate a hydrogen supply chain in New Zealand.

Hydrogen industry stakeholders participating in the roadmap engagement workshops called for a roadmap that set out the Government's detailed intent for hydrogen in decarbonising the economy, supported by a set of time-based actions and aspirational targets to stimulate momentum in the developing hydrogen sector in New Zealand.

For hydrogen to play a meaningful role in contributing to New Zealand achieving its climate change targets, hydrogen infrastructure deployment will need to be rapidly accelerated if we are to meet the domestic hydrogen generation demand of 180,000 tonnes per annum by 2035 rising to 560,000 tonnes per annum by 2050 set out in the Interim Hydrogen Roadmap.

Internationally, no one organisation, country or Government in isolation can deliver hydrogen's full potential in supporting global emissions reduction. Similarly, while we are fortunate in Aotearoa to have a progressive private sector already investing in multiple hydrogen projects, we too need a collaborative approach, and the Government has a critical role to play in stimulating the development of the hydrogen industry needed to achieve the meaningful scale identified in the Interim Hydrogen Roadmap.

The Government's role must be underpinned by a transparent policy framework, clear and effective targeted support and the removal of the existing barriers that prevent businesses from progressing efficiently and therefore successfully.

The Hydrogen Council and our Members recommend that the final Hydrogen Roadmap sets out clearly the Government's role in advancing hydrogen, which we believe should address the

following critical issues, of which the Hydrogen Council are delivering work streams to address:

1. **Planning consent constraints** to stimulate efficient and effective infrastructure investment and delivery across the supply chain including electricity generation, refuelling station development, production plants, end use applications, storage and distribution.
2. **Regulations and safety standards** to achieve transparency to technology providers, procurement, investors, project developers, operation and maintenance and users.
3. **Regional and National Energy Strategies** incorporating the development of energy and infrastructure investment into the Spatial Planning Process.
4. **Fiscal mechanisms to deliver cost parity** for end users in order to drive uptake.
5. **Strategy & domestic consumption targets and timelines** to stimulate investment and drive demand.
6. **Development of training, skills & education programmes** delivered in alignment with industry needs.
7. **Innovation & research investment** focussed on the delivery of commercial outcomes.

The evolving hydrogen industry requires a New Zealand Hydrogen Roadmap that is clear, definitive and fit for purpose to drive change.

New Zealand's strongest competitive advantages are our existing and potential renewable energy resources and our international linkages, which allow us to operate as part of the rapidly developing global hydrogen economy.

Internationally, in the past five years there has been unprecedented investment in decarbonisation and the energy transition and this has directly led to 35 countries adopting Hydrogen Strategies and Roadmaps which clearly illustrates the international trajectory of investment, policy drivers and technological advancements that will enable hydrogen to play a key role in our decarbonised global energy supply chain.

New Zealand can benefit greatly by following closely the policy developments being implemented by other leading nations, which will result in the international cost of hydrogen generation, transportation, storage and distribution coming down rapidly over time.

It is therefore worth briefly examining the international landscape and including two examples of hydrogen roadmaps that have been adopted by Germany and the Netherlands that set clear actions and timelines for delivery and which have influenced our Members in seeking a transparent commitment from the Government in the New Zealand Hydrogen Roadmap.

A summary of recent international policy interventions are as follows:

- The United States Congress passed the Inflation Reduction Act (IRA) in August 2022, which is the single largest investment in climate and energy in American history. It is estimated to contain US $369 billion worth of programs and funding to accelerate the transition to net zero in the US. A key component of the IRA is the US $100 billion Hydrogen Production Tax Credit to accelerate the deployment of hydrogen technologies.

- The Australian Government committed more than AUD $600 million in its 2022/23 federal budget to support the development of hydrogen hubs in regional Australia.

This was further boosted in May 2023 with establishment of the AUD $2 billion Hydrogen Head Start initiative. Individual State government funding lifts this amount further by an additional $864 million, bringing the total support for hydrogen from federal and state government initiatives to more than AUD $3.46 billion.

- In July 2023 the German Government updated its 2020 National Hydrogen Strategy to set more detailed and ambitious targets to expand its hydrogen economy more rapidly. The National Hydrogen Council has supported the work carried out by the Federal Government in an advisory capacity. The strategy includes:
  - The first H2Global auctions for 500 MW of installed electrolyser capacity will be awarded this December, where funding will be awarded for a fixed premium of up to €4 ($4.32) per kilogram to cover the cost gap between grey and green hydrogen production. The first three H2Global auctions for imports of green ammonia, methanol and e-SAF are currently being evaluated with deliveries from auction winners expected by the end of 2024.
  - Carbon Contracts for Difference with €50 billion are also expected to further incentivise domestic hydrogen demand.
  - State aid is expected to be approved for 2.5 GW of electrolysis projects in Germany this year and the government will earmark €700 million for hydrogen research to optimise production methods.
  - In December 2020, 22 EU countries and Norway signed a manifesto paving the way for a clean hydrogen value chain and committing to launch 'important projects of common European interest' (IPCEIs) in the hydrogen sector. Following an assessment by the European Commission, the first set of clean hydrogen projects received approval in July 2022. These 41 projects located in 15 EU countries will receive up to €5.4 billion in public funding. This is expected to unlock an additional €8.8 billion in private investments. The second group of clean hydrogen projects received approval from the European Commission in September 2022. These 35 projects in 13 EU countries will receive up to €5.2 billion in public funding, which is expected to attract an additional €7 billion in private investments.
  - IPCEI funding will be used to launch a hydrogen network of more than 1,800 km of pipelines in Germany, which is expected to be operational by 2027/2028, with the goal of connecting all major generation, import and storage centres to customers by 2030.

- In March 2023, the Netherlands adopted its Hydrogen Strategy and Roadmap. It links supply, transport, distribution, storage and application and sets out the requisite preconditions that are essential to achieve the vision and objectives. The Strategy contains the Dutch Hydrogen Roadmap (included in Appendix 2) that sets out the development and upscaling of the hydrogen economy from 2022-25 through to 20230 and beyond. The visualisation creates a guide to the steps necessary to develop a mature hydrogen market and importantly, is accompanied in the Strategy by the actions and preconditions required for each theme and phase in order to achieve the outcomes identified.

More than 35 countries globally have adopted a hydrogen strategy and road map and most have done so in the last five-year period. We are the envy of the world with our renewable energy resources, innovative disposition and ability to lead. There is no good reason for our

comparatively small economy to hold us back when we have all of the building blocks to enable us to be at the forefront of the global hydrogen economy.

Through partnership and the delivery of a considered coordinated strategic response we at the Hydrogen Council along with our Members, believe that New Zealand can lead, with others, from the front.

The Hydrogen Council has already embarked on many of the key and critical tasks embodied in the Interim Hydrogen Roadmap. We are New Zealand's only dedicated and solely hydrogen focused organisation that understands intricately the rapidly evolving hydrogen value chain and its key global stakeholders. We are woven into the fabric of New Zealand's evolving hydrogen landscape and we understand fully what is required to deliver hydrogen successfully, for the benefit of us all.

We would be pleased to discuss the Hydrogen Council's Forward Programme of Work and how we believe we can continue to work together to advance the development of New Zealand's Hydrogen Roadmap and its implementation.

Appendix 1. New Zealand Hydrogen Council Members

Our Members

AECOM
Air Liquide
AIR NEW ZEALAND
Alexander Group
ARUP
Auckland Transport
An Auckland Council Organisation
aurecon
Bringing ideas to life
Beca
BOC
A Linde company
bp
bspkl.
CH CONRAD HYDROGEN
RENEWABLE ENERGY INDUSTRIAL PARKS
contact.
coregas
DAIMLER TRUCK
ECLGROUP
Critical Technical Services
THE UNIVERSITY OF AUCKLAND
NEW ZEALAND
BUSINESS SCHOOL
ENERGY CENTRE
entec
EY
Building a better working world
FABRUM.
Firstgas


FORTESCUE
FUTURE
INDUSTRIES


Freightways


Fullers360


Fulton Hogan


FUSO


GEOTHERMAL
INSTITUTE


AHK
Repräsentanz der
Deutschen Wirtschaft
German-New Zealand
Chamber of Commerce Inc.


GHD


GBV


GNS
SCIENCE
TE PŪ AO


H.W.RICHARDSON


Halcyon
Power


GREAT SOUTH


HamiltonJet


HIRINGA


HYUNDAI


IEGA
INDEPENDENT ELECTRICITY
GENERATORS ASSOCIATION


Japan New Zealand
Business Council


K1W1
K One W One Ltd.


liquium
Clean liquid fuel
for heavy industry


MANAWATU
DISTRICT COUNCIL


Mitsubishi Corporation


MinterEllison
RuddWatts.


Meridian.
The Power to
Make a Difference.


MITSUI & CO.


NGĀI TAHU Holdings


NATIONAL ROAD
CARRIERS (Inc)


NZPost


pec


OMEXOM


POWERco


RENEWABLE
INNOVATIONS


Russell
McVeagh


Te Kotahitanga O Nga Whanau
Hapu O Te Aitanga A Hauiti
Takutai Moana Kaitiaki Trust


TODD
CORPORATION


TOYOTA


UC
UNIVERSITY OF
CANTERBURY
Te Whare Wānanga o Waitaha
CHRISTCHURCH NEW ZEALAND


UNIVERSITY of
OTAGO
Te Whare Wānanga o Otāgo
NEW ZEALAND


VICTORIA UNIVERSITY OF
WELLINGTON
TE HERENGA WAKA
NEW ZEALAND
http://www.wgtn.ac.nz/sustainable-energy-systems


Woodside
Energy


VITERRA
THE
AGRICULTURE
NETWORK


Worley
energy | chemicals | resources

Appendix 2: Dutch Hydrogen Roadmap