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 <p><i>new zealand wind energy association</i></p>	<p>Submission on Mighty River Power Ltd. Applications for Resource Consent <i>Section 145 of the Resource Management Act 1991</i></p>
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To: *Board of Inquiry
For the 'call in' of the Turitea Wind Farm*

Submitter: *New Zealand Wind Energy Association*

Submission: This submission relates to the applications for resource consent lodged by Mighty River Power Ltd. for the Turitea Wind Farm proposal, as described in detail in the consent application.

This submission relates to the resource consent application in its entirety, including all of the land-use consents and discharge permits sought from Manawatu-Wanganui (Horizons) Regional Council, and all of the land-use consents sought from Palmerston North City Council and the Tararua District Council.

The New Zealand Wind Energy Association supports the application in its entirety.

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 78 companies involved in the New Zealand wind energy sector, including:

- all of the major electricity generator-retailers (Contact Energy, Genesis Energy, Meridian Energy, Mighty River Power & TrustPower);
- a number of other local and international independent electricity generators;
- Transpower and several lines companies;
- 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;

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- (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 Turitea Wind Farm

4. NZWEA supports the development of well-planned wind farms such as Turitea Wind Farm because wind power can be used to generate competitively priced electricity while at the same time typically having far fewer effects on far fewer people than any other existing alternative source of electricity generation.

The project contributes to the sustainable management of natural resources

5. Electricity is increasingly being recognised as an essential service and a means by which people and communities provide for their well being and for their health and safety. Enabling people and communities to provide for their well being is one component of the over-riding purpose of the RMA (s5(2)).
6. The extent to which electricity contributes to economic well being alone has been demonstrated by the power savings scheme that was implemented last winter in order to minimise the risk of power shortages. Lost production and increased costs are estimated to have cost the economy hundreds of millions of dollars, with the Manufacturers and Exporters Association estimating the loss to the economy at as much as \$3 billion.¹
7. This reliance on electricity is also demonstrated by the growth of New Zealand's total electricity consumption. This consumption has typically increased every year, most recently by around 1.3% for the 2008 September Year².
8. This demand growth is expected to continue into the future and most forecasts predict growth in the range of 1 to 2.5% per year. For example, the Government's New Zealand Energy Strategy (NZES) forecasts growth of 1.3% per year, including an allowance for increase energy efficiency³. The incoming Government has identified that it expects that the demand for electricity will grow at more than 2% per year alongside forecast economic growth.⁴
9. 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 (that are located both inside and outside the region).

10. The applicant has also identified a number of economic benefits, ranging from employment and other regional economic benefits during construction through to long term benefits to electricity prices and New Zealand's international obligations around climate change, that also contribute to the communities' well being.
11. Electricity generated from wind utilises an indigenous and renewable resource and does so with a minimal impact on the environment. The potential impacts of this project have been identified in Mighty River Power's consent application with each assessed as either being of acceptable impact (when considered against the project's benefits), readily mitigated, minor or less than minor or as providing net benefits. Turitea Wind Farm is therefore 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 potential impact of climate change

12. The use of renewable energy sources such as wind energy reduces our emissions of the greenhouse gases (GHG) that contribute to climate change when compared to electricity generation from fossil fuel sources such as gas and coal. Climate change is now widely regarded as one of the most important, if not the single most important issue facing the world today. 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.
13. New Zealand's emissions of greenhouse gases have risen by over 25% from the 1990 benchmark.⁵ Meeting our international obligations for these emissions will have a cost to the economy, either for taxpayers or the emitters themselves. This liability has most recently been estimated by the Treasury at \$NZ 593m.⁶
14. New Zealand's emissions from electricity generation have increased much more rapidly than overall emissions, with a 91% increase from 1990 levels by the end of 2007.⁷ Our increasing demand for electricity (as described above) will also see these emissions increase further unless this new demand growth is met with new renewable electricity generation.
15. Climate change is believed to be largely dependent on the concentration of greenhouse gases such as carbon dioxide in the atmosphere, but the actual mechanism and processes influencing climate change are extremely complex. Accordingly, it is impossible to identify the specific impact that this project will have on climate change. The Environment Court identified this in its recent interim decision on the Mahinerangi Wind Farm, noting that "*to require an applicant to demonstrate this would require a level of precision which is simply not available in terms of the current state of scientific knowledge*" [231].⁸
16. That decision also identifies (at paragraph 209) that by ensuring that new 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) this could result in a net reduction in carbon dioxide emissions.

17. The consent application for this project identifies that it is expected to avoid greenhouse gas emissions estimated at between 375,059 and 1,065,958 tonnes per year that would otherwise be produced from fossil fuel generation.ⁱ This represents around 2.4 – 7.0% of the 15.9 million tonnes per year of carbon by which NZ exceeds its commitments under the Kyoto Protocol (see reference 5). The project will therefore provide an important and significant contribution to lowering our GHG emission levels (and accordingly will also help us to meet our international obligations).

The project sustainably and efficiently uses a significant and important resource

18. The project is expected to have an electricity generation capacity of up to 336 megawatts (MW). The approximately 1,300 GWh of electricity that the applicant has estimated will be generated each yearⁱⁱ corresponds to a capacity factor of around 44% (i.e. over the course of a year the average output of the wind farm will be about 44% of 336 MW, or 148 MW). This makes the project significant in both national and international terms and is a demonstration of the excellent wind resource that the project is intending to utilise.
19. To put this capacity factor into context, the global average capacity factor, measured across around 100,000 MW of installed capacity is approximately 22%⁹. On this basis the global average performance of a 336 MW wind farm is around 74 MW, or around only 650 GWh of electricity generation per annum. This is only around half of the generation expected from this project.
20. In the Environment Court decision in favour of Project West Wind in Wellington¹⁰ 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

21. 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.
22. The location of wind farms is dictated by the wind resource – they are most effective where the wind is strong and persistent and relatively low in turbulence. Accordingly the ideal sites tend to be in exposed locations and on top of hills and ridgelines that cause localised wind speed increases. The expected performance of the Turitea Wind Farm indicates that these conditions exist at the proposed

ⁱ These quantities (from the AEE) may now be reduced slightly following the revision of the proposal & the related reduction in capacity from 360 MW to 336 MW (see also footnote 2 below).

ⁱⁱ The original AEE identifies that the proposed 360 MW would generate up to 1400 GWh of electricity per year. NZWEA has scaled this number down to reflect the reduced maximum capacity of 336 MW for the revised application that was submitted in January.

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.

23. The site is also not identified as an outstanding natural landscape, or outstanding natural feature, and accordingly may be less sensitive to changes in visual effects.
24. The Environment Court's decision to grant consent for Project West Wind, referred to above, identified that when a site is appropriate for a wind farm because of its resource characteristics it can also be an appropriate development even in a significant landscape. Accordingly the combination of the resource, the resource location and the landscape character of the Turitea Wind Farm site appear to make it appropriate for a wind energy development.
25. That the site is also located close to existing transmission infrastructure, close to a significant source of demand and within relatively close proximity to New Zealand's major electricity demand centres in the upper North Island also increase the project's overall efficiency and benefits (as also identified in the Project West Wind decision).

Wind energy complements our existing hydro-generation resources

26. Wind turbines complement our existing hydro-generation facilities, allowing us to optimise the use of our important water resource and providing additional security against the risk of the "dry-years" that reduce our 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).
27. Accordingly the two energy sources when operated together can provide our most secure and consistent means of generation. That Turitea Wind Farm will be operated by Mighty River Power, who also own and operate a significant quantity of hydro storage and generation capacity in the North Island provides a great opportunity for this optimisation to occur.

Security of supply and security of price

28. As the wind is endlessly renewable, wind farms provide a long-term security of supply that other finite energy sources such as gas cannot. Wind also utilises a 'free' fuel source and so the long-term cost of generation is unlikely to increase over the life-time of the project. When compared to the cost of natural gas (that has doubled in price in recent years) or the potential future cost of imported LNG the use of wind energy increases not just security of electricity supply but also security of electricity price.
29. Wind energy also represents an important source of energy that varies little on a long-term basis. This wind farm is also expected to be generating electricity for around 90% of the time. All of the electricity that it produces will be consumed – and we use electricity 100% of the time, not just at the times of peak demand.

30. 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) this project will make an important contribution to the security of New Zealand's electricity supply.

Wind energy has a high level of public support

31. Numerous domestic and foreign surveys have consistently show that of all the commercially viable forms of electricity generation that wind energy is the preferred source of generation for large proportions of the population. This support is seen in areas where projects have been proposed and has been shown in many cases to have increased once a project has begun operation.
32. Earlier this year EECA published the results of a national survey on public perceptions of renewable energy and the different technologies available. The survey was conducted for EECA by Nielsen Research. The results showed that 89% of New Zealanders believed that wind power would have a positive impact on our energy use in 5 years time.¹¹ 90% of people would not oppose wind farms located within 2 km of their homes (though 15% of those would not want to be able to see or hear them). We note that this survey did not attempt to identify what level of "seeing" or "hearing" was being considered. While this result may not represent the specific views of those people impacted by this particular project they seem likely to be indicative of the opinions of the many people who live in and travel through the region.
33. NZWEA recognises that there is some public opposition to this project, as there is to any form of new electricity generation development. However that opposition should also be viewed in context of the wider public's apparent support for wind energy development and so may not be representative of general opinion.

Community concerns are readily managed

34. A well planned and managed project ensures that community concerns such as noise, traffic, impacts on waterways and ecology, etc. do not become significant issues.
35. Mighty River Power has demonstrated ability in project management through its ongoing generation development activities.
36. The wind energy industry and its suppliers have also demonstrated an ability to deliver well managed projects over a number of years (i.e. since 1999, the Te Apiti wind farm and 3 stages of development of the Tararua Wind Farm have all been completed in this region to the satisfaction of the local consenting authorities, while the Te Rere Hau project remains under construction).

Legislation and policy

37. On the basis of the material contained in the application and NZWEA's general background knowledge of wind energy development, we believe that this proposal will promote the sustainable management of natural and physical resources and is otherwise consistent with Part II of the Resource Management Act and the related regulatory instruments.

38. In 2007 the Government released its 'New Zealand Energy Strategy to 2050' and a new 'New Zealand Energy Efficiency and Conservation Strategy'¹². Both of these strategy documents identify a target of 90% of electricity being generated from renewable energy sources by 2025. This target has also now been endorsed by the new Government (see reference 4). As a reference, in 2007 just 65% of the 42,393 GWh of electricity was from renewable sources.¹³
39. NZWEA has estimated that in order to achieve this new target alongside the forecast demand growth of 1.3% per year (see above) an average of slightly over 1,100 GWh per year of new renewables generation will be required. This is equivalent to the average annual demand of around 135,000 households.
40. The estimated net production of 1,105 GWh per yearⁱⁱⁱ from the Turitea Wind Farm would provide for around one year's growth and so would represent a significant contribution to meeting this target.
41. We therefore request that the Board of Inquiry give sufficient weight to;
- the national benefits and positive effects of the proposal (as per 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))
 - national policy documents, management plans and strategies such as;
 - a. The Energy Policy Framework (October 2000)
 - b. Sustainable Development for New Zealand - Programme of Action (January 2003)
 - c. The New Zealand Energy Efficiency and Conservation Strategy (NZECS) (October 2007). This strategy replaces the earlier National Energy Efficiency and Conservation Strategy (2001).
 - d. The New Zealand Energy Strategy (October 2007).
 - e. The proposed National Policy Statement on Renewable Electricity Generation (September 2008)

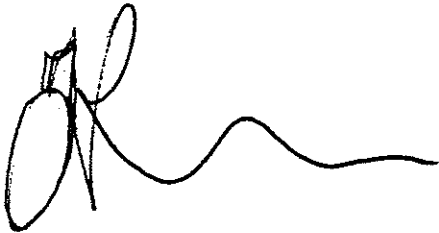
Decision requested:

42. NZWEA requests that Board of Inquiry approve the application for resource consent. NZWEA believes that the assessments prepared by Mighty River Power Ltd. and submitted as part of their resource consent application are comprehensive and provide an accurate reflection of the various issues associated with the proposed development.
43. NZWEA also requests that NZS6808:1998, 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. Decisions established in both case law and other resource consent decisions have established that this Standard is suitable for use in its entirety, without any requirement for additional modifications or additions.

ⁱⁱⁱ Adjusted from the value given in the AEE as per footnote ii.

Oral Submission at the hearing

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



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- ² Derived from the Ministry of Economic Development's, 'New Zealand Energy Quarterly – September Quarter 2008', Issue 4, released 16 December 2008.
- ³ Ministry of Economic Development, 'New Zealand Energy Strategy to 2050', October 2007.
- ⁴ National's Energy Policy, 14/08/08, available at http://national.org.nz/files/2008/National_energy_policy.pdf
- ⁵ <http://unfccc.int/resource/docs/2008/sbi/eng/12.pdf>
- ⁶ <http://www.treasury.govt.nz/government/liabilities/kyoto>
- ⁷ Ministry of Economic Development, 'Energy Greenhouse Gas Emissions 1990-2007'.
- ⁸ Upland Landscape Protection Society Inc. versus Clutha District Council, Otago Regional Council & TrustPower Ltd., Decision No. C 85/2008, 25 July 2008.
- ⁹ Wind Stats Newsletter, Vol. 20, No. 1, Winter 2007.
- ¹⁰ Meridian Energy and others v. Wellington City Council and Wellington Regional Council, Environment Court Decision W031/2007, 2007
- ¹¹ EECA, 'Public Perceptions of Renewable Energy', May 2008. Available on line at: <http://www.eeca.govt.nz/eeca-library/renewable-energy/marine/report/renewable-energy-nielsen-research-report-may-08.pdf>
- ¹² New Zealand Government, 'New Zealand Energy Efficiency and Conservation Strategy (2007)', October 2007.
- ¹³ Derived from the Ministry of Economic Development's, 'New Zealand Energy Quarterly – December Quarter 2007'.