# Promoting competition in the wholesale electricity market in the transition toward 100% renewable electricity

NZ Wind Energy Association Submission

December 2022

Submissions
Electricity Authority

By email: reviewconsultation2022@ea.govt.nz

## Introduction

1. The New Zealand Wind Energy Association (NZWEA) appreciates the opportunity to provide a submission on Promoting competition in the wholesale electricity market in the transition toward 100% renewable electricity issues paper.
2. NZWEA recognises wind energy's essential role in decarbonising the energy sector and is committed to supporting the effective integration of the technology into the electricity system which includes managing variability.
3. The Association also recognises the importance of a competitive wholesale market and submitted on the Market Development Advisory Group's (MDAG) 100% renewable electricity supply issues discussion paper[1] in March 2022.
4. The Association was supportive of MDAG's conclusions including that:
   - Significantly more spot price volatility is likely with a 100% renewable electricity system, especially shorter-term weather-driven volatility.
   - New Zealand's sizeable hydro generation base is likely to moderate the growth in volatility to some extent.
   - The seasonal nature of hydro generation with dry year risk combined with the size of existing thermal plants and the variability of increasing levels of new renewables does create a key transition challenge.
5. Key submission points included:
   - That the Association agrees wind energy is scalable but does not consider new generation can be developed rapidly given current RMA consenting requirements.
   - Improved demand side flexibility is key to efficiently managing renewables variability and ensuring distributed energy resource investment is optimised.
   - Significant hedge market development is required including extending the period of contract cover and a new capped price product.

[1] Price Discovery under 100% Renewable Electricity Generation Issues Discussion Paper – published February 2022.

## Executive Summary

6. The Association considers that irrespective of whether 100% renewable electricity generation is achieved MDAG's key conclusion that the forecast increase in wind and solar generation will cause more spot price volatility and strengthen the importance of hydro flexibility and the development of other options to firm renewables stands.

7. Preserving existing hydro flexibility and ensuring the expansion of other options to firm renewables variability will be essential to ensuring effective ongoing wholesale market competition. NZWEA notes the development pipeline is predominately comprised of solar and wind energy.

8. The Association concurs with the EA's view on the high level of current market uncertainty arising from the yet to be completed Gas Transition Plan, NZ Battery Project decision, resource management reforms and lack of an energy sector strategy. NZWEA also notes that, notwithstanding the recently released Emissions Reduction Plan, there remains uncertainty around the demand growth trajectory.

9. NZWEA supports the EA's initiatives to promote wholesale competition in particular:

   - Acceleration of efforts to enable distributed energy resources including demand response.
   - The importance of strengthening the National Policy Statement for Renewable Electricity Generation and ensuring the wider resource management reforms better enable renewables development.
   - Enhancement of the ASX to provide longer dated contracts and new product development including a capped price option.
   - Bringing forward the completion of the Gas transition Plan, and NZ Battery Project to provide greater understanding of the support they may provide as options to firm renewables prior to any consideration of wider structural options.

10. The Association also makes the following observations:

    - Greater confidence in future electricity demand and the ongoing operation of the Tiwai Aluminium Smelter has led to a significant increase in new build activity from existing generators and new entrants.
    - Historic low reserve margins and thermal operating parameters have added considerable price risk which has contributed to spot price volatility.
    - Low reserve margins combined with the long development timeframe for wind projects in particular means there needs to be an extended timeframe to assess whether wholesale prices are responding as expected in a competitive market.
    - A recent study[2] highlights that wind energy benefits from locational diversity and that a combination of wind and solar has less variability than each technology individually. The current high geographical concentration of wind generation in a single weather pattern is contributing to variability which as a technology should reduce as new wind farms are developed.

[2] New Zealand Renewable Generation Diversity Investigation July 2002 – prepared by Concept Consulting for NZWEA. https://www.windenergy.org.nz/industry-studies

## Response to Specific Questions

| **1.** | Do you agree that a key competition issue in the transition is that it weakens competition in extended times when intermittent generation cannot run? |
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| | Potentially unless other options are developed, in addition to hydro generation, to firm renewables variability along with an appropriate level of regulatory oversight. |

| **2.** | Do you have any comments on the contents of this chapter? |
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| | Most of the new generation forecast is either base load geothermal or variable wind and solar with little renewables firming capacity planned.<br>The Association notes that a recent study[3] highlights that wind energy benefits from locational diversity and that a combination of wind and solar has less variability than each technology individually. Therefore as more wind and solar is developed that is geographically diverse the variability impact of wind energy being predominately located in one region will reduce.<br>The forecast sources of new generation combined with a substantial growth trajectory significantly increases the importance and value of flexible hydro generation and the importance of developing other options.<br>Monitoring trends and the extent to which the four largest generator-retailers are gross pivotal, particularly from hydro generation, will be an important indicator of competition particularly as new entrants build capacity.<br>The EA's assessment of the effectiveness of the new trading rules is noted and this, along with the potential for wider regulatory reform, will play an important role in managing industry concentration risks. |

| **3.** | Do you have any comments on the impediments to generation investment? |
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| | In relation to wind energy the timeframe for development, as identified by the Infrastructure Commission, is lengthy and expensive with RMA consenting challenges well documented. The Association therefore supports comments that a long-term perspective is required in relation to seeing wholesale market prices respond after a period of under supply given the timeframes required to add new capacity. The Association further notes when reserve margins are low there is significantly more volatility in prices.<br>In relation to the delay in committing new investment NZWEA considers the uncertainty over the future of the Tiwai smelter, which had a short one-year termination notice period and the resultant potential material impact on spot prices, has made investment decisions in renewable generation more challenging.<br>The Association does not support the comment that overseas investors are more willing to wait and secure offtake arrangements once a project is built. Access to offtake and firming |

[3] New Zealand Renewable Generation Diversity Investigation July 2002 – prepared by Concept Consulting for NZWEA.

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| | arrangements, in the Associations view, is a key consideration for all merchant generators and the reason why NZWEA strongly supports the development of the wholesale contracts market including a longer contract duration and development of a capped price product and the PPA market.<br>The Association notes MDAG's simulations that the share of intermittent generation would increase from 6% in 2020 to 47% in 2050 and that flexible demand would increase from 8% of peak demand in 2020 to 25% by 2050. NZWEA agrees the challenge of firming renewables variability is significant and the ability to do so from multiple sources in addition to hydro flexibility will be a key determinant of the effectiveness of wholesale market competition. |

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| **4.** | Do you agree that the lag in investment is not due to anticompetitive behaviour to slow down investment and discourage entry, or can you provide instances or other evidence to the contrary? |
| | The size of the market overhang from a closure of the Tiwai smelter and the period for the supply / demand imbalance has made investment decisions challenging.<br>In addition, prior to the commitment to a net zero target and the publishing of the emissions reduction plan, there was considerable uncertainty as to the expected future demand profile. |

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| **5.** | Do you have any other comments on the role and impact of carbon pricing on investment and wholesale market competition or the other content of this chapter? |
| | The Association supports the Climate Change Commission's view that the impact of carbon pricing on electricity prices should fall away as the share of renewable generation increases.<br>NZWEA notes that any windfall contribution is largely attributed to existing renewable generation assets and that forecast future wholesale prices including periods of fossil fuel generation will form part of generator investment decisions.<br>In relation to the 2021 review of wholesale market performance the Association considers:<br>▪ Uncertainty in future electricity demand and the ongoing operation of the Tiwai Aluminium Smelter has resulted in a lack of development.<br>▪ Historic low reserve margins have added considerable price risk which has contributed to spot price volatility.<br>▪ Low reserve margins combined with the long development timeframe for wind projects in particular means there needs to be an extended timeframe to assess whether wholesale prices are responding as expected in a competitive market. |

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| **6.** | Do you agree with the Authority's overall conclusion that it currently considers that continued reliance on the current conduct-based measures and (the threat of) entry of new supply to mitigate the exercise of market power remains broadly appropriate in the transition toward 100% renewable electricity? |
| | Yes. From the EA's analysis the conduct-based measures have had an impact. The significant increase in development activity from existing gentailers and the number of |

new entrants indicates an increased level of competition.

The Association concurs that of particular importance will be the enabling and monitoring of the development of competitive options to firm variable renewables other than existing hydro.

The form and timing of the NZ Battery Project could have a material impact on wholesale market competition if generation is dispatched at times other than in dry periods.

Similarly the Gas Transition Plan will inform on options to support peak periods and renewables variability. To undertake wider structural reform without understanding the implications of the Battery Project or Gas Plan would create unnecessary market risk.

**7.** Do you agree with the objective and evaluation criteria set out in this chapter?

The Association supports the objective of promoting competition in the wholesale market during the transition toward 100% renewable electricity, for the long-term benefit of consumers.

The Association also supports the evaluation criteria and considers the timeframe of through to 2030 appropriate. NZWEA notes key to wholesale market efficiency will be evidence of competitive options to firm renewables variability whether from the demand or supply side.

**8.** Do you have any comments on the contents of this chapter?

There remains considerable uncertainty as new generation investment accelerates from both the supply side and when the forecast demand growth occurs. Reducing uncertainty is a significant enabler of new investment. Efforts to bring forward the completion of the Gas Transition Plan, Energy Strategy and NZ Battery Project would have a significant impact particularly when the options to firm variable renewables has been identified as a key factor in assessing the effectiveness of wholesale market competition.

The Association has been advised a draft National Policy Statement for Renewable Electricity Generation (NPS-REG) will be available for consultation shortly. A strengthened NPS-REG will be an important determinant of the ability to consent new wind given the lengthy implementation period for resource management reforms and uncertainty as to the impact the new legislation will have on enabling renewable electricity generation infrastructure to be built.

**9.** Are there any other options that would promote wholesale electricity market competition in the transition that you consider would be more effective and efficient?

No.

**10.** Do you have any comments on the contents of this chapter?

The Association supports the acceleration of efforts to enable efficient demand response (DR) and demand flexibility services to gain greater value from behind the meter investment and improve wholesale competition and improving the disclosure of gas information as a priority.

Until the full potential of DR and Distributed Energy Resources is assessed and further information on the gas transition plan and NZ Battery Project is available it would be premature to consider structural options. Doing so may have a material impact on current and planned renewables investment by the four major generation-retailers at a time when they have signalled a significant increase in forecast generation capacity.

**11.** Are there any other options that would better facilitate efficient investment in renewable generation to promote wholesale electricity market competition in the transition?

The Government is currently considering contracting options for its electricity demand. Entering into power purchase agreements or another form of financial contract could assist underpinning the development of new renewable generation options.

**12.** Do you have any comments on the contents of this chapter?

The Association considers that significant hedge market development is required. In previous submissions the Association has called for:

- The term of the hedge market to be extended from 3 years to a minimum of 5 years to provide a higher level of contract cover for merchant generators given that new generation assets are a 20+ year investment.
- The development of new products noting that wholesale market product innovation is behind that of other markets. For example, the Australian wholesale market offers a quarterly base load cap on future products. An electricity price cap product was identified as a priority by the EA in December 2015 however for a number of reasons has not been able to be delivered. While a cap product has a limited direct benefit to a wind farm owner it may enable a retailer to be more prepared to contract with a wind farm owner recognising the variable nature of production and having the ability to manage the absolute level of risk as defined by the cap.

NZWEA supports the EA's comments on regulatory and economic uncertainty. In particular the potential market impact of the NZ Battery Project to firm variable wind and solar generation.

As noted in response to question 8 a strengthened NPS-REG is expected to be available for consultation shortly. NZWEA has provided feedback on the changes required to the NPS-REG and joined key electricity generators in expressing concern over the potential negative impact of the mandatory environmental bottom lines proposed in resource management reforms on renewable electricity development.

The two key changes the industry was looking be addressed in the draft Bills for the Natural and Built Environment Bill are:

- Having a policy pathway that provides an exception to limits.
- Strengthening outcomes relating to climate change.

**About the NZ Wind Energy Association (NZWEA)**

- The NZWEA is an industry association that promotes the development of wind as a reliable, sustainable, clean and commercially viable energy source.
- We aim to fairly represent wind energy to the public, Government and energy sector.
- Our members are involved in the wind energy sector and include electricity generators, wind farm developers, lines companies, turbine manufacturers, consulting organisations and other providers of services to the wind sector.
- By being a member of NZWEA you are assisting the development of wind energy in New Zealand and helping to reduce our greenhouse gas emissions to meet climate change targets.

**The Association's strategy focuses on three key areas:**

- Leveraging NZ's emission reduction imperative to enable the energy transition to renewables, particularly wind energy.
- Optimising wind energy's position and ensure the regulatory environment supports wind farm development.
- Expanding the opportunity for wind energy development to enable community and industrial projects including wind's integration with other technologies.

Contact details in relation to this submission:

Grenville Gaskell
Chief Executive
New Zealand Wind Energy Association
PO Box 553, Wellington 6140
grenville@nzwea.org.nz