

23 October 2019

Resource Markets Policy  
Building Resources and Markets  
Ministry of Business, Innovation & Employment  
PO Box 1473  
Wellington 6140  
New Zealand

[hydrogen@mbie.govt.nz](mailto:hydrogen@mbie.govt.nz)

Dear Sir/Madam,

**Christchurch City Council submission on *A Vision for Hydrogen in New Zealand Green Paper - September 2019***

Christchurch City Council (the Council) thanks the Ministry of Business, Innovation and Employment (MBIE) for the opportunity to provide comment on *A Vision for Hydrogen in New Zealand Green Paper - September 2019*.

Our responses to the questions provided in the consultation document are included as an attachment.

If you require clarification on the recommendations and points raised in this submission or require additional information or further comment, please contact Kevin Crutchley, Resource Efficiency Manager at [kevin.crutchley@ccc.govt.nz](mailto:kevin.crutchley@ccc.govt.nz) or 03 941 8209.

Yours faithfully



Brendan Anstiss  
General Manager Strategy and Transformation  
Christchurch City Council

## **Christchurch City Council submission on the New Zealand Government's a vision for hydrogen in New Zealand Green Paper - September 2019**

Please find below the responses to the following questions in the Green Paper.

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

Government will need to set clear policy settings that support cost effective, efficient and safe options for storage and distribution of hydrogen. Government's role would also be to ensure storage and distribution methodology also carefully considers and mitigates the environmental impacts of implementing the storage and distribution options.

Government should investigate the potential effects that a large scale hydrogen economy has on the environment and whether significant releases of hydrogen into the atmosphere have, or do not have significant detrimental effects:

1. on ozone
2. through extending the lifetime of methane in the atmosphere

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

There are significant costs (infrastructure and energy input) associated with appropriately storing hydrogen. There are also the associated health and safety risks with storing and distributing hydrogen due to hydrogen being flammable.

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

The industry will need to further investigate cost effective, efficient and safe storage options for storage and distribution of hydrogen. Any storage and distribution methodology needs to also carefully consider and mitigate the environmental impacts of implementing the storage and distribution options.

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

Government, together with key stakeholders, could support the lifecycle assessment and practical in-depth feasibility studies for using green hydrogen for the various key transport sectors. Government could provide some support to the transport sector for targeted demonstration projects for green hydrogen transport where these projects would assist in gathering further knowledge for the wider transport sector for evaluation.

Government would need to set safety regulations/standards for hydrogen use.

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

The light passenger vehicle market segment already has options for zero exhaust emission vehicles through the availability of battery electric vehicles. A number of battery electric vehicles coming onto the market have good travel range and the ability to charge their batteries faster. There is

already a battery electric technology solution developed and growing in this light passenger transport segment which challenges the feasibility of having hydrogen powered light passenger vehicles. This also relates to light commercial vehicles, for example delivery vans, where there is increased availability of fit for purpose battery electric vans.

Hydrogen powered light passenger vehicles will potentially find it hard to compete in this vehicle market segment.

The economic feasibility for hydrogen powered transport is currently a major challenge for its adoption. This includes the cost of infrastructure, generation of hydrogen and use of energy inputs in its production, storage and transportation.

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

Opportunities for investigation, evaluation and life cycle assessment should focus on transport sectors that require long-haul transport such as trains, heavy vehicles, marine transport and aviation.

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

The Government's role could include the co-ordination of key industry stakeholders to work together on investigation, evaluation and life cycle assessment of using green hydrogen for industrial processes. There should be a focus by Government to work with and assist the dairy manufacturing sector (which is a significant emitter of greenhouse gas emissions to generate process heat) to significantly reduce fossil fuel use to generate process heat.

The Government, depending on the results of green hydrogen feasibility studies and life cycle assessments, could investigate policy settings to encourage the use of non-fossil fuels, including green hydrogen, for industrial processes.

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

The economic feasibility for using green hydrogen in industrial processes is currently a major challenge for its adoption. This includes the cost of infrastructure, generation of hydrogen, use of energy inputs in its production, storage and transportation.

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

If New Zealand manufacturers use non-fossil fuel for their industrial processes, such as green hydrogen, this can assist manufacturers in their product marketing and reporting to their clients.

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

Government's role could include co-ordination of key industry stakeholders to develop a New Zealand strategic framework for the export of green hydrogen. Government could implement policy settings to encourage the co-ordination of export volumes of green hydrogen.

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

There is a need to ensure New Zealand balances green hydrogen export opportunities alongside energy requirements for hydrogen use domestically so New Zealand has a secure and affordable green hydrogen supply for New Zealand's energy requirements.

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

The export of green hydrogen would provide a range of opportunities including:

- Export earnings
- Employment
- Reputational benefits for New Zealand through providing green hydrogen to export markets assisting their transition to reducing greenhouse gas emissions