HIRINGA

The energy to change. Together.

TRANSPOWER

RENEWABLE ENERGY ZONES

HIRINGA ENERGY SUBMISSION

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Matthew Carnachan

Head of Trading & Energy Markets

mcarnachan@hiringa.co.nz

Introduction to Hiringa Energy

Hiringa Energy is a vertically integrated green hydrogen company, dedicated to the production and supply of green hydrogen and providing hydrogen solutions for industry, the public sector, and transport operators. For more information, please refer to our website www.hiringa.co.nz

Hiringa's main source of green hydrogen will be produced by electrolysis from renewable electricity and water through Hiringa's electrolysers.

Hiringa is building 25 MWs of distribution connected wind generation in 2023 and is planning numerous other large wind installations within the next decade. The green hydrogen produced from these assets will primarily be used to decarbonise heavy transport fleets and industry via power to x projects.

Under Hiringa's base case scenario, we will be operating in excess of 100 MW of distributed electrolyser capacity across New Zealand by 2025 and over 500 MW by 2030.

Electrolysers are extremely responsive and can be ramped up and down from 10 % to 100% in a matter of seconds providing smoothing of peaky renewable power flows. This responsiveness is a key feature that contributes to a global conclusion that green hydrogen will play a key role in accelerating the deployment of renewable generation and decarbonising sectors such as heavy transport and industrial chemicals.

Hiringa will operate its electrolysers in a way the minimises the delivered cost of electricity while meeting health and safety requirements and contractual offtake obligations. This will include load following of renewable generation and avoidance of running during peak times which reduces the need for increased peak capacity of transmission and distribution infrastructure and allows our connected renewable energy to be reallocated to the grid.

Electrolysers are already being used for demand response to support reliability of electricity systems and efficient investment. As New Zealand moves towards 100% renewable electricity, a well-designed wholesale market can encourage and support new technologies such as green hydrogen to provide flexibility to integrate with, store and export intermittent renewable electricity.

Response to consultation questions

Q.1 Do you agree that the first mover disadvantage and high connection costs can be challenges for connecting new renewable generation and/or large electricity loads to the electricity network?
Yes, this is a significant barrier to achieving commercial viability in some cases.
Q.2 Do you think the concept of a Renewable Energy Zone could be beneficial in a New Zealand context?
Yes
Q.3 What region(s) do you think would be suited to Renewable Energy Zones?
Taranaki should be the top candidate for a renewable energy zone as well as a renewable industrial cluster. Taranaki has world class onshore and offshore wind resources, existing industrial chemical

manufacturing, significant energy infrastructure and skills, as well as a West Coast deep seaport that can all be leveraged to accelerate New Zealand's transition to net zero emissions and unlock additional renewable energy export markets.

Hiringa has undertaken considerable data collection and analysis of the onshore wind resource available in the Taranaki region and has confirmed high-capacity factors for wind turbines combined with low installation costs due to the local topography, with the potential to produce some of the lowest levelized cost of renewable electricity in the world.

In addition to the onshore wind resource, Venture Taranaki's Offshore Wind Discussion Paper identifies over 10+ GW (fixed turbines) of potential energy generation and over 90GW of floating wind resource potential in Taranaki's waters. The recent announcement of the joint venture between NZ Super and Copenhagen Infrastructure Partners to explore large-scale offshore wind energy further validates this potential.

The region's energy sector has worked closely with Venture Taranaki identifying the potential for the large-scale production of electrolytic green hydrogen and green industrial chemical derivatives, replacing the existing fossil fuel industry and high emissions chemical manufacturing processes, an opportunity known as 'Power to X'. A significant benefit of this technology is the ability to provide gigawatt scale demand response to support firming of the national grid. Several mega-projects are already being screened, each of which would provide material benefit in their own right.

Taranaki could easily provide New Zealand's increasing electricity demand over coming decades as well as supporting Power to X. It is important to note that the establishment of commercially viable Power to X opportunities relies on initially very low-cost renewable electricity to activate the market (e.g. >250MW to <1GW onshore wind) this decade, followed by large scale availability of low cost renewable electricity to scale the market (10+ GW of offshore wind from the 2030's).

In order to realise this potential, investment will be required in intra-regional transmission capacity as well as enhanced export connectivity.

By prioritising Taranaki, this workstream can align with the Government's intentions around a Just Transition for the existing Taranaki workforce. Existing workstreams such as Tapuae Roa, Taranaki 2050, H2 Taranaki Roadmap and Venture Taranaki's Power to X and Offshore Wind Forum, all paint a clear picture that Taranaki stakeholders are ready and willing to transition to zero emission energy production and supply and well positioned to move fast.

Q.4 What benefits do you think should be considered in the decision-making process for Renewable Energy Zones in New Zealand?

Hiringa agrees with all the potential benefits identified in this paper. In addition, the benefits of manufacturing green industrial chemicals, repurposing existing fossil fuel infrastructure and transitioning fossil fuel jobs should be considered. There is also the ability to unlock the production of new energy export channels if opportunities like offshore wind are leveraged.

Consideration should also be given not just to new infrastructure but to maintenance of electricity transmission infrastructure that may otherwise be decommissioned and could be leverages in new REZs.

Q.5 Do you agree with the proposed guiding principles? Are there any that you would change or add?

The proposed guiding principles are appropriate.

Q.6 Do you agree with the proposed criteria for selecting suitable regions for REZ development? Are there any that you would change or add?
All 6 criteria proposed should be included in the selection process (not just the top 3). The ability to open up new energy export channels should also be considered when analysing REZs.
Q.7 Do you agree with using a tender process for committing projects in a REZ? Are there alternative processes that could be considered?
A major challenge with the tender process will be getting alignment of timing on investment decisions with REZ connection and transition infrastructure and generation/demand infrastructure. Resource consent will be a major barrier to generation project commitment, until this is gained there will be very little certainty for investments in REZs. There is a role for government to help underwrite capacity investments and enable open access to continue. This may be important to ensure fairness for later developments, and access for smaller developments that may have a higher local ownership and content. Certainty of the ability to connect to the transmission grid, the process, costs and timeframe for connection will be critical to large scale renewable development which requires significant upfront development well before the level of certainty outlined in the selection criteria (i.e. For example, relating to consenting for an offshore wind development).
Q.8 Who should be involved with co-ordinating and undertaking the various steps within a REZ development process?
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Q.9 Do you agree with the proposed project criteria? Are there any that you would change or add?
In general, we agree with the proposed project criteria.
Q.10 Do you agree with the challenges we have identified?
Aligning Resource Management Act reform with Government's energy decarbonisation goals will be critical, with consenting costing approximately 5.5% of infrastructure project costs[1], as well as resulting in significant additional costs of delays and resulting investment uncertainty. Due to the long timeframes for consenting and installing transmission infrastructure, additional government support may be required for investment ahead of renewable project commitments, to met NZ decarbonisation goals. There is also an opportunity for government participation within the REZ to provide incentives for renewable generators in terms of more competitive / reduced transmission pricing to accelerate

[1] NZ Infrastructure Commission – Draft NZ Infrastructure Strategy

renewable development.
Q.11 What are some of the ways to overcome these challenges and who should be involved?
Refer above.
Q.12 Do you see any other potential challenges that need to be considered?
It isn't clear what happens to projects that aren't successful in the REZ but are located in that REZ. Do they lose their right to open access to the grid?