

[REDACTED]

From: no-reply@mbie.govt.nz
Sent: Friday, 25 October 2019 3:18 p.m.
To: [REDACTED]; Hydrogen
Subject: Hydrogen green paper - submission
Attachments: Online-submission-form-uploadsHydrogen-green-paperSubmission_KMartin.pdf

Submission on Hydrogen green paper received:

Introduction

Name

Kieran Martin

Email

[REDACTED]

Business name or organisation (if applicable):

Position title (if applicable):

Is this an individual submission or on behalf of a group or organisation?

Individual

Please give the name of the group or organisation this submission is on behalf of.

What is the role of Government in developing hydrogen for storage and distribution?

Ensuring it creates no emissions. That mean applying proper scrutiny any 'blue' projects, ensuring places where CH₄ is extracted or CO₂ stored are monitored in perpetuity for leakage and passing the costs of doing so back to the industry.

What are the challenges for using hydrogen for storage and distribution?

Safe storage. Clean manufacture. Finding a market among cheaper alternatives, safer solutions and overseas competition.

What are the opportunities for using hydrogen for storage and distribution?

Superior energy density. For some industries (at the moment this appears to be long haul shipping and possibly flight) there are few other options.

What is the role of Government in developing the complementary role of electricity and hydrogen?

Breaking its relationship with the industries that seek to use fossil fuels indefinitely.

What are the challenges for achieving this complementary role of electricity and hydrogen?

Making sure that the public understands the strengths and weaknesses of both options.

What are the opportunities for this complementary role of electricity and hydrogen?

Compressed Hydrogen manufacture could be a terrific way to absorb spikes in a network: when the sun is shining and the wind is blowing excess power can be absorbed into the creation of Hydrogen.

What is the role of Government in supporting hydrogen use for the transport sector?

Understanding first that old solutions (electric rail, other forms of reticulated power) still remain the best solutions. Understanding also that the complex logistical issues presented where things need be shipped through hubs (as they would if freight where to return to rail) can now be managed with the same technologies that made companies like Amazon so successful. The real advances and

innovations in the last few year are around managing distributed complexity: where we once used trucks to address that issue we now need thing about automation.

What are the challenges when using hydrogen for mobility and transport?

Distribution. Every car in New Zealand is already closer to a power point than a petrol pump (until it enters the fore-court). When you can reticulate energy along an overhead wire or electric rail it is very hard for Hydrogen to compete.

What are the opportunities for using hydrogen for mobility and transport?

Shipping, some trucking and (hopefully in the future) flight.

What is the role of Government in encouraging the use of hydrogen for industrial processes including process heat supply?

Don't. You are simply prolonging the use of fossil fuels by doing this.

What are the challenges for using hydrogen in industrial processes?

Green hydrogen can not do this efficiently.

What are the opportunities for the use of hydrogen in industrial processes?

Prolonging the use of fossil fuels and heating the planet an un-inhabitable state.

What is the role of Government in encouraging hydrogen uptake for decarbonisation of our natural gas uses?

Breaking its relationship with the oil industry. In particular changing the CMA and other related laws obliging the Minister for Energy to promote petroleum.

What are the challenges for hydrogen to decarbonise the applications using natural gas?

CCS doesn't work. Any claims that it is 'almost ready' ought to be ignored since such claims are common among techs that are so tantalising. They've been saying the same about fusion for decades.

What are the opportunities for hydrogen to decarbonise our gas demand?

Using green hydrogen where there is no affordable alternative (assuming a realistic price on carbon)

What is the role of Government in producing hydrogen in sufficient volume for export?

Creating a business model that shows it will work for green hydrogen. Explaining how it could compete in a market where sunlight is roughly evenly distributed across the globe.

What are the challenges for hydrogen if produced for export?

Finding a market.

In addition, we welcome your feedback about the opportunities of hydrogen to Māori and how this will support their aspirations for social and economic development.

The paper seemed to demonstrate a working ability to translate some words to Te Reo but did little more.

What are the opportunities for hydrogen if produced for export?

None. Please read the submission document.

If you wish to, you can attach a document to this submission.

[REDACTED]

Use and release of information

We intend to upload submissions to our website at www.mbie.govt.nz. Can we include your submission on the website?

Yes

Can we include your name?

Yes

Can we include your email address?

No

Can we include your business name or organisation?

No

Can we include your position title?

No

Can we include the group or organisation your submission represents (if submitting on behalf of a group or organisation)?

If there are any other parts to your submission that you do not want public on the website please note them below:

OIA warning

If there is information in your submission that you wish to remain confidential, please note them below:

Submission on the MBIE paper “A Vision for Hydrogen in New Zealand” (Sept 2019)

Kieran Martin
Te Whanganui a Tara
Aotearoa

Compressed Hydrogen will be an important energy store but only when it is manufactured cleanly, therefore I recommend that you consider the following oversights in this plan.

Page 11 - "While hydrogen produced from fossil fuels and industrial processes (brown, blue and grey) may play a role in the transition of New Zealand's regions and existing industries".

It has already been established that gas is not a transition fuel. Taranaki is already covered with abandoned wells. They need to be closely monitored for fugitive methane emissions in perpetuity. The industry takes no responsibility for doing that, or for any remedial work in fixing leaks as they happen.

Page 12 - "New Zealand can produce some of the cleanest green hydrogen in the world, and potentially receive a premium for it in international markets. This is a strategic advantage our Government wishes to explore."

It can't. The color coding of hydrogen processes do not exist on a continuum. It is either green or it isn't. Aotearoa can not put a premium on bottled sunlight. There is no strategic market to explore because green Hydrogen bears a storage and shipping cost and can be created where-ever there is sunlight or wind.

Page 24 (graph)

Note that the dirty (CO2 capture) projects are forty times greater than green (Electrolytic hydrogen) projects. And we know CO2 capture is not proven at scale and may never be.

Page 25 - "In the medium term, if production costs fall and carbon prices rise, then hydrogen will become more cost-competitive with natural gas and liquid fuels."

This line exists suggests a cost in the real price of carbon is not being anticipated. Surely a paper preparing to address climate change would assume a price on carbon.

Page 36 - The 'integrated energy system'

This actually proposes using coal (another abundant fossil fuel in Aotearoa) to create hydrogen.

Page 37- suggesting the hydrogen will then be used to create electricity using existing Peaker plants.

There is no way those plants will be powered by green hydrogen (it would treble the cost of electricity with no gain) so their inclusion in this chart is solely for the benefit of more dirty hydrogen.

Page 40 - "There is potential for CCS to be used to capture most of the carbon dioxide produced during this reformation process, should it prove technically and financially viable."

That statement simply acknowledges that the technology is not currently available and so deserves no place in a document such as this. You may as well include time travel.

Page 50 (chart)

This suggests that EV passenger cars are not available when clearly they are and ranges of 400km are already common. It suggests batteries will not be used in buses when they are already on our streets. It completely disregards the role of electrified rail when that has always accounted for the lions share of zero emission transport. By ignoring the place of overhead wires it draws a picture with no acknowledgement for the low emission transport solutions that already carries tens of thousands of passengers a day in this country.

Page 51 (chart)

There are countless thousands of electric trains in the world. And how many run on hydrogen? Two. Maritime and Aviation, while perfect candidates for Hydrogen, are still in the experimental stage. So are we suggesting an investment in a fuel supply that no one has much use for yet? Why are we not instead planning to work on technologies that meet an existing demand?

Page 66 - This discussion around repurposing the existing '11,600 km of intermediate, medium and low-pressure networks' implies that the pipes providing gas to thousands of houses may be repurposed to contain hydrogen.

As domestic gas is simply an alternative to electricity for heat this also contains no case for green hydrogen: the energy loss involved in creating hydrogen from electricity to send to a home for heating means the resulting fuel will be at least three times the price of simply not using it. In fact provision of green hydrogen to any location where electricity is already available is pointless for the same reason. The only reason it could possibly be considered here is that the authors are still thinking about burning gas or coal.

Page 72 notes that 'Australia has carried out the first proof of concept export of green hydrogen to Japan'.

South Korea and Japan clearly need to import stored energy and will likely be buyers on an international green hydrogen market. But in this market how could New Zealand compete with Australia, a country with better proximity, more space, and more sunlight/

Page 73 -- 'At present there are no identifiable established international supply chains, logistics or infrastructure established, and these may involve significant costs and risks.'

Why are we putting so much focus on this when there are established markets that better deserve our attention?

This paper appears to have been written by an industry looking to open avenues that will lock in more dependence on fossil fuels. It does not recognise the real cost of green hydrogen, nor does it consider the ubiquity of green energy resources around the world.

This submission recognises the nation's requirement to transition to green Hydrogen as a form of energy storage where there are no better alternatives. But it asks for more consideration of the alternatives, including more work on public transport, cycle lanes, faster trains for transport and freight, better use of known technologies to improve the responsiveness of electricity networks. the storage of power and the logistics of transport. These are the real innovations and they already exist.