SUBMISSION

STRATERRA™
NATURAL RESOURCES OF NEW ZEALAND

Submission from Straterra
To MBIE
A Vision for Hydrogen in New Zealand
October 2019

Executive Summary

1. Straterra is cautious but open minded about the potential for hydrogen energy in New Zealand. We support the development of a hydrogen strategy as part of New Zealand's overall energy strategy. We support government removing the barriers to the uptake of hydrogen but, given technological advances are likely to be led from outside New Zealand, we do not support large amounts of government money going into research and development or subsidies to the private sector.

Introduction

2. Straterra is the industry association representing the New Zealand minerals and mining sector (including coal). Our membership is comprised of mining companies, explorers, researchers, service providers, and support companies.

3. We welcome the opportunity to submit on the Green Paper, A Vision for Hydrogen in New Zealand. The aim of this Green Paper is to signal the opportunity that hydrogen can bring to New Zealand and frame discussions for a national strategy.

4. Engagement on the discussion around the development of a viable hydrogen contribution to the economy in New Zealand is very important. We agree with the challenges and opportunities identified in the document. There are complex issues to be resolved in order for hydrogen to compete with other forms of energy.

Submission

5. Unsurprisingly, there is a growing interest in the development of hydrogen globally and in New Zealand, driven by political and environmental factors. We agree hydrogen could play a role in reducing global carbon emissions.

6. As technology develops, hydrogen with its lower carbon emissions, could become a welcome addition to New Zealand's and the world's energy mix. Technological advances are occurring such as maturing fuel cell and electrolysis technologies. However, it is likely to be some years before hydrogen becomes a viable energy source. Maintaining competitiveness will continue to be a key driver for the uptake of new technologies. The January 2019 report by Concept Consulting,

Hydrogen in New Zealand, found carbon prices would need to reach $300 to $400 per tonne and the cost of production fall for electricity generation from hydrogen to be economic.

7. Even with a higher carbon price, traditional fuels such as coal will continue to have an important role in maintaining New Zealand's international competitiveness in agriculture, dairy in particular, and in providing energy security in dry years and when gas shortages occur.

8. It is unlikely that New Zealand will lead the way in the development of hydrogen technology. The country – government and private sector - does not have the resources to lead the way and government money must be spent wisely. For example, single companies globally - particularly in the US and China - are spending billions of dollars on fuel research alone. For this reason, the government needs to be cautious on what it spends to develop hydrogen technologies.

Hydrogen and electricity prices

9. There are significant risks in the government favouring one fuel over another, in this case hydrogen, to reduce emissions and unintended consequences are bound to follow. Producing and exporting hydrogen requires large quantities of electricity and an increase in electricity prices is likely to be a consequence. Higher electricity prices will, among other things, impinge upon the government's goals of electrification of process heat and transport. The point being that putting too much resource into the goal of shifting into hydrogen and exporting hydrogen to reduce emissions may not produce lower emissions overall.

10. Subsidies and regulation in support of hydrogen, above and beyond the carbon price, could be greatly distorting and negative for the economy as a whole without necessarily achieving emissions reductions. A level playing field will produce the best outcomes as the private sector is better than the government at assessing risks and uncertainty of future improvements in energy technology.

Brown, Blue, Grey and Green Hydrogen

11. The most common forms of hydrogen (brown and grey hydrogen) are currently produced from fossil fuels and industrial processes. Green hydrogen production is even less economically viable than these. While the economics of green hydrogen will improve as the price for electrolysis and fuel cells fall, brown and grey hydrogen will be more viable for many years to come.

12. In the future, given New Zealand's abundance of water, its possible New Zealand will be able to produce and export green hydrogen. But, as acknowledged in the paper, other factors such as electricity costs, scale and proximity to market come into play meaning New Zealand will have to compete with countries where green hydrogen can be produced more cheaply, such as Australia and those closer to market.

13. The paper only touches on blue hydrogen (production of hydrogen from fossil fuels with CO2 emissions reduced by the use of carbon capture underground storage, CCS) and has a clear preference for green hydrogen. Blue hydrogen and CCS together offer an opportunity to contribute to decarbonisation efforts. CCS can reduce emissions by up to 90% and provides a medium-term solution in transitioning to renewable electrification. CCS also allows fossil fuels to play a role in the transition. Currently, there is no specific legal framework enabling the use of CCS in New Zealand. The strategy should include CCS and blue hydrogen as an opportunity to reduce New Zealand emissions.