Submission on the *Interim Hydrogen Roadmap*

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Release of information

Please let us know if you would like any part of your submission to be kept confidential.

☐ I would like to be contacted before the release or use of my submission in the summary of submissions that will be published by MBIE after the consultation.

☐ I would like my submission (or identified parts of my submission) to be kept confidential, and **have stated below** my reasons and grounds under the Official Information Act that I believe apply, for consideration by MBIE.

I would like my submission (or identified parts of my submission) to be kept confidential because n/a

[To check the boxes above: Double click on box, then select 'checked']

Consultation: Advancing New Zealand's energy transition

Energy and Resource Markets
Building, Resources and Markets
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Attention: Hydrogen Submissions

Submission on 'Interim Hydrogen Roadmap' discussion document

Taranaki Offshore Partnership (*TOP*) is a Joint Venture between NZ Super Fund (*NZSF*) and Copenhagen Infrastructure Partners (*CIP*) that is investigating offshore wind generation opportunities in Aotearoa New Zealand.

We appreciate the opportunity to provide a submission on the Ministry of Business, Innovation and Employment's (*MBIE*) discussion document 'Interim Hydrogen Roadmap'.

This letter provides background information regarding TOP and our Joint Venture parties. TOP is a Joint Venture between NZSF and CIP:

- Founded in 2012, Copenhagen Infrastructure Partners P/S today is the world's largest dedicated fund manager within greenfield renewable energy investments and a global leader in offshore wind. The funds managed by CIP focuses on investments in offshore and onshore wind, solar PV, biomass and energy-from-waste, transmission and distribution, reserve capacity, storage, advanced bioenergy, and Power-to-X. CIP manages ten funds and has to date raised approximately EUR 19 billion for investments in energy and associated infrastructure from more than 140 international institutional investors. CIP will accelerate its role in the global energy transition and aim to have EUR 100 billion under management in green energy investments in 2030. CIP has approximately 400 employees and 11 offices around the world. For more information, visit www.cip.dk
- The NZ Super Fund was set up to help the Government meet the future costs of national superannuation. The Fund's assets, which are currently worth more than $NZ60 billion and include some $NZ7.5 billion invested in Aotearoa New Zealand, are owned by the Crown on behalf of all New Zealanders, but the fund manager operates on a commercial basis, independently of the Government. The Fund's partnership with CIP on the South Taranaki Project reflects its commitment to exploring commercially attractive investment opportunities in New Zealand infrastructure and sits alongside its existing €125 million commitment to CIP's globally-focused Energy Transition Fund. For more information, visit https://nzsuperfund.nz/

- Copenhagen Offshore Partners (COP) is the exclusive global offshore wind development partner to CIP, including for projects in Aotearoa New Zealand.

Our Submission

The attached submission provides our views on the questions raised in the Discussion Document. Contact details for our team (as well as confirmations regarding the release of information) are included in the submission.

We are available to assist in any way with MBIE's work and would be happy to provide further information and/or meet with officials to discuss the matters covered in this submission.

Responses to questions

Section 1: Hydrogen is emerging as an important part of the future global energy system	
1	**Are there other issues we should be considering in our assessment of the strategic landscape for hydrogen in New Zealand?**
	Areas we have identified as needing further evaluation: - It is important to link hydrogen production and large-scale electricity generation, and ensure these two areas are developed at the same time. Offshore wind is a way of providing renewable electricity generation at scale, so could be a way of enabling hydrogen production. - Using ammonia as a co-generation fuel for electricity generation needs further evaluation to ensure that it will reduce carbon emissions, see E3G (independent think-tank) analysis. - Electrolysers providing demand response: o Need to ensure this is adequately compensated, to allow for the loss of production. o Need to ensure that an expectation to provide demand response does not inadvertently discourage investment in/operation of assets. o Need to investigate whether the decrease in hydrogen production could lead to an increase in carbon emissions elsewhere (e.g. the hydrogen end-user has to use a fossil-fuel to make up for lack of hydrogen). - The benefits that could be seen from producing oxygen, the byproduct of hydrogen generation. Oxygen is an important industrial and medical gas. We agree with the point that there are economic and social costs if we do not address our emissions. This should be highlighted in discussions on the energy transition.
Section 2: The role for hydrogen in New Zealand's energy transition	
2	**Do you agree with our assessment of the most viable use cases of hydrogen in New Zealand's energy transition?**
	Yes – we anticipate that domestic uses will underpin most of Green Hydrogen use in Aotearoa New Zealand
3	**Do you support some of these uses more than others?**
	We have no comments on this question.

4	**What other factors should we be considering when assessing the right roles for hydrogen in New Zealand's energy transition?**
	Additional factors could include: • Safety • Scalability • Whether renewable/sustainable alternatives to hydrogen exist for a use case • The magnitude of emissions reduction • Ability to be co-located with industry/electricity generation. Offshore wind is a way of providing renewable electricity generation at scale, so could be a way of enabling hydrogen production.
5	**Do you agree with this assessment of the potential for hydrogen supply and demand in New Zealand?**
	Yes, however there may be value in modelling the value-add domestic use case separately from the export case.
6	**Do you agree with the key factors we have set out that are likely to determine how hydrogen deployment could play out?**
	Social licence, iwi support and ease of consenting may also contribute to whether scenarios are commercially achievable. Consenting delays or difficulties could affect commercial viability.
7	**What do you think needs to happen to address these factors?**
	Some ideas for addressing these factors are listed below. • Electricity prices – build-out of renewable electricity generation needs to be enabled to happen as quickly as possible. Offshore wind is a way of providing renewable electricity generation at scale, so could be a way of enabling hydrogen production. • Optimising production, transport, storage and conversion costs – distribution network needs to be planned well to increase certainty and avoid duplication of effort. • Available workforce – work on retraining/upskilling the workforce needs to begin as soon as possible. • Demand – there may be a role for government to facilitate linking hydrogen producers and consumers. • Value stacking – enable renewable electricity zones and industrial precincts to increase certainty.

8	**Do you have any evidence to help us build a clearer picture?**
	We consider Renewable Energy Zones (REZs), which are a way of connecting new renewable electricity generation and major electricity users to the electricity network, are a way to enable 'value stacking'. In a REZ, multiple parties agree together to co-locate and share the costs of a single connection to the grid, as well as possible network upgrades required to enable the new load and use. This model has been used overseas to enable significant volume of generation investment by coordinating the connection of several generators to the transmission network via shared assets. Transpower has recently consulted on REZs in New Zealand. The complexities raised during the consultation period have resulted in Transpower continuing to work through the REZ concept with relevant stakeholders, so what this concept can offer is not yet clear. However, the REZ concept as presented by Transpower in 2022 notes that while REZs have the potential to enable coordination, reduce connection costs and overcome first mover disadvantage, they are unable to reduce the lead times associated with onshore interconnection infrastructure. City or regional deals (such as those used in the UK and Australia) could be another way for NZ to enable generation and industry in a region. Changes will need to be made to the regulatory framework to allow for the establishment of REZs. For instance, in Queensland (Australia), the State Government has recently consulted on an exposure draft of the Energy (Renewable Transformation and Jobs) Bill, which amongst other matters will allow the relevant Minister to declare part of Queensland to be a REZ. A declared REZ will include nominated sections of the transmission network with connections regulated under a REZ management plan. We consider that MBIE should consider adopting a similar approach for declaring REZs. Other coordination examples from overseas are Special activation precincts and city/regional deals in Australia to enable industrial infrastructure. These are similar concepts to circular economy precincts and energy island projects. Copenhagen Infrastructure Partners (partner in Taranaki Offshore Partnership joint venture with New Zealand Super Fund) are investigating a hydrogen island project in Denmark, powered by offshore wind.
9	**Do you agree with our findings on the potential for hydrogen to contribute to New Zealand's emissions reduction, energy security and resilience and economic outcomes?**
	We agree with the potential for emissions reduction at a high level, but have not analysed the reductions in detail.
10	**Do you have any insights we should consider on what is needed to make hydrogen commercially viable?**
	We have no comments on this question.
11	**Is there any further evidence you think we should be considering?**
	We have no comments on this question.

Section 3: Government position and actions	
	Do you agree with our policy objectives?
12	The following objectives could be added/integrated: - Enable Māori participation - Provide investment certainty – could be integrated into the scalability and bringing forward of demand objectives - Efficiency, particularly in consenting - Consistency – with policy in New Zealand (e.g. emissions budgets) and international best practice.
	Do you agree with our positioning on hydrogen's renewable electricity impacts and export sector?
13	Hydrogen could also be developed to decarbonise industrial feedstocks, industrial process heat and transport as well as for use as part of the electricity system. Regardless of the case, plentiful renewable electricity generation will need to be enabled and developed at the same time as the hydrogen industry. Offshore wind is a way of providing renewable electricity generation at scale, so could be a way of enabling hydrogen production.
	Do you agree with the proposed actions and considerations we have made under each focus area?
14	Yes, however the scale of investment is larger in other countries. For example, in May 2023 the Australian Government established a $2 billion initiative to support green hydrogen projects in Australia ('Hydrogen Headstart').
	Is there any evidence we should be considering to better target actions in the final Hydrogen Roadmap?
15	The final roadmap needs to contain enough detail to give clarity to industry participants, increase investor confidence and identify opportunities. The final roadmap should highlight timelines for developing the renewable electricity generation needed to produce hydrogen, and include information on enabling mechanisms, such as renewable electricity zones.

General comments
We have no further comments.