

IN THE MATTER of the Resource Management Act 1991

AND

IN THE MATTER of a Board of Inquiry appointed under s146
of the Resource Management Act 1991 to
consider an application by Mighty River
Power Limited for resource consents to
construct, operate, and maintain a wind
farm at Turitea

EVIDENCE OF MARK ALAN CLIVE HENRY

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1. INTRODUCTION

Qualifications and experience

- 1.1 My name is Mark Alan Clive Henry. I am employed by Mighty River Power as a project manager within the generation development business unit of Mighty River Power.
- 1.2 I hold the qualification of Masters in Science (Hons) in Earth Sciences from the University of Waikato.
- 1.3 I have worked as for Mighty River Power since 2000, initially as an Environmental Advisor specialising in resource management processes relevant to the company's wider business interests, and as a Project Manager within the generation development business unit since July 2007. I previously held the position of Resource Officer at Environment Waikato for eight years where I was involved with the processing of resource consent applications and monitoring for consent compliance.
- 1.4 During my time at Mighty River Power I have worked on various consenting related projects including:
 - (a) Consenting of the Waikato hydro system;
 - (b) Consenting of dam foundation enhancement works at Arapuni;
 - (c) Consent changes relating to the operation of the Rotokawa geothermal power station;
 - (d) Consenting of exploratory well drilling and testing at Rotokawa geothermal field;
 - (e) Consenting of exploratory well drilling and testing at Kawerau geothermal field;
 - (f) Consent manager for Kawerau geothermal project; and
 - (g) Project manager for the Turitea Wind Farm.

Purpose and scope of evidence

- 1.5 The purpose of my evidence is two-fold: I shall be providing a description of the Turitea Wind Farm project, as well as discussing the consultation that has been undertaken in respect of the project.
- 1.6 In the first part of my evidence, I shall describe the Turitea Wind Farm project. In doing so, I shall:
- (a) discuss the selection of the Turitea site;
 - (b) describe the proposed turbine layout;
 - (c) explain the “turbine zone” approach;
 - (d) provide an explanation of the modifications made to the original proposed turbine layout, and the reasons for these; and
 - (e) describe the key elements of the Turitea Wind Farm.
- 1.7 In the second part of my evidence, I shall address the consultation undertaken in relation to Mighty River Power’s proposal to construct, operate, and maintain the Turitea Wind Farm. In dealing with the consultation I shall:
- (a) describe Mighty River Power’s approach to consultation;
 - (b) describe the general consultation Mighty River Power has undertaken;
 - (c) discuss the direct consultation undertaken, including with the following groups:
 - (i) Regulatory authorities;
 - (ii) Tangata whenua;
 - (iii) Department of Conservation (*DoC*);
 - (iv) Transpower;
 - (v) NZ Transport Agency;
 - (vi) New Zealand Historic Places Trust;
 - (vii) Wellington Fish and Game Council;

- (viii) Royal Forest and Bird Protection Society;
 - (ix) Civil Aviation Authority;
 - (x) Airways New Zealand;
 - (xi) Adjoining landowners; and
- (d) Comment on issues regarding consultation raised in submissions.

1.8 I am authorised to give this evidence on behalf of Mighty River Power.

PART ONE: PROJECT DESCRIPTION

2. THE TURITEA SITE

Site Description

- 2.1 The Turitea Wind Farm site is located approximately 10 kilometres south-east of the Palmerston North city centre, primarily along a 14 kilometre ridge in the northern Tararua Ranges. The environment includes a number of existing wind farms to the north (including the Te Apiti, Te Rere Hau, Tararua 1, 2 and 3 wind farms) and the consented, but not yet constructed, Motorimu Wind Farm to the south. The site is located within the Turitea Reserve and also on adjoining farmland. The overall site comprises over 30 separate land holdings, some in private ownership and others publicly owned and administered by either DoC or Palmerston North City Council (PNCC). The details of properties comprising the site are provided in Appendix A of the assessment of environmental effects (AEE) submitted with the applications for resource consent in August 2008.
- 2.2 Within the Reserve, the land cover is predominantly native vegetation but also includes large tracts of existing or recently harvested pine plantation or areas of retired pasture (e.g. Browns Flat). The Reserve is also the location of a water supply catchment for the city of Palmerston North. The water supply catchment contains two water reservoirs, which have a capacity of 1.7 and 0.3 million cubic metres respectively. I understand that these reservoirs supply approximately 60% of the water supply requirements for Palmerston North.
- 2.3 The adjoining farmland is generally pasture used for sheep and cattle grazing. There are a number of farm tracks as well as public access roads in the area, including

Pahiataua Aokautere Road, South Range Road and Greens Road. The general location of the site is attached as **Exhibit MH1**.

- 2.4 Figures 2.1 and 2.2 of the AEE provide details of the various component parts of the Turitea Wind Farm site, including the various parts of the Turitea Reserve, and the location of the land for the contracted private landowners. Other witnesses comment in more detail as to aspects of the site and its surround, as relevant to their expertise and the assessments they have undertaken.

Site Selection

- 2.5 In 2005 Mighty River Power was selected by PNCC to develop and build a wind farm on council-owned land within the Turitea Reserve, following a Request for Proposal (RFP) issued by PNCC and an ensuing tender process. The key evaluation criteria as set out in the RFP were:

- (a) Financial return to PNCC;
- (b) Financial capacity of the Proposer to develop the wind farm;
- (c) Technical capability of the Proposer to develop the wind farm;
- (d) Programme to develop the wind farm; and
- (e) Environmental risk management policies and procedures, in particular water contamination.

- 2.6 The RFP also envisaged that any wind farm constructed within the Turitea Reserve would encompass further turbines located on private land, and named landowners who may be interested in entering agreements for the erection of turbine(s) on their land.

- 2.7 Mighty River Power was very pleased to be selected by PNCC as its preferred partner for the wind farm development, as it was aware of the reputation of the Tararua Ranges as a world-class site for electricity generation from wind.

- 2.8 After entering into the agreement with PNCC, Mighty River Power erected a number of wind monitoring masts to confirm the wind resource that in turn would help to determine the economic viability of establishing a wind farm on the site. As discussed by Mr Wong Too, the results of the wind monitoring have been extremely positive, indicating that the Turitea Wind Farm site, including both the Turitea Reserve and the adjoining land, is an ideal site for a wind farm. As Mr Wong Too explains, the site

possesses a high energy wind resource that is of a relatively consistent speed and direction, and accordingly is well suited for the establishment of a wind farm.

2.9 In addition to the excellent wind resource present at the Turitea site, the proposed location of the wind farm also possesses other characteristics that make it extremely favourable for wind farm development. The site is located within close proximity to Transpower's existing Linton substation, which provides direct access to the national grid. Mighty River Power has had discussions with Transpower, and has been advised that the Linton substation is capable of accommodating the expected transmission from the Turitea Wind Farm. The site also possesses good road access, and is in close proximity to electricity consumers. As described by Dr Layton, it is beneficial to ensure that electricity is generated as close as possible to its point of use, as this both decreases the amount of electricity 'lost' through transmission, and reduces the need for the construction of considerable supporting infrastructure such as additional transmission lines. This unique collection of attributes makes the Turitea Wind Farm site one of the best locations for wind generation development in New Zealand.

2.10 Mighty River Power has accordingly decided to progress with the development of the Turitea Wind Farm, despite challenges to the change in purpose of the Turitea Reserve, and the delays this brought in making the necessary resource consent applications. This is primarily because Mighty River Power considers the Turitea Wind Farm presents an exciting and valuable opportunity for both the Company and wider community.

3. PROPOSED TURBINE LAYOUT

3.1 The overall aim in developing a wind turbine layout for any wind farm is to find the most technically feasible and efficient layout, whilst taking account of any engineering limitations, and ensuring that any environmental impacts are minimised as far as possible. This approach has been followed throughout the development of the Turitea Wind Farm turbine layout.

3.2 As explained in section 4.1.3 of the AEE, in addition to the above, the general design for a wind farm is dictated by the wind direction and topography of a site. Given the predominantly bi-directional character of the wind, and the nature of the Tararua Ranges landform, the Turitea Wind Farm turbine zone layout runs perpendicular to the

prevailing north-westerly wind direction. This is the optimal potential layout for a wind farm, as it allows several turbines to be placed relatively close together along the ridgeline, maximising the energy generated within a smaller physical area.

- 3.3 Prior to the siting of any turbine zones or access roads, certain areas were also identified as 'no-go' areas within which no turbine zones or roads are to be located. These areas included:
- (a) the lower valleys of the Turitea Reserve and areas adjacent to the water supply reservoirs;
 - (b) areas with steep topography and other physical features that would require significant earthworks for the formation of access roads and turbine platforms; and
 - (c) areas of ecologically sensitive vegetation.
- 3.4 Areas that fitted into any one of these criteria were eliminated from consideration as either potential turbine zone locations or areas through which roading would be placed. Wherever possible, areas within the water catchment were avoided as well.
- 3.5 An initial turbine zone layout was prepared through computer modelling to determine the minimum turbine separation distances for a variety of different potential turbine types. Access roading was then modelled using existing pathways wherever possible, or areas with grassland or low-growing vegetation.
- 3.6 This initial layout was then optimised through input from a variety of experts. The initial turbine zone locations and access routes identified were reviewed through desk-top surveys, aerial photographs, and site visits. Where significant concerns were raised with particular turbine sites and/or access route locations, turbine locations were either moved or deleted, and access routes realigned. Through this process, the original 136 turbine zone layout (exhibit **MH2 attached**) was agreed upon, with the AEE being prepared on the basis of that layout.

4. TURBINE ZONE APPROACH

- 4.1 The turbine layout has been prepared using turbine zones, rather than specific turbine locations. This approach is described more fully by Mr James, but I include a brief summary here.
- 4.2 The following approach was used in developing the initial turbine layout, prior to the optimisation and modification processes. The approach is based on a shape resembling an ellipse, the length and width of which is determined by the particular turbine in question, with the length being equal to 5 times the rotor diameter, and the width being three times the rotor diameter. However, in some locations, particularly some of the turbine zones on private land, the shape of the zone is more oblong in nature. This is due to topographical constraints, or other factors that require a large area to be consented at that specific location.
- 4.3 This approach is used as it determines a minimum turbine separation distance necessary to avoid any turbulence effects from adjacent turbines and to maximise the potential uninterrupted airflow. The wind modelling that has been undertaken, as described by Mr Wong Too, indicates that each turbine zone is suitable from an environmental and engineering perspective.
- 4.4 However, the turbine zone approach also allows for flexibility in micro-siting the turbines within each zone. As such, should the current applications be granted, the final configuration of turbines, the total number of turbines to be constructed, and their location within the identified zone areas will be dependent on the turbine technology selected during the detailed design phase.

5. MODIFIED PROPOSAL

- 5.1 I shall discuss the consultation Mighty River Power has undertaken in more detail in Part Two of my evidence. For now, it is therefore only necessary for me to note that since the present applications were lodged, Mighty River Power has continued to engage with the public, both proactively and where requested. As a result of that ongoing engagement, Mighty River Power became aware of concerns held in the community that a number of the turbines proposed were too close to residential properties.

- 5.2 In response to those concerns, and in addition to further discussions with the parties potentially affected and other key stakeholders (including the Department of Conservation), and a number of various independent experts, Mighty River Power amended its original proposal by deleting nine turbine zones. This amendment followed the calling-in of its applications by the Minister for the Environment, but occurred prior to the notification of the applications, and involved the deletion of turbine zones 0049, 0050 (A/B), 0051 (A/B), 0053, 0079, 0080, 0081, 0093, and 0126.
- 5.3 Of these nine deleted turbine zones, five (specifically zones 0079, 0080, 0081, 0093, and 0126) were deleted to respond to community concerns regarding the proximity of the turbines to neighbouring properties. While Mighty River Power is confident that those turbines, if constructed, would have complied with the relevant noise limits set out in the relevant plans, it was considered to be consistent with Mighty River Power's corporate responsibilities (as described by Mr Heffernan) to respond to the concerns by deleting the turbines in question. The further four turbine zones were deleted for mainly ecological reasons.
- 5.4 The modified proposal is set out as exhibit **MH3** (attached) and now consists of a maximum of 127 turbine zones, within which a maximum of 122 turbines will be constructed, dependent on final turbine selection.

6. KEY ASPECTS OF PROPOSAL

- 6.1 The Turitea Wind Farm is comprised of a number of specific components. It must be remembered that the applications for resource consent are based on a series of general design parameters. The components I describe, and which Mr James describes in greater detail, therefore represent the maximum extent of the Wind Farm within which the specific activities will occur.
- 6.2 The key components of the Turitea Wind Farm are:
- (a) a maximum of 127 possible turbine zones, within which a maximum of 122 turbines will be constructed, with up to 62 turbine zones to be located within the Turitea Reserve, and up to 65 turbine zones to be located on adjacent private land. The turbines will be three-bladed, with a maximum turbine hub height of 80m, and a maximum blade length of 45m;

- (b) individual transformers placed at each turbine that may be either located within the turbine or placed adjacent to the turbine on a purpose built foundation, dependent on final turbine selection. The size of these transformers vary, depending on the size of the turbine, but are nominally up to 2.5 metres wide by 2.5 metres high by four metres long;
- (c) construction of two internal substations within the Turitea Reserve, one located within the Browns Flat area, and the other in an area of pine plantation;
- (d) construction of on-site workshops and control rooms as part of the substation complexes;
- (e) three monitoring masts of up to 80m in height;
- (f) the erection of two overhead 220kV transmission lines. One will be 6.1km long and will link the two substations constructed within the Turitea Wind Farm, and the other will extend 5.2km from the Browns Flat substation within Turitea Reserve to the Linton Substation;
- (g) construction of an internal access road network, including 33km of new roads, the upgrading of 24km of roads within the Wind Farm site, and five stream crossings;
- (h) an internal reticulation network of 33kV underground cables and overhead lines (where undergrounding is not possible), generally along internal access tracks connecting turbines and internal substations;
- (i) the establishment and operation of two temporary concrete batching facilities for use during construction;
- (j) the removal of up to 25ha of indigenous vegetation (excluding grassland and pasture clearance) within the Turitea Reserve and the removal of a further 3 ha of indigenous vegetation outside the Reserve;
- (k) the disposal of up to 740,000m³ of excess excavation material at identified disposal areas within the site, collectively covering approximately 33ha;

- (l) on-going maintenance activities including the monitoring, repair and replacement of turbine components, substation equipment, reticulation network, transmission lines and structures, monitoring masts and roading; and
- (m) site reinstatement, re-vegetation and new areas of planting within the site.

PART TWO: CONSULTATION

7. APPROACH TO CONSULTATION

7.1 This section of evidence describes the principles and approach to consultation that Mighty River Power has adopted with respect to the Turitea Wind Farm.

7.2 Mighty River Power recognises that consultation is an important aspect of the proposed Turitea Wind Farm because of the range of parties who are interested in the future of the area. In preparing the consultation programme, the project team adopted the following principles, which are based on the requirements for consultation set out by the Environment Court in *Land Air Water Association v Waikato Regional Council* A110/01:

- (a) to provide the public with adequate information of the proposal in a timely manner;
- (b) to be readily available throughout the course of the project to members of the public or interested parties who wish to meet to discuss any issues;
- (c) to respond to matters of concern raised by parties;
- (d) to give the public a reasonable opportunity to state their views;
- (e) to never treat consultation as a mere formality;
- (f) to approach consultation with an open mind and to be open to the possibility of modifying what is proposed if necessary;
- (g) to remember that consultation is an intermediate solution involving meaningful discussions and does not necessarily involve resolution by agreement; and
- (h) to ensure that consultation is underlain by fairness.

7.3 The approach taken to consultation and dissemination of information to the local community included the provision of information to the public at all stages of the project development process.

8. GENERAL CONSULTATION UNDERTAKEN

- 8.1 Following the agreement between PNCC and Mighty River Power being entered into in 2005 for the development of the Turitea Wind Farm, the Palmerston North community was consulted in 2006 as part of the process to change the purpose of the Turitea Reserve to allow renewable electricity generation to take place. As part of that process, a consultation document was prepared and sent to all ratepayers by PNCC. That document not only discussed the relevant process under the Reserves Act 1977, but also discussed the proposed Turitea Wind Farm (as it stood at the time).
- 8.2 Between 2006 and 2008 Mighty River Power continued informal discussions with potentially interested parties and adjoining land owners. In this time, there have been over 100 meetings, either incidental or arranged, with residents in the general vicinity of the Turitea Wind Farm. Parties to these meetings were variously supportive or opposed to the proposed development, and raised a number of matters, including:
- (a) The importance of renewable energy to New Zealand;
 - (b) The recognition of the wind resource in the area;
 - (c) The proximity of the proposed turbines to people;
 - (d) Possible implications of noise, visual effects and traffic arising from the development; and
 - (e) Potential effects on water quality.
- 8.3 The feedback from these initial discussions helped to inform the matters to be considered when scoping the technical assessments prepared in support of the AEE. Where possible, the matters raised were responded to and formed part of the design process for the development of the wind farm proposal.
- 8.4 By way of examples, background noise monitoring was undertaken at a number of properties where owners had expressed concern over potential noise effects. Mighty River Power also committed to developing its Construction Traffic Management Plan in consultation with local residents. Further, the decision to direct all oversize turbine components and majority of other construction traffic via South Range Road was also partly informed by concerns expressed by residents along Kahuterawa and Greens Roads.

- 8.5 In early 2008, prior to the lodgement of the resource consent applications, Mighty River Power began its wider public consultation process. In July 2008 Mighty River Power placed a number of advertisements in the local Manawatu media advising the public of its intention to lodge applications for resource consent and to invite them to comment on and discuss the original 136 turbine zone proposal with Mighty River Power. A variety of methods were advertised, including provision of a free phone contact number (0800 TURITEA), a specific project website (accessible from <http://www.mightyriver.co.nz>), and a project email address (Turitea@mightyriver.co.nz). More than 4000 properties in areas surrounding the proposed site also received information regarding the application by way of a mail-drop.
- 8.6 Approximately 30 enquiries were received as a result of these efforts, and in most cases, these enquiries resulted in additional information being provided to the enquirer. Every enquiry received by Mighty River Power through the various media was followed up by a Mighty River Power representative at the earliest possible time, generally within 24 hours of the enquiry being made.
- 8.7 Mighty River Power also held a number of public information days during which the public were again invited to attend to discuss the proposal 'one-on-one' with Mighty River Power staff. The information days were held at the Palmerston North Convention Centre, and were widely advertised in various media, including newspapers and radio. They were held at a variety of times and over a number of days to ensure that as many people as possible could attend. On 22-24 and 29-31 July 2008, the information days ran between 10.00am to 2.00pm. On 29-30 July 2008, information sessions were also held between 6.00pm and 8.00pm. On Saturday 2 August 2008 a further information day was held between 11.00am and 1.00pm.
- 8.8 The information available during the information days was presented in a variety of ways, with large display boards showing general information about the proposal, and introducing Mighty River Power as a company and electricity generator. Printed versions of the photomontages were displayed, and information packs including a summary of the AEE were distributed to those people interested in taking one.
- 8.9 An estimated 230 people in total attended the information days. Of those who chose to identify their preference in the course of discussions, there was an approximately equal

mix of parties for and against the development. Along with generally supportive comments, a number of issues were raised, including:

- (a) Proximity of turbines to people's dwellings;
- (b) Amenity matters such as noise or visual effects;
- (c) Potential water quality effects;
- (d) Potential impacts on ecological values; and
- (e) Effects from construction traffic.

8.10 In response to specific matters raised, Mighty River Power staff provided further information, where requested.

8.11 Further, where possible, staff undertook to assess the appropriateness of locations where additional background noise monitoring or further visual assessments could potentially be considered. In conjunction with further discussions with the Tararua Aokautere Guardians (TAG), as described later in my evidence, this resulted in the completion of a number of additional photomontage assessments (as described by Mr Wyatt) and background noise monitoring assessments (as described by Mr Hegley) being undertaken.

8.12 Immediately following the lodgement of the resource consent applications and accompanying AEE in August 2008, although the applications had not yet been publicly notified, Mighty River Power considered it consistent with its corporate philosophy of openness and its consultation principles to ensure that the public was able to access these documents. To this end it prepared hard copies and CDs of the AEE and supporting documentation, which were supplied to the public whenever requested. The documentation was also loaded onto the dedicated Turitea Wind Farm section of the Mighty River Power website so that the public could readily access the documents.

8.13 As already noted, engagement with the public has continued following the lodgement of the resource consent applications. This has included the identification of all dwellings within general proximity of the proposed development in order to try to visit each dwelling to discuss the Turitea Wind Farm with the occupants to ascertain their views. Again, a mix of views was presented, including a commonly expressed sentiment that people were not against the wind farm, but they felt that we were "just too close". This

sentiment informed our decision to delete some of the originally proposed turbine zones, as now reflected in the proposal as publicly notified for call-in.

- 8.14 Following the public notification of the Turitea Wind Farm and the call for submissions, Mighty River Power held additional information days at which information regarding the modified proposal was available, and staff were present to discuss the Turitea Wind Farm.
- 8.15 These further information days were held at the Palmerston North Convention Centre on Wednesday 21 January 2009 from 10.00am to 2.00pm and 6.00 to 8.00pm, and Thursday 22 January 2009 from 10.00am to 2.00pm, the Summerhill Shopping Centre on Tuesday 3 February 2009 from 10.00am to 2.00pm, the Turitea School on Tuesday 3 February 2009 from 5.30pm to 8.00pm, and the Pahiatua Town Hall on Wednesday 4 February 2009 from 10.00am to 2.00pm.
- 8.16 Again, the information available during these information days was presented in a variety of ways, with large display boards showing general information about the proposal with particular emphasis on the modified aspects of the proposal. Printed versions of revised photomontages were displayed, and information packs, including a summary of the changes to the proposal, were available to anyone interested in taking one. We also made available further copies of the material circulated as part of the initial public consultation process.
- 8.17 An estimated 150 people in total attended these additional information days. A mix of views on the Turitea Wind Farm was again presented by those in attendance, but it was noted that the modifications made to the proposed layout generally appeared to be well received by the public.
- 8.18 During the public submission period, advertisements were again placed in the local media. The purpose of these advertisements was to inform the public that Mighty River Power's office in Palmerston North was operating on an 'open door' basis during the submission period, with staff in attendance from Monday through Saturday, so that anybody who wanted to discuss the project before making a submission could do so. During this time only one person visited the office.

9. DIRECT CONSULTATION

9.1 In addition to the general public consultation undertaken, the project team also made direct approaches to a number of potentially affected or interested parties. This section describes the direct consultation undertaken.

Regulatory Authorities

9.2 Resource consents for the construction, operation, and maintenance of the Turitea Wind Farm are required from three councils: PNCC, Tararua District Council, and Manawatu-Wanganui Regional Council (*Horizons*). In preparation for lodging those resource consents, Mighty River Power had considerable contact with representatives from each of these councils, including meeting with them to discuss potential issues and undertaking site visits.

9.3 Preliminary discussions and regular dialogue has been held with these regulatory authorities since 2006 in relation to the development of the wind farm.

9.4 In May 2008, a joint working group between PNCC and Tararua District Council was established, which also met with Mighty River Power on several occasions. Relevant officers from PNCC and Tararua District Council were taken on site visits, were advised of the scope of the technical assessments being undertaken in respect of the development, and reviewed the preliminary findings of those technical assessments.

9.5 A similar approach was undertaken with staff from Horizons, with whom Mighty River Power has met on several occasions. Discussions with Horizons staff have traversed the scope of the technical assessments that were being undertaken in respect of the wind farm, and a review of the preliminary findings of those technical assessments.

9.6 Following the lodgement of the resource consent applications, the various councils issued several requests for further information pursuant to section 92 of the Resource Management Act 1991. Mighty River Power's technical advisors had several discussions with the technical advisors and external consultants engaged by PNCC and Tararua District Council to resolve matters raised, and to clarify the information sought. Mighty River Power found this process extremely useful and informative.

- 9.7 A further meeting was held with all three Councils in January 2009 to update them on the modifications made to the proposal that included the deletion of nine turbines from the original layout.

Tangata Whenua

- 9.8 As outlined in section 8.3.2 of the AEE, Mighty River Power remains aware of the unique interests of tangata whenua in large proposals, and accordingly has undertaken to consult with a variety of potentially concerned iwi groups in respect of the Turitea Wind Farm.
- 9.9 The Turitea Wind Farm site falls within the rohe of the Rangitaane iwi, which has mana whenua status for the Tararua Ranges. Mighty River Power acknowledges that the Tararua Ranges are an intrinsic part of the culture of the Rangitaane people of the area. Accordingly, as tangata whenua, Mighty River Power accepts that Rangitaane has cultural, spiritual and historical links with the site.
- 9.10 There are a variety of groups that form Rangitaane, and Mighty River Power has undertaken consultation with a number of these groups to ensure that it hears a wide range of views from them. The groups with whom Mighty River Power has consulted have been identified by local community members and iwi liaison officers from the relevant councils.

Te Rangimarie Marae Trustees

- 9.11 Te Rangimarie Marae Trustees are affiliated with the Rangiotu Marae, which is the oldest remaining and matua marae for Rangitaane ki Manawatu.
- 9.12 Mighty River Power has met, and undertaken site visits with the Te Rangimarie Marae Trustees and has built a strong relationship with the Rangiotu marae. Mighty River Power has ensured that Te Rangimarie Marae Trustees have been provided with information about the Turitea Wind Farm at all steps of the development process to ensure that any potential effects of the Turitea Wind Farm can be assessed against any sites or areas of interest to them.

9.13 The Te Rangimarie Marae Trustees are particularly cognisant of the importance of sustainability and the need for renewable electricity generation to provide for the well-being of current and future generations.

9.14 I note that a submission has been received from the Te Rangimarie Marae Trustees supporting the Turitea development.

Tanenuiarangi Manawatu Incorporated

9.15 Tanenuiarangi Manawatu Incorporated (*TMI*) was established in 1989 following Hui a Iwi held by the people of Rangitaane o Manawatu. TMI is an incorporated society and has served as the iwi authority for Rangitaane o Manawatu in Palmerston North since its inception. TMI has advised that its beneficiaries are the natural descendants of all the hapu of Rangitaane o Manawatu.

9.16 Mighty River Power began consultation with TMI in 2006 through preliminary meetings with representatives to discuss the general features of the proposed wind farm. Early discussions resulted in the development of a draft cultural impact assessment that identified a number of matters relevant to TMI that they considered may be affected by the proposed development. At the time of its preparation, the wind farm layout had not yet been finalised, and accordingly the findings of the draft cultural impact assessment could only be considered to be preliminary.

9.17 Further consultation with TMI has continued throughout the resource consent process. This has included the provision of considerable information about the Turitea Wind Farm at all steps of the development process to ensure that any potential effects of the Turitea Wind Farm can be assessed against any sites or areas of interest to TMI. A final cultural impact assessment was provided in September 2008, that includes the following recommendations:

- (a) The development of appropriate mitigation measures in relation to activities associated with turbine zones 0027, 0055 and 0099;
- (b) The development of an Accidental Archaeological Discovery Protocol for all earthworks for the project; and
- (c) The sharing of the results of any monitoring plans, related works and future directions of the site.

- 9.18 In addition, I note that the submission from TMI reiterates the recommendations outlined above, and also seeks recognition of potential outcomes from the Treaty of Waitangi process currently relevant to Rangitaane.
- 9.19 Discussions with TMI are continuing, and I note that TMI will represent their position to the Board of Inquiry. However, in response to the matters above I confirm the following:
- (a) We are still in discussions with TMI to determine an appropriate response to effects arising on the identified turbine zones, and to turbine zone 0055 in particular;
 - (b) A generic accidental archaeological discovery protocol has been suggested in the proposed conditions of consent which provides that Mighty River Power shall liaise closely with tangata whenua in developing an appropriate procedure for dealing with such finds/discoveries;
 - (c) Mighty River Power is committed to the sharing of the results of any consent-related monitoring programmes and related works with those parties interested to receive them; and
 - (d) Mighty River Power has proposed a review clause for the purpose of ensuring that any consent is aligned with the provisions of any settled Treaty of Waitangi claim.

Rangitāne o Tamaki nui a Rua

- 9.20 Rangitāne o Tamaki nui a Rua is based in Dannevirke and represents Rangitāne interests on the eastern side of the Tararua Ranges. Mighty River Power has met and undertaken a site visit with Rangitāne o Tamaki nui a Rua kaumatua and representatives, and has provided information about the Turitea Wind Farm to the kaumatua to ensure that any potential effects of the Turitea Wind Farm can be assessed against any sites or areas of interest to them.
- 9.21 Rangitāne o Tamaki nui a Rua is currently preparing a Cultural Values Assessment as a method to convey matters raised in its submission to the Board of Inquiry. This report is expected to include confirmation of any cultural effects arising from the wind farm on Rangitāne o Tamaki nui a Rua, and is also intended to raise awareness of Rangitāne o Tamaki nui a Rua's cultural boundaries.
- 9.22 Mighty River Power remains committed to responding appropriately to any matters of cultural concern that may be identified by Rangitāne o Tamaki nui a Rua.

Department of Conservation

- 9.23 The Turitea Wind Farm is located adjacent to the Tararua State Forest Park, which is administered by DoC. That edge of the State Forest Park also forms the border for the jurisdiction of two DoC conservancies: Wellington and Wanganui. The Turitea Wind Farm falls within the jurisdiction of the Wanganui Conservancy, and the Tararua State Forest Park falls within the jurisdiction of the Wellington Conservancy.
- 9.24 Mighty River Power acknowledges DoC's statutory role as an environmental advocate for New Zealand, and has undertaken significant consultation and site visits with DoC in this regard.
- 9.25 Consultation with the Wanganui Conservancy of DoC began in 2005 during the initial discussions with PNCC following Mighty River Power's selection as the preferred partner for developing a wind farm within Turitea Reserve. Initial meetings were held at a time when the change to the purpose of the Turitea Reserve was being progressed under the Reserves Act 1977 and the discussions accordingly revolved primarily around the use of the Turitea Reserve and DoC's statutory role in the Reserves Act process. However, site visits were also undertaken at the time and provided for early engagement between the ecologists representing both DoC and Mighty River Power.
- 9.26 Mighty River Power continued to consult with DoC throughout the resource consent process. Mighty River Power shared technical information with DoC, including its assessments of the ecological and archaeological impacts prior to the lodging of the resource consent applications and accompanying AEE.
- 9.27 DoC staff were taken on a further site visit in October 2008. During this visit, DoC staff expressed interest in the areas where ecological mitigation has been proposed. We also viewed the area known as Browns Flat and noted DoC's views in relation to the sensitivity of some of the regenerating wetland areas that are present in this area. Mighty River Power's decision to remove four of the turbines located within the Brown's Flat area was in part informed by these observations by DoC in relation to these wetlands.
- 9.28 At a meeting in February 2009, DoC outlined some ecological concerns in relation to a series of turbine zones (specifically zones 0043, and 0057 to 0066) and discussed the status of industry knowledge around the effects of wind turbines on forest birds.

Additionally, DoC identified a number of matters that it considered required addressing by way of conditions of consent. These matters are now represented in DoC's submission to the Board of Inquiry.

9.29 Through March and April 2009, we have met with DoC on several occasions to further discuss the matters raised in their submission. Discussions with DoC are continuing, particularly with respect to an appropriate response to their concerns about the effects of the identified turbine zones, and I note that DoC will represent their position to the Board of Inquiry. However, in response to the other matters above I confirm that a general accord has been reached on:

- (a) A commitment to fund a post-graduate study that will be designed to enhance the industry knowledge of the effects of wind farm development on forest birds; and
- (b) the scope of matters to be addressed by conditions of consent.

9.30 Last year, Mighty River Power and PNCC also undertook a site visit with staff from the Wellington Conservancy as part of determining a concession for the use of a small portion of the existing Water Catchment Access Road that juts into the Tararua State Forest Park. A concession by way of an easement between PNCC and the Wellington Conservancy has been granted (subject to final drafting) that formalises the existing use of the access road by PNCC as part of their day to day management of the Turitea Reserve. The concession also allows for upgrading and use of that section of the access road for wind farm construction, maintenance and operation in the event that consents are granted for this activity.

9.31 Mighty River Power has also undertaken discussions with DoC and PNCC regarding the form of the EcoPark, which will be developed as a further benefit arising out of the Turitea Wind Farm development (enabled by the royalties PNCC will accrue from the wind farm development).

9.32 Mighty River Power has continued to make its expert ecologist available to PNCC to assist with the development of the EcoPark concept to ensure that this potential benefit is delivered as soon as practical and in a manner that is consistent with the specific ecological mitigation offered by Mighty River Power.

Transpower

- 9.33 As discussed in section 8.3.4 of the AEE Mighty River Power has held several meetings with representatives from Transpower in respect of the need to connect the Turitea Wind Farm to the national grid through the existing Linton substation. Discussions with Transpower are on-going, and should consent be granted to the Turitea Wind Farm, such discussions shall continue through the detailed design phase to confirm the final design of the connection to the Linton substation.
- 9.34 As a result of the consultation to date, Transpower has undertaken to seek the necessary approvals required for works at the Linton substation for connecting the Turitea Wind Farm to the national grid. A draft Memorandum of Understanding (*MoU*) between Mighty River Power and Transpower is currently being developed in this regard.
- 9.35 The MoU records environmental matters associated with connection of the 220kV transmission line to Linton substation and any such ancillary works as Transpower requires for the purpose of connecting Turitea wind farm to the National Electricity Grid.

NZ Transport Agency (formerly Transit New Zealand)

- 9.36 Prior to lodging the applications for resource consent and the accompanying AEE, Mighty River Power met with representatives from the NZ Transport Agency on 10 July 2008 to discuss the potential roading and transportation effects of the Turitea Wind Farm on the road network surrounding the wind farm. Following that meeting the NZ Transport Agency was supplied with a copy of the Traffic and Transportation Assessment prepared in support of the consent applications so it could adequately assess the potential traffic effects of the Turitea Wind Farm.
- 9.37 Following those initial discussions, a letter dated 13 October 2008 from the NZ Transport Agency confirmed that it has no further issues in respect of the Turitea Wind Farm proposal, other than observing that the Agency may have some future involvement as the Wind Farm progresses through the detailed design phase.

New Zealand Historic Places Trust

- 9.38 Mighty River Power has consulted with the New Zealand Historic Places Trust. The Trust was provided with a copy of the archaeological assessment undertaken by Dr Clough prior to the lodging of the applications for resource consents, and was invited to comment on the proposal to raise any potential issues it may have with the Turitea Wind Farm.
- 9.39 As described by Dr Clough, the Turitea Wind Farm has been designed so as to avoid any impacts on heritage features, and Mighty River Power has not had any response from the Historic Places Trust in respect of its invitations to discuss the wind farm.
- 9.40 However, as Dr Clough explains in his evidence and as set out in the draft conditions of consent, should any undiscovered sites or koiwi (human remains) be found during the construction or operation of the Turitea Wind Farm, Mighty River Power shall liaise closely with the Historic Places Trust in developing an appropriate procedure for dealing with such finds/discoveries.

Wellington Fish and Game Council

- 9.41 Prior to lodging its applications for resource consent, Mighty River Power provided the Fish and Game Council with information regarding the Turitea Wind Farm, as well as information relating to the potential effects of the Turitea Wind Farm on aquatic ecology.
- 9.42 Since that initial contact, Mighty River Power has sought to arrange further meetings with the Fish and Game Council, but has been informed that such meetings were not necessary. Accordingly Mighty River Power has not engaged with Fish and Game Council further regarding the proposed wind farm.

Royal Forest and Bird Protection Society

- 9.43 Mighty River Power met with a representative of the Manawatu Branch of the Royal Forest and Bird Protection Society prior to the lodging of the applications for resource consent, and provided technical information, including the assessment of the ecological impact of the Turitea Wind Farm at that time.

9.44 Since then, Mighty River Power has had various discussions with Royal Forest and Bird representatives, but given the broad nature of the Society's membership base, the Society experienced difficulties in confirming its position in relation to the Turitea Wind Farm.

9.45 I note that the Manawatu Branch of the Royal Forest and Bird Protection Society made a submission in respect of the Turitea Wind Farm in opposition to the proposed wind farm. That submission raises a wide range of issues, including ecology, avian effects, and landscape effects. Each of the issues raised in submission is addressed by the relevant witnesses appearing for Mighty River Power in this hearing.

Civil Aviation Authority

9.46 Mighty River Power is aware of the potential risks posed by wind farms (and the associated infrastructure) to aircraft and has actively sought to minimise these risks wherever possible.

9.47 In this regard, Mighty River Power met with the Civil Aviation Authority of New Zealand representatives in May 2008 to discuss these risks and to arrange for the necessary assessment of the Turitea Wind Farm to be undertaken in accordance with Part 77 of the Civil Aviation Rules – Determination of Hazards in Navigable Airspace.

9.48 That Determination is attached to my evidence as exhibit **MH4**, and was granted on 18 November 2008. The Determination came into effect on 18 December 2008 following a public submission period, during which no submissions were received. It identified that the Turitea Wind Farm could constitute a hazard in navigable airspace, and includes a number of conditions for Mighty River Power to comply with in order to minimise the potential effects of the Turitea Wind Farm on aircraft. These include:

- *“The proponent will advise CAA of the scheduled construction of the turbines at least 6 months prior to commencing, to allow sufficient time to publish the hazard on the appropriate aeronautical charts. This schedule shall include the final geographical coordinates of the sites at which the turbines are to be installed.*
- *The proponent will also notify CAA in accordance with CAR Part 77.15.*

- *The proponent will install, operate, and maintain medium intensity obstruction lights to mark the wind farm. Appropriate turbines within the complex shall be lit in accordance with CAA policy for lighting and marking wind farm turbines, a copy of which is attached.*
- *The proponent shall submit a plan for approval by CAA, indicating which turbines are proposed to be lit.”*

9.49 If the Board grants consent to the Turitea Wind Farm, Mighty River Power will comply with these conditions.

Airways New Zealand

9.50 Airways New Zealand has responsibility for the management of aircraft traffic control, and operates the Ballance radar, which is located to the north of the proposed Turitea Wind Farm site.

9.51 Prior to lodging the resource consent applications Mighty River Power met with Airways New Zealand staff in May 2008 and provided them with information regarding the proposed Turitea Wind Farm to enable them to assess the potential effects of the Turitea Wind Farm on their activities.

9.52 As a result of that consultation, in a letter dated 8 July 2008 (attached as exhibit **MH5**) Airways New Zealand confirmed that the Ballance radar would not be affected by the Turitea Wind Farm as none of the proposed turbine zones affect the topographical horizon, and are all at least 500m away from the radar.

9.53 I note that Airways New Zealand remains a submitter (submitter 330) wishing to be heard and will therefore confirm their position in front of the Board of Inquiry.

Interested Groups

9.54 TAG is an incorporated society that was formed in 2004, which represents people living or owning properties near the Tararua Ranges who consider themselves affected by the development of wind farms in the area.

9.55 Friends of Turitea Reserve (*FOTR*) is an environmental protection group that describes its purpose as being dedicated to preserving the underlying 'naturalness' of the Turitea

Reserve and by maintaining the quiescent, tranquil nature of the landscape within and around the Reserve.

9.56 While the groups are two separate entities, I understand there to be some overlap in their collective objectives and membership.

9.57 Mighty River Power held a joint meeting on 22 July 2008 with TAG and FOTR prior to the lodging of the resource consent applications. A number of issues were discussed at that meeting, including:

- (a) The groups' general support for wind development, as long as it is "sensible" development;
- (b) Concern about proximity of the proposed development to people's houses and the potential noise impacts;
- (c) Applicability of the provisions of the Palmerston North District Plan relating to noise from wind turbines; and
- (d) Effects on landscape and ecological values.

9.58 It is noted that at that meeting there was no consensus as to what was required for a development to be "sensible", or what might constitute being "too close" in terms of proximity to people's houses. However, it was understood from the members present that in their view, compliance with the provisions of the Palmerston North District Plan did not, of itself, assist with adequately defining these propositions.

9.59 In response to the concerns raised by members of these groups and at locations determined by them, Mighty River Power has prepared and provided additional photomontages, undertaken background noise monitoring, and provided information to the groups where sought.

9.60 Both TAG and FOTR made submissions in opposition to the development of the Turitea Wind Farm through the public submission process, but neither group has commented on the consultation undertaken by Mighty River Power.

10. RESPONSES TO SUBMISSIONS

10.1 I have reviewed the submissions lodged on Mighty River Power's applications that relate to the adequacy of consultation undertaken. I will address these issues by subject below.

Iwi Consultation

10.2 A number of submissions, including those of Stephen and Janet Lang (submissions 502 and 293 respectively), have raised concerns with the adequacy of the consultation undertaken with iwi. In particular, Mr Lang raised concerns with the adequacy of the consultation Mighty River Power has undertaken with Rangitaane o Manawatu.

10.3 As I have discussed, Mighty River Power has undertaken comprehensive consultation with a number of iwi groups, including those affiliated with Rangitaane o Manawatu. This has included hui, site visits, and the repeated provision of information to TMI (the mandated iwi authority for Rangitaane o Manawatu) and Te Rangimarie Marae Trustees.

Photomontage Preparation

10.4 In January 2009, following discussions with TAG and FOTR, Mr Wyatt undertook a further visit to Palmerston North to carry out the photography necessary for the preparation of additional photomontages, including a number from private residences. Members of those groups were contacted, and they could elect to have a photomontage prepared from their property, if they wished.

10.5 However, while every effort was made to prepare these in time for the submission period, this proved impossible. Accordingly, they were not able to be provided to those people in time for the close of submissions, a matter that a number of submitters (Lee Huffman (submitter 317) and B. Ashley Kells (submitter 682)) have raised.

10.6 In March 2009, Mighty River Power provided 'A0' scale copies of the photomontages to those parties, and placed a number of the photomontages on our website, but only where explicit approval to do so was provided.

General Adequacy of Consultation

10.7 As I have noted, Mighty River Power is proud of its history of consultation, and through its numerous project development activities has developed a consultation approach that is designed to ensure that all information is provided is accurate, comprehensive, and informative.

10.8 In this regard Mighty River Power has worked extensively to ensure that information has been provided through a range of media, been readily available, and of the highest possible standard. Mighty River Power employs a thorough governance policy through which all materials for public release must pass to ensure that a consistently high level of work is released.

Specific Submissions

10.9 I offer specific comment on the following submissions that have raised particular issues with the consultation undertaken by Mighty River Power.

Paul Stichbury (Submitter 325)

10.10 While Mr Stichbury has raised a wide range of issues in his submission, I only wish to comment on a few of the more pertinent matters raised therein.

10.11 In the attachments to his submission, Mr Stichbury suggests that Mighty River Power has been monitoring his web-based activities. He also suggests that Mighty River Power (or an agent acting on Mighty River Power's behalf) has "hacked" various web sites and/or Mr Stichbury's home computer.

10.12 However, Mighty River Power has very little or no interest in Mr Stichbury's web-based activities and strongly denies the allegations of the "hacking" of web sites and home computers.

Spencer Philip Christiansen & Renee Price (Submitter 495)

10.13 The submission of Mr Christiansen and Ms Price suggests that Mighty River Power has supplied misleading information, noting in particular that aerial photos and diagrams included no scale.

10.14 While I note that some of the images did show a drawing scale (typically 1:15,000), I acknowledge that a horizontal scale may have been more easily understood. However, it is further noted that a large number of the plans, maps, and diagrams included in the AEE did include horizontal scales, including Figures 1-1 and 1-2 of the AEE, which indicated the general location of the proposed Turitea Wind Farm and the original 136 turbine layout.

10.15 In addition, I do not accept that Mighty River Power deliberately provided misleading information. To the contrary, throughout the consultation process, Mighty River Power has endeavoured to ensure that all information provided is of the highest possible standard and as accurate as possible.

John Adams (Submitter 258)

10.16 Mr Adams has raised a wide range of issues in his submission, but I only wish to comment on a few of the matters therein.

10.17 Mr Adams has suggested that Mighty River Power has not exhibited social responsibility by siting a number of proposed turbine zones and other related infrastructure within a certain proximity to his “cottage”, being a building that has been placed on the southern boundary of the Adams’ property at a location close to the proposed wind farm site and approximately 1400m from the Adams’ house.

10.18 Palmerston North City Council records show that a building consent was granted for the cottage on 30 November 2006, and our own photographic records show the cottage in existence by April 2007. I note that Mighty River Power’s first interaction with Mr Adams occurred in March 2006. At this time, sufficient project detail was provided that allowed discussion on a possible alignment for a transmission line from the project site and through the Adams’ property. Accordingly, it is my opinion that Mr Adams would have been aware of the proposed wind farm development when he constructed his cottage.

10.19 The evidence of Mr Pollock discusses the status of the cottage with respect to the Palmerston North District Plan. Mr Hegley discusses the application of the relevant New Zealand standard (NZS 6808) to a building of this nature. Against these assessments, and the timing of the construction of the cottage, Mighty River Power’s social responsibility (as described by Mr Heffernan) remains robust.

10.20 Mr Adams has also raised issues in relation to noise from the operation of the wind farm and from construction traffic on Greens Road. In response to operational noise effects, and in discussions with Mr and Mrs Adams (the latter appears separately as submitter 9), Mighty River Power instructed Mr Hegley to undertake some background noise monitoring at sites adjacent to the Adams' house and the Huatau marae, being a private family marae located on the same property. The results of this noise monitoring are discussed by Mr Hegley.

10.21 In response to concerns about noise from construction traffic on Greens Road, and as sought by Mr Adams in his submission, Mighty River Power has now committed to sealing a section of Greens Road that runs past the Adams' property to reduce the potential for construction traffic-related noise. I otherwise note the evidence of Mr Galloway describes the issues relating to traffic management on Greens Road.

Mark Alexander McBride, Tania Rose McBride (Submitters 168 and 169)

10.22 The submissions from the McBrides express disappointment at the level of engagement and consultation with them as neighbouring property owners. However, I note that they do record a direct visit from a Mighty River Power representative that occurred in August 2008, and I confirm that more recently we have completed and provided the McBrides with a photomontage taken from their property.

10.23 In addition, as I have previously described, Mighty River Power has gone to considerable lengths to engage with the community at large, but it is acknowledged that it is possible that the McBrides did not receive earlier information regarding the Turitea Wind Farm as part of these efforts.

Craig & Elizabeth Pemberton (Submitter 601)

10.24 The submission of Craig and Elizabeth Pemberton expresses concern that there has been no communication in relation to the implications of having the project site boundary running along the back of their property. I note that Mighty River Power representatives first met the Pembertons in June 2006, although I am not aware that there has been any direct contact with them since this time.

10.25 I note that there are no direct implications of having the project site boundary along the back of their property, other than to note that their land title is contiguous with a land

title on which development is proposed, albeit at a distance of approximately 1400 metres from the nearest corner of their land block.

Jane Coad (Submitter 632)

10.26 The submission of Dr Coad notes her objection to the way the project has been carried out, and suggests that Mighty River Power has bought support and restricted free speech. Whilst Mighty River Power acknowledges that it has entered into commercial land access arrangements with various land owners (including PNCC) for the placement of wind turbines and/or transmission structures as is typical for projects such as these, Mighty River Power does not accept the implication that it has “bought support” through this process.

10.27 I am also unaware of any incidences where Mighty River Power has restricted or sought to restrict the freedom of speech as this submission suggests.

11. SUMMARY REGARDING CONSULTATION

11.1 Mighty River Power considers it has undertaken significant consultation in relation to the Turitea Wind Farm. It used a range of means to disseminate information, and to educate the public, stakeholders and potentially affected parties in order to elicit their views. Assisted by, or as a result of, that process, a range of measures are proposed to address these concerns, including opportunities for on-going liaison, practical measures and monitoring of effects.

11.2 Mighty River Power is satisfied that the process has been robust, resulting in practical outcomes and a better project as a result of the input received. In that regard, the company is most grateful to all of parties who made their time available to discuss their concerns and potential solutions.

Mark Henry

1 May 2009