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MARKET DEVELOPMENT ADVISORY GROUP

PRICE DISCOVERY UNDER 100% RENEWABLE
ELECTRICITY SUPPLY

HIRINGA ENERGY SUBMISSION

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Context of Hiringa Energy and Responses

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.

Hiringa's main source of green hydrogen will be produced by consuming renewable electricity and water through Hiringa's electrolyzers, a process called electrolysis.

Hiringa is building 24MWs of distribution connected wind generation in 2023 and numerous other large wind installations within the next decade. The green hydrogen produced from these assets will be used to decarbonise heavy transport fleets and in urea production.

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

Electrolysers are extremely responsive and can be ramped up and down within 1 second. 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 electrolyzers in a way that minimises the delivered cost of electricity while meeting health and safety requirements and contractual offtake obligations. This will include load following of renewable generation, avoidance of running during times of higher electricity prices and minimising lines charges.

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

Hiringa welcomes the opportunity to provide feedback on the Market Development Advisory Group's (MDAG) Issues Discussion Paper *Price discovery under 100% renewable electricity supply* and would like to thank MDAG on their extensive paper which thoroughly canvases the possible issues within the market.

As a new generation green energy company, Hiringa is concerned with the current limitations of the wholesale market in enabling new technologies and the transition to 100% renewable electricity. We are therefore encouraged to see the detailed and well put together consultation paper by MDAG.

We appreciate the collaborative approach taken when putting this work together and encourage MDAG to continue with this approach, particularly with new entrants to the market (with renewable technologies) who may be experiencing some of these issues first hand.

In general, Hiringa agrees with MDAG's views on how electricity supply is likely to change, and with the issues identified. This submission provides further thoughts and responses to the consultation questions from Hiringa's viewpoint.

Response to consultation questions

Q.1 Do you agree with the broad conclusions that emerge from the simulations in relation to spot price levels and volatility, in particular: (a) significantly more spot price volatility is likely with a 100%RE system, especially shorter-term weather driven volatility? (b) New Zealand's sizeable hydro generation base is likely to moderate the growth in volatility to some extent, making extreme oscillations between zero and shortage spot prices relatively unlikely?
1 (a) Yes. (b) We agree that NZ's hydro generation base should reduce the frequency of extreme oscillations, however we remain concerned that this conclusion relies on hydro generators operating rationally in a perfectly competitive market.
Q.2 If you disagree, what is your view and the reasoning for it?
NA.
Q.3 Do you agree that in a 100%RE system there will be many diverse and disaggregated resources to coordinate, and that a wholesale market will be the preferred mechanism to coordinate plans and actions among all the resource owners? If you disagree, what is your view and the reasoning for it?
Yes.
Q.4 Do you agree that these are the key issues in relation to real-time coordination? If you disagree, what is your view and the reasoning for it?
Yes.
Q.5 Do you agree that these are the key issues in relation to ancillary services with 100%RE? If you disagree, what is your view and the reasoning for it?
We believe that the MDAG should rely on FSR work prior to concluding the main issues relating to ancillary services.
Q.6 Do you agree that these are the key issues in relation to price signalling with 100%RE as summarised in paragraph 3.42 above? If you disagree, what is your view and the reasoning for it?
Yes. It is also worth highlighting that confidence in the spot and future markets from wholesale buyers and end customers has dropped significantly since 2019, when prices took a step change up and remained significantly higher despite supply and demand conditions changing. MDAG has focused on reducing the scope for suppression of high spot prices during genuine scarcity events, however due to the current issue (perceived or otherwise) of artificially high spot prices, MDAG should also focus on reducing the scope for artificially sustained high prices.

Q.7 Do you agree that the preconditions in paragraph 3.38 would need to be in place for an energy-only market design to be effective? If you disagree what is your view and the reasoning for it?

Yes.

There is and will continue to be a big challenge educating the general public, customers and government that wholesale market design is in the long-term best interest of consumers, given the deep complexity inherent in its design. For this and many other reasons, a focus on increasing simplification, rather than complexity should continuously be considered when assessing market design options.

Q.8 Do you agree that we should take forward to the next stage of the process (options identification and analysis) the measures referred to in paragraph 3.43 above? If you disagree, what is your view and the reasoning for it?

Yes.

However thorough consideration needs to be given to how these options may restrict new entrants, new technologies and competition.

Q.9 Do you agree that these are the key issues in relation to demand-side flexibility with 100%RE? If you disagree, what is your view and the reasoning for it?

Yes.

In addition, we encourage MDAG to understand the existing barriers for participants with demand-side flexibility instruments in realising the true value of DSF and whether changes to the market design under 100%RE will increase or decrease these barriers.

Q.10 Do you agree that these are the key issues in relation to contracts markets with 100%RE? If you disagree, what is your view and the reasoning for it?

Yes.

in addition, MDAG should consider the barriers (such as complexity, financial and resourcing) for new entrants to enter and trade in these contract markets.

Many of the contract markets required under 100% renewable, such as day ahead hedging, off peak CFDs and corporate PPAs, would also be useful in the wholesale market today. We encourage MDAG to understand why these products are not readily available and liquidly traded in today's market.

Q.11 Do you agree that these are the key issues in relation to transition to 100%RE? If you disagree, what is your view and the reasoning for it?

No.

More focus and resource should be given to enabling alternative renewable technologies to transition away from fossil fuels, rather than delaying their retirement.

Q.12 Are there any other 'lumpy' issues that warrant specific consideration in the transition to 100%RE?

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Q.13 Do you agree that we should analyse how competition in the wholesale market is likely to be affected by a shift to 100%RE, in particular, in competition for seasonal flexibility services? If you disagree, what is your view and the reasoning for it?

Yes.

Existing long term flexibility services (predominantly hydro) are in an extremely competitive position vs new technologies, due to their CAPEX and OPEX being close to zero. The owners and recipients of the profit from these assets may not be incentivised to use that profit to reinvest in new flexibility technologies that compete with their existing business.

Q.14 What other challenge will arise in the wholesale electricity market with that are likely to have a significant impact in relation to achieving the statutory objective of the Authority, which is to “promote competition in, reliable supply by, and the efficient operation of, the electricity industry for the long term benefit of consumers ”?

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