



Submission on a Publicly Notified Resource Consent – Kaimai Wind Farm Ltd Proposal

Under Section 96 of the Resource Management Act 1991

- To:** Hauraki District Council and Waikato Regional Council
- Submitter:** *New Zealand Wind Energy Association*
- Submission:** This is a submission on an application from Kaimai Wind Farm Ltd for a resource consent to establish and operate a 24-turbine wind farm on the north western area of the Kaimai Ranges, south of Paeroa.
- This submission relates to the resource consent application in its entirety.
- The New Zealand Wind Energy Association supports the application.

Background to the New Zealand Wind Energy Association ('NZWEA')

1. The New Zealand Wind Energy Association (**NZWEA**) is a non-Governmental, non-profit, membership-based industry association that works towards the development of wind energy as a reliable, sustainable, clean and commercially viable energy source. Our membership includes around 40 companies involved in the New Zealand wind energy sector, including:
 - most of the major electricity generators (Genesis Energy, Meridian Energy, Mercury, Tilt Renewables and New Zealand Windfarms);
 - a number of smaller electricity generators and those looking to invest in wind energy development;
 - a number of major international wind turbine manufacturers; and
 - a range of other companies with interests ranging from site evaluation through to operations and maintenance.
2. NZWEA's Mission and Objects are set out in the Association's Rules under the Incorporated Societies Act 1908 as follows:

Mission

The mission of the Association is to promote the uptake of New Zealand's abundant wind resource as a reliable, sustainable, clean and commercially viable energy source.

Objects

The objects of the Association are to achieve its mission by means of:

- (a) policy advocacy with local and central government officials and elected representatives, regulatory bodies, industry groups and other interested organisations to raise the awareness of, and develop the concept of Wind Energy in New Zealand;
- (b) organising seminars, conferences and other promotional and educational events, and to distribute information, relating to Wind Energy in New Zealand;
- (c) providing a forum for external and internal networking, discussion and co-operation amongst persons with an interest in Wind Energy in New Zealand;

- (d) promoting the economic, environmental, social and other benefits of Wind Energy in New Zealand; and
 - (e) promoting research and development of Wind Energy technology in New Zealand.
3. Further information on NZWEA, its members and activities, and the New Zealand wind energy industry in general is available on the Association's website: www.windenergy.org.nz.

Reasons for NZWEA's support for the Kaimai Wind Farm

Introduction

4. NZWEA supports the development of well-planned wind farms. Wind energy can be used to generate lower cost electricity for the benefit of consumers while at the same time typically having significantly fewer effects on the environment than any other existing alternative sources of electricity generation.
5. Wind generation is an integral part of New Zealand's electricity supply system. Currently New Zealand has nearly 700 MW of installed wind capacity that on an annual basis generates over 5% of electricity demand. Wind generation is a proven and reliable form of electricity in New Zealand. Wind turbines in New Zealand are the best performing wind turbines in the world in respect of energy produced per MW of installed capacity.

The project contributes to the sustainable management of natural resources

6. Electricity is an essential service and a means by which people and communities provide for their social, economic and cultural wellbeing and for their health and safety.
7. The electricity generated from this project will be supplied into the electricity transmission system (i.e. 'the grid'). This connection into the transmission system, which can transport electricity over the entire country, enables the electricity to be utilised both locally and/or nationally. It will therefore contribute to both the region's and the nation's ability to provide for its well being. The project will also increase the security of the region's electricity supply by providing an alternative source of electricity to the existing generation sources. This will also provide related benefits with respect to losses in the transmission system.
8. Windfarms provide a number of economic benefits, ranging from employment and other regional economic benefits during construction and ongoing operation through to long-term benefits to electricity prices. Wind farms also reduce greenhouse gas emissions.
9. Electricity generated from wind utilises an indigenous and renewable resource and does so with a minimal impact on the environment. The assessment reports included with the application considers that the effects of the windfarm are either acceptable or can be appropriately avoided, remedied or mitigated. On this basis the Kaimai Wind Farm appears to be aligned with the purpose of the RMA – the management of the use of natural and physical resources in a way which enables communities to provide for their well-being and for their health and safety.

Wind energy helps to mitigate the impact of climate change

10. Climate change is impacted by the concentration of greenhouse gases such as carbon dioxide in the atmosphere.

11. Ministry for the Environment analysis¹ confirm New Zealand's gross greenhouse gas emissions are growing rapidly having increased 19.6% since 1990. Sectors with the greatest growth in emissions are the energy sector (mainly CO₂ from transport and electricity generation) and the agricultural sector.
12. Net emissions have increased 54.2% since 1990 due to the influences of forestry harvesting cycles and the underlying increase in gross emissions².
13. On a per capita basis, emissions are 17 t CO₂-e the sixth highest in the world due to New Zealand's high level of agricultural production³.
14. Specifically, in 2015, the latest available data⁴, the level of New Zealand's CO₂ emissions from the electricity sector were 30% above 1990. Emissions from thermal electricity generation was 4,890 kt CO₂-e.
15. The use of renewable energy sources such as wind energy reduces New Zealand's emissions of the greenhouse gases (GHG) that contribute to climate change when compared to electricity generation from fossil fuel sources such as natural gas and coal. Wind energy uses mature, well-proven technology and so is able to be applied immediately to meet our need to provide both electricity generation and a reduction in our GHG emissions.
16. Studies have confirmed that the carbon dioxide released during the lifecycle of a wind turbine, depending on the carbon intensity of the fuels used in the manufacturing process, is fully recovered within 3 to 6 months of generation.
17. In 2013 the New Zealand Government set an unconditional emission reduction target of 5% below 1990 emissions by 2020. A long-term target of 50% below our 1990 greenhouse gas emissions by 2050 was set in March 2011.
18. In December 2015, countries met in Paris to establish a new international climate change agreement under the United Nations Framework Convention on Climate Change. The New Zealand Government tabled that New Zealand's post 2020 climate change target is to reduce greenhouse gas emissions to 30% below 2005 levels by 2030. In April 2016 New Zealand signed the Paris Agreement to hold the increase in global average temperature. The new post 2020 target is equivalent to 11% below 1990 levels by 2030.
19. In 2017 the Government set a target of achieving 100% renewable electricity generation, in an average hydrology year, by 2035 and the proposed Zero Carbon Bill will set a new emissions reduction target by 2050 with aims to reduce emissions to net zero.
20. The Productivity Commission in 2018 released a Report⁵ commissioned by the Government to identify how New Zealand could transition to a low-emissions economy while continuing to grow incomes and wellbeing. The Report highlighted that a transition will require significant changes that effect households, businesses, industries, cities and regions.
21. One of the three key changes identified in the Report is a transition from the use of fossil fuels in transport and industry to electricity. The transition would include a rapid switch to electric vehicles moving to electricity to provide process heat.
22. Electricity demand is growing with generation in 2017 being 1.1% higher than in 2016. Most forecasters expect demand to keep growing. The Ministry of Business Innovation and Employment 2016 in its 2016 Electricity Demand and Generation Scenarios⁶

- forecast demand growth of 1% p.a. in its mixed renewables scenario. This would equate to the electricity market requiring a wind farm the size of the proposed Kaimai Wind farm to be built each year.
23. Transpower in its 2018 Te Mauri Hiko (Energy Futures) White Paper⁷ noted “*the decarbonisation of New Zealand’s economy will depend on its renewable electricity base*” and forecast that demand could double by 2050. To meet the forecast demand Transpower estimated the source of new generation from a variety of technologies including solar and wind. The share of demand growth met by wind energy is forecast at 16,000GWh which would require a 500GWh wind farm to be build each year.
 24. Therefore, as New Zealand implements strategies to lower carbon emissions to meet its targets and international obligations there is a risk electricity sector emission will increase further as a result of emission reduction strategies implemented in other sectors. For example, an increase in electric car usage, to reduce transport sector emissions, and using electricity to provide industrial heat, could have unintended consequences in rising electricity sector emissions unless demand is met with new renewable generation.
 25. The Environment Court identified in its decision on the Mahinerangi Wind Farm⁸ the impact greenhouse gases were having on climate change and that by ensuring demand growth is met with new renewable electricity generation, carbon dioxide emissions will not increase (with resulting climate change benefits). In the event that this new renewable generation also displaces existing generation (i.e. by being dispatched in preference to more expensive sources of generation that produce greenhouse gas emissions) this could result in a net reduction in carbon dioxide emissions.
 26. The Association considers the importance of the Kaimai Wind Farm to both the local and national economy should be considered both on the benefits of the investment in the local community and also in relation to the national imperative to address the impacts of climate change through decarbonisation initiatives.
 27. The Association also notes that while a number of wind farm consents exist the forecast demand is expected to significantly exceed the capacity of already consented sites and the Kaimai Wind Farm will benefit from the latest wind technology providing efficiency and productivity benefits.

The project sustainably and efficiently uses a significant and important resource

28. The Kaimai Wind Farm is projected to generate 440 GWh pa with a capacity factor of 40%. To put this in perspective, based on the average residential consumption in 2017, the windfarm will produce on an annual basis the same amount of electricity as used by over 62,000 homes.
29. The wind farm will also displace significant emissions from alternative fossil fuel generation. Using the emission intensities contained in the New Zealand Energy Sector Greenhouse Gas Emissions Report if the output of the Kaimai Wind farm was generated using coal emissions would be 277,200 t Co2-e or 200,200 t Co2-e if natural gas was used.
30. The high capacity factor expected at the Kaimai Wind Farm project makes this project significant in both national and international terms and is a demonstration of the excellent wind resource that the project is intending to utilise. In the Environment Court decision in favour of Project West Wind in Wellington⁹ it was identified that the utilisation of a wind resource that was significant on an international scale was an important consideration when approving the resource consent application.

The site is an appropriate location for a wind farm

31. NZWEA recognises that wind energy projects can have significant visual effects on the landscapes in which they are located. However, these effects do not necessarily need to be considered to be adverse. While they certainly represent a change in the landscape a wide range of views exist as to the scale of these effects, whether these changes are positive, neutral or adverse and whether these changes represent changes in the landscape itself, or its visual amenity. Accordingly, the effects of the landscape need to be considered together with the various other effects and benefits identified for the project, rather than independently.
32. The preferred location of wind farms is dictated by the wind resource. Wind farms are most effective where the wind is strong and consistent and relatively low in turbulence. Ideal sites tend to be in exposed coastal locations and on top of hills and ridgelines that cause localised wind speed increases. The expected performance of Kaimai Wind Farm indicates that ideal conditions exist at the proposed site. Accordingly, the siting of the wind farm in its chosen location represents the most efficient use of the wind as a natural resource, which is consistent with s7(b) of the RMA.

Wind energy is becoming an increasingly important component of the electricity system in New Zealand

33. New Zealand's electricity generation capacity is dominated by hydro generation. Wind generation can complement existing hydro-generation facilities, allowing New Zealand to optimise the use of important water resource and providing additional security against the risk of the "dry-years" that reduce generation capacity. When the wind is blowing the water can be stored behind the dams for future use (i.e. the dams effectively act as a "battery") while if the wind stops or reduces it can quickly be substituted by allowing water to flow from the dams. In this way the wind energy generation can be thought of as an additional hydro inflow (where the wind "inflow" is used in preference to the water).
34. Wind energy also represents an important source of energy that varies little on a long-term basis, particularly when multiple geographically dispersed wind farms are operating. Wind farms in New Zealand generate electricity for up to 90% of the time and this performance can be expected at the Kaimai Wind Farm project. By diversifying our sources of generation and by providing a reliable, long-term source of energy and with its synergies with the hydro system (as described above) wind generation makes an important contribution to the security of New Zealand's electricity supply.
35. Wind generation on average is around 2,300 GWh or 5.5% of total generation in New Zealand. The expected output from the Kaimai Wind farm is therefore both material in the context of current wind production and the future of the industry.

Legislation and policy setting support renewable electricity development and regional growth

36. New Zealand has a current strategic target of 90% renewable electricity generation as set out in the New Zealand Energy Strategy¹⁰. This target was also reaffirmed in the 'National Policy Statement for Renewable Electricity Generation (NPSREG) 2011¹¹. As a reference point to the achievement of this target, in recent years the percentage of electricity in New Zealand generated from renewable sources ranges from 80% to 83% depending on hydrology.
37. The objective of the NPSREG is to recognise the national significance of renewable electricity generation by providing for the development, operation and maintenance and upgrading of new and existing renewable electricity generation activities. The NPS

- acknowledges that in some instances the benefits of renewable electricity generation can compete with matters of national importance as set out in section 6 of the Resource Management Act.
38. A recommendation of the Productivity Commission's Low-emissions Economy Report is that the Government should:
- a. give priority to revising both the NPS-REG and the National Policy Statement on Electricity transmission (NPS-ET) to ensure that local authorities give sufficient weight to the role that renewable electricity generation and upgrades to the transmission network and distribution grid will play in New Zealand's transition to a low-emissions economy. This will likely require making the language of the NPS-REG and the NPS-ET more directive, and to be more explicit about how the benefits of renewable electricity generation should be recognised and given effect in regional and territorial authority planning instruments.
 - b. issue a new National Environmental Standard for Renewable Electricity Generation (NES-REG) that sets out the conditions under which renewable energy activities are either permitted, controlled, restricted discretionary or non-complying activities under the Resource Management Act 1991. This should be drafted to increase the speed and lower the cost and uncertainty for obtaining resource consents for a significant proportion of renewable electricity generation projects that have only minor environmental and social impacts.
39. The Government has acknowledged the climate change challenge and signalled an ambitious environmental reform agenda. The proposed Zero Carbon Bill¹². is designed to create certainty and long-term stable policy environment with a clear emissions target and a guided pathway to enable the target to be meet. Increasing the level of renewable electricity has been identified as a key opportunity.
40. The Government has also commenced an Electricity Price Review with the review panel publishing their first report in August 2018. The overall objective of the review is to ensure the New Zealand Electricity Market delivers efficient, fair and equitable prices as technology evolves and we transition to a lower emissions future¹³. Wind energy supports both the transition to a lower emissions future and fair and equitable pricing as, with improvements in technology and economies of scale, wind energy is regarded as the lowest cost method of generating electricity.
41. The Government has made regional growth a priority and established a Provincial Growth Fund (PGF) with a commitment to spend \$1 billion a year for the next three years. The Kaimai Wind Farm is consistent with this priority and will provide significant economic benefits to the local community both during construction and on-going operation.
42. NZWEA therefore request that sufficient weight be given to:
- the national benefits and positive effects of the proposal (as per the National Policy Statement on Renewable Electricity Generation (April 2011) and the 2004 changes to the Resource Management Act requiring that particular regard be given to the benefits derived from the use of renewable energy, i.e. s7(j))
 - other relevant national policy documents, management plans and strategies such as;
 - a. The New Zealand Energy Efficiency and Conservation Strategy (NZEACS).
 - b. The New Zealand Energy Strategy.
 - The Government's target of 100% renewable electricity generation and transitioning the economy to a net zero position with the Zero Carbon Bill.

- The recommendations of the Productivity Commissions Low-Emissions Economy Report for a transition from fossil fuels to electricity and for the strengthening of the NPS-REG and the issuing of a NES-REG.
43. It is acknowledged that the Government has yet to formally respond to the Productivity Commission's recommendations however by the time of the Consent hearing there should be clarity on the Government's position.
44. Similarly, the Zero Carbon Bill should have progressed to a point where there is clarity on New Zealand's long-term target and approach to transitioning the economy.

International Trends confirm the importance of wind generation¹⁴

45. Wind is a mainstream component of electricity supply systems in many countries. Deployment is increasing rapidly and it is the fastest growing means of electricity generation in the world with 53,000MW of new generation installed in 2017. Total installed capacity is over 540,000MW and forecast to double every 3 years.
46. The United States and EU countries have traditionally led the world in wind power development, however China now accounts for half of new installations.
47. Globally the industry now provides over 1.15 million jobs and generates 12% of Europe's electricity.
48. In most geographies it is now recognised that, even without including a carbon charge, the levelised cost of wind energy is below other methods of electricity generation¹⁵.

Consistency

49. NZWEA has observed inconsistency between resource consents for wind farms, particularly in terms of resource consent conditions which in some cases have proved to be unnecessarily onerous.
50. NZWEA acknowledges that resource consent applications are to be determined on a case-by-case basis in accordance with the relevant statutory assessment provisions under the RMA (i.e. s104, s108, Part II) as they relate to each particular proposal. Notwithstanding this, the types of environmental effects associated with wind farms are typically consistent between different wind farm proposals and there is now a good level of understanding of such effects by suitably experienced experts.
51. In terms of noise effects NZWEA supports the use of NZS6808:2010, which NZWEA believes is suitable for use in its entirety, without any requirement for additional modifications or additions. The Standard was adopted by the Environment Court in the Mill Creek Wind Farm Decision¹⁶ and paragraph 109 of that decision states: "*we accept that it [NZS6808] sets the appropriate noise standards to apply to Mill Creek*".
52. The Standard was also adopted in the Waverley Wind Farm Decision¹⁷ "*Except where otherwise expressly provided for, noise shall be measured in accordance with the requirements of "NZS6801:2008 Measurement of Sound" and assessed in accordance with the requirements of "NZS6802:2008 Assessment of Environmental Sound"*".
53. NZWEA notes that the proposed National Planning Standards¹⁸ include noise and vibration metric standards as a mandatory direction that will be required to be implemented in planning documents within a defined period. The Association understands the proposed National Planning Standards are on track to be gazetted by April 2019.

Summary:

54. Wind is renewable, requires no fuel, produces no greenhouse gases during operation and is acknowledged as the lowest cost method of electricity generation when compared to other alternatives.
55. NZ's location and topography, combined with a high level of hydro generation, create a unique opportunity for wind development.
56. The proposed Kaimai site has favourable wind characteristics and is consistent with New Zealand's Energy Strategy, the National Policy Statement for Renewable Electricity Generation and the Government's climate action agenda.
57. The wind farm will by displacing existing thermal generation and assist meeting New Zealand's increased demand for electricity and contribute to the reduction in greenhouse gas emissions needed to meet climate change targets.

Decision requested:

58. NZWEA requests that the Councils approve the application for resource consent for the Kaimai Wind Farm project. NZWEA considers that the assessments submitted as part of the resource consent application provide an accurate reflection of the various issues associated with the proposed development.
59. NZWEA also requests that NZS6808:2010, the New Zealand Standard for the assessment and measurement of sound from wind turbine generators be used as the basis for setting any conditions for noise from the operating wind farm.

Oral Submission at the hearing

60. NZWEA wishes to be heard in support of this submission.

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References:

¹⁻³ New Zealand Greenhouse Gas Inventory 1990-2016
<http://www.mfe.govt.nz/climate-change/state-of-our-atmosphere-and-climate/new-zealands-greenhouse-gas-inventory>

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- ⁴ New Zealand Energy Sector Greenhouse Gas Emissions – 2015 Calendar Year Edition
<https://www.mbie.govt.nz/assets/687c7abf5a/nz-energy-greenhouse-gas-emissions-2015.pdf>
- ⁵ Productivity Commission Low-Emissions Economy Report published August 2018
https://www.productivity.govt.nz/sites/default/files/Productivity%20Commission_Low-emissions%20economy_Final%20Report_FINAL_2.pdf
- ⁶ Ministry of Business Innovation and Employment - Electricity Demand and Generation Scenarios published August 2016
<https://www.mbie.govt.nz/#2016-electricity-demand-and-generation-scenarios>
- ⁷ Transpower Te Mauri Hiko – Energy Futures White Paper published June 2018
<https://www.transpower.co.nz/sites/default/files/publications/resources/TP%20Energy%20Futures%20-%20Te%20Mauri%20Hiko%202011%20June%2718.pdf>
- ⁸ Upland Landscape Protection Society Inc. versus Clutha District Council, Otago Regional Council & TrustPower Ltd., Decision No. C 85/2008, 25 July 2008.
- ⁹ Meridian Energy and others v. Wellington City Council and Wellington Regional Council, Environment Court Decision W031/2007, 2007
- ¹⁰ New Zealand Government, 'New Zealand Energy Strategy – Developing our energy potential', 2011. Available from www.med.govt.nz/energystrategy.
- ¹¹ <http://www.mfe.govt.nz/publications/rma/nps-renewable-electricity-generation-2011/index.html>
- ¹² Our Climate Your Say Consultation on the Zero Carbon Bill Discussion Document published in June 2018 by the Ministry for the Environment
<http://www.mfe.govt.nz/sites/default/files/media/Consultations/FINAL-%20Zero%20Carbon%20Bill%20-%20Discussion%20Document.pdf>
- ¹³ The objective as outlined in the Terms of reference for the Electricity Price review.
<https://www.mbie.govt.nz/assets/af433b5d84/terms-of-reference-electricity-price-review.pdf>
- ¹⁴ Source Annual Globe Wind report published by the Global Wind Energy Association
<http://files.gwec.net/register?file=/files/GWR2017.pdf>
- ¹⁵ Lazard Levelized Cost of Energy Report published November 2018
<https://www.lazard.com/media/450784/lazards-levelized-cost-of-energy-version-120-vfinal.pdf>
- ¹⁶ Environment Court Decision No. [2011] NZEnvC232
- ¹⁷ Report and Decision of Hearing Commissioners 7 July 2017
- ¹⁸ Draft National Planning Standards Consultation Document published June 2018
<https://www.mfe.govt.nz/sites/default/files/media/RMA/Final%20-%20Planning%20Standards%20Consultation%20Document%202018.pdf>

