

Electricity Authority

By email: FSR@ea.govt.nz

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Tēnā koe

The Future Operation of New Zealand's Power System

BlueFloat Energy and Elemental Group appreciate the opportunity to provide a submission on the Electricity Authority's (the "**Authority**") consultation paper entitled The Future Operation of New Zealand's Power System ("**Consultation Paper**").

BlueFloat Energy and Elemental Group are developing a portfolio of offshore wind projects in Aotearoa to accelerate the energy transition, to enable broader economic opportunities in green industries and to deliver enduring benefits for the communities in which we work. To date, we have announced the South Taranaki Offshore Wind Project and the Waikato Offshore Wind Project. More information is available at our project websites here:

1. <https://www.waikatooffshorewindproject.com/>
2. <https://southtaranakioffshorewindproject.com/>

We have set out below comments on two of the questions raised within the Consultation Paper.

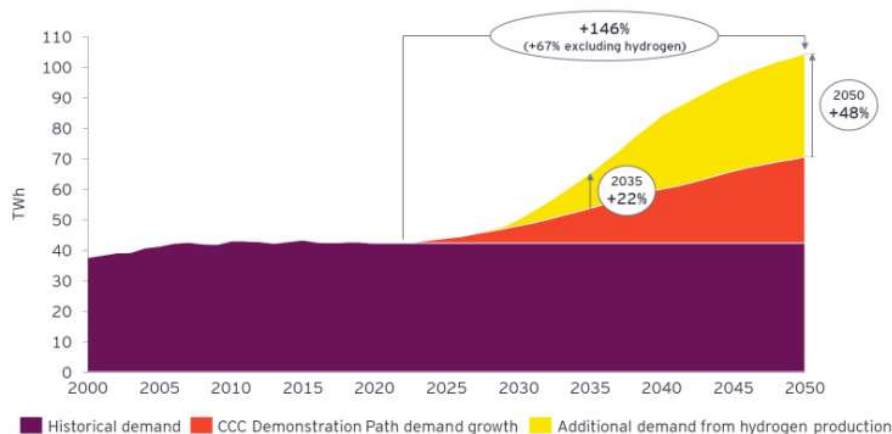
Question 2 – Key Drivers of Change

We agree with the Authority's view that electrification of the energy system will be a key driver of change. Whilst we acknowledge that *Whakamana I Te Mauri Hiko* provides an excellent overview of the implications of electrification, we are becoming increasingly concerned with the narrative that this electrification scenario represents the full extent of New Zealand's anticipated electricity demand growth to meet net zero.

Extracted below is a figure taken directly from *Whakamana I Te Mauri Hiko* which shows that electrification is only expected to contribute a 20.5 MT CO₂e reduction by 2050 with forestry expected to abate a further 17.1 MT CO₂e. This results in 16.4 MT CO₂e requiring other forms of abatement to reach net zero. When decarbonisation of international aviation and marine transport visiting New Zealand is included, this figure grows further to 21.4 MT CO₂e requiring further abatement action.



As outlined in the recent Interim Hydrogen Roadmap published by MBIE in August 2023, much of this additional abatement is expected to come from the transition from fossil fuels to green hydrogen based derivatives for heavy industry and transport. The production of green hydrogen for these purposes will result in significant further electricity demand growth, beyond that contemplated in *Whakamana 1 Te Mauri Hiko*. The figure below is extracted from the Interim Hydrogen Roadmap and shows electricity demand growing by 146% by 2050 (in the low case).



This is further supported by a recent study undertaken by PWC¹. In that Study, PWC considered the potential electrical demand growth from both electrification and the production of green fuels for domestic decarbonisation. In their mid-scenario, PWC concluded that New Zealand's electricity demand would grow to 116TWh/year by 2050, broadly consistent with MBIE's Interim Hydrogen Roadmap.

Whilst this information does not change the Authority's conclusion that electrification will be a key driver of change, we consider it important that the sector and associated stakeholders have a clearer picture of the anticipated electricity demand growth required to meet net zero by 2050. As outlined in the Consultation Paper, long-term planning for the future will be critical in meeting our national goals. With that in mind, we need to be planning for a future in which we reach net zero, rather than for a future in which we only get half-way.

This more comprehensive view of electricity demand growth is also important for planning relevant transmission and distribution network investments. Clearly, New Zealand's future

¹ PWC, National Impact Study: New Zealand Offshore Wind Industry, 2023

includes the construction of many gigawatts of new wind and solar generation capacity. Whilst some generation projects may be able to take advantage of spare electricity network capacity in the short-term, the medium to long term will see an ever-increasing reliance on new grid capacity development in order to connect new renewables.

With new wind and solar projects capable of being built much faster than the time required to develop new electricity network assets, proactive and strategic grid investments will become a critical means of keeping the energy transition on track. A recent International Energy Agency report found that 1,500 GW of renewables globally are delayed while waiting for grid connections (*Electricity Grids and Secure Energy Transitions, October 2023*) and New Zealand should look to learn from these overseas experiences to avoid a similar situation delaying the energy transition here.

Whilst we acknowledge that consumer costs need to be carefully managed when assessing the appropriate timing of electricity network investments, we consider that the cost of delay now materially outweighs the cost of investing early, given the electricity demand growth trajectories expected, and the likely costs of purchasing international carbon credits should we fail to meet our net zero targets through domestic action.

Question 7 – Coordination of network planning

We agree that New Zealand would benefit from more coordinated, long-term network planning. As noted above, we consider that proactive, strategic electricity network investments will be critical in ensuring that New Zealand can deliver the volumes of new renewable generation required for the energy transition. Such investments can only be sensibly made in accordance with a coordinated long-term plan. We acknowledge the reference to the Integrated System Plan introduced in Australia and believe that a similar plan could play an important role in the New Zealand context also.

As at 15 March 2024, we note that Transpower's New Connection Enquiries Dashboard records that Transpower is managing 388 active grid connection enquiries with total capacity of >44 GW. Whilst we acknowledge that developers are well placed to identify the most appropriate locations for new renewable generation projects, there is clear evidence that a purely market based approach without any overarching system level planning is resulting in a number of inefficiencies.

With New Zealand's limited workforce and technical capacity to develop new generation assets and electricity network connections, it is critical that available resources are directed to projects which are both necessary and highly likely to be delivered. Unfortunately, our current system results in significant resources being allocated to projects which may not be delivered at all or only delivered in the very distant future. We submit that a higher degree of long-term network planning could play a role by identifying priority generation projects to ensure that adequate resources are allocated to ensure those projects can be delivered and connected to the grid in a timely and orderly manner.

We thank the Authority for the opportunity to make this submission and would welcome the opportunity to discuss further any of the matters raised.

Yours sincerely,



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Nick Jackson

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