ELECTRICITY AUTHORITY

TRANSMISSION PRICING METHODOLOGY

HIRINGA ENERGY SUBMISSION

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Background

1. Hiringa Energy (Hiringa) 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.

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

3. Hiringa is deploying 10 MWs of electrolyser capacity across the North Island and building 24 MWs of distribution connected wind generation in 2022. The green hydrogen produced from these assets will be used to decarbonise heavy transport fleets and urea production.

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

5. Electrolysers are extremely responsive and can be ramped up and down within 1 second, this 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.

6. Hiringa will operate their 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, avoidance of running during times of higher electricity prices and minimising lines charges.

7. Electrolysers are already being used for demand response to support reliability of electricity systems and efficient investment in non-network solutions in other countries, however New Zealand's transmission pricing methodologies, network distribution charges and connection agreements do not support or value electrolysers demand-side response and flexibility to integrate with, store and export intermittent renewable electricity and the avoidance of inefficient investment in networks.

Key messages

8. The need to shift consumption away from peak demand periods is more crucial now than ever. As New Zealand transitions to 100% renewable electricity, and electrifies a greater portion of the economy, the intermittent nature of this renewable electricity makes meeting New Zealand's periods of peak demand ever more difficult.

9. The current RCPD mechanism is an existing, effective, proven tool to incentivise solutions and technologies that shift network connected demand away from peak demand periods. As outlined in the TPM change process, the RCPD charge is not without its flaws, however removing an extremely effective demand response tool without a sufficient replacement is a significant step backwards in New Zealand's electricity system transition to decarbonisation.

10. Hiringa is currently connecting electrolyser assets to various distribution networks in New Zealand to produce green hydrogen for decarbonising heavy transport[1] and industry[2]. These electrolysers are very responsive and can ramp up and down within seconds, which makes them an ideal asset to manage grid congestion. Under the existing RCPD charge and wholesale electricity pricing, Hiringa is able to value the flexibility of these assets and provide demand response to the wholesale market and congestion management during peak consumption periods..

11. Under the proposed TPM changes Hiringa would be incentivised to take our electrolysers off the grid, where a 'behind the meter' solution using a combination of renewable generation, storage and flexible demand services can achieve a lower delivered cost of electricity than can be achieved from the grid. While Hiringa can only speak for our business cases, this would suggest that other emerging technologies and new business models will be incentivised, under the proposed TPM changes, to do the same. The cost of these solutions going off the grid is a missed opportunity which will ultimately result in less demand response and higher costs for the remaining customers connected to the grid.

12. Hiringa has canvased the New Zealand electricity industry for alternative demand response markets that value the flexibility of emerging technologies, like electrolysers. It is evident that these markets are not yet mature in NZ. Introducing the proposed TPM changes without sufficient demand response price signals will decrease grid security during peak demand periods.

13. The proposed TPM changes place a great deal of faith on wholesale prices and emerging technologies, real-time pricing and new business models to signal congestion and real time response. There lacks sufficient evidence that these existing and future market elements will perform this role more efficiently than the existing arrangements.

14. Wholesale prices in New Zealand already provide a strong signal for wholesale demand and generation balancing across the country. However, due to the extreme volatility in New Zealand's wholesale electricity market, the large majority of consumers are forced to hedge their entire exposure to spot prices, therefore real-time wholesale price signals are meaningless for many of the potential congestion management solutions. Providers of these solutions will be required to pass on their demand response solutions to an aggregator, which in most cases will be a Gentailer with an existing portfolio of demand and generation. Not only does this strip value from the consumers providing the demand response, but further exacerbates the bigger issue of market power (perceived or real) that the Electricity Authority is currently grappling with.

15. The direction and speed of change towards decarbonisation that the New Zealand electricity system will undertake has evolved immensely since the relaunch of the TPM change process. Hiringa believe the proposed TPM changes do not sufficiently provide for grid decarbonisation and that the changes proposed are backward looking and not fit for purpose going forward.

16. For the reasons above, Hiringa does not support the proposed TPM changes.

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[1] https://www.hiringa.co.nz/post/hiringa-refuelling-nz-commencing-construction-of-nationwide-green-hydrogen-refuelling-network

[2] https://www.greenhydrogennz.com/