

To: *Minister for the Environment*

Submitter: *New Zealand Wind Energy Association*

Submission: This submission relates to the notices of requirement and applications for resource consent, lodged by Transpower New Zealand Ltd for the North Island Grid Upgrade Project (the 'Project').

This submission concerns **all** notices of requirements and applications for resource consents for the Project.

The New Zealand Wind Energy Association ('NZWEA') supports the application in its entirety.

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

NZWEA is a non-Governmental, non-profit industry association that advocates the responsible, sustainable and significant utilisation of New Zealand's abundant wind resource as a reliable, renewable, clean and commercially viable energy source.

NZWEA represents around 70 companies and organisations with an interest in wind energy. These companies encompass the full range of electricity sector activities including the developers, owners and operators of wind farms and other generation plants; transmission and distribution network owners and other interested parties such as machinery suppliers, consultants, engineering firms, financial organisations and law firms.

Reasons for NZWEA's support for the North Island Grid Upgrade Project

The utilisation of wind energy requires a robust transmission system

The Government recently commenced the roll-out of its 'Climate Change Solutions' policies, starting with its Emissions Trading Scheme. The targets of this suite of policies and strategies include the production of 90% of New Zealand's electricity from renewable energy sources by 2025¹. Wind energy is one of the few mature and commercially viable technologies currently available and suitable for use in New Zealand and so is expected to play a significant role in obtaining this target. This is demonstrated by the Government's expectation that the Emissions Trading Scheme will increase the uptake of wind energy by "...making it more cost-effective for electricity generators to invest in renewable energy such as wind and solar power".²

New Zealand's optimal wind resources, and therefore its related wind energy generation are often located remotely from the highly populated areas that have the most intensive electricity consumption. While some parties have advocated wind farm developments to be limited to small wind farms located close to loads this is generally not a practical solution for large cities that have large electricity demands. To provide for these larger loads with wind energy requires larger wind farms located remote from the demand. The

transportation of the electricity generated at these sites to end-users requires a robust and un-constrained transmission grid.

At present New Zealand's installed wind energy capacity is about 320 MW (about 2% of total national generation capacity). In 2006 the 170 MW of wind energy capacity that was installed at the time (151 MW has been installed during 2007) generated 617 GWh or about 1.5% of New Zealand's total demand. A large number of new projects are being developed, seeking resource consent or are under investigation. Accordingly it is expected that wind generation capacity and output will increase significantly. Most estimates typically expect that the total generation capacity of wind will increase to between 1,000 MW and 2,000 MW over the next 10-15 years.³

Much of this generation development will occur in the lower North Island (i.e. Manawatu, Wellington and Hawkes Bay) and South Island to take advantage of the wind resource that is available in these regions. Electricity generated from these projects will rely on the transmission system to be able to supply into the Auckland region. As a result the Project is of strategic importance to the wind energy industry and its ability to meet the Government's renewable energy and climate change objectives.

Capacity of the upgraded system

The technical assessment for the Project that was presented to the Electricity Commission (and which provides the basis for the consent applications and Notices of Requirements) indicates that the Project has been designed on the basis that 2,500 MW of new generation will be installed in the North Island and that the maximum transfer capacity from the South Island using the HVDC link will be 1,400 MW. The capacity for the Project in its final 400 kV configuration was given as 5,500 MW.

While the total wind generation capacity that was used in these assumptions (534 MW) is less than the total that NZWEA expects will actually be installed, the total capacity of the Project that enables it to accommodate all forms of new generation should ensure that there is sufficient capacity for the connection of all new wind generation projects.

The NZWEA is therefore satisfied that the Project will permit the connection of new wind generation projects and so supports the Project accordingly.

In this respect the industry also believes that the Project is consistent with section 34A of the latest 'Government Policy Statement on Electricity Governance'. That policy statement requires that "the national transmission grid should be planned and made available so as to facilitate the potential contribution of renewables to the electricity system..."⁴

Future wind generation projects in the Waikato & Southern Auckland

At present the following wind farm projects in the Waikato region have either received resource consent or have had their consent application publicly notified:

<u>Project</u>	<u>Developer</u>	<u>Max. Capacity</u>
Awhitu	Genesis Energy	17 MW
Taumatototara	Ventus	20 MW
Taharoa	Taharoa C	100 MW
Te Uku	WEL Networks	<u>84 MW</u>
TOTAL:		221 MW

Further wind farm projects are expected to seek consent in the Waikato and South Auckland region (i.e. in the Districts on the route for the new transmission line) in the future in response to a need to both diversify the sources of supply and increase the security of supply for the region.

These existing projects range in size from 17 MW to 100 MW, with future projects potentially larger again. At least some of these projects will need to connect to the transmission network to be able to be utilised to their full potential. NZWEA understands that the Project (both when operating at 220 kV or in the future at 400 kV) is expected to preferentially transport the electricity that is being generated from south of the new transmission system. This will free up capacity on the existing 110 kV and 220 kV circuits in the Waikato and South Auckland regions, enabling them to accommodate the connection of new generation projects. Accordingly the Project should help to facilitate the connection of new, renewable wind generation in the region. This will increase both the diversity of energy supply and security of energy supply for the region and in doing so promotes the region's social, economic and cultural well-being.

Long term certainty of transmission capacity

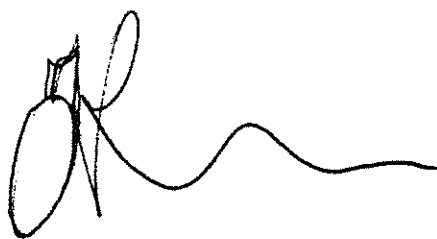
Like most large-scale energy investments, wind farm developments often rely on project financing over 10 - 15 year timeframes to be able to proceed. As a result the developers and financiers of these projects need to be comfortable that all of the electricity that can be generated by the wind farm (i.e. its source of revenue) can be delivered to the market in order to ensure that these financing costs can be recovered. The Project, with its potential to be upgraded to operate at 400 kV in the future provides certainty that sufficient transmission capacity will always be available and so removes an area of uncertainty for wind farm developers.

Decision requested:

NZWEA requests that Board of Inquiry approves the Notices of Requirements and Applications for Resource Consent subject to any appropriate conditions that the Board deems necessary to avoid, remedy or mitigate local adverse effects.

Oral Submission at the hearing

The NZWEA wishes to be heard in support of this submission. If others make a similar submission we would consider presenting a joint case with them at the hearing.



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References referred to in this submission:

1. Speech notes of Hon. David Parker, Minister Responsible for Climate Change issues, "A New Zealand Emissions Trading Scheme", 20 September 2007. Available at: www.beehive.govt.nz/ViewDocument.aspx?DocumentID=30699
2. Page 10 of 'The Framework for a New Zealand Emissions Trading Scheme', published by the Ministry for the Environment and The Treasury, September 2007. ISBN 978-0-478-30163-2 and available on-line at: <http://www.climatechange.govt.nz/files/emissions-trading-scheme-complete.pdf>
3. For example, in their June 2005 report for the Ministry of Economic Development, "Availabilities and Costs of Renewable Sources of Energy for Generating Electricity and Heat; 2005 Edition", East Harbour Management Services identified that 2,450 MW of wind energy could be installed with high confidence and 4,585 MW with high or medium confidence by 2015. The report is available at www.med.govt.nz/energy/modelling/papers/supply-cost-availability/
4. October 2006 Government Policy Statement on Electricity Governance. Available on-line at: http://www.med.govt.nz/templates/MultipageDocumentTOC_23031.aspx .