



MTA Submissions

MTA Submission on MBIE Green Paper titled “A Vision for Hydrogen in New Zealand”

25 October 2019

Dear Sir / Madam

Submission:

MTA Submission on “A Vision for Hydrogen in New Zealand”

This submission is from:

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Thank you for the opportunity for MTA to provide comment to MBIE on the Green Paper titled “A Vision for Hydrogen in New Zealand”, with regard to the views of and its effect on the automotive industry.

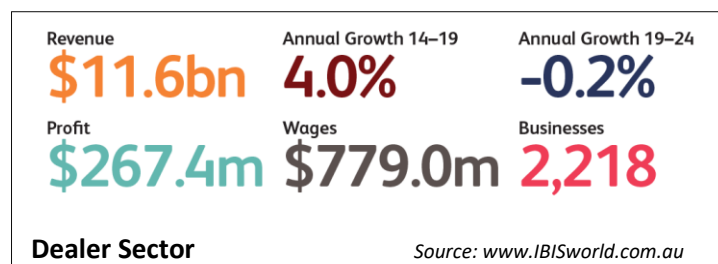
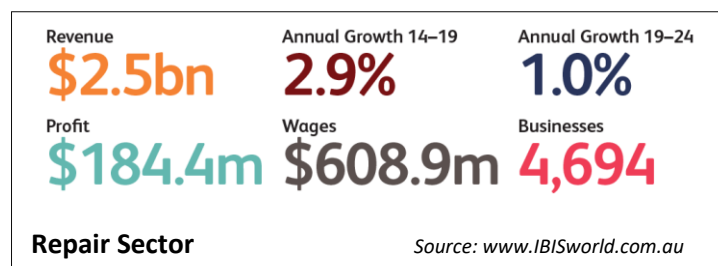
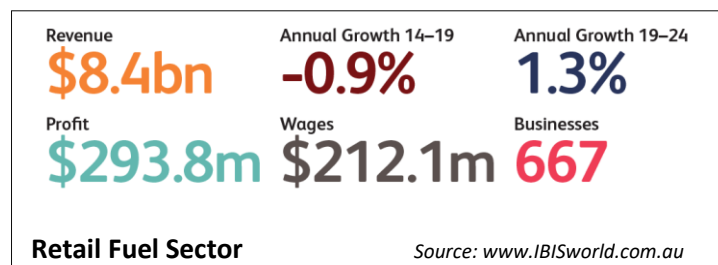
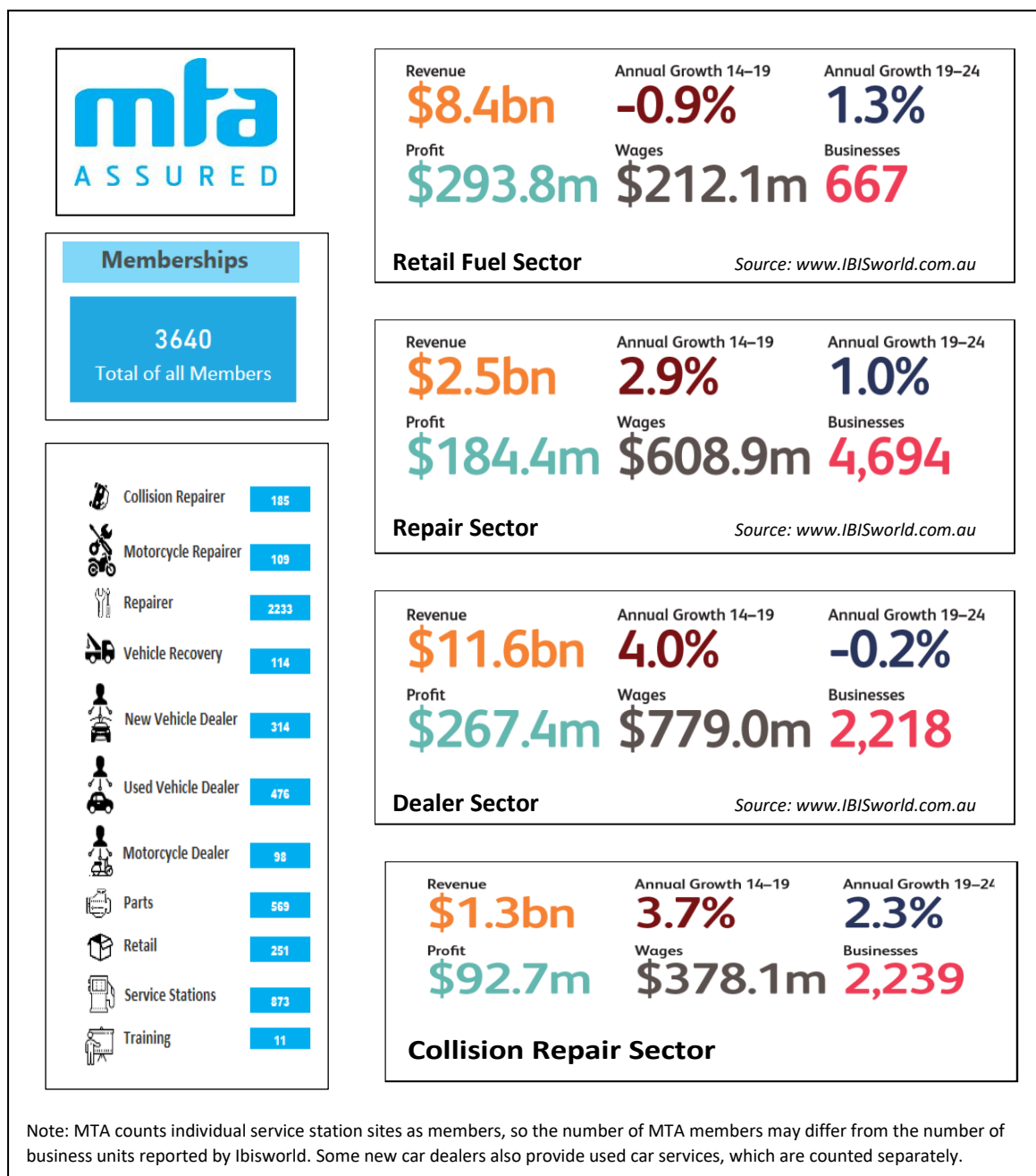
Yours sincerely,



Greig Epps
Advocacy & Strategy Manager

Motor Trade Association (Inc) – MTA

- MTA was founded in 1917 and celebrated 100 years of trust with the NZ motoring community in April 2017
- MTA represents approximately 3,600 businesses within the New Zealand automotive industry and its allied services
- MTA Members operate businesses including automotive repairers (both heavy and light vehicle), collision repair, service stations, vehicle recovery, vehicle importers and distributors and vehicle sales.
- The automotive industry employs around 57,000 New Zealanders
- The four main sectors represented by MTA generate around \$23.8 billion in revenue.



Summary

In brief, MTA has the following response to the Green Paper:

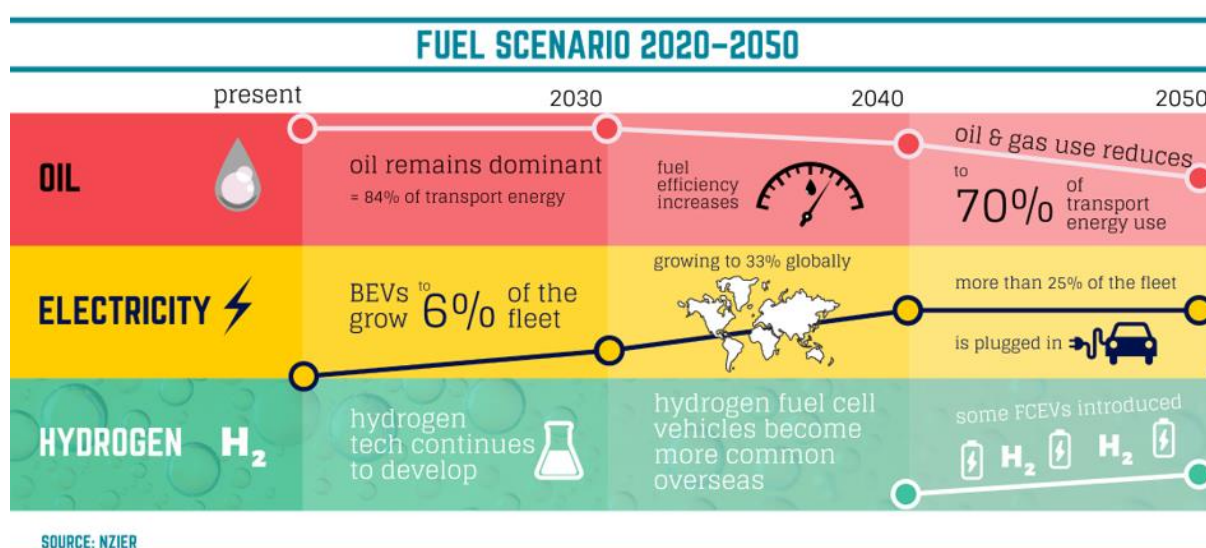
- All options for lowering New Zealand’s reliance on carbon energy sources should be examined; this includes hydrogen in all its forms, especially “blue” and “green”
- Government should set the policy objectives, target outcomes, and the regulatory framework to provide industry with clarity and certainty about the hydrogen ‘playing field’
- Policy and planning need to recognise that a journey of many physical steps must be taken to reach the ultimate goal of wide-spread, mass production of green hydrogen
- Given the chemical properties of hydrogen, there are many challenges for storage and distribution that the Government must collaborate with industry to meet
- There are several possible uses for hydrogen in the transport sector, especially in the public and heavy transport segments
- In line with the Government’s “*Just Transitions*” policy, support will be needed in the automotive sector for capital investment (distribution, storage, repair) and training for new technologies that are not currently within the lesson plan for an automotive technician

Introduction

In our July 2018 submission to Ministry for the Environment on the Zero Carbon Bill, we acknowledged the threat to New Zealand of anthropogenic climate change. We are aware that many submitters can comment on the mechanics of the consultation document in a way that we are not as well placed to.

Our focus remains on the consequences – intended or unintended – on the automotive services sectors arising from a move to a “zero carbon” economy through the introduction of a range of initiatives undertaken by Govt.

With any change process, the rate of change and the engagement with those affected are often the critical factors rather than the change itself. The diagram below looking at the transport sector fuel scenario 2020-2050 is one that MTA can connect with in terms of rate of change that allows the necessary just transition to occur.



Response to Green Paper Questions

1a What is the role of Government in developing hydrogen for storage and distribution?

The role of Government is to set the regulatory framework and introduce appropriate incentives to encourage private sector investment in hydrogen storage and distribution networks.

Government could provide funding and guidance for developing hydrogen production, storage and distribution, but the private sector is better placed to achieve these goals quicker by combining innovation and technology solutions with a commercial drive to achieve returns for their shareholders.

For the private sector to step up to this challenge, Government will need to provide clear and strong signals across a range of sectors where hydrogen has a role to play in reducing carbon emissions. Sectors need certainty that Government is committed to developing hydrogen production, storage and distribution in support of their zero carbon economy goals.

1b What are the challenges for using hydrogen for storage and distribution?

Using existing natural gas pipelines to distribute hydrogen presents difficulties due to the metallurgical impact (embrittlement) of pure hydrogen on carbon steel. Existing gas pipelines can be used to distribute hydrogen within a natural gas mixture, but pure hydrogen distribution will require new pipeline construction.

While safety should be paramount in the development of hydrogen production, storage and distribution there are numerous examples where the safety issues have been mitigated and as such should not be a major barrier to progressing this new energy resource.

We understand that re-purposing gas pipelines is being done in Europe and we note that First Gas is currently investigating the feasibility of doing this in New Zealand on part of the Taranaki transmission system.

1c What are the opportunities for using hydrogen for storage and distribution?

Government policy has curtailed further oil exploration activity in Taranaki's petrochemical sector. This creates the ideal opportunity to tap into this expertise to support the growth and development of hydrogen production, storage and distribution before it is lost overseas. Government needs to act quickly to provide certainty and assurance for people with valuable skills working in the current petrochemical sector that there are long term employment opportunities for here in NZ within the new hydrogen energy sector.

As per the Green Paper, 95% of hydrogen produced globally is made through steam methane reformation. Electrolysis is still a fledgling production method. The US Department of Energy notes that challenges for green hydrogen production include reducing the capital cost of electrolyser units,

improving energy efficiency for conversion, and integrating compression into the electrolyser unit to avoid the need for a separate compressor¹.

A “just transition”, indeed any transition, should look at moving New Zealand from established, mature methods of production (steam reformation) to cleaner, greener methods (electrolysis). Creating a regulatory environment that allows for all sources of hydrogen where it is technically feasible, economically viable, and sought by consumers would enable the industry and its customers to invest in hydrogen infrastructure while electrolysis technology continues to develop and becomes more cost effective over time.

Ensuring adequate or sufficient supply of hydrogen for industrial processes is currently only possible through steam methane reformation of natural gas. Production of green hydrogen will likely start small and grow and will be easier to commercialise if there is already a large market enabled by blue hydrogen. A diverse range of suppliers can promote any transition to hydrogen by increasing confidence in supply.

2a What is the role of Government in developing the complementary role of electricity and hydrogen?

Government’s role is to set the regulatory framework and introduce appropriate incentives that will encourage the private sector to use hydrogen as a complementary source to electricity (helping to remove or reduce the dependence on hydrocarbon burning peaking power plants).

Following on from our answer to 1c above, it seems that the Green Paper prefers green hydrogen over other forms, such as blue hydrogen. It is understandable that, with the goal of carbon reduction in mind, we would want to target our vision as a country on the best environmental option. However, we must be realistic about the need to actually make that journey (or transition) from where we are now to where our vision wants us to be. We cannot simply step from our current state to a zero carbon state.

2b What are the challenges for achieving this complementary role of electricity and hydrogen?

Again, for the industrial sector to move to a low carbon emission output model there needs to be a strong signal from Government with a combination of incentives and disincentives.

2c What are the opportunities for this complementary role of electricity and hydrogen?

There also exists an opportunity to utilise more natural gas blended with hydrogen, distributed in existing pipelines as a transition fuel to decarbonise industrial processes and provide continuity of production while full transition to a low carbon emission sector is developed.

3a What is the role of Government in supporting hydrogen use for the transport sector?

While all the focus has been on encouraging the uptake of EVs into the light vehicle fleet, the reality is that barriers such as price parity with ICE vehicles will exist for some time, preventing the large-

¹ <https://www.energy.gov/eere/fuelcells/hydrogen-production-electrolysis>

scale uptake of EVs. With NZ's reliance on heavy road transport to meet increased freight demands well into the future, Government should be looking at incentivising the rapid uptake of hydrogen fuel cell electric vehicle (FCEV) technology within the heavy transport sector as the business case for switching to this technology really stacks up for commercial heavy transport operators.

From the light vehicle fleet perspective, NZ is reliant on vehicle manufacturers developing their FCEV models for supply into markets in enough numbers that the economics of that supply chain make it a worthwhile investment. From the range of views presented on when this will occur, MTA tends to align its belief that will be more likely to be around 2030-2040. With NZ being a relatively small market for vehicles we are reliant on our neighbours on the other side of the Tasman to collectively make a market demand large enough for FCEV manufacturers to supply this market with FCEVs. In the absence of the right mix of incentives and disincentives offered by Government intervention the demand side of the market will not react.

As with the introduction of EVs, the motor trade will face a need to upskill in order to provide the necessary maintenance for hydrogen fuelled vehicles and Govt will need to work closely with the motor trade sector to ensure the appropriate support is provided to ensure the necessary upskilling is completed in advance of FCEV technology operating on our roads.

3b What are the challenges when using hydrogen for mobility and transport?

Refuelling stations to support the uptake of heavy transport switching to hydrogen present less of a problem compared to recharging infrastructure required to stimulate the mass uptake of EVs in the light vehicle fleet. The existing network of truck stops for traditional hydrocarbon refuelling could be extended to provide hydrogen refuelling at locations to support the use of hydrogen fuelled heavy transport. What will be needed for any investment to be made in the building of hydrogen refuelling stations is a strong signal from Government that the use of hydrogen within the road transport sector is not a short-lived policy that saw CNG come and go within a relatively short period of time.

NZ's market size might limit access to heavy trucks due to left hand drive. As noted in the Green Paper (p56): "There is limited availability of buses and heavy-duty vehicles, with long lead times (one year to 18 months) for delivery to smaller and more distant markets such as New Zealand as larger orders may be prioritised over smaller orders."

The NZ Business Energy Council has noted that, while currently energy scenarios did not see hydrogen as an economic option for transport or industrial heat applications, their analysis shows that the assumed purchase cost of hydrogen fuel-cell trucks only needs to drop by less than 5% for them to be preferable to electric trucks.

3c What are the opportunities for using hydrogen for mobility and transport?

Hydrogen fuelled heavy transport solutions don't require refuelling as often as current EV technology for similar gross vehicle mass configurations thus making hydrogen fuelled heavy transport an ideal candidate for its application. As well as road transport use, hydrogen fuelled rail transport technology is also becoming more viable and could be introduced to extend the zero carbon advantages of the existing electrified section of the north island main trunk line.

4a What is the role of Government in encouraging the use of hydrogen for industrial processes including process heat supply?

The role of Government is to set the regulatory framework and introduce appropriate incentives that will encourage the private sector to invest in the necessary hydrogen solutions for use in industrial process including heat supply.

4b What are the challenges for using hydrogen in industrial processes?

Converting existing plant to operate using hydrogen might be problematic, particularly older boilers that have been designed to run on coal or oil as tends to be the case in South Island steam plant as furnace and tube plate design temperatures are a lot lower than temperatures experienced firing on natural gas or hydrogen.

4c What are the opportunities for the use of hydrogen in industrial processes?

See response to 2c.

5a What is the role of Government in encouraging hydrogen uptake for decarbonisation of our natural gas uses?

The role of Government is to set the regulatory framework and introduce appropriate incentives that will encourage the private sector to invest in the uptake of hydrogen for decarbonisation of natural gas use.

5b What are the challenges for hydrogen to decarbonise the applications using natural gas?

See response to 4b.

5c What are the opportunities for hydrogen to decarbonise our gas demand?

See response to 2c.

6a What is the role of Government in producing hydrogen in sufficient volume for export?

While the export of hydrogen, particularly green hydrogen, presents a significant opportunity for New Zealand to grow its export economy as well as provide more jobs, there needs to be a balance between the use of hydrogen in NZ so that only excess production volumes are exported. If the potential volumes of hydrogen allow NZ to reduce its reliance on oil imports and thus provide NZ with the more energy security, then this should be explored.

6b What are the challenges for hydrogen if produced for export?

Other than the building of export container port facilities or partnering with shipping transporters, there doesn't seem to be significant challenges to exporting hydrogen given that NZ Govt has already identified potential markets for export (Japan, Korea etc).

6c What are the opportunities for hydrogen if produced for export?

NZ already has expertise in the production of and export of processed hydrocarbon (LNG, methanol) within our petrochemical industry and as such, with the winding down of this sector resulting from Government policy around further oil exploration activity we need to look at the just transition of people working in this sector and support them to transition into hydrogen production and export sectors.

MTA appreciates the opportunity to comment on this matter. If you have any questions or wish to discuss our submission further, please get in touch.