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From: no-reply@mbie.govt.nz
Sent: Friday, 25 October 2019 12:44 p.m.
To: [redacted]; Hydrogen
Subject: Hydrogen green paper - submission
Attachments: [redacted]

Submission on Hydrogen green paper recevied:

Introduction
Name

[redacted]

Email

[redacted]

Business name or organisation (if applicable):

BP New Zealand

Position title (if applicable):

[redacted]

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

Behalf of group or organisation

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

BP New Zealand

What is the role of Government in developing hydrogen for storage and distribution?
What are the challenges for using hydrogen for storage and distribution?
What are the opportunities for using hydrogen for storage and distribution?
What is the role of Government in developing the complementary role of electricity and hydrogen?

BP considers hydrogen a way to store energy that might otherwise be lost, for example, conversion of solar or hydroelectricity into hydrogen in non-peak demand times for other industrial and transport uses.

BP sees a role for Government to support achievement of the production, distribution and usage of the scale required for a sustainable hydrogen economy to be achieved.

What are the challenges for achieving this complementary role of electricity and hydrogen?
What are the opportunities for this complementary role of electricity and hydrogen?
What is the role of Government in supporting hydrogen use for the transport sector?

As the consultation document recognises, there are challenges associated with the uptake and widespread use of hydrogen as a transport fuel.

Investment in hydrogen energy is expected to be uneconomic at this stage and scale of the technology and likely to be dependent upon some form of incentive or support. This could include targeted funding or other incentives including, but not limited to, excise, production subsidies, carbon offset arrangements and feed in tariffs.

Additional support measures for both light and heavy vehicles as well as industrial equipment could include

• Incentivising vehicle manufacturers and fleet management companies to mitigate financial risks, potentially through an accelerated depreciation model to minimise immediate tax exposure for vehicle manufacturers and fleet management companies. The proposed clean car discount scheme could also be leveraged by adding further incentives for hydrogen vehicles, possibly extending to heavy vehicles for hydrogen given greater potential for hydrogen as a heavy transport fuel.
• Facilitating low interest loans to help acquire fleets of FCEVs and/or underwrite rollout of refuelling facilities.
• Developing measures to ensure sufficient engineering, maintenance and support standards and services.
• Standardising safety and operational regulations, including alignment to emergency and essential services around how to respond to and manage incidents involving FCEVs themselves, refuelling facilities and transport and storage of hydrogen.

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

As our population and economy continue to grow so will the demand for energy, so it's important that the energy we are producing and using is as kind to our planet as possible.

As the consultation document identifies, production of hydrogen through renewable energy is currently very expensive. BP's view is that all forms of hydrogen production should be considered in service of meeting New Zealand's net zero carbon targets and aligning with the Paris targets.

Given the high cost of hydrogen production acting as a barrier to development and usage, BP believes the fastest way to drive production and uptake is for the government to create a pathway by supporting of all types of hydrogen production, i.e. brown, blue, grey and green. Once scale is achieved, subsequent transition to green hydrogen could be facilitated through policy development around carbon capture, use and storage (CCUS).

The following are estimated timelines of uptake taking into consideration factors that may influence taking into consideration hydrogen is a developing area:

• For heavy transport and long-distance freight: estimated timeline of 3-7 years depending on the deployment strategy
• For lighter vehicles: estimated timeline of 5-10 years, depending on the speed of creating the supply chain to support the above heavy transport segment, which can then be scaled. Passenger FCEVs will therefore build on top of scale benefits created from heavy transport.
• For passenger ferries: estimated timeline of 5-10 years, depending on availability of H2 refuelling at port hubs – these could also be connected to heavy transport refuelling at the same location.
• For forklifts: manufacturers are already able to provide these and they are in widespread use in other parts of the world.

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

BP agrees with the assertion in the consultation document that FCEVs and battery electric vehicles (BEVs) play complementary roles, and that hydrogen-powered vehicles are more suited to commercial fleets and vehicles in near-continuous use.

Refuelling networks and supporting infrastructure must be designed around the needs of the target end users. In BP's case, and in the establishment of the supply chain, we believe that hydrogen infrastructure is at first best targeted to commercial ecosystems for heavy transport, in both off road (marine and rail) and on road (long haul trucks, bus fleets) uses.

A large network of refilling stations will not be required to start with, but a commercial model will take time to develop due to small scale operations to start the transition. On that basis it may be beneficial to look at incentives and support to create a basic network of refueling stations to get to

some sort of scale.

To maximise potential uptake the ecosystem must be underpinned by an end-to-end solution that is economically viable within a geographically sensible supply envelope, and take into consideration
• End users and customers: Logistics and transport companies that will own and operate the FCEVs. Fuel purchases will underpin the revenue pools that sustain the entire hydrogen value chain
• Distribution: Companies that own, operate or maintain the delivery, storage and dispensation of hydrogen; including on-site electrolysers for hydrogen produced via electrolysis.
• Plant and equipment: Companies that manufacture, install and maintain the required plant and equipment to support distribution and/or fuel production activities.
• Vehicle manufacturers: Companies that build, sell, lease and service the FCEVs referenced above.
• Energy and other production inputs: Companies that generate and/or provide energy and/or raw materials to produce hydrogen which is then delivered and distributed to customers that use FCEVs. These companies could include power/gas utilities and grid operators.

Once the initial supply chain is established for these commercial ecosystems, the benefits of scale could begin to support expansion of hydrogen fuels into a consumer network which will, by definition, be more dispersed across a larger market geography.

What is the role of Government in encouraging the use of hydrogen for industrial processes including process heat supply?
What are the challenges for using hydrogen in industrial processes?
What are the opportunities for the use of hydrogen in industrial processes?
What is the role of Government in encouraging hydrogen uptake for decarbonisation of our natural gas uses?
What are the challenges for hydrogen to decarbonise the applications using natural gas?
What are the opportunities for hydrogen to decarbonise our gas demand?
What is the role of Government in producing hydrogen in sufficient volume for export?
What are the challenges for hydrogen if produced for export?
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.
What are the opportunities for hydrogen if produced for export?
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?

No

Can we include your email address?

No

Can we include your business name or organisation?

Yes

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)?

No

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:

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

Friday, 25 October 2019

To Whom It May Concern,

Thank you for the opportunity to provide BP's perspective on the Government's vision for hydrogen in New Zealand.

The world needs more energy but with fewer emissions. For more than 20 years BP has played an active role in meeting this dual challenge and has become one of the largest operators among our peers, investing in hydrogen, biofuels, biopower, solar and wind energy, and expanding as we identify more opportunities. We recognise that the energy mix is changing as technology advances, consumer preferences shift and policy measures evolve.

BP is a member of the New Zealand Hydrogen Association, and we are committed to working with governments, and our partners in industry and the sciences, to help realise the significant potential of hydrogen in a low carbon future.

If you would like to discuss insights and experience gained in other parts of the world, or to discuss any aspect of this submission, in the first instance please contact:

[redacted]

Regards

[redacted]

[redacted]
BP Oil New Zealand Ltd