

REPORT TO : The Waitomo District Council Hearings Committee

FROM : Ben Inger, Consultant Planner for Waitomo District Council

APPLICANT : Ventus Energy (NZ) Limited

PROPOSAL : Applications for resource consent made by Ventus Energy (NZ) Limited for the construction and operation of 22 wind turbines and associated services on a ridgeline approximately 6.5km south of Taharoa (from Turbine 1) in the Waitomo District.

SITE : Comprising the following Rural zoned land:

- Part Section 10 Block V Kawhia South Survey District and Section 3 Survey Office Plan 53968 comprised in Certificate of Title 141077;
- Section 3 Block IX Kawhia South Survey District comprised in Certificate of Title SA28A/586;
- Section 1 Survey Office Plan 58558 comprised in Certificate of Title SA47A/876;
- Section 1A Block V Kawhia South Survey District comprised in Certificate of Title SA37A/25;
- Section 12 and Section 22 Block V Kawhia South Survey District comprised in Certificate of Title SA31C/23;
- Section 2 Block V Kawhia South Survey District comprised in Certificate of Title SA37A/26; and
- Part Section 24 Block V Kawhia South Survey District and Section 2 Survey Office Plan 53968 comprised in Certificate of Title SA48B/494.

WDC REFERENCE : 050 103

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Appendices:

Appendix A: Copy of the Application

Appendix B: Copy of the s.92 Further Information Requests and Information Received

Appendix C: Peer Reviews Undertaken on behalf of Council:

1. Peer Review of the Acoustic Assessment undertaken by Hegley Acoustic Consultants

2. Peer Review of the Visual and Landscaping Assessment undertaken by Priest Mansergh Graham
3. Peer Review of the Traffic and Rooding Assessment undertaken by Opus International Consultants

Appendix D: Copies of Submissions

Appendix E: Written Approvals Received by Council

Appendix F: Locality Plan and Planning Map

1 Introduction

- 1.1 An application for land use consent has been made by Ventus Energy (NZ) Limited to establish and operate a wind farm on a site adjacent to Taumatotara West Road. The application was lodged on 15 December 2005.
- 1.2 The purposes of this report are to assist the Hearings Committee in coming to a decision on the application by:
 - Independently “auditing” the reports submitted by the Applicant in support of the application to identify any deficiencies or areas where different interpretations should be applied;
 - Identifying key issues that need to be considered by the Committee;
 - Commenting on points raised in submissions; and
 - Making a recommendation to the Committee for their guidance.
- 1.3 The following specialists have audited the acoustic, visual and roading assessments within the application and have provided input into this report:

Nevil Hegley of Hegley Acoustic Consultants (Acoustic Engineering Consultant) in respect of potential noise effects;

Dave Mansergh and Adele Wilson of Priest Mansergh Graham (Landscape Architects) in respect of potential landscape and visual effects.

Rui Leitao and Bill Flavell of Opus International Consultants (Roading Engineers) in respect of potential roading and traffic safety effects on the surrounding local roading network.
- 1.4 Each of these specialists have prepared an individual report on those aspects of the proposal and these are contained in **Appendix C** to this report.
- 1.5 These peer reviews have been used to form part of the assessment of environmental effects (provided in **Section 13** below).

2 The Applicant

- 2.1 Ventus Energy (NZ) Limited is a privately owned independent wind energy development company based in Auckland. It is affiliated to Ventus Energy Limited, an Irish renewable energy company incorporated in the year 2000. Ventus Energy’s principal project to date is the Knockastanna Wind Farm, a five turbine 7.5MW development located in east county Limerick, Ireland. The project received planning consent in 2003.
- 2.2 Ventus Energy have also applied to the Waitomo District Council to construct and operate a thirty two turbine wind farm on a ridgeline at Awakino (Council reference 050 003). That application is currently on hold.

3 The Proposal

3.1 Background

- 3.1.1 Ventus Energy (NZ) Limited (“the Applicant”) seeks land use consent to construct a wind farm at a site on Taumatotara West Road near Taharoa.
- 3.1.2 The application (refer to **Appendix A – The Application**) involves the establishment and operation of a utility scale wind farm comprised of twenty-two ‘horizontal axis’ wind turbines, associated sub-station and operations buildings, and access roads on a ridgeline located approximately 6.5 kilometres south of Taharoa in the Waitomo District.
- 3.1.3 The additional information provided as a result of a request for further information (section 92 request) is attached as **Appendix B**.
- 3.1.4 The twenty-two turbines to be constructed will be positioned over four rural properties, owned by G & J Gallagher Farm Limited (CT reference 31C/23), Larry and Lynette Harper (CT references 141077, 47A/876, 37A/25 and 37A/26), GL Stokes and Company (CT reference 48B/494) and The Proprietors of Taharoa C Incorporation (CT reference 28A/586).
- 3.1.5 The properties are currently used predominantly for pastoral grazing purposes (sheep and cattle). Scattered pockets of plantation radiata pines and small fragments of native bush also exist in the surrounding area.

3.2 Proposed Wind farm Activities

- 3.2.1 The Applicant states on page 16 of the AEE that the actual supplier (and hence capacity) of the turbine equipment will not be chosen until the tendering stage. However, drawings and images of a ‘typical turbine’ similar to that which will be installed are provided in Appendix A of the AEE, and provide the overall (maximum) parameters for this consent.
- 3.2.2 The Applicant has, however, based the assessment on the model of turbine that is most likely to be chosen. This is the Ventus V80 model.
- 3.2.3 The maximum parameters/consent envelope that are sought by the Applicant and are being considered in the application are summarised in Table 1 below:

Table 1: Consent Envelope for the Proposed Wind farm

Maximum Parameters:	
Turbine Number	22 maximum
Tower Height	No Restriction (but likely to be 65 metres)
Turbine Tip Height (measured from ground to vertically extended	110 metres maximum

blade tip)	
Rotor diameter	No Restriction (but likely to be 90m diameter)
Ground Clearance from Rotor Tip	Not stated (but likely to be 20 metres)
Turbine Output	No Restriction (but likely to be 2MW)
Location of Turbines	Within a 100 metre radius of turbine locations shown
Location of Roads	Generally as shown on Figure 1 (Volume 2, AEE) with variation as required to provide access to the turbines if locations are varied.
Turbine type	Three bladed tapered tubular steel tower and support structures.

- 3.2.4 The Applicant also states in the table on page 17 of the AEE that a 15% variance is requested where dimensions are stated within the consent envelope.
- 3.2.5 Twenty two horizontal axis wind turbines will be constructed. Based on the Ventus V80 model of turbine, each turbine will have a maximum tip height of 110 metres (to vertically extended blade tip), comprising a tower height of up to 65 metres (to the top of the nacelle) and blade length (diameter) of up to 90 metres, and with a minimum ground clearance of 20 metres. The turbines will be of the standard three blade type and will be light grey in colour to minimise reflectivity. Tapered tubular towers are proposed. The towers will have a maximum diameter of 4.5 metres at the base, tapering to between 2 – 3 metres at the maximum height.
- 3.2.6 Reinforced concrete foundations will support the steel tubular towers and fibreglass turbines. The bases will be designed to withstand high gust wind conditions, and will be approximately 1.5 metres deep (in the centre) and 16 metres by 16 metres in area. At difficult turbine locations, piled foundations will be required.
- 3.2.7 The proposal also involves the construction of compacted crane pads adjacent to each of the tower/turbine foundations. The crane pads are approximately 1.0 metre deep compacted aggregate, with dimensions of approximately 16 metres by 22 metres, and are required to enable a large mobile crane of up to 600 tonne capacity to install each of the turbines (Figure 4.1 on Page 25 of the AEE depicts a 'Typical Turbine Base Configuration').
- 3.2.8 The Applicant has stated on page 16 of the AEE that the proposed turbines operate at wind speeds of between 3 and 25 metres per second. At wind speeds above 25 metres per second they shut down to prevent damage to the structure and the generating system.
- 3.2.9 The turbines will operate on a continuous 24 hour basis depending on the wind resource available. The power output of the turbines will be approximately 2.0 Megawatts (MW) each, giving a total power rating for the wind farm of

approximately 44 MW, depending on the final turbine choice. The Applicant has stated on page 1 of the AEE, that this is equivalent to the power demand of approximately 16,000 households.

- 3.2.10 The design of the turbines is such that they rotate to face the wind. The Applicant states on page 14 of the AEE that the predominant wind resource at the subject site is a south-westerly wind and the secondary wind resource is an easterly wind.
- 3.2.11 The location of the proposed turbines is shown in Figure 1 (Volume 2) of the AEE. However, the Applicant states on page 15 of the AEE that it may be necessary to change turbine locations following detailed foundation and site access investigation. Changes would also be required in the event that any archaeological features are discovered during the initial earthworks and site preparation works. For these reasons the application includes the provision for a 'turbine contingency zone' which is a defined area of a 100 metre radius around each of the proposed turbine locations.
- 3.2.12 The layout generally consists of a single row of turbines running northwest to southeast along a well defined ridgeline.

3.3 Other Ancillary Activities

3.3.1 Other ancillary buildings and activities proposed are:

- (a) An underground fibre optic network connecting each turbine to the central control system in the operations building;
- (b) An underground network of 33kV transmission lines delivering electricity from each turbine to two proposed sub-stations located within a single compound.
- (c) Overhead powerlines connecting the wind farm substations to the two existing 33kV lines that traverse the eastern edge of the landholding;
- (d) A compound occupying a maximum footprint of 41 metres by 33 metres is proposed to house the control building and the sub-station equipment (Figure 3 of AEE Volume 2). The function of the control building is to house monitoring and control equipment for the wind turbines and the transmission of electricity. External electrical equipment will include switchgear and may include transformers and busbars. The function of the sub-station equipment is to allow for the transformation from the local site voltage up to a transmission voltage of 33 or 110kV. Two separate sub-stations and circuits are proposed (one for each of the 33kV lines to which the wind farm will be connected) however, the substations will both be contained within a single compound area, and surrounded by a 2.4 metre high security fence and locked gates. The location of the compound is shown on

Figure 1 (Volume 2) of the AEE and on the annotated photo attached as further information in **Appendix B**.

- (e) Internal access roads of a 5 metre width to provide access to the turbines and ancillary buildings;
- (f) Earthworks associated with the creation of the turbine sites, access roads and other facilities described above.

3.4 Transmission Lines and Grid Connection

3.4.1 Ventus propose to connect the wind farm directly to the two sets of existing 33kV lines that traverse through the eastern edge of the landholding. Ventus have stated that connection(s) can be achieved by one of the two methods as follows:

- By installing and operating new 33kV or 110kV overhead lines from the on-site substations, to the existing 33kV lines (for distances of approximately 2 and 3 kilometres respectively). Use of 110kV lines would also require an upgrade of the existing 33kV lines to 110kV; **OR**
- By using the existing single phase 11kV route (indicated as Option A on Figure 1 of the AEE). For this option, the old 11kV wooden poles would be replaced by new stronger concrete or wooden ones to accommodate two sets of 33kV lines as well as the existing 11kV ones – so three sets of lines in total (The Applicant states on page 17 of the AEE that this option is preferred by Ventus).

3.4.2 For each of the above options it would be possible to lay the cables underground (rather than overhead). This option is considered in the assessment of effects provided in **Section 13** below, and in the visual and landscape audit contained in **Appendix C**.

3.5 Vehicle Access

3.5.1 All vehicular access to the site is proposed to be from Taumatotara West Road.

3.5.2 Due to topographical and geotechnical constraints at the site it is not practical to construct a separate access road connecting all of the turbine sites. Three separate entrances and associated access tracks are therefore proposed to allow for vehicular access during construction and maintenance works as follows:

- to turbine 7;
- to access the northern block of turbines (Nos. 1-6); and
- to access the southern block of turbines (Nos. 8-22).

- 3.5.1 Each access crossing will be approximately 6.5 metres wide, and all areas disturbed adjacent to access roads are proposed to be grassed following completion of the construction works.
- 3.5.2 Public access will not be available to the site. However, Ventus have stated that they are supportive of any proposal by Council to create public viewing areas (including associated signage) from Council's local roading network in the surrounding area. Any consideration of a public viewing area would require separate consideration by Council, and falls outside of the scope of this application.

3.6 Transportation of Materials to the Site

- 3.6.1 In addition to the loads of imported aggregate and concrete that will be trucked to the site for the proposed construction works, the proposal also involves the transportation of a number of oversized loads (containing the actual wind farm components), as follows:
- Nacelle mass of up to 60 tonnes (each),
 - Blade length of up to 45 metres, and
 - Base tower diameter of 4.5 metres.
- 3.6.2 The turbines and sub-station transformer components will all be imported by ship to the port of New Plymouth and then transported by road to the site, northbound along State Highway 3 using specialist (large load) transportation services.
- 3.6.3 Some road widening/road alignment correction will be required to accommodate the large-load vehicles. Aside from widening and upgrading works to Taumatotara West Road, resource consents for road upgrade works do not form part of this application and will need to be applied for at a later date should this application be approved.
- 3.6.4 The imported aggregate and concrete will be trucked from '*any one of a number of local quarries*'. No further details are provided in the AEE.
- 3.6.5 The Applicant states on page 54 of the AEE that approximately 12,000 traffic movements will result from the construction and establishment of the wind farm, including movements resulting from transportation of turbine components, transportation of other materials, and vehicles associated with people employed as part of the construction works.. The majority of the heavy vehicle movements are expected to occur over the first 5 months of construction.
- 3.6.6 The potential traffic and roading effects are discussed in **Appendix C** and **Section 13** below.

3.7 Vegetation Removal

- 3.7.1 The ecological assessment (Appendix L of the application) states that the “*vegetation in the immediate vicinity of all pylons is exotic pasture grasses and herbs*” which are of minimal value from a biodiversity perspective. Overall, the report concludes that the proposed works involve the removal of only small areas of indigenous vegetation, most of which is already degraded either through previous road works or invasion by exotic species and is well represented elsewhere within the district.
- 3.7.2 Some relatively small areas of roadside vegetation will require removal to enable upgrading and widening of Taumatotara West Road. This includes the removal of a small amount of indigenous vegetation on some of the road corners.

3.8 Earthworks

- 3.8.1 The Applicant estimates the approximate volumes of material for the construction works as follows:
- 32,000m³ of aggregate and basecourse material,
 - 6,200m³ of concrete,
 - 14,149m³ of topsoil strip; and
 - 187,730m³ of excavated sub-soil.
- 3.8.2 Earthworks are required to create the turbine sites, crane pads, access roads and other facilities described above. The proposed earthworks will involve cuts and benching to the existing site topography, the creation of building platforms for each of the turbines, and the construction of internal access roads.
- 3.8.3 The Applicant has provided a spreadsheet detailing earthworks volumes (see **Appendix B**). Approximately 14,149m³ of topsoil strip, 187,730m³ of cut and 124,365m³ of fill is required for the various aspects of the application. The fill material will be comprised entirely of the cut material, with the excess cut of approximately 63,365m³ and the topsoil strip of approximately 14,149m³ (a total of 77,514m³) being deposited on-site within well drained natural depressions.
- 3.8.4 The potential effects of the proposed earthworks are considered under various headings in section 13 below and in the visual and traffic assessments undertaken on behalf of Council (**Appendix C**).
- 3.8.5 A hardstand laydown area measuring approximately 150 metres by 60 metres is proposed adjacent to the proposed sub-station site, for the short term storage of some components during the construction phase of the project. The hardstand laydown area will be constructed of compacted basecourse to a depth of approximately 400mm. The laydown area will be removed upon the completion of construction and the area will be re-grassed. The potential

visual effects of the proposed hardstand area are discussed in the visual and landscape audit in **Appendix C** and summarised in **Section 13** below.

Aggregate:

- 3.8.6 Significant earthworks are proposed to create the internal access roads and building platforms for the turbine sites, crane pads and other ancillary facilities. It is estimated in the AEE that approximately 32,000m³ of aggregate will be required for these activities. Some aggregate, particularly sub-base material required for the roads will be sourced from on-site. However, aggregate for the road surface *“is likely to come from any one of a number of local quarries”*.

Concrete:

- 3.8.7 Several options are suggested in the application with regard to a source of concrete. These options include trucking concrete to the site from a quarry at Taharoa, or alternatively from Otorohanga. The Applicant also suggests that a concrete batching plant may be located on-site.
- 3.8.8 The establishment of a batching plant on-site will have associated effects such as visual and noise matters that are potentially significant and would require consideration. No proposed location for a concrete batching plant has been identified so it has not been considered in this report. The Applicant should clarify whether a batching plant is proposed at the hearing.

Spoil:

- 3.8.9 It is estimated that some 14,149m³ of excavated topsoil will be stored during construction and then used to reinstate the disturbed areas. The extent of the proposed cuts, and the areas of temporary storage are not specified in the application other than a comment on page 31 of the AEE that the excavated topsoil *“will be stored in well-drained locations”*.
- 3.8.10 The Applicant states on page 53 of the AEE that the heavy machinery (transportation) phase of construction is expected to take approximately 5 months. The total construction period is expected to be approximately 9 months.

3.9 Operation, Monitoring and Maintenance

- 3.9.1 Once the turbines are operational there is a relatively low level of manual input required. No full time staff would be present at the site. However, staff would normally visit the site on a fortnightly basis to undertake routine checks and data collection. The proposal also includes a facility to transmit important operational data remotely.
- 3.9.2 Physical maintenance such as oil changes and lubrication will take place approximately twice a year. Servicing will generally occur within the nacelle, using an internal ladder in the tower to gain access.

4 Lapsing Period and Consent Term

4.1 Section 125 of the Resource Management Act 1991 states:

- 1) *A resource consent lapses on the date specified in the consent or, if no date is specified, 5 years after the date of commencement of the consent unless, before the consent lapses, -*
- a) *the consent is given effect to; or*
 - b) *an application is made to the consent authority to extend the period after which the consent lapses, and the consent authority decides to grant an extension after taking into account -*
 - (i) *whether substantial progress or effort has been, and continues to be, made towards giving effect to the consent; and*
 - (ii) *whether the applicant has obtained approval from persons who may be adversely affected by the granting of an extension; and*
 - (iii) *the effect of the extension on the policies and objectives of any plan or proposed plan.*

[Emphasis Added]

- 4.2 Ventus have requested a lapsing period of 8 years, citing the possibility that some or all of the construction will be delayed. Ventus seeks an unlimited term for all consents.
- 4.3 Ventus state on page 20 of the AEE that the expected life of the turbines is 20 – 25 years. Following this period, the turbines may be upgraded and retained, depending on the technology available and the demand for wind power at that time. The infrastructure supporting the wind farm (access roads, substation and grid connections etc) will have a design lifetime of some 50 to 60 years. Ventus therefore anticipate that they will operate a wind farm at the site for two turbine replacement cycles (a total project lifetime of approximately 50 years).

5 The Site

5.1 Site Selection

5.1.1 The Applicant states on Page 1 of the AEE that the site was selected because it displays the following:

- *Has a good 'wind regime' (exposed to prevailing winds and elevated)*
- *has excellent grid connection possibilities*
- *is highly modified (ecologically) so has a low sensitivity*
- *is not adjacent to the coastline or a high amenity area*
- *is generally well screened from views.*

5.2 Land Use and Landscape

- 5.2.1 The site of the proposed wind farm is located on an unnamed ridgeline, situated approximately 6.5 kilometres south of Taharoa (from Turbine 1) and 2.5 – 3 kilometres east to southeast of Te Anga.
- 5.2.2 The existing landuse is predominantly pastoral grazing (sheep and cattle) with scattered pockets of plantation radiata pines. Small fragments of native bush also exist in the surrounding area.
- 5.2.3 Taumatotara West Road traverses through the centre of the site in an east-west orientation, and effectively 'divides' the wind farm site into two parts, with turbines 1-6 located on the northern side of Taumatotara West Road, and turbines 7-22 located to the south.
- 5.2.4 Surrounding land uses are predominantly rural. The topography of the site ranges from moderate to very steep hill country.
- 5.2.5 The southern part of the ridgeline, in particular, is visually prominent with respect to a large but sparsely populated area of the nearby Marokopa Valley.
- 5.2.6 There are four dwellings located within 1 kilometre of the site, with the closest dwelling being approximately 600 metres away from the nearest proposed turbine (Harper House 3). Gallagher House 1 and Gallagher House 2 are each located approximately 700 metres from the closest turbines, being turbines 1 and 6 respectively. An additional dwelling is also located near Gallagher House 2, however, this house is not marked on the plans provided with the application. This dwelling is also owned by the Gallaghers.
- 5.2.7 All of these dwellings are located on properties that are owned by people who own land that forms part of the wind farm site itself (Harper's and Gallagher's). Written approval has been provided from the owners and occupiers of all four of these dwellings.
- 5.2.8 The site is zoned Rural in the Proposed Waitomo District Plan, as are all of the adjoining properties (refer to planning map in **Appendix F**). There are no designations, sites of significance or other special features affecting the site that are identified on the District Plan maps. However, the planning maps do denote three areas zoned 'Conservation' located in close proximity to the wind farm site (the Maungaakohe Scenic Reserve administered by DOC to the south-west, and two open space covenant areas to the north-east).
- 5.2.9 There are a number of agricultural airstrips in the surrounding area. The Applicant has consulted with the Civil Aviation Authority (CAA) in relation to the proposal, and their written comments are included in **Appendix B** of the application.
- 5.2.10 Telecom New Zealand operate a small communications link with an associated cable on the site. Telecom have advised that they have no objection to the proposal.

6 Pre-Application Consultation

- 6.1 Prior to lodging the applications, Ventus Energy engaged in consultation with a number of organisations and surrounding landowners. The nature of and results of discussions with those organisations and people are summarised in Section 2.5 of their application (Volume 1).
- 6.2 The AEE includes detail of consultation and correspondence undertaken prior to lodging the resource consent application. According to the Applicant, consultation was undertaken with the following persons and organisations:
- NZ Police
 - Civil Aviation Authority of New Zealand
 - Department of Conservation
 - Telecom New Zealand
 - Waitomo District Council
 - Environment Waikato
 - Ornithological Society of New Zealand
 - Hang Gliding Association
 - Marokopa RMC
 - Ngatai Tai O Kawhia
 - Taharoa C Incorporation
 - Transit NZ
 - Teamtalk
 - Superair
 - D & C Green
 - D & D Donald
 - G & S Scott
 - W & B Holmes
 - B Neeley
 - J & K Phillips

7 Written Approvals

- 7.1 The Applicant has provided written approvals from the owners and occupiers of those dwellings and sites located closest to the turbine sites. The following people have provided their written approval to the proposed wind farm development:

Table 2: Potentially Affected Persons From Whom Written Approval Has Been Obtained

NAME	ADDRESS	OWNER/OCCUPIER
The Proprietors of Taharoa C Incorporation		Owner
T Barlow	290 Marokopa Road, RD 5, Te Kuiti	Occupier
G & S Hamilton	297 Coutts Road, Te Anga	Occupier
G & J Gallagher Farm Limited	Private Bag 3026, Hamilton	Owner
D & C Green	Taumatotara West Road, RD 8, Te Kuiti	Occupier
J Green	Te Anga Road, RD 8, Te Kuiti	Occupier
GL Stokes and Company Limited	Te Anga Road, RD 8, Te Kuiti	Owner
G & S Scott	465 Taumatotara West Road	Owner & Occupier
L & L Harper	Taumatotara West Road, RD8, Te Kuiti	Owner & Occupier
R Phillips	255 Taumatotara West Road, RD 8, Te Kuiti	Occupier
Marokopa Marae	CO/- 2 Turongo Street, Otorohanga	Owner

- 7.2 Copies of their written approvals are attached as **Appendix E**.
- 7.3 In accordance with Section 104(3)b of the Resource Management Act 1991, Council must not have regard to the effects of the proposal on a person who has given written approval to the application.
- 7.4 The Applicant has confirmed that they have undertaken consultation with local iwi for the area and written approval was obtained from Marokopa Marae. Ngatai Tai O Kawhia did not provide written approval to the development, nor did they lodge a submission to the consent application.

8 Public Notification and Submissions Received

8.1 Notification Details

- 8.1.1 The Applicant requested that the application be processed on a notified basis.

- 8.1.2 This was consistent with Council's view that the proposal was likely to have a wide public interest and that the effects on the environment may be more than minor.
- 8.1.3 The application was publicly notified by the placement of notices in the Waitomo News and Waikato Times on 14 February 2006.
- 8.1.4 The closing date for receipt of submissions was 4pm on 14 March 2006.

8.2 Submissions Received

- 8.2.1 A total of fifteen submissions were received. All of the submissions were received within the statutory time period.
- 8.2.2 Ten of the submissions received were in opposition to the proposal, four submissions were in support, and one neutral submission was also received.
- 8.2.3 A submission was lodged by GL and CR Stokes, however, this was formally withdrawn on 23rd March 2006.
- 8.2.4 A summary of the submissions is included in **Table 3** below. Copies of the full submissions are included in **Appendix D**.

Table 3: Summary of Submissions

SUBMITTER	ADDRESS	SUPPORT/OPPOSE/NEUTRAL	WISH TO BE HEARD?
Wind Farm Developments (Australia) Limited	PO Box 10-905, Wellington	Support	No
M, J, & N Phillips	719 Marokopa Road	Oppose	Not stated
Department of Conservation (DOC)	PO Box 38, Te Kuiti	Neutral	Yes
R & S Irons	83 Te Waitere Road	Oppose	No
Mr M Paterson	669 Marokopa Road	Oppose	Yes
Mrs M Paterson	669 Marokopa Road	Oppose	Yes
C & D Gilbert	443 Marokopa Road, Castle Craig Farm	Oppose	Yes
M Haddad	158 Coutts Road	Oppose	Yes
G Pilgrim	Marokopa Road, Castle Craig Farm	Oppose	No
C Pilgrim	Marokopa Road, Castle Craig Farm	Oppose	No
Ministry of Economic Development	PO Box 1473, Wellington	Support	No

Energy Efficiency and Conservation Authority	Po Box 388, Wellington	Support	Yes
Airways Corporation of New Zealand	PO Box 294, Wellington	Support	Yes
Waikato District Health Board	PO Box 505, Hamilton	Oppose	Yes
Tim Stokes	781 Taharoa Road	Oppose	Yes

8.3 Issues Raised by the Submitters

The issues raised in submissions in support include:

- Proposal is well aligned with government objectives to deliver security of supply with an increasing focus on renewable energy sources
- Windpower is a viable alternative energy source
- Will ensure diversification in electricity production methods
- An environmentally responsible alternative to using fossil fuels for generation because generation does not produce carbon dioxide
- New Zealand is ideally situated to generate electricity from wind
- Will assist NZ in meeting its commitments under the Kyoto protocol
- Governments Energy Policy commits the government to a sustainable and efficient energy source with an increasing focus on renewables
- Is consistent with the principles for sustainable development
- The proposal enhances security of supply in the electricity sector especially in dry (hydro) years
- Ensures New Zealand has the generation capacity to meet the forecasted growth in energy demand
- Is consistent with the governments Sustainable Development Programme of Action for Energy, to ensure continued delivery of energy services to New Zealanders; and recognition of renewable resources
- Is consistent with National Energy Efficiency and Conservation Strategy (NZECS)
- Is consistent with Government Policy Statement on Electricity Governance
- Is consistent with Resource Management (Energy and Climate Change) Amendment Act 2004
- Public support for renewable energy sources

The issues raised in submissions in opposition include:

- Rooding and traffic disruption and safety effects along Taumatotara Road and Marokopa Road.
- Effects of transportation vehicles on lambs during lambing season.
- Effects on road quality – need for reinstatement.
- Effects on existing tourism – tourists attracted because of natural quality of surrounding landscape.

- Noise effects on neighbouring properties
- Visual effects on the Marokopa Valley environment from turbines numbered 18-22.
- Potential for vibration effects.
- Possible effects relating to the upgrade of the transmission line – particularly health effects.
- Effects on property values in the neighbouring area.
- Possible rates increases as a result of additional pressure on roading infrastructure.
- Stability of the ridge on Taharoa C land and potential for erosion/slippage to occur.
- Potential additional costs for aerial spraying

Other matters or suggested amendments raised in submissions:

- Some submitters expressed concern at a lack of consultation.
- Six of the ten submitters who lodged submissions in opposition to the proposal want turbines 18 (or in one case 19) to 22 removed from the proposal.

9 District Plan Assessment – Classification of the Activity

9.1 Proposed Waitomo District Plan

Status

- 9.1.1 The Decisions Version of the Proposed Waitomo District Plan was notified in October 2001.
- 9.1.2 Several of the Proposed District Plan provisions are the subject of Environment Court appeals and/or consent orders. However, the provisions relating to zoning and to land use activities in so far as they relate to this application are now effectively beyond challenge, and are given weight to in accordance with section 19 of the Act when assessing this application. Therefore there is no need to consider the Transitional Waitomo District Plan.

Zoning

- 9.1.3 The site on which the proposed turbines are located is zoned **Rural** under the Proposed District Plan, a zoning that applies to the majority of the rural land within the Waitomo District. A copy of the relevant planning map is attached as **Appendix F** (Planning Map 3).
- 9.1.4 The District Plan describes the overall approach in the Rural zone as being “*to minimise controls on rural activities so there are no unnecessary barriers to productive land use, while ensuring that the rural environment is protected from significant adverse effects of activities*” (Section 11.1 of the Proposed District Plan).

The Proposed Wind Farm Activity

9.1.5 ‘Wind farms’ are not an activity that is expressly referred to in the Proposed Waitomo District Plan, and the District Plan does not make any direct provision for wind farming activities within any of the zones.

9.1.6 However, Rule 11.5.1.3 of the Waitomo District Plan identifies the following activities as discretionary within the Rural zone:

Rule 11.5.1.3:

“Discretionary Activities: Any activity described as a Discretionary Activity in Rule 11.5.2 [Karst Systems], and any activity that does not comply with three or more of the Conditions for Permitted Activities set out in Rule 11.5.4. See also Rule 11.5.4.5 for Discretionary Activity rules relating to clearance of indigenous vegetation”.

Rule 11.5.4 Conditions for Permitted Activities:		
Condition	Complies	Comments
<p>Rule 11.5.4.1: Buildings</p> <p>a) <i>Front Yard: 10 metres minimum</i></p> <p>b) <i>Side Yard: 10 metres minimum</i></p> <p>c) <i>Rear Yard: 10 metres minimum</i></p> <p>d) <i>Height in relation to boundary: 3 metres plus 1 metre for every metre from the boundary to the structure</i></p> <p>e) <i>Maximum Height: 10 metres</i></p> <p>f) <i>Maximum building area: 200m², except for dwellings and buildings for farming and forestry activities where no limit applies.</i></p>	<p>✓</p> <p>✓</p> <p>✓</p> <p>✗</p> <p>✗</p> <p>✗</p>	<p>The proposed wind farm is unable to comply with items (d), (e) and (f) of Rule 11.5.4.1.</p> <p>(d) Height in relation to boundary – the proposal will not comply at turbines 7 and 8. The nearest external boundary to turbine 7 is approximately 60 metres and the nearest external boundary to turbine 8 is approximately 70 metres away.</p> <p>(a) The turbines are likely to have a maximum height of 110 metres (from ground to tip), and a maximum height of just 10 metres is permitted.</p> <p>(b) The proposed turbines, substation and ancillary structures all fit within the District Plan definition of ‘building’ and occupy a total building area greater than 200m².</p>
<p>Rule 11.5.4.5: Indigenous Vegetation</p> <p><i>“Within the Rural Zone the removal or clearance of indigenous vegetation, or indigenous wetland vegetation, shall be Discretionary subject to assessment for significance under Assessment Criteria</i></p>	<p>✓</p>	<p>The ecological assessment included in the application and referred to in Section 13 of this report has confirmed that the proposed wind farm activities will only result in the removal of minor areas of indigenous vegetation, totalling less than 1 hectare in area. The actual turbines will be sited in areas that are presently in pasture.</p>

<p>11.6.3. <i>This Rule does not apply to the following forms of clearance of indigenous vegetation which shall be Permitted Activities</i></p> <p>(vi) <i>Establishment of new tracks and fences through indigenous vegetation where the clearance of indigenous vegetation is no more than one hectare in area, and the track or fence line is constructed to acceptable farming practice, provided that the indigenous vegetation lies more than 10 metres from any water body”.</i></p>		
<p>Rule 11.5.4.6: Earthworks <i>“Earthworks, farm quarries and extractive industries may occur on any site provided that:</i></p> <p>....</p> <p>(d) <i>The activity does not breach ... Rule 11.5.3 General Provisions, and Conditions for Permitted Activities in Rules 11.5.4.1 to 11.5.4.5</i></p> <p>(e) <i>No more than 10,000m³ of soils, minerals, and overburden are moved or removed in any one calendar year”.</i></p>	<p>✘</p>	<p>The proposal involves significant volumes of earthworks to create the platforms required for the turbines, crane pads and substations, and the internal access road to those platforms.</p> <p>The proposal is unable to comply with Item (e) of Rule 11.5.4.6 because the scale of the proposed earthworks is in excess of the 2,000m³ maximum that is permitted.</p>
<p>Roads and Vehicle Access Rule 16.5.4.1 - Permitted Activity <i>Any minor upgrading or realignment of a road or state highway provided that no more than 1000m² of land outside the existing road designation</i></p>	<p>✓</p>	<p>Should road realignment and upgrading works require a resource consent then this will be applied for at a later date. Aside from Taumatotara West Road, road upgrading works are outside the scope of this resource consent application.</p>

<p><i>boundary is required to accommodate the road, except for land in the Conservation Zone.</i></p>		<p>The upgrading works to Taumatotara West Road are minor and are not expected to involve more than 1000m² of land outside of the existing road designation boundary.</p>
<p>Noise Rule 20.5.1 and 20.5.2 specify the noise standards for permitted activities in the Rural Zone. <i>All permitted activities shall be carried out such that the noise level at the notional boundary shall not exceed the following levels:</i></p> <ul style="list-style-type: none"> • 50dBA L10 daytime 7:00am to 10:00pm Monday to Saturday and 8:00am to 5:00pm Sundays and Public Holidays; and • 40dBA L10 night time (all other times) <p><i>No single noise event shall exceed 70dBA Lmax at night time</i></p> <p>Rule 20.5.1.4 <i>All noise levels shall be measured and assessed in accordance with the requirements of NZS 6801:1991 The Measurement of Sound and NZS 6802:1991 Assessment of Environmental Sound. The noise shall be measured with a sound level meter complying with the International Standard IEC651 (1979): Sound Level Meters, Type 1</i></p>	<p style="text-align: center;">*</p>	<p>Noise from the proposed turbines is expected to exceed these levels. Rule 20.5.1.2 of the Plan (page 114) lists the activities that are exempt from the rural zone noise standards but wind farms are not currently exempt.</p> <p>It is noted that there is a separate NZ Standard to measure wind turbine noise.</p>

9.1.7 From the above table it is evident that the proposed wind farm activities do not comply with the following five conditions for permitted activities:

- **Buildings** - Rules 11.5.4.1.(d), (e) and (f);
- **Earthworks** - Rule 11.5.4.6; and
- **Noise** – Rule 20.5.

The proposal is therefore assessed as a **discretionary activity** in accordance with Rule 11.5.1.3 of the Waitomo District Plan.

Assessment Criteria

9.1.8 Section 11.6 of the Proposed Waitomo District Plan sets out the ‘*Assessment Criteria for Discretionary Activities*’. Those that are relevant to the wind farm application are as follows:

11.6.1 The relevant Objectives and Policies of the Rural Zone, and if applicable, those of the “General Provisions” where standards are not met.

11.6.2 The anticipated adverse effects resulting from the area of non-compliance and its impact on the following matters:

- b) amenity and archaeological, historical and cultural heritage*
- c) the integrity of areas of significant indigenous vegetation and significant habitats of indigenous fauna*
- f) the safe and efficient operation of the district infrastructure and physical resources, including road*
- h) the noise level associated with the proposal and its effects on neighbouring properties.*

9.1.9 **Rule 11.6.1** - An assessment of the relevant objectives and policies of the Rural Zone is provided below.

9.1.10 **Rule 11.6.2** – An assessment against each of the matters raised in items b), c), f) and h) is provided in **Section 13 (Assessment of Environmental Effects)** below. The assessment concludes that the proposal complies with the above assessment criteria.

Assessment Against the Relevant Objectives and Policies of the Proposed Waitomo District Plan

Objectives

11.3.1 *To promote the Rural Zone as a productive working environment where the use and development of its natural resources, consistent with meeting environmental safeguards, is encouraged.*

11.3.3 *To ensure that significant archaeological, historical and cultural features are protected from adverse effects arising from the removal of vegetation, or other development of land. See also Section 21, Heritage Resources.*

- 11.3.4 *To protect areas of significant indigenous vegetation and significant habitat of indigenous fauna.*
- 11.3.5 *To ensure that rural development and land use does not give rise to increased erosion and thus degradation of water quality.*
- 11.3.8 *To promote use of rural land in a manner which encourages maintenance and enhancement of amenity values of the rural environment, protects outstanding natural features and landscapes from inappropriate use and development, and preserves the natural character of the coastal environment, wetlands, lakes and rivers, and their margins.*
- 11.3.9 *To encourage maintenance and enhancement of rural visual character.*
- 11.3.12 *To ensure the adverse effects of rural buildings situated close to boundaries, and large non-farm buildings, are avoided, remedied or mitigated.*

Policies

- 11.4.1 *To ensure the Rural Zone functions as a productive working environment where the use and development of its natural resources, consistent with meeting environmental safeguards, is encouraged.*
- 11.4.4 *To avoid, remedy or mitigate any effects of the use or development of rural land that gives rise to erosion which adversely affects water quality.*
- 11.4.10 *To avoid, remedy or mitigate the adverse effects of removal of areas of significant indigenous vegetation and significant habitat of indigenous fauna.*
- 11.4.12 *To ensure that all rural activities, including extractive industries, are established and operated so as to avoid, remedy or mitigate adverse effects on amenity or on neighbours, or on significant karst features.*
- 11.4.13 *To encourage mitigation of the adverse effects of all rural activities, including afforestation and forestry clearance, on adjacent sites. Particularly that mitigation should occur in areas that are visually sensitive, including areas with significant tourist resources, areas of high landscape quality and in the coastal environment.*
- 11.4.17 *To avoid, remedy or mitigate the adverse effects of rural buildings situated close to boundaries, and large non-farm buildings, on sunlighting, privacy, landscaping and amenity.*

- 9.1.11 The proposal encourages the use and development of natural resources of land and air, and is therefore consistent with Objective 11.3.1 and Policy 11.4.1.
- 9.1.12 No areas of significant archaeological, historical or cultural features are known to exist on the site. The proposal is therefore consistent with Objective 11.3.3 above. Similarly, the ecological assessment included in the application confirms that there are no areas of significant indigenous vegetation and/or habitats of indigenous fauna that require protecting (Objective 11.3.4 and Policy 11.4.10).
- 9.1.13 Conditions regarding the on-site earthworks and construction activities will ensure that the land use does not give rise to increased erosion and/or degradation of water quality (Objective 11.3.5 and Policy 11.4.4).
- 9.1.14 The visual audit concludes that the landscape and amenity values of the immediate area will be adversely affected by the proposed wind farm. Given the nature of wind farms and their specific location needs, this is largely unavoidable. Nevertheless, the proposal is not consistent with Objectives 11.3.8 and 11.3.9 and Policies 11.4.12 and 11.4.13.
- 9.1.15 The proposed turbines will be setback approximately 60-70 metres from the nearest external property boundary, and written approvals have been obtained from the owners and occupiers of the nearest dwellings. It is therefore considered that the proposal is consistent with Objective 11.3.12 and Policy 11.4.17 above.
- 9.1.16 The following objectives and policies of section 16 of the Waitomo District Plan are also relevant:

Section 16: Roads and Vehicle Access

Objectives

16.3.3 *To ensure that development of new roads and the realignment of existing roads is carried out in a manner that avoids, remedies or mitigates adverse effects on adjoining land use activities including areas of significant indigenous vegetation, the coastal environment and heritage values.*

16.3.4 *To ensure that land use activities are carried out and designed so as to avoid, remedy or mitigate adverse effects on traffic.*

Policies

16.4.1 *To ensure that land use activities are operated and designed in a manner that avoids, remedies or mitigate any adverse effects on the safe and efficient function of the adjoining road or highway.*

16.4.2 *To ensure that land use activities include appropriately sited and designed vehicle accesses.*

16.4.4 *To ensure that new roads and road realignments are designed in a manner that takes into account the nature of the environment through which they pass*

9.1.17 The traffic audit undertaken by Opus International Consultants on behalf of Council, and included as **Appendix C** to this report has assessed the traffic and roading effects of the proposal in relation to the surrounding local roading network. The audit concludes that appropriate resource consent conditions would be required to mitigate the likely adverse effects on the roading network. With the imposition of appropriate conditions it is considered that the proposal would be consistent with the above objectives and policies relating to roading.

10 Regional Plan and Regional Policy Statement

10.1 Environment Waikato staff have assessed the application against the relevant provisions of the Proposed Regional Plan and Regional Policy Statement, and are satisfied that the proposal is consistent with the objectives and policies of both documents. I agree with the assessment of the Regional Council Planning Officer, and for the avoidance of duplication, shall not consider either Regional Document any further in this report.

11 Relevant RMA Provisions

11.1 **Section 104(1)** sets out those matters that Council must have regard to in considering an application for resource consent and any submissions received. Such matters include:

- a) *Any actual and potential effects on the environment of allowing the activity; and*
- b) *Any relevant provisions of-*
 - (iii) *a regional policy statement or proposed regional policy statement;*
 - (iv) *a plan or proposed plan; and*
- c) *Any other matters the consent authority considers relevant and reasonably necessary to determine the application.*

11.2 The relevant matters under Section 104(1) for the Councils consideration of the Ventus application are:

- *Actual and potential effects on the environment:* These are discussed in **Section 13** below;
- The relevant provisions of the *Waikato Regional Policy Statement*; and the *Proposed Waitomo District Plan*: These are discussed in **Section 10** above;

- *Other Matters:*
 - *NZS 6808: 1998 Acoustics – The Assessment and Measurement of Sound From Wind Turbine Generators;* and
 - The Government’s national policies and guidelines on energy and specifically:
 - *The Energy Efficiency and Conservation Act 2000*
 - *The National Energy Efficiency and Conservation Strategy (2001)*
 - *The Kyoto Protocol*
 - *The Sustainable Development Programme of Action for Energy (2003)*
 - *Resource Management (Energy and Climate Change) Amendment Act 2004*
 - *Climate Change Policy*
 - The Energy Efficiency And Conservation Authority’s publication *Guidelines for local authorities: wind power*

An assessment against each of these ‘Other Matters’ is provided in **Section 14** below.

- 11.3 Section 104 is subject to Part 2 of the Act. This means that the Section 104 considerations are not an end in themselves – but are subsidiary to the overriding purpose of the RMA set out in section 5 of the Act. An assessment against the Part 2 matters is provided in **Section 12** below.
- 11.4 **Section 104(2)** states that “*when forming an opinion for the purposes of subsection (1)(a), a consent authority may disregard an adverse effect of the activity on the environment if the plan permits an activity with that effect*”. This is commonly known as the ‘permitted baseline’. The Council has the discretion to disregard an adverse effect of an activity where the District Plan would permit such an activity. In this instance, there is no permitted activity that would have the same or similar level of effects to the proposal and therefore it is not considered that the permitted baseline is a relevant consideration for this application.
- 11.5 **Section 104(3)(b)** states that:

“A consent authority must not–
(a) ...
(b) When considering an application, have regard to any effect on a person who has given written approval to the application”.

In relation to (b) above, several of the owners of land on which the turbines are to be sited or living nearby have supplied their written approval to the proposal. Details of those parties from whom written approvals were received are contained in **Section 7** above. Therefore the effects on these people have not been assessed.

- 11.6 **Section 104B** sets out a consent authority's powers to grant or refuse discretionary activities and to impose conditions.
- 11.7 **Section 108** defines the scope of matters that may be included in any conditions imposed on a grant of consent.

12 Part 2 Matters

12.1 The matters that Council is to have regard to in considering the application and the submissions under section 104 of the Act (as set out in Section 12 above) are all subject to Part 2 of the Resource Management Act 1991. Part 2 deals with the purpose and principles of the Act.

12.2 **Section 5** - The purpose of the Act is '*to promote the sustainable management of natural and physical resources . . .*

In this Act, "sustainable management" means managing the use, development, and protection of natural and physical resources in a way, or at a rate, which enables people and communities to provide for their social, economic, and cultural wellbeing and for their health and safety while-

- a) Sustaining the potential of natural and physical resources (excluding minerals) to meet the reasonably foreseeable needs of future generations; and*
- b) Safeguarding the life-supporting capacity of air, water, soil and ecosystems; and*
- c) Avoiding, remedying, or mitigating any adverse effects of activities on the environment.*

12.3 In regard to Section 5(a), the wind farm proposal is an important means of harnessing a natural resource to provide for the energy needs of New Zealand. Wind energy is a renewable resource and therefore the proposal will provide for the ability of future generations to meet their needs. One of the needs of future generations will be electricity and energy, and the use of wind to meet that need is sustainable. The proposal is therefore consistent with Section 5(a) above.

12.4 Section 5(b) requires that the life supporting capacity of air, water, soil and ecosystems be safeguarded. The proposal will not have any affect on the life supporting capacity of air or water, and will have minimal affect upon the life supporting capacity of the soil resource, by causing some temporary disruption to the existing pastoral activities during the construction period. However, once the wind turbines are operational, the pastoral farming activities will continue to operate in a fully functional manner around the wind farm area. An ecological assessment submitted as part of the application has demonstrated that the effects on the ecology of the area will be minor, and will not pose significant adverse effects to bird life in the area. The proposal is therefore consistent with section 5(b) above.

12.5 Section 5(c) requires any adverse environmental effects to be avoided, remedied or mitigated. The environmental effects associated with the proposal are discussed in **Section 13** below. The majority of effects are minor and are able to be mitigated through the imposition of appropriate consent conditions. For example, the recommended traffic conditions will ensure that the proposal does not compromise the traffic safety of the local roading network, and that the road is realigned to enable the safe passage of the turbine components to the site. Similarly, noise conditions will ensure compliance with the relevant noise standards, thereby ensuring that the dwellings in the surrounding area are not adversely affected by excessive noise levels. With regards to visual and landscape effects, the audit concludes that the visual, landscape and amenity effect of the proposed wind farm development will be more than minor, and will result in significant changes to existing views. Wind turbines by their very nature are big and therefore they can't be hidden, painted to blend with their surroundings, or have shrubs planted in front of them.

12.6 **Section 6 - Matters of national importance** – The Section 6 issues that are relevant for consideration with regards to this application are:

(a) *The preservation of the natural character of the coastal environment (including the coastal marine area), wetlands, and lakes and rivers and their margins, and the protection of them from inappropriate subdivision, use and development:*

(b) *The protection of outstanding natural features and landscapes from inappropriate subdivision, use and development:*

(c) *The protection of areas of significant indigenous vegetation and significant habitats of indigenous fauna:*

(e) *The relationship of Maori and their culture and traditions with their ancestral lands, water, sites, waahi tapu and other taonga.*

12.7 'Coastal environment' is not defined within the Act or within the New Zealand Coastal Policy Statement. In formulating the New Zealand Coastal Policy Statement, the Board of Inquiry commented that it is unsuitable to "mechanically" apply a pre-determined definition to specific areas to determine whether or not a portion of land is or is not within the coastal environment.

12.8 However, case law has provided guidance as to what the term 'coastal environment' means. In the case *Northland Regional Planning Authority vs. Whangarei County Council 463/76* the Court found as follows:

"We therefore hold that the term "coastal environment" is an environment in which the coast is a significant part or element, but clearly it is impossible to give an abstract definition which is capable of simple and ready application to any given situation. What constitutes the coastal environment will vary from place to place and according to the position from which a place is viewed. Where there are hills behind the

coast, it will generally extend up to the dominant ridge behind the coast. But where the land behind the coast is generally flat, there may be great difficulty in defining the coastal environment."

- 12.9 As the ridgeline on which the turbines are proposed to be located is not the first ridgeline back from the coast, and the coast is not a significant element in the locality, the site is not considered to be within the 'coastal environment'.
- 12.10 The site also does not contain any wetlands, and lakes and rivers and their margins and so section 6(a) of the Act is not considered relevant to the assessment of this application.
- 12.11 The site of the proposed wind farm is not recognised as having outstanding natural features and/or landscapes in terms of Section 6(b) of the RMA. The District Plan does not identify any outstanding natural landscape features in the immediate vicinity of the site, and this is confirmed in the visual and landscape audit completed by Priest Mansergh Graham.
- 12.12 Section 6(c) requires the protection of areas of significant indigenous vegetation and habitats of indigenous fauna. The Planning maps for the site do not denote any areas of significant vegetation or habitats of indigenous fauna within the wind farm site. While some small areas of vegetation will require removal (mainly in relation to the proposed access roads and road realignment works), the proposed turbine building platform areas are presently predominantly in pasture, and utilised for farming purposes. The ecological assessment included in the application concludes that *"The wind farm would not involve the removal of any significant indigenous vegetation or habitats of significant indigenous fauna"*. On going monitoring of the site, particularly in relation to the effects of the turbines on bird life is recommended. Conditions relating to the proposed earthworks and construction activities, vegetation removal and weed control are also recommended. With these measures in place it is considered that proper consideration to section 6(c) will have been given.
- 12.13 Section 6(e) recognises the relationship of Maori and their culture and traditions with their ancestral lands, water, sites, waahi tapu and other taonga. The Proposed Waitomo District Planning Maps do not denote any waahi tapu sites in the immediate vicinity of the wind farm site. The tangata whenua for the area is represented by Ngatai Tai O Kawhia Regional Management Committee (whose territory encompasses the northern half of the site) and Marokopa Regional Management Committee (the southern half). The Applicant has confirmed on pages 9 – 12 and 56 – 57 of the AEE that they have consulted with both iwi groups, including attending a meeting with Marokopa RMC. The application does not include the written approvals of either iwi group, and neither group made a submission on the consent. Marokopa Marae, however, have provided written approval to the proposed wind farm.

- 12.14 If consent is granted, it is recommended that a suitable condition is imposed in relation to the discovery of any maori artefacts during the construction activities.
- 12.15 **Section 7** lists the matters that a consent authority is required to *have particular regard to* in achieving the purpose of the Act. The listed matters are not threshold tests or criteria but, where a proposal raises issues of the kind listed, they are to be given *particular regard*. The Section 7 issues that are relevant to this application are:
- (b) the efficient use and development of natural and physical resources:*
 - (ba) the efficiency of the end use of energy:*
 - (c) the maintenance and enhancement of amenity values:*
 - (f) maintenance and enhancement of the quality of the environment:*
 - (i) the effects of climate change*
 - (j) the benefits to be derived from the use and development of renewable energy.*
- 12.16 Section 7(b) requires regard to be had to the efficient use and development of natural and physical resources. The use of wind (a renewable resource) is considered an efficient use and development of natural resources.
- 12.17 Section 7(c) relates to amenity values. The overall amenity of the area will be altered as a result of the proposed wind farm development. This is supported by the opinion of the landscape reviewer who has stated that the *“amenity value of the area is unlikely to be maintained, but either significantly enhanced or be seriously degraded based on people’s perception of the development”*. The noise review concludes that while there are a number of areas of uncertainty that require clarification at the hearing, it is generally expected that the proposal’s impacts are likely to be within the national guidelines for wind farms. Nevertheless, I cannot agree with the Applicant’s assessment that *“the amenity value of the local area will be maintained”*. In my opinion the amenity value of the area will be altered by the proposal and the application is therefore not consistent with Section 7(c) of the Act.
- 12.18 With regard to Section 7(f), the maintenance and enhancement of the quality of the environment (which deals with such issues as the effects on the ecology and the potential erosion effects) has been considered. With the conditions proposed it is considered that the application is consistent with Section 7(f).
- 12.19 Items (i) and (j) are particularly relevant to this proposal. These two subsections were added by the *Resource Management (Energy and Climate Change) Amendment Act 2004* and reflect the Government’s commitment to its obligations under the Kyoto Protocol to reduce greenhouse gases and promote the generation of energy from renewable sources. The proposed turbines would yield national benefits in terms of their use of a renewable energy source (as opposed to the burning of fossil fuels), contribution to security of energy supply, providing energy to meet the needs of communities and potential economic growth that could derive from the energy generated.

12.20 **Section 8** of the Resource Management Act requires that in considering the application the Council take into account the principles of the Treaty of Waitangi. The Applicant has contacted the iwi authorities recognised as representing maori interests in the area in relation to the proposal.

13 Assessment of Environmental Effects

13.1 Landscape and Visual Effects

13.1.1 A key consideration in any wind farm proposal is the potential visual effects of the proposed wind farm on the landscape. In its publication "*Guidelines for Local Authorities: Wind Power*" the EECA states that it is difficult to establish guidance in terms of good practice for detailing with the visual effects of wind farms. EECA state on Page 21 of their report that '*Each development will need to be considered on its merits in terms of site and locality-specific considerations such as distance, backdrop, landscape scale, and the number of potential viewers*'.

13.1.2 The EECA report goes on to state on page 20 '*Site location, size, tower design, colour, and layout and spacing are all important factors in terms of visual impact. As well, access roads, site buildings, and any additional electricity requirements may require consideration in any specific development*'.

13.1.3 The EECA report makes the following generalised recommendations in terms of reducing visual effects:

- *All turbines in a wind farm should be of similar size and style.*
- *Blades should always rotate in the same direction.*
- *Light colours – pearly grey and white – have been found to be most appropriate colours for all parts of the turbines in Northern Europe, where they tend to be against a sky background. If the background is other than sky, darker colours may be appropriate.*
- *Distance and scale of the landscape is a major consideration. In an open or grand landscape, wind farms can be of minor intrusion. However, the human eye is often drawn to 'artificial' vertical features, regardless of distance, making them seem bigger than they really are*".

13.1.4 Priest Mansergh Graham (PMG) have reviewed the landscape and visual effects of the proposal on behalf of Council. A copy of their report is attached in **Appendix C**.

13.1.5 The PMG report covers the visual, landscape and amenity effects that are likely to arise from the development of the turbines, ancillary structures, hardstand areas, earthworks, aircraft obstruction lights, electricity lines and support structures, and internal access roads on the site.

- 13.1.6 The report also addresses the concern raised by a number of submitters regarding the visual effects of proposed turbines 18-22. In that regard, the audit states:

“While I concur that these turbines will dominate the skyline when travelling along Marokopa Road, it should be noted that they will be seen in the context of the wind farm, of which a significant portion of the turbines will be visible. Due to the nature of the development (scale and movement), attention will be drawn to the wind farm regardless of whether the five turbines would be removed or not.”

- 13.1.7 Regarding the visual effects of the wind farm proposal, the report goes on to state as follows:

“The subject site and surrounding landscape is natural in appearance. ‘Natural’ is defined by RMA case law as those things which are a product of nature, as opposed to man made. This extends to include such things as pasture and exotic tree species as natural, whereas, man made structures, roads, machinery and the like are excluded . . .

The visual absorption capability of this landscape for this type of development is very low. This is due to the large scale and nature of the development, the placement on the ridge line, the lack of surrounding development, and the inability of existing landscape features to screen the development. The size of the structures also means they will be visible for a significant distance, in excess of 20 kilometres where sight lines permit. It is considered that up to approximately five kilometres from the wind farm the turbines will be highly prominent. Views of the wind farm outside this radius are considered to be less frequent, or at such a distance, that while the turbines may still be visible, the potential visual effect is considered less significant.

However, with respect to the turbines on top of a ridgeline and commonly viewed against a sky backdrop, the visibility and conspicuousness is more dependent on ambient light levels, and the atmospheric conditions on any particular day. For example, in hazy or rainy conditions, the wind turbine structures may be difficult to see, but on clear days with direct sunlight highlighting the turbines, they may be readily discernable”.

- 13.1.8 The PMG audit concludes that the visual, landscape and amenity effect of the proposed wind farm development will be more than minor. It is considered that the proposed development will result in significant changes to existing views by introducing new elements into the view that have the potential to act as a focal attraction. This finding is consistent with the findings of the AEE report which states: *“The visual impact of the turbines on the landscape cannot be avoided, although their position and configuration has been chosen to minimise the effects. In the longer term, the turbines are more likely to be positively accepted as part of the landscape . . .”.*

13.1.9 With regards to the identified effects, however, the PMG report also concludes:

“the nature and scale of the development is such that it would have those effects on virtually any site selected. This site has the advantage of being in a developed rural area, relatively remote from large viewing audiences and not in the coastal environment”.

13.1.10 The PMG audit goes on to recommend *“that the application be approved subject to a set of stringent conditions, aimed at the mitigation of potential effects”.*

13.1.11 The audit recommends a number of consent conditions to mitigate the effects associated with:

- a) Size, location, colour and design of turbine components and associated structures;
- b) Landscape restoration of earthworks, cuttings and pads;
- c) Decommissioning of the wind farm.

13.1.12 Should the application be approved by Councils Hearings Committee, recommended conditions are included in **Section 16** below.

13.2 Blade Glint

13.2.1 The PMG audit also addresses the issue of blade glint and provides recommended conditions of consent to mitigate potential effects.

13.2.2 Blade glint (the regular reflection of sun off rotating turbine blades) can pose a potential adverse visual effect for both animals and humans. However, the effect is generally temporary, and its occurrence depends on a combination of circumstances arising from the orientation of the nacelle, angle of the blade, and the angle of the sun. Blade glint is able to be minimised by ensuring that the blades are of a matt surface finish (EECA, 2004; P22).

13.2.3 Provided the mitigation measures recommended by PMG as conditions of consent are implemented, effects will be no more than minor.

13.3 Shadow Flicker

13.3.1 The PMG audit also addresses the issue of shadow flicker. The audit concurs with the assessment in the AEE that *“shadow flicker will not have a significant effect on local households and motorists”.*

13.3.2 ‘Shadow Flicker’ or ‘strobe effects’ inside houses may result from a turbine that is located in a position where the blades pass across the sun, causing an intermittent shadowing. This potential effect occurs only where a turbine is in close proximity to a dwelling, and at very low sun angles. EECA have stated

that this is unlikely to be an issue in New Zealand because the separation distance required for noise mitigation is usually more than enough to prevent occurrence of shadow flicker (EECA, 2004; P22).

- 13.3.3 The Applicant has identified the properties shown as ‘House 1’, ‘House 2’, and ‘House 3’ on the figures contained in Volume 2 of the AEE as likely to be affected by shadow flicker. The report by PMG, however, states one of the conditions for shadow flicker as being that houses (or the viewing audience) must be located to the south of the turbines. House number 1 is located to the northwest of turbine 1 and therefore would not be affected by shadow flicker. It is expected that the Applicant will be able to clarify this matter at the hearing.
- 13.3.4 Nevertheless, the owners and occupiers of all of these dwellings have provided their written approval to the development and effects on these persons must be disregarded.
- 13.3.5 The Applicant has also identified a section of Marokopa Road as being subject to shadow flicker during parts of the year. Part of Marokopa Road is located to the south of turbine 22. The Applicant states that the effect of shadow flicker on Marokopa Road will only be over a short section of road and will be for very limited durations. Given the distance of turbine 22 from Marokopa Road (approximately 900 metres minimum) effects are expected to be no more than minor.
- 13.3.6 Effects of shadow flicker on Taumatotara West Road have not been considered at all within the application. The Applicant will need to clarify why effects were not considered on Taumatotara West Road users at the hearing. This is especially important given the location of the road within close proximity of turbines to the north.

13.4 Amenity Effects

- 13.4.1 Amenity is defined in the RMA as:

“those natural and physical qualities and characteristics of an area that contribute to people’s appreciation of its pleasantness, aesthetic coherence and cultural and recreational attributes”.

- 13.4.2 The consideration of the effects on the amenity of an area is therefore somewhat subjective, and in the context of the proposed wind farm, it is considered that effects such as visual effects, noise effects, and effects on ecology collectively contribute to the general amenity of an area. The potential environmental effects of each of these issues are considered individually elsewhere in this report.

13.5 Ecological Impacts

- 13.5.1 The District Plan does not identify any areas of significant ecological value within the wind farm site.
- 13.5.2 The application includes an ecological assessment of the site, prepared by Kessels and Associates Limited (Appendix L to the AEE). Walk over flora and fauna surveys were carried out as part of the assessment, and the report concludes that the site is highly modified due to pastoral farming, and no significant ecological impacts were anticipated.
- 13.5.3 Observations made whilst on site support these conclusions, and as such a review of the ecological assessment contained in the AEE was not deemed to be necessary.
- 13.5.4 The Department of Conservation (DOC) manage the Maungaakohe Scenic Reserve approximately 80 metres to the south of the nearest turbine location (turbine 6). The DOC site is zoned 'Conservation' in the Proposed Waitomo District Plan.
- 13.5.5 DOC were notified of the consent application and lodged a neutral submission on the application requesting that monitoring conditions be placed on the consent should it be granted.
- 13.5.6 As part of the ecological assessment undertaken by Kessels and Associates, a bird survey was conducted, and several native and introduced species were recorded as present. However, the assessment concluded that the site is not on any known migration route for either international or internal migratory waders.

13.6 Bird Deaths

- 13.6.1 The EECA Guidelines for local authorities has reviewed overseas literature with regards to the potential effects of wind turbines on bird populations. They have identified five potential impacts on bird life:
- Collision;
 - Direct habitat loss;
 - Indirect habitat loss (during construction, and disturbance to nesting, feeding sites, and habitual flight paths);
 - Electrocution from associated infrastructure; and
 - Cumulative Impact.

The report notes that:

"In general, it appears that local residential birds of most types grow accustomed to the presence of local turbines, and will avoid them

...

Numerous studies overseas have compared bird mortality caused by wind farms with that experienced from buildings, stretches of roads, motorways,

and transmission lines. The studies have found wind turbine effects to be significantly lower than other causes

...
While overseas evidence suggests that the total impact of wind farms on birds is small, it should not be dismissed. It is good practice for developers to seek advice on the main flight paths of birds so the number of bird deaths can be minimised. In addition, developers would need to avoid any impacts on rare or unusual species. (EECA, 2004; P25).

Collision

- 13.6.2 Birds can potentially collide with the moving turbines. Careful consideration is therefore required when considering the location of a proposed wind farm in respect of the natural ecology of the area. The ecological assessment included in the application confirms that the wind farm activity “*may increase the incidence of bird strike or impede the movement of resident or migratory bird species*” but goes on to state that the site is not located within a known flight path of significant habitat for any bird species. On this basis, it is considered that the proposal will not pose a significant hazard to birds. Longer term monitoring of the effects of the turbines on bird populations is recommended as a condition should consent be granted.

Direct and Indirect Habitat Loss

- 13.6.3 The building platforms for the proposed turbines will be located on land that is already heavily modified, and is presently utilised predominantly for agricultural farming purposes. While some vegetation clearance will be necessary as part of road upgrading works and internal access road construction, the ecological assessment included in the application concludes that the proposed wind farm activities will not result in the removal of any significant areas of indigenous vegetation, and that the site is not within important resident or migratory wader flight paths. The proposal therefore will not result in a direct or indirect loss of natural habitat for bird species.

Electrocution

- 13.6.4 The design of a proposed wind farm also has the potential to affect bird mortality from electrocution. For example, the use of lattice towers (rather than the tubular towers proposed by Ventus), and the attachment of signs or telecommunications devices onto the wind turbines all provide artificial ‘perches’ for bird species, and therefore increase the likelihood of birds ‘stopping’ within the wind farm area. Should consent be granted, it is recommended that conditions are included to ensure the following design measures to mitigate against bird mortality:

- no telecommunications attachments or signs shall be attached to the wind turbines;
- all ‘internal’ wiring between the wind farm turbines shall be underground;
- the towers shall be tubular in design.

13.7 Noise

13.7.1 Hegley Acoustic Consultants were engaged to review the potential noise effects associated with the proposal on behalf of Council. Their report is attached within **Appendix C**.

13.7.3 A number of submissions expressed concerns regarding the potential noise effects of the turbines. In particular, the submission made by the Waikato District Health Board identifies that the noise assessment provided with the application is insufficient. Mr Hegley has reviewed these submissions and advised that while the information provided in the application has a number of deficiencies, he considers that it is likely that the proposal will be able to comply with the relevant noise standards provided a number of stringent conditions are imposed on the consent. The Applicant should provide evidence at the hearing to confirm compliance.

Construction Noise Effects

13.7.4 During construction of the wind farm, the primary source of noise that is likely to be discernible from beyond the site is that associated with construction vehicles (including the proposed earthworks, construction of the access roads and the pouring of concrete foundations for each turbine).

13.7.5 Mr Hegley advises that *“the applicant will need to clarify if the noise levels as set out in the Construction Standard will be met and what the levels will be”*.

Operational Noise Effects

13.7.6 Mr Hegley’s audit of the assessment of potential noise from the operation of the proposed turbines is contained in **Appendix C**. Mr Hegley makes his assessment in terms of the appropriate current New Zealand Standard (NZE 6808:1998) which is the standard adopted by the Applicant. The Proposed Waitomo District Plan, however, contains other noise criteria which the Applicant considers are not relevant to the assessment of noise for this application given the nature of the activity. Mr Hegley comments that although the District Plan noise rules have some relevance, NZS6808 is the appropriate standard to use.

13.7.7 Mr Hegley’s assessment concludes:

“The noise analysis of the proposed wind farm does not provided the level of certainty expected by NZS6808:1998, Acoustics – The Assessment and Measurement of Sound from Wind Turbine Generators.

Although limited data is available to assess the noise from the proposed windfarm, a general analysis indicates it should be practical to comply with the requirements of NZS6808. Thus, should the Council wish, the project could be approved provided strict noise controls are included in the conditions to overcome the deficiencies in the report.”

13.7.8 Mr Hegley identifies a number of other points that require clarification. The matters identified in Mr Hegley's report will need to be addressed at the hearing by the Applicant.

13.8 Vibration Effects

13.8.1 The Applicant has stated on page 36 of the AEE that "*vibrations from the wind turbines will not be felt except immediately adjacent to the tower*". No supporting data or additional information aside from this comment is provided within the application.

13.8.2 It is stated on pages 19-20 of the EECA publication '*Guidelines for Local Authorities: Wind Power*' that:

"...the potential effects of infrasound from wind turbines are sometimes raised as a concern. Infrasound is very low frequency sound – often below the level of human hearing. If 'loud' enough, infrasound can be heard or felt as a vibration. While wind turbines have been listed as one of many potential sources of infrasound (along with household appliances and the wind itself), this was due to an old American down-wind turbine which is no longer used. The author of the report often quoted, Dr Geoff Leventhall, has stated there is no significant infrasound from wind turbines currently used. Dr Leventhall has categorically stated that there will not be any effects from infrasound from wind turbines."

13.8.3 Mr Hegley has confirmed that the turbines will not generate adverse effects with regards to vibration.

13.9 Potential Dust Nuisance

13.9.1 There is the potential for dust from the proposed earthworks and construction activities to create a nuisance for site neighbours. However, it is envisaged that any dust nuisance effects are likely to only be temporary, and confined to the period prior to the wind farm being operational. The Applicant has stated that construction is expected to take place over a continuous 9 month period, however, there is a chance that the construction of the turbines will be 'staged'. Consideration must therefore be given to the potential dust nuisance effects, in the event that the construction of the turbines is 'staged', as this would clearly result in a far longer construction period than if the turbines were all erected at once.

13.9.2 The site preparation works and commissioning of the proposed turbines will involve the creation of access tracks, and building platforms for each of the proposed turbines, crane pads and substations. Such work will require significant earthworks and benching as outlined in section 3.8 of this report.

13.9.3 The Applicant proposes to time the cut and fill operations to minimise the length that cut material is required to be stockpiled prior to being used in fill

operations. Should consent be granted, conditions of consent can be imposed to ensure that dust generation is minimised. It is considered that conditions of consent can ensure that effects will be minor.

13.10 Potential Reverse Sensitivity Effects

13.10.1 Of relevance to the application is the potential for noise from the wind turbines to create an environment with a high ambient noise level and adverse visual effects inappropriate for or incompatible with future permitted residential dwellings in the immediate proximity. The land surrounding the wind farm site is zoned 'Rural' under the Proposed Waitomo District Plan, and the subdivision of rural zoned properties is a controlled activity. Rules 26.5.3 and 26.5.6 of the Proposed Waitomo District Plan set out the conditions for permitted activities, and the assessment criteria for controlled activities. They include minimum lot size, and access and service requirements.

13.10.2 If the wind farm is approved, there is the potential for the wind farm noise level in particular to be a factor affecting the location of future dwellings and/or subdivision. That effect is referred to as "reverse sensitivity" – ie the creation of a situation where an activity established on a site is unable to contain its (noise) effects on-site and the spill-over of those effects to other sites creates limitations or constraints on the range or location of land use activities on those other sites. These effects, however, will be apparent to subdividers or new residents coming to the area, so it is not considered that any action is needed on them.

13.11 Traffic Effects

13.11.1 The roading audit undertaken by Rui Leitao and Bill Flavell of Opus Consultants (**Appendix C**) has assessed the potential effects on the roading network as a result of the transportation of the turbine components to the site from New Plymouth port and as a result of the transportation of other materials, including aggregate and concrete. Some assessment has also been carried out regarding the ability of the current road network to accommodate the large transporters and weights associated with the turbine components and recommendations incorporate traffic management measures.

13.11.2 Internal access road requirements have also been audited and appropriate conditions of consent have been recommended.

13.11.3 Some of the equipment that has to be brought to the site during construction will be large and transported on specialist over-dimension vehicles. This includes turbine blades, tower components, and nacelles. Some alterations to the geometry of parts of the public roads will be required to accommodate those vehicles. Should this application be approved, any necessary resource consents associated with road realignment works (aside from Taumatotara West Road which is covered by this consent) will need to be applied for at a later date.

- 13.11.4 Transportation of large volumes of aggregate and concrete to the site is necessary as part of the construction works. The application identifies that the aggregate and concrete is likely to come from a quarry in the surrounding area, most likely from Otorohanga or Taharoa. Given the uncertainty in the application, it is difficult to assess the effects that the transportation of these items may have. However, all of the land surrounding the site is within the Rural Zone where transportation of this type is part of the normal rural environment.
- 13.11.5 Furthermore, the Applicant is uncertain of whether the concrete will be batched at the quarry itself or on-site. Again, this creates difficulties for assessing the effects of the proposal.
- 13.11.6 The Applicant has calculated that approximately 3,169 return truck movements (6,338 total movements) will be necessary for the transportation of aggregate to the site and 1,035 return truck movements (2,070 total movements) will be necessary for the transportation of concrete to the site. If the concrete is batched on the site rather than off-site then 497 return truck movements (994 total movements) will be necessary to transport the concrete aggregate and cement to the site.
- 13.11.7 One submitter expressed concern with regard to the effects of the potential use of Taharoa Road during lambing season. Mr and Mrs Irons own a property that is split by Taharoa Road. Mr and Mrs Irons lamb on both sides of the road during late Autumn and Winter. Should the Taharoa Quarry be used as a source of materials, Mr and Mrs Irons are concerned that vehicles transporting materials to the site from the quarry will adversely effect the animals. It is not clear in the submission how the animals are expected to be affected and it is anticipated that this matter may be clarified by the submitter at the hearing.
- 13.11.8 In any case, heavy vehicle use of rural roads is generally an anticipated and common activity. Although the numbers of heavy vehicle movements during the construction period will be relatively high, movements will occur over a short period. The Applicant has stated that the heavy vehicle movement phase of construction will occur over approximately 5 months.
- 13.11.9 Opus expects that the use made of Taumatotara West Road during construction will necessitate increased maintenance of this road. He recommends that a contribution should be paid by the Applicant towards the cost of that work which is required to mitigate or remedy the traffic movement effects of the proposal.
- 13.11.10 The Council does have the authority, pursuant to Section 108 (2) (c) of the RMA to impose a condition on a resource consent requiring:

.....that services or works, including (but without limitation) the protection, planting or replanting of any tree or other vegetation or the protection, restoration, or enhancement of any natural or physical resource, be provided. [my emphasis]

13.11.11 Whilst the Council does not have the authority to require a cash contribution, it would be appropriate to require some form of upgrading and maintenance works in the event that consent is granted.

13.11.12 As part of this requirement, a bond may be required to ensure that the works are carried out to the satisfaction of Council. Section 108 (2) (b) of the Act allows provision for a bond to be required as a condition of consent. Section 108A (1) sets out what a bond may be required for. That section states:

“(1) A bond required under section 108(2)(b) may be given for the performance of any 1 or more conditions the consent authority considers appropriate and may continue after the expiry of the resource consent to secure the ongoing performance of conditions relating to long-term effects, including –

(a) ...

(b) a condition relating to remedial, restoration, or maintenance work;”

13.11.13 The roading report recommends, that road upgrade works be required and recommends that a bond be requested as a condition of consent to ensure that these works are undertaken to the required standards.

13.11.14 Several other roading conditions are recommended to mitigate effects, should consent be granted.

13.12 Long Term Traffic Effects

13.12.1 Opus’s assessment is that existing traffic volumes are relatively low and the expected daily traffic volumes associated with operation and maintenance of the turbines will add only a negligible amount to those. No adverse effects on traffic safety, efficiency or convenience are anticipated and this level of movement is not expected to disturb or conflict with nearby rural activities.

13.12.2 With regard to tourism effects, the roading report considers international case studies of wind farms and states that *“we can therefore assume that tourism will have minimal impact on traffic volumes, pavement design requirements and maintenance issues”*.

13.12.3 A number of submitters identified that the proposed wind farm development may have traffic disruption and safety implications for users of Taumatotara Road and Marokopa Road.

13.12.4 Visibility of the turbines from Taumatotara Road will be relatively limited due to the topography of the surrounding area and the alignment of the road. Along sections of Taumatotara Road where the wind farm will be the most visible, the road is relatively straight and there are opportunities for vehicles to pull over to the side of the road. Furthermore, traffic volumes on Taumatotara Road are currently very low and are not expected to increase to

any significant extent post-construction as a result of the wind farm development.

13.12.5 Visibility of the turbines along Marokopa Road will be high, especially along the road's eastern sections. The road is sealed and is generally of a good quality. The road currently accommodates low volumes of traffic. Some submitters identified that there is limited room to pull over along Marokopa Road due to existing constraints such as roadside drains and the Marokopa River which runs along some southern sections of the road in the vicinity of the Taharoa C block of land.

13.12.6 While the carriageway does not allow for vehicles to pull over in some stretches of the road, in other parts of the road there are opportunities for vehicles to safely pull over. Given the low volumes of traffic that use the road, effects are expected to be no more than minor.

13.12.7 Some submitters also expressed concern regarding potential rates increases due to accelerated degradation of local roads as a result of increased traffic movements associated with the wind farm. Post-construction traffic effects associated with the wind farm will include a very limited number of maintenance workers and tourist vehicles. When compared to other permitted activities in the area such as intensive livestock farming, the traffic generated by the wind farm activity will be similar in scale and relatively minimal. This assessment is supported by findings of the Opus audit report.

13.12.8 Conditions can be imposed on the consent regarding the maintenance of local roads as a result of potential degradation caused by construction traffic. This will further ensure that effects are no more than minor in this regard and that all additional roading costs associated with the consent are carried by the Applicant, not ratepayers.

13.13 Air Traffic Safety

13.13.1 The site is not located adjacent to or within the approaches of a major airport or aerodrome. However, the topographical map of the immediate area (NZMS R16) does indicate the presence of six local airstrips in the vicinity of the turbine sites.

13.13.2 The closest, is a top dressing airstrip located on the Harper property, approximately 400-500 metres east of turbine 7, and orientated in a generally northeast-southwest direction. Aircraft from this strip service a number of farms around the local area. During typical westerly wind conditions, the aircraft generally take off to the northeast, and land to the southwest.

13.13.3 Another airstrip within close proximity to the turbines is located approximately 700 metres west of the proposed location of turbine 22, on the property owned by The Proprietors of Taharoa C Incorporation. This airstrip is orientated in a northwest-southeast direction.

13.13.4 While the Applicant has considered effects on the Harper airstrip within the application, no mention is given to potential effects on the Taharoa C airstrip or other airstrips within the vicinity of the proposed wind farm site. The Applicant should clarify this at the hearing.

13.13.5 With regard to the airstrip on the Harper's property, the Applicant has stated on page 33 of the AEE that the turbines will not compromise the taking off or landing activities of this airstrip although *"the presence of the turbines may require aircraft to take a slightly longer flight path when servicing landholdings to the west. There therefore exists a potential adverse effect of longer flight times (and hence costs) for those properties to the west"*.

13.13.6 We have previously discussed the above limitation with representatives of SuperAir (an aerial topdressing operator who services this area). SuperAir have confirmed in a letter dated 6th October 2005 that *"as we are probably unable to remove any inherent risks that this wind farm would present, we must attempt to isolate or minimise them to an acceptable level in order to continue to work the area"*.

13.13.7 To ensure the isolation or minimisation of risks, SuperAir requested that all turbines be obstacle lit and that planes be permitted to fly between the turbines referenced at the time as turbines 7 and 8. 'Turbine 7' has subsequently been removed as part of the revised proposal and the turbines renumbered.

13.13.8 The Applicant has consulted with the Civil Aviation Authority (CAA) regarding the potential effects of the proposal on aviation activities. The CAA determination states that Mark Clifford of the CAA *"conducted an aeronautical study in consultation with such persons, representatives and organisations as I considered appropriate"*. As a result of that study, the CAA advised that the wind farm *"could constitute a hazard in navigable airspace"*.

13.13.9 The CAA determination includes the following conditions:

Those wind turbines identified as numbers 1, 5, 10, 18 and 22 as listed below be lit with a medium intensity obstacle light located on the highest practicable point of each of the turbines. The medium intensity obstacle light shall –			
<ul style="list-style-type: none"> ▪ Be red; and ▪ Have an effective intensity of not less than 1600cd of red light; and ▪ Be visible to aircraft approaching the wind farm from any direction. 			
ID	Easting	Northing	Attitude
1	2664848	6331439	251m AMSL
5	2665338	6330549	322m AMSL
10	2666640	6329258	319m AMSL
18	2667836	6327401	367m AMSL
22	2668272	6326391	321m AMSL

13.13.10 The CAA's determination is relied upon in this regard and should consent be granted, a condition supporting the CAA determination is recommended.

13.14 Effects on Topdressing Operations

- 13.14.1 One submitter identified a concern with regard to increased topdressing costs for some farmers using local airstrips. In this regard, correspondence between Council and SuperAir dated 6th October 2005 identified that increased costs would result from the use of the airstrip on the Harper's property should the wind farm be constructed. SuperAir confirmed that the construction of the wind farm *"may necessitate a climb over the wind farm towers themselves for certain farms. This means longer flight times at higher engine power settings, hence increased costs to those farmers"*.
- 13.14.2 However, the Harper's are a directly affected landowner who have provided their written approval to the development. Increased costs for other farmers utilising the Harper's airstrip is a matter to be dealt with between those farmer's and the Harper's as the owner of the airstrip and cannot be considered in determining this consent application.
- 13.14.3 It is not known whether the airstrip located on the Taharoa C property is used for topdressing operations. While there may be increased costs for users of this airstrip, the Proprietors of Taharoa C Incorporation have also provided their written approval to the wind farm.
- 13.14.4 Given that the majority of increased costs are borne from the take-off (and the associated necessary power input) of fully laden aircraft, there are no other airstrips within close enough proximity of the wind farm that would be likely to incur significant additional costs for topdressing activities.
- 13.14.5 Associated effects are therefore expected to be no more than minor.

13.15 Effects on Communications

- 13.15.1 On Page 22 of the EECA Guidelines for Local Authorities, the report states:

'Radio, television and microwave transmission can potentially be affected in several ways by individual turbines and wind farms:

- *The tower may obstruct, reflect or refract the electromagnetic waves used in a range of communications systems for transmission.*
- *The rotating blades may have similar effects, on a time-variable basis. If the blades are made of metal, or have metallic cores, these can act as an aerial to on-transmit the communication. This may cause, for example, ghosting in local TV receivers.*
- *The generator itself can produce electromagnetic interference, although this can usually be suppressed by shielding design and good maintenance of turbines. In practice, a generator is little different from any other electrical machine, and only in rare circumstances is a wind turbine generator likely to be a potential problem*

In general terms, these effects will be relatively limited, as the tower and blades are slim and curved, and consequently will disperse rather than obstruct or reflect electromagnetic waves.'

- 13.15.2 Ventus have stated on Page 34 of the AEE that “*wind turbines present a possibility of disruption to the broadcast of radio or TV*”. Ventus have confirmed that the cost of any rectification works that may be required as a result of disruptions caused to the broadcast of radio or TV will be borne by Ventus. A condition to this effect is recommended, should the consent be granted.
- 13.15.3 Telecom New Zealand operate a small radio communications link with an associated cable on the site. The location of this communications link is shown on Figure 1 of the AEE (labelled as ‘communications pathway’).
- 13.15.4 On Page 27 of the AEE Ventus state that the location of the Telecom cable will be confirmed by survey prior to construction of the turbine activities and the cable will be accommodated within the proposed access road.
- 13.15.5 Ventus also state that the turbine locations have been chosen so that they do not conflict with the telecommunications pathway.
- 13.15.6 The Applicant has provided copies of correspondence dated November 2005 between the Applicant and Telecom New Zealand. This correspondence confirms that the Applicant and Telecom New Zealand have reached a private agreement with regards to this matter.

13.16 Electricity Transmission Lines

- 13.16.1 The Applicant identified in the AEE two possibilities for developing electricity transmission lines to connect the site to the existing 33kV lines that traverse through the eastern edge of the landholding. The construction of overhead transmission lines in the Rural Zone is a permitted activity and either option identified by the Applicant is therefore able to occur without the need to obtain resource consent.
- 13.16.2 Provided the transmission lines are constructed in accordance with the NZ Electrical Code of Practice for Electrical Safe Distances (NZECP 34:2001) the transmission lines will not have adverse effects on the health and safety of nearby residents.

13.17 Archaeological and Cultural Effects

- 13.17.1 There are no archaeological sites identified in the Planning Maps located in close proximity to the wind farm site. However, a suitable condition is recommended, should consent be granted, to ensure that all works cease in the area immediately, in the event that any human remains or archaeological items are exposed during the construction of the wind farm activities. The Police,

New Zealand Historic Places, Trust, and Kaumatua representing the local Tangata Whenua shall be contacted and work shall not recommence in the affected area until any necessary statutory authorisations or consents have been obtained.

13.18 Geotechnical Effects

13.18.1 The application includes a geotechnical review undertaken by Riley Consultants (Appendix K to the AEE). The geotechnical review and associated on-site inspections confirmed that many of the turbine sites are located in close proximity to slopes affected by creep/ground movement. However, *“all sites are considered geotechnically feasible and will require specific assessment at detailed design stage”*. Setbacks will be required in relation to the steeper slopes; and foundations are likely to consist of a variety of large pad and piled systems.

13.18.2 The review assesses each of the proposed building platform areas, and recommends additional geotechnical investigations and/or foundation designs for each turbine. The report concludes as follows:

“Prior to detailed design subsurface geotechnical investigation will need to be undertaken along with engineering geological mapping of the wind farm area.

The subsurface investigation is likely to consist of test pits at each of the proposed turbine sites with machine boreholes to a minimum depth of 12m at selected sites.”

The report goes on to state:

“For access assessment a combination of testpits, hand augers and possibly machine boreholes will be undertaken”.

13.18.3 One submitter expressed concern regarding the stability of the ridge on the land in the vicinity of the southernmost turbines. This instability was also acknowledged in the geotechnical report submitted with the application which identifies a number of potential measures (including setbacks, in ground walls, and specific foundation design) to ensure that slippage and creep does not occur. This is able to be covered by suitable geotechnical (and in particular detailed design) conditions.

13.18.4 Should consent be granted, it is recommended that the site is developed in accordance with the recommendations of the Riley Geotechnical report. Conditions can be imposed on the consent requiring geotechnical investigation and detailed design to be carried out to Council’s approval prior to works commencing.

13.19 Tourism Effects

- 13.19.1 Two submitters identified that tourists are attracted to the area currently due to its natural attractiveness. These submitters are concerned that this tourism market will be lost as a result of the wind farm activity.
- 13.19.2 The majority of the Waitomo District will not be visually affected by the wind farm activity, however, and the wider area will therefore retain a market for tourists who wish to view remote and natural landscapes. It is also likely that a number of these tourists will be interested in viewing the wind farm development.
- 13.19.3 Although difficult to determine, it is likely that the wind farm will have positive tourism effects overall.

13.20 Cumulative Effects

- 13.20.1 There are no existing wind farms within the vicinity of the site.
- 13.20.2 In *Rodney DC v Gould 2005 11 ELRNZ 165* the High Court held that it is not legitimate to consider, as cumulative effects in relation to a particular application, any effects relating to possible future applications. Furthermore, the Court found that a cumulative effect must be one that arises from the proposal. An effect that may never happen is not a cumulative effect.
- 13.20.3 Furthermore, in *Dye v Auckland RC 11/9/01, CA86/01* the Court concluded that a cumulative effect is concerned with things that will occur rather than something that may occur.
- 13.20.4 While Council is aware that separate applications have been lodged for wind farms on sites near Taharoa and Awakino, these applications are yet to be heard by the Hearings Committee. As such these applications cannot be considered with regards to cumulative effects as they involve effects that may never happen.

13.21 Property Value Effects

- 13.21.1 One submitter identified effects on neighbouring property values as being of concern. Effects on property values, however, are not a relevant consideration in determining whether a resource consent should be granted. These effects are dealt with elsewhere as part of the environmental effects.

13.22 Decommissioning

- 13.22.1 Ventus have stated that the turbines will have an operational life of 20-25 years, and two cycles are presently anticipated (i.e. a total duration of approximately 50 years). However, it is difficult to predict future trends in

demand for energy, changes in energy sources and generation and changing technology even within the wind generation sector itself.

13.22.2 The decommissioning effects must also be addressed in considering the current application.

13.22.3 The decommissioning process involves the removal of all above ground structures; and their transportation off site. Ventus have stated that the concrete foundations would be left in situ and covered with topsoil and re-vegetated. The access roads are also able to be covered in topsoil and re-vegetated, however, it is likely that these will be retained and used for farming activities.

13.22.4 It is recommended that a condition is imposed requiring the Applicant to submit a decommissioning plan to Council for approval, should consent be granted.

13.23 Positive Benefits Of Harnessing Renewable Energy

13.23.1 The Applicant and a number of the submitters have highlighted the positive effects that will arise if the wind farm proceeds. These include:

- ***Diversity of Supply*** - provision of greater diversity in New Zealand's energy supplies. Windpower is a viable alternative energy source to fossil fuels and can be installed relatively close to the source of electricity demand, thereby minimising the independence on the national grid.
- ***Security of Supply*** – Electricity is a vital resource for New Zealand. The proposal enhances the security of supply in the electricity sector especially in dry (hydro) years. Ventus have stated that the proposed wind farm has the potential to supply electricity to approximately 16,000 households per annum.
- ***Renewable Energy Resource*** – The proposal is well aligned with government objectives to deliver security of supply with an increasing focus on renewable energy sources.
- ***Climate Change*** - unlike electricity from fossil fuels, the use of wind doesn't generate any greenhouse gases, such as carbon dioxide, which contribute to climate change. Wind generation therefore assists in the national carbon dioxide reduction strategies with particular reference to the Kyoto Protocol.
- ***Sustainable Development*** – Windpower is consistent with the government's Sustainable Development Programme of Action for Energy, to ensure continued delivery of energy services to New Zealanders; and recognition of renewable resources.

14 Other Matters

Other Matters:

- *NZS 6808: 1998 Acoustics – The Assessment and Measurement of Sound From Wind Turbine Generators*; and
- The Government's national policies and guidelines on energy and specifically:
 - *The Energy Efficiency and Conservation Act 2000*
 - *The National Energy Efficiency and Conservation Strategy (2001)*
 - *The Kyoto Protocol*
 - *The Sustainable Development Programme of Action for Energy (2003)*
 - *Resource Management (Energy and Climate Change) Amendment Act 2004*
 - *Climate Change Policy*

NZS 6808:1998 Acoustics – The Assessment and Measurement of Sound From Wind Turbine Generators

- 14.1 NZS 6808:1998 specifies the sound level from a wind farm should not be more than 5 dBA above the background level, or more than 40 dBA (L95) whichever is the greater when measured at the boundary of a site (or a notional boundary, if a rural site).
- 14.2 The acoustic audit carried out by Hegley Acoustic Consultants has confirmed that the noise standards that appear in the Proposed Waitomo District Plan (NZS 6801:1991 and NZS 6802:1991) are not applicable to a wind farm development, and are not appropriate to measure wind turbine noise. Mr Hegley has therefore provided an assessment based on the above NZS 6808:1998 standard (refer **Appendix C** and **Section 14.7** above).
- 14.3 The NZS 6808:1998 standard provides Council with some guidance on the limits of acceptability for sound received at residential and noise sensitive locations. Compliance with the aforementioned standard provides Council with some assurance that the noise levels associated with the wind farm activities are acceptable.

Government Policy and Guidelines

- 14.4 These are discussed as follows:

The Energy Efficiency and Conservation Act 2000

The Energy Efficiency and Conservation Act 2000 is a major legislative basis in New Zealand for promoting energy efficiency, energy conservation and renewable energy.

The Act established the Energy Efficiency and Conservation Authority (EECA) as a stand-alone Crown entity with a role to promote energy efficiency, energy conservation and renewable energy across all sectors of the economy. Importantly, the Act also mandates development of a National Energy Efficiency and Conservation Strategy.

The proposal by Ventus Energy is consistent with the purpose of the Act which is stated in section 5 as:

“The purpose of this Act is to promote, in New Zealand, energy efficiency, energy conservation, and the use of renewable sources of energy.”

The National Energy Efficiency and Conservation Strategy (2001)

The purpose of this strategy is ‘to promote energy efficiency, energy conservation and renewable energy within the context of a sustainable energy future’. The strategy has two high-level targets – one relating to energy efficiency (‘at least 20% improvement in economy wide energy efficiency by 2012’) and the other to the level of energy supply from renewable energy sources (‘increase renewable energy supply to provide a further 25-55PJ of consumer energy by 2012’). It is considered that the proposal to harness wind energy at the Taumatotara site is consistent with the above strategy.

The Kyoto Protocol

The Kyoto Protocol is an international agreement to address global warming and delay climate change by aiming to reduce the total greenhouse gas emissions of developed countries to 5% below the level of emissions in 1990. New Zealand’s target is to reduce its greenhouse gas emissions to the level they were in 1990, or take responsibility for excess emissions. The NZ Climate Change Office website (www.climatechange.govt.nz) states that New Zealand’s latest ‘greenhouse gas inventory’ shows that NZ emissions are increasing with carbon dioxide emissions in 2003 approximately 37% higher than they were in 1990. ‘If NZ does nothing to reduce our emissions, our total emissions are forecasted as being 30% over our target for 2012’.

In *Environmental Defence Soc (Inc) v Auckland RC [2002] NZRMA 492 (EnvC)* the Court found that the weight to be given to the Kyoto Protocol as an ‘other matter’ under section 104 of the RMA is dependant on New Zealand’s obligations under it and the extent to which government policy has crystallised, to indicate how New Zealand’s obligations would be given effect to in domestic law.

In this regard a number of policy responses have been made (many of which are outlined in this report) and the government has a range of programmes to reduce emissions already in place or being developed. This commitment to policy reform to promote renewable energy sources further demonstrates the government’s strong position on this matter and supports the need to consider the Kyoto Protocol when making decisions that potentially impact on climate change. The research, promotion, development and increased use of renewable forms of energy such as wind energy will assist New Zealand

in meeting its commitments under the Kyoto Protocol. The proposed wind farm is consistent with these objectives.

The Sustainable Development Programme of Action for Energy (2003)

An overarching goal of this document is *'to ensure the delivery of energy services to all classes of consumers in an efficient, fair, reliable and sustainable manner'*.

The Programme of Action seeks to achieve the following outcomes:

- energy use in New Zealand becomes progressively more efficient and less wasteful;
- our renewable sources of energy are developed and maximised;
- New Zealand consumers have a secure supply of electricity.

The proposed wind farm is considered consistent with all three of the above outcomes.

Resource Management (Energy and Climate Change) Amendment Act (2004)

The changes to the Resource Management Act as a result of the 2004 Amendments are considered in **Section 12** above (Part 2 Matters).

Climate Change Policy

New Zealand's climate change policy was developed in response to New Zealand's role as a member of the United Nations Framework Convention on Climate Change and in order to provide an established means of meeting New Zealand's obligations as a signatory to the Kyoto Protocol. The Climate Change Policy was reviewed in 2005 and among its key considerations was an identified need to reduce the emissions intensity of New Zealand's existing energy mix. The Policy identifies that this is likely to involve a shift in energy production from the use of fossil fuels, to renewable energy sources such as wind. Overall, the wind farm proposal by Ventus Energy is consistent with New Zealand's Climate Change Policy, especially the identified need to reduce greenhouse gas emissions through the development of renewable energy sources.

15 Conclusion

- 15.1 The Applicant seeks consent from the Waitomo District Council to construct and operate a utility scale wind farm comprised of a maximum of twenty-two horizontal axis turbines together with the access roading required to construct and maintain the turbines, and the erection and operation of two electricity sub-stations on a site south of Taharoa in the Waitomo District.
- 15.2 The site is zoned Rural in the Proposed Waitomo District Plan. Wind farms are not an activity that is expressly referred to in the Waitomo District Plan. The wind farm activity does not comply with five of the conditions for permitted activities in the Rural Zone (maximum height, maximum building

height, height in relation to boundary, earthworks and noise) and as such is classified as a discretionary activity in accordance with Rule 11.5.1.3.

- 15.3 Section 104B of the Resource Management Act 1991 sets out a consent authority's powers to grant or refuse discretionary activities and to impose conditions.
- 15.4 In assessing this application there has been some difficulty in being able to give proper consideration to the effects of the activity, as required under Part 2 of the Act Section 5(2)(c), and Section 104(1)(a). This is largely due to insufficient detail being submitted with the application in relation to noise matters. There is also some uncertainty with regards to the transportation of materials to the site, and the location of the concrete batching plant. It is anticipated that the Applicant will adequately address these issue at the Hearing, to allow the effects to be properly considered.
- 15.5 My conclusion is subject to consideration of whatever evidence is presented at the hearing and, in particular, clarification of the noise and transportation effects of the proposal.
- 15.6 However, based on the information available to me to date, and the peer reviews conducted in relation to the potential visual and landscape, noise and roading effects associated with the proposal, I consider that the proposal merits a grant of consent, subject to a series of stringent consent conditions. My reasons for recommending that the application is granted are as follows:
- (a) The proposal will meet the sustainable management purpose of the Resource Management Act 1991, and the benefits of the proposal, when seen in the national context, outweigh the site-specific effects, and the effects on the local surrounding area.
 - (b) The proposal is consistent with legislation and policies that encourage renewable energy, including the policies and environmental outcomes sought by the RMA, and Government policy relating to energy efficiency and climate change.
 - (c) I am satisfied that the proposed turbines, transmission lines, substations, ancillary buildings and ancillary activities can be accommodated in this environment in a manner consistent with the objectives, policies and environmental outcomes sought by the relevant plans and with the sustainable management purpose of the Act.
 - (d) Having considered the issues raised by submitters, the actual and potential environmental effects, the policy framework of the relevant district and regional plans and the matters identified in Sections 6, 7 and 8 of the Act, I am satisfied that the proposal, subject to appropriate resource consent conditions is generally consistent with Part 2 of the Resource Management Act 1991.

- (e) When viewed in the wider context, the proposal will enable people and communities to provide for their wellbeing. The proposal will contribute positively to sustaining the potential of natural and physical resources to meet the needs of future generations. Provided mitigation measures are successfully implemented, the proposal will present no threat to the life-supporting capacity of air, water, soil or ecosystems.

It is therefore recommended that the application be approved.

16 Recommendation

That:

- a) The report of Ben Inger, of Bloxam Burnett and Olliver Limited dated 28 April 2006 be received.
- b) In consideration of Section 104, and pursuant to Sections 104B and 108 of the Resource Management Act 1991, the Waitomo District Council grants consent to Ventus Energy (NZ) Limited to construct and operate a utility scale wind farm comprised of a maximum of 22 horizontal axis turbines and associated substation buildings, earthworks and access roads and activities as described in Condition (2) below for the purpose of generating electricity, on a Rural Zoned site located at Taumatotara West Road, Taharoa, legally described as:
 - Part Section 10 Block V Kawhia South Survey District and Section 3 Survey Office Plan 53968 comprised in Certificate of Title 141077;
 - Section 3 Block IX Kawhia South Survey District comprised in Certificate of Title SA28A/586;
 - Section 1 Survey Office Plan 58558 comprised in Certificate of Title SA47A/876;
 - Section 1A Block V Kawhia South Survey District comprised in Certificate of Title SA37A/25;
 - Section 12 and Section 22 Block V Kawhia South Survey District comprised in Certificate of Title SA31C/23;
 - Section 2 Block V Kawhia South Survey District comprised in Certificate of Title SA37A/26; and
 - Part Section 24 Block V Kawhia South Survey District and Section 2 Survey Office Plan 53968 comprised in Certificate of Title SA48B/494.

Subject to the following conditions:

GENERAL

1. The wind farm development shall be constructed, operated and maintained in general accordance with the information, plans and drawings submitted with the application and received by Council on 23rd December 2005; and the additional information received on 30th January 2005 and 8th March 2005. The application documentation comprises of:

- (a) Taumatotara Windfarm Assessment of Environmental Effects, Volume 1 – Main Report, dated March 2005;
- (b) Taumatotara Windfarm Assessment of Environmental Effects, Volume 2 – Book of Figures, dated March 2005.
- (c) Further information received 30th January 2005 and 8th March 2005.

Copies of the approved plans (Labelled ‘Approved Plans ‘A’, ‘B’ and ‘C’) are attached.

2. For the purposes of this consent and for avoidance of doubt the activities authorised by this consent include:
 - ii) the installation, operation and maintenance of no more than twenty-two (22) horizontal axis wind turbines (“turbines”);
 - iii) An underground fibre optic network connecting each turbine to the central control system in the on-site operations building(s);
 - iv) Tracking and placement of an underground network of 33kV transmission lines delivering electricity from each turbine to the two on-site substations;
 - v) Overhead or underground powerlines connecting the on-site wind farm substations to the two existing 33kV lines that traverse the eastern edge of the landholding;
 - vi) A fenced compound to house the on-site control building and sub-station equipment;
 - vii) Earthworks associated with the creation of the turbine building platforms, access roads and other facilities described in items i)-vi) above.
 - viii) Widening and/or realignment works along parts of Taumatotara West Road to enable the safe passage of the oversized wind farm components to the site.

3. Each turbine shall be located within a turbine contingency zone of no greater than 100 metre radius from the turbine locations specified in the application. The turbine contingency zones shall avoid locations closer to external property boundaries, significant indigenous vegetation and significant habitats of indigenous fauna.

4. The consent holder shall submit to the Manager Policy and Planning, Waitomo District Council an as-built plan confirming the locations of all constructed turbines, access roads, entranceways, excess material fills, the substations and control building, electricity transmission lines, and road upgrading/realignment works. The Plan shall also include but is not limited to:
 - The finished line of cut and fill batters;
 - The finished edge line of pavement and seal widening works;
 - The location and dimensions of site entrances;
 - The finished level of access road centrelines;

- The location, size and extent of all new stormwater drains or culvert extensions;
- The location of all subsoil drains, sumps and manholes; and
- Any underground services installed or altered as part of the works.

This plan shall be certified by a registered surveyor as to the accuracy at the completion of the work and is required to be submitted to Council within 6 months of the completion of construction of the wind farm.

NOISE

Operational Noise

5. The noise from the wind farm shall comply with the requirements of NZS6808:1998, Acoustics – The Assessment and Measurement of Sound from Wind Turbine Generators in relation to any dwelling existing at the date of granting consent, except:
 - i. Any dwelling on any site that forms part of the wind farm; and
 - ii. The dwellings labelled as H1, H2, H3, and H4 on the approved plans.
6. Prior to the commencement of construction, detailed ambient noise monitoring shall be undertaken within the notional boundary of any dwelling within the 30dBA noise contour (other than the dwellings on the same land as the wind farm) by a person suitably qualified and experienced in acoustics and accepted by the Manager, Policy and Planning, Waitomo District Council. The monitoring shall be undertaken to determine the existing background sound with regard to the requirements of NZS6808:1998. Sufficient field measurements shall be undertaken to demonstrate to the satisfaction of Council's Manager, Policy and Planning, that the best fit regression curve gives an accurate representation of the existing noise environment.
7. Prior to the commencement of construction, the consent holder shall prepare a noise report to demonstrate, to the satisfaction of Council's Manager, Policy and Planning, that the wind farm will comply with the requirements of NZS6808:1998. This report shall be prepared by a person suitably qualified and experienced in acoustics and accepted by the Manager, Policy and Planning, Waitomo District Council.
8. The wind turbines shall not exceed a rotor tip height of 110 metres above ground level and a sound power of 107.2dBA at a wind speed of 10m/s unless it can be demonstrated by a person specialising in acoustics and accepted by the Manager, Policy and Planning, Waitomo District Council that higher turbine heights or noise levels will still comply with the requirements of NZS6808:1998.

Construction Noise

9. All construction work shall comply with the noise requirements of Rule 20.5.1.5 of the Proposed Waitomo District Plan.

10. Prior to the commencement of construction, a Construction Noise Management Plan shall be prepared to the satisfaction of the Manager, Policy and Planning, Waitomo District Council. The Construction Noise Management Plan shall demonstrate how the requirements of Rule 20.5.1.5 of the Proposed Waitomo District Plan will be achieved.
11. The Construction Noise Management Plan shall address, amongst other things, the potential noise effects of construction traffic on the roads and techniques to minimise these effects. Any night time (10.00pm – 7.00am) traffic movements must be included in the evaluation.

Noise Monitoring:
12. Within six months of the commencement of operation of the wind farm, the noise levels shall be measured and results provided to the Manager, Policy and Planning, Waitomo District Council.

TRAFFIC AND ROADING

Construction Programme

13. A Construction Programme shall be prepared by the consent holder and submitted to the satisfaction of the Manager, Policy and Planning, Waitomo District Council prior to any construction works commencing. The Construction Programme shall include the following:
 - The hours of construction work on Taumatotara Road shall be between 7.00am and 7.00pm Monday to Saturday (excluding public holidays), unless written approval is otherwise obtained from the Manager, Policy and Planning, Waitomo District Council to work outside of these hours;
 - Provision shall be made to maintain adequate and safe access to and from individual properties along Taumatotara West Road while transportation movements are undertaken; and
 - The Applicant shall arrange to hold a copy of all Resource Consents on site at all times during construction.

Traffic Management Plan

14. A Traffic Management Plan shall be prepared by the consent holder and submitted to the satisfaction of the Manager, Policy and Planning, Waitomo District Council prior to any construction works commencing. The Traffic Management Plan shall be prepared in accordance with the latest edition of the Transit New Zealand Code of Practice for Temporary Traffic Management and shall include but not be limited to:
 - The transport route (in general accordance with the route proposed in the application);
 - Times and locations when deliveries are prohibited;
 - Piloting and traffic management procedures;

- Contingency plans for breakdowns, bridge or pavement failure, severe weather conditions, accidents or roadworks;
 - Provisions for co-ordination with other parties, including emergency services;
 - Provisions to maintain adequate and safe access to and from individual properties along Taumatotara West Road while transportation movements are undertaken; and
 - A construction timetable, detailing vehicles movements to and from the site, and the hours that the trucks will operate.
15. The Traffic Management Plan shall be designed to ensure that at all times during construction, all Waitomo District Council administered roads shall be kept open. In exceptional circumstances a request may be sought for road closures of up to 10 minutes maximum. Any road closures shall be approved by the Manager, Policy and Planning, Waitomo District Council.
16. If traffic control measures are not carried out in accordance with the Traffic Management Plan and the Transit New Zealand Code of Practice for Temporary Traffic Management, the Road Controlling Authority reserves the right after notifying the Applicant or contractors either verbally or in writing, to instruct the Applicant or contractors to cease all work until the requirements of this Plan and Code of Practice are met. Alternatively the Road Controlling Authority may arrange for the traffic management to be carried out by others, the costs of which will be borne by the Applicant.

Roading Design

17. The Applicant shall provide, to the satisfaction of the Manager, Policy and Planning, Waitomo District Council, pavement deflection data for Taumatotara West Road both before and after the construction period. The pavement deflection measurements shall be carried out using either Falling Weight Deflectometer or Benkelman Beam testing techniques.
18. Detailed roading design plans for internal site access roads, Taumatotara West Road, and any other Waitomo District Council roads that are subject to upgrading or realignment works, shall be developed in accordance with appropriate construction standards and submitted to the satisfaction of the Manager, Policy and Planning, Waitomo District Council prior to construction commencing. The detailed design shall include:
- Geotechnical investigation and interpretation report;
 - Corner widening design (including cut/fill batters details);
 - Taumatotara West Road / Taharoa Road intersection design;
 - Pavement design;
 - Surfacing details;
 - Shoulder feather-edge details; and
 - Drainage (surface water channels and culverts).

Road Maintenance

19. A maintenance regime for Taumatotara West Road shall be prepared by the consent holder and submitted to the satisfaction of the Manager, Policy and

Planning, Waitomo District Council prior to any construction works commencing. The maintenance regime shall cover the full construction period and may be developed in partnership with an ongoing maintenance programme (shared with the Waitomo District Council's own Network Maintenance Contractors). The maintenance regime shall ensure the following:

- During the construction period, the consent holder shall undertake any necessary works to ensure that Taumatotara Road is maintained at a quality no less than the quality of the road prior to construction commencing; and
 - At the completion of construction, the consent holder shall undertake any necessary works to ensure that Taumatotara West Road is of a quality that is no less than the quality of the road at the commencement of construction.
20. A bond of \$86,000 shall be paid to Council to secure the ongoing performance of condition 19 pursuant to section 108(2)(b) and section 108A of the Resource Management Act 1991. The bond applies to regular maintenance only, not pavement rehabilitation and shall be refunded to the Applicant at such a time as the Manager, Policy and Planning, Waitomo District Council is satisfied that the objectives of the maintenance regime required by condition 19 has been met. Should the Manager, Policy and Planning, Waitomo District Council consider the consent holder is not meeting the objectives of the maintenance regime, the bond will be utilised to ensure compliance.

Access

21. Detail of vehicle access points and permanent entranceways along Taumatotara West Road shall be provided prior to construction works commencing. The details will include allowances for:
- Pavement widening to a minimum 6.5 metre sealed width;
 - Bellmouth radii to a minimum 15 metres;
 - Entranceway culverts to a minimum 300mm diameter; and
 - Pavement surfacing to a minimum 70 metres at full width, with matching in tapers at 1 in 10.
22. All internal access roads shall be no narrower than 5 metres in width.

LANDSCAPING AND VISUAL

23. Prior to construction commencing the consent holder shall submit to the satisfaction of the Manager, Policy and Planning, Waitomo District Council, a Landscape Mitigation Plan prepared by a suitably qualified Landscape Architect. The Landscape Mitigation Plan shall detail the visual mitigation and landscape restoration strategies that will be undertaken and shall include but not be limited to:

- i. A plan showing details of planting and landscaping to be undertaken around the substation and control building;
 - ii. The height and location of any earth bunds or mounds created for visual, noise, or mitigation purposes;
 - iii. Topsoil stockpile and management plan for all topsoil stockpiled for more than six months from the time of stripping;
 - iv. The restoration strategy for any disturbed landforms including:
 - 1) Permanent earthworks, including all road cuttings;
 - 2) Temporary earthworks, including construction pads; and
 - 3) Topsoil restoration.
 - v. The restoration shall integrate the new landform into the natural contours, and revegetate (with either pasture or planting) so it appears homogenous with the surrounding landscape;
 - vi. An implementation strategy identifying when the mitigation works will be undertaken;
 - vii. A maintenance schedule.
24. The colour of the turbines shall be selected to minimise the visual impact. Due consideration will be given to the predominant ambient background sky colour in selection of the final colour. Low reflectivity finishes shall be used on the turbines and the turbine blades where practicable.
25. No spare wind turbine parts shall be stored on the site, and all 'dead' turbines and turbine components shall be removed within one month from the time that they ceased to function, unless exceptional circumstances exist and written approval is obtained from Manager, Policy and Planning, Waitomo District Council.

AIR SAFETY

26. The consent holder shall comply with the Civil Aviation Authority (CAA) Determination issued to Ventus Energy Limited dated 7 February 2006.
27. Those turbines identified as numbers 1, 5, 10, 18 and 22 on the approved plan (and identified below) shall be lit with a medium intensity obstacle light located on the highest practicable point, sufficient to indicate to aircraft the general location of the wind farm.

Turbine ID	Easting	Northing	Attitude
1	2664848	6331439	251m AMSL
5	2665338	6330549	322m AMSL
10	2666640	6329258	319m AMSL
18	2667836	6327401	367m AMSL
22	2668272	6326391	321m AMSL

28. The medium intensity obstacle lights shall –
- be red; and
 - have an effective intensity of not less than 1600 cd of red light;

- be visible to aircraft approaching the wind farm from any direction; and
- shall be installed and operated in a way that minimise their visibility to persons on the ground while meeting CAA requirements.

GEOTECHNICAL

29. In accordance with the recommendations of the geotechnical review prepared by Riley Consultants, and submitted with the application (Appendix K of Volume One), the consent holder shall undertake subsurface geotechnical investigation and engineering geological mapping for the wind farm area at the detailed design stage, to ensure that all of the turbine sites are geotechnically feasible, and provided with stable building platforms. The results of these investigations and detailed design of the proposed geotechnical works for each of the turbines shall be provided for the approval of the Manager, Policy and Planning, Waitomo District Council prior to construction commencing.

EFFECTS ON WILDLIFE

Register

30. The consent holder shall keep a register of observations of effects of the wind farm activities on wildlife. This will include evidence of turbine strike (with species, date, weather conditions and other relevant observations), notes of avoidance behaviour observed, and other observed interaction of wildlife with the wind farm. Ground inspections with nil results should also be recorded. The register shall be maintained for the life of the consents, and shall be made available to Council within 2 working days of its request.

Inspections

31. In accordance with Condition 28 above, all wind farm personnel will inspect the area around the turbine bases when visiting or passing by a turbine, throughout the life of the consents, for evidence of wildlife mortality.
32. The consent holder shall undertake dedicated inspections of all turbine bases for evidence of wildlife mortality at monthly intervals for the first two years of operation. If construction is staged, later turbines shall also continue to be inspected for a full two years.
33. If no significant adverse effects on wildlife are evident then dedicated inspections shall be discontinued, with the prior approval of the Manager, Policy and Planning, Waitomo District Council.

If a significant adverse effect is found (through dedicated monitoring or other monitoring) then monthly inspections shall continue in the interim and a plan developed, to the satisfaction of the Manager, Policy and Planning, Waitomo District Council and in consultation with the Department of Conservation, acting reasonably, to address the effects. Such a plan shall propose a monitoring regime and identify methods and options to avoid,

remedy or mitigate the adverse effects. Specifically excluded from a plan will be any modification or restriction on the operation of the wind turbines.

Reporting:

34. An annual report, detailing the information required in conditions 28 – 31 above shall be provided to Waitomo District Council and the Department of Conservation. Any unidentified species remains recovered shall be referred to the Department of Conservation for identification as soon as is practicably possible following their discovery.

Bird Perches

35. No telecommunications devices or signs shall be connected/attached to any part of the turbines and/or the accessory structures.
36. With the exception of the transmission lines connecting the substation to the existing transmission lines, all other intra project lines within the wind farm shall be underground.
37. The turbine towers shall be tubular in design.

ECOLOGICAL EFFECTS

Native Vegetation

38. The clearance and trimming of native vegetation associated with the wind farm activities shall be restricted to the minimum area required to undertake the road realignment works, and any realignments of the power line routes. In particular, the consent holder shall avoid the removal of pole stand Rimu where practicable.
39. The consent holder shall develop and implement a weed control programme for the site and access roads, to the satisfaction of Council, and for the first 1-2 years of operation.

COMMUNICATIONS

40. In the event that the wind farm activities result in any disruption to free to air (not satellite) television, Broadband Wireless access licenses and/or microwave path operators at those properties in the area surrounding the wind farm site, the consent holder shall assist those parties to obtain reception comparable to the pre-construction quality, to the satisfaction of Council. The consent holder shall advise the Manager Policy and Planning, Waitomo District Council of the agreed mitigation measures in writing.

COMPLAINTS REGISTER

41. The consent holder shall maintain a complaints register for the wind farm activities. The register shall record all complaints received and shall include:

- a) The date, time and duration of the incident that has resulted in the complaint;
- b) The location of the complainant;
- c) The cause of the incident where appropriate;
- d) Any corrective action undertaken by the consent holder in response to the complaint.

The register shall be available to Council within 2 working days of its request.

REVIEW AND MONITORING

42. Pursuant to sections 128 to 130 of the Resource Management Act the Waitomo District Council may undertake a review of conditions of consent, within twelve months of the commencement of operation of the wind farm and thereafter on an annual basis for the following purpose:
- (i) to review the effectiveness of the conditions of this resource consent in avoiding or mitigating any adverse effects on the environment from the exercise of this resource consent (in particular the potential adverse environmental effects in relation to noise, vegetation removal, earthworks, and the visual, landscape and amenity effects), and if necessary to avoid, remedy or mitigate such effects by way of further or amended conditions; or
 - (ii) to address any adverse effect on the environment which has arisen as a result of the exercise of this consent; or
 - (iii) if necessary and appropriate, to require the holder of this resource consent to adopt the best practicable option to remove or reduce adverse effects on the surrounding environment; or
 - (iv) to review the adequacy of and the necessity for monitoring undertaken by the consent holder.

The Council will undertake the review in consultation with the consent holder. The consent holder shall pay the actual and reasonable costs of the review.

43. Pursuant to section 36 of the Resource Management Act 1991 the consent holder shall pay the actual and reasonable costs incurred by the Council when monitoring the conditions of this consent.

LAPSE PERIOD

44. This consent shall lapse eight years after the date of it being granted, unless the consent is either given effect to before that lapsing date, or unless the

Waitomo District Council fixes a longer period pursuant to section 125 of the Resource Management Act 1991.

Advisory Notes

- 1) The Applicant shall also ensure compliance with conditions of the Waikato Regional Council resource consent. Conditions related to matters covered by that consent have been omitted from this consent to avoid duplication.
- 2) All on-site works shall comply with the requirements of the Health and Safety in Employment Act 1992.
- 3) This consent covers road widening and realignment works associated with Taumatotara West Road only. The Applicant shall obtain any other resource consents for road widening.
- 4) The Applicant will need to consult with and meet the requirements of all road controlling authorities affected by the transportation of the turbine components, including Transit New Zealand.

Reasons for the Decision

- 1) The proposal will meet the sustainable management purpose of the Act, and the benefits of the proposal, when seen in the national context, outweigh the site-specific effects, and the effects on the local surrounding area.
- 2) The proposal is consistent with legislation and policies that encourage renewable energy, including the policies and environmental outcomes sought by the RMA, and Government policy relating to energy efficiency and climate change.
- 3) The proposed turbines, transmission lines, substations, ancillary buildings and ancillary activities can be accommodated in this environment in a manner consistent with the objectives, policies and environmental outcomes sought by the relevant plans and with the sustainable management purpose of the Act.
- 4) The proposal, subject to appropriate resource consent conditions, is generally consistent with Part 2 of the Resource Management Act 1991.
- 5) When viewed in the wider context, the proposal will enable people and communities to provide for their wellbeing. The proposal will contribute positively to sustaining the potential of natural and physical resources to meet the needs of future generations. Provided mitigation measures are successfully implemented, the proposal will present no threat to the life-supporting capacity of air, water, soil or ecosystems.

REFERENCES

Environment Court Decision No. 148/2005: Genesis Power Limited and The Energy Efficiency and Conservation Authority versus Franklin District Council (Awhitu Windfarm)

Ashby, M. 1994: Winds Up: Planning the Future Now; Connell Wagner Limited, Wellington, New Zealand

Energy Efficiency and Conservation Authority 1995; Guidelines for Local Authorities: Wind Power, EECA Publication Wellington, New Zealand