



Submission on a Publicly Notified Resource Consent – Trustpower Waverley Wind Farm Proposal

Under Section 96 of the Resource Management Act 1991

To: South Taranaki District Council

Submitter: *New Zealand Wind Energy Association*

Submission: This is a submission on an application from Trustpower Limited for resource a consent for the Waverley Bay Wind Farm.
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 generator-retailers (Genesis Energy, Meridian Energy, Mighty River Power & TrustPower);
 - a number of smaller electricity generators;
 - 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 Waverley Wind Farm

Introduction

4. NZWEA supports the development of well-planned wind farms. Wind power can be used to generate competitively priced electricity while at the same time typically having significantly fewer effects on people than any other existing alternative source 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 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. Benefits also include reducing 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 Waverley 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 potential 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 analysis confirm New Zealand's greenhouse gas emissions are growing rapidly. In 2013 we produced 21% more than in 1990. Sectors with the greatest growth in emissions are the energy sector (mainly CO₂ from transport and electricity generation) and the agricultural sector.
12. Specifically, in 2013, the latest available data, the level of New Zealand's CO₂ emissions from the electricity sector were 53% above 1990¹. Emissions from thermal electricity generation was 5,043 kt CO₂-e with geothermal generation contributing a further 749,000 t CO₂-e. Emissions per GWh of coal generation was 1,003 t CO₂-e, 501 t CO₂-e for thermal generation and 125 t CO₂-e for geothermal generation.
13. On a per capita basis emission are 17 t CO₂-e the third highest after Australia and the USA and twice emissions of a person in the UK.
14. 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 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.
15. 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 has also been set.
16. 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 and is provisional until the new international agreement is ratified.
17. The Government has announced that New Zealand will meet these responsibility targets through a mix of domestic emissions reductions, the removal of carbon dioxide by forests and participation in international carbon markets.
18. The University of Waikato Report on Understanding New Zealand's GHG Emissions Profile as a Basis for Strategic Planning estimated that a reduction of 19 mt CO₂-e is required in order to meet the target of 5% below the 1990 level. The University identified reductions in the electricity sector as important to achieving the overall reduction target.
19. Electricity demand is growing with generation in 2015 being 1.6% higher than 2014. Sector emissions may increase further unless demand growth is met with new renewable electricity generation. Of the renewable sources of generation only wind, hydro and solar produce no greenhouse gases during operation.

20. As New Zealand implements strategies to lower carbon emissions to meet its targets and international obligations there is an additional risk electricity emissions 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 renewable generation.
21. The Environment Court identified in its decision on the Mahinerangi Wind Farm² 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.

The project sustainably and efficiently uses a significant and important resource

22. The Waverley Wind Farm is expected to generate around 490 GWh pa with a capacity factor of around 40%. To put this in perspective, based on the average residential consumption in 2015, the windfarm will produce on an annual basis the same amount of electricity as used by over 65,000 homes.
23. The high capacity factor expected at the Waverley 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 Wellington³ 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

24. 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.
25. 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 Waverley 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

26. 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).
27. 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 Waverley 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.
28. In 2015 New Zealand wind generation increased over 6% to 2,334 GWh or 5.4% of total generation.

Legislation and policy

29. New Zealand has a strategic target of 90% renewable electricity generation as set out in the New Zealand Energy Strategy⁴. This target is also reaffirmed in the 'National Policy Statement for Renewable Electricity Generation 2011'⁵. As a reference point to the achievement of this target, in 2015 81% of electricity in New Zealand was from renewable sources.
30. NZWEA has estimated that in order to achieve the target of 90% renewable electricity by 2025 alongside a forecast demand growth of 1% per year (see above) an average of approximately 150MW of new wind generation per year is required. NZWEA's projection allows for the development of other renewable generation such as geothermal and gas peaker plants to meet New Zealand's electricity needs.
31. We therefore request that the Council give sufficient weight 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 (NZECS).
 - b. The New Zealand Energy Strategy.

International Wind Generation Trends

32. 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 63,000MW of new generation installed in 2015. Capacity is doubling every 3 years. In total there are around 200,000 wind turbines in operation with a total installed capacity of over 430,000MW.
33. The United States and EU countries have traditionally lead the world in wind power development, however China now accounts for half of new installations.
34. In 2015, 44% of all new EU generating capacity was wind power with wind comprising 11% of total generation. Denmark leads the way in wind production comprising 40% of its electricity generation.

Consistency

35. 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.
36. 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.
37. 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 Decision⁶ and paragraph 109 of that decision states: *"we accept that it [NZS6808] sets the appropriate noise standards to apply to Mill Creek"*.

Summary:

38. Wind is renewable, requires no fuel, produces no greenhouse gases during operation and is a low relative cost method of electricity generation when compared to other alternatives.
39. NZ's location and topography, combined with a high level of hydro generation, create a unique opportunity for wind development.
40. The proposed Waverley site has favourable wind characteristics and is consistent with New Zealand's Energy Strategy and the National Policy Statement for Renewable Electricity Generation. The wind farm will also contribute to the reduction in greenhouse gas emissions needed to meet climate change targets.

Decision requested:

41. NZWEA requests that the Councils approve the application for resource consent for the Waverley Wind Farm project. NZWEA believes that the assessments submitted as part of the resource consent application provide an accurate reflection of the various issues associated with the proposed development.
42. 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

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

Grenville Gaskell
Chief Executive
New Zealand Wind Energy Association

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Address for service of Submitter:

New Zealand Wind Energy Association
PO Box 553
Wellington 6140
Telephone: (04) 499 5048
Mobile: 027 244 1049
Fax: (04) 473 6754
E-mail: grenville@nzwea.org.nz

References:

¹ <http://www.mbie.govt.nz/info-services/sectors-industries/energy/energy-data-modelling/publications/energy-greenhouse-gas-emissions/documents-image-library/NZ%20Energy%20Greenhouse%20Gas%20Emissions.pdf>

² Upland Landscape Protection Society Inc. versus Clutha District Council, Otago Regional Council & TrustPower Ltd., Decision No. C 85/2008, 25 July 2008.

³ Meridian Energy and others v. Wellington City Council and Wellington Regional Council, Environment Court Decision W031/2007, 2007

⁴ New Zealand Government, 'New Zealand Energy Strategy – Developing our energy potential', 2011. Available from www.med.govt.nz/energystrategy.

⁵ <http://www.mfe.govt.nz/publications/rma/nps-renewable-electricity-generation-2011/index.html>

⁶ Environment Court Decision No. [2011] NZEnvC232