

BEFORE THE BOARD OF INQUIRY

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 and operate a Windfarm at Turitea

STATEMENT OF EVIDENCE OF JAMES TALBOT BAINES

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Contact: Andrew Brown
Address: Council Chambers
The Square
Palmerston North

Telephone: (06) 356 8199
Facsimile: (06) 355 4155
Email: andrew.brown@pncc.govt.nz

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1 INTRODUCTION

1.1 Bio-data and experience

- 1.1.1 My name is James Talbot Baines. I am a founding director of Taylor Baines & Associates and a specialist in Social Impact Assessment (SIA).
- 1.1.2 I have undertaken training courses in SIA and have been a member of the International Association for Impact Assessment (IAIA) for the past fourteen years and the New Zealand Association for Impact Assessment for the past sixteen years. Between 2000 and 2006, I was Chairperson of the IAIA's Social Impact Assessment Section, during which time the Section developed the most recent set of principles for the practice of Social Impact Assessment (SIA). During this time I have also been engaged both in New Zealand and in South East Asia to provide professional training in Social Impact Assessment and to develop Social Impact Assessment implementation programmes in Malaysia on behalf of the United Nations Development Programme.
- 1.1.3 In total, I have had twenty years experience in applied social research and SIA work. This has included participation and leadership in several multi-year social research programmes under contract to the Foundation for Research Science and Technology, as well as a wide variety of consultancy contracts for both public and private sector clients.
- 1.1.4 Within New Zealand, my professional experience covers the application of social impact assessment in numerous parts of the country and across a wide range of proposals, including local government boundary changes, urban development plans, air quality plans, waste management facilities, prisons, mall and supermarket developments, port developments, casinos, marine farms and energy infrastructure developments.
- 1.1.5 Of particular relevance to this Board of Inquiry, I have in the past few years appeared as an SIA expert at hearings for a number of energy generation projects. These include hydro-electric power station proposals on the Wairau River in Marlborough and the Mokihinui River in the Buller District, and three wind farm proposals, one in the Manawatu region, one near Wellington, and a third near Dunedin.
- 1.1.6 My familiarity with energy-sector matters has not been confined to this professional impact assessment work on energy projects. I was editor of the first two editions of the NZ Energy Information Handbook in 1984 and 1993, and on the editorial panel which oversaw the 3rd edition in 2008.
- 1.1.7 In addition to my training as a social impact assessment specialist, I hold a Bachelors Degree with Honours in Chemical Engineering from the University of Canterbury and a Post Graduate Diploma in Teaching from Wellington Teachers Training College.
- 1.1.8 I have in the past been called upon as an expert witness in a variety of settings including resource consent hearings, appeals to the Environment Court, and hearings before the Local Government Commission and the Casino Control Authority.

1.1.9 I confirm that I have read the Code of Conduct for Expert Witnesses (Rule 330A, High Court Rules and the Environment Court Practice Note) and agree to comply with it. I have complied with it in the preparation of this statement of evidence.

1.2 **Brief for this Social Impact Assessment**

1.2.1 The decision of the Palmerston North City Council in October 2006 to the change of purpose for the Turitea Reserve records that approval for the change of purpose was given on the understanding that any specific proposal to develop a wind farm in the area of the Reserve would be subject to an independent assessment of effects¹.

1.2.2 When the standard RMA process was altered by the Ministerial Call-In, and the PNCC was cast in the role of submitter, the Council decided to proceed with its responsibility to see that the proposal was subject to an independent assessment of effects. I was among the group of experts engaged by the Council to carry out such an assessment.

1.2.3 My specific role within this group of experts was to lead the social impact assessment of the proposal. It was evident that the applicant had not conducted a social impact assessment at all, although there are elements of the applicant's AEE which are relevant to an assessment of social effects in terms of the purpose of the Act.

1.2.4 As part of my assessment work, I have participated in a series of team meetings with the other experts engaged by the PNCC with a view to providing an integrated assessment which might assist the Board. While I take responsibility for the social assessment activities and findings presented in this statement (and described in Section 2), the assessment of potential social effects necessarily relies in some respects on the technical assessments of other experts. In Section 5 I will make the details of such inter-dependencies explicit.

1.2.5 The focus of the social assessment work has been primarily at the local and district level of community, since this was a gap identified in the applicant's assessment. I note that the AEE was accompanied by an economic assessment in which the predominant frame was a national economic one.

1.3 **The proposal being assessed**

1.3.1 The proposal being assessed has been described in the firstly in the AEE documentation provided by Mighty River Power, and subsequently summarised by Mr Henry for the applicant. The project description covers aspects such as number, size and location of turbines, ancillary structures, internal roads and tracks, construction activities and construction-related traffic, concrete batching facilities, vegetation removal, disposal of excess excavation material, on-going maintenance activities, and site reinstatement.

1.3.2 When conducting this assessment, a question arose in my mind as to the appropriate weight to be attached to the Eco-park concept. There is a distinction between

¹ PNCC, 2006. *Alteration to Purpose of Turitea Reserve and Amendments to Management Plan: Council Decision Adopted 30th October 2006.* p.2 and p.48

revenues to the PNCC from wind farm operations in the Reserve and an Eco-park proposition. While there are numerous references to the Eco-park concept in the Mighty River Power's AEE document, all these statements presume outcomes about which there is no certainty of implementation.

- 1.3.3 As I understand the situation, the Eco-park is not an initiative of the applicant, nor is it claimed by the applicant either as an integral part of its proposal or as mitigation for any particular effects. As yet PNCC has not approved a strategy to implement the Eco-park concept, although it is highly likely to do so should the project proceed. There may indeed be little practical difference between activities associated with establishing an Eco-park and activities already occurring under the Reserve Management Plan. The outcomes sought in the management plan may simply be achieved quicker. The evidence of Pollock on behalf of MRP states *"an additional positive benefit (although not forming part of the project itself or the proposed mitigation) is the Eco-park which is to be developed by PNCC with revenue from the wind farm."*
- 1.3.4 The ecology expert, Dr Blaschke, in whose area of expertise this is central, gives limited weight in his assessment to the Eco-park concept because of these uncertainties.
- 1.4 My discussions with a broad range of stakeholders suggest to me that, while the Eco-Park concept was probably an important element in the decisions of the private landowners to participate with MRP in this project, the Eco-Park concept is far less prominent in the minds of most other local and City residents². Furthermore, it is unsurprising that participating landowners would be relatively enthusiastic about the concept. Apart from any consideration of its relevance to the public acceptability of the proposal as a whole, as rural landowners immediately adjoining the Reserve, they would also be direct beneficiaries of any improved pest control efforts within the Reserve.

2 ASSESSMENT APPROACH AND METHODOLOGY

2.1 Introduction and rationale

- 2.1.1 To quote an eminent practitioner, Professor Rabel Burdge³, Social Impact Assessment (SIA) "is a systematic effort to identify, analyse, and evaluate social impacts of a proposed project on individuals, social groups within a community, or an entire community or region ... in advance of the decision making process ... in order that the information derived from the SIA can actually be used in the planning/decision process."
- 2.1.2 The role of SIA is influenced both by the express purpose of the Resource Management Act and by the principles of SIA practice.

² Two references to the Eco-Park in the Summary of Submissions document state *"The proposed ecopark was noted by some submitters as being positive for the environment and vegetation in the area. As noted earlier this is not part of the applications being considered by this Board of Inquiry."* (p.14) and *"The idea of the ecopark, and the advantages it would have, were called into question by submitters. Some noted that it would add limited value and that the ecosystem would be better of if it was left as it is."* (p.15)

³ Burdge, R.J. 2004. *A Community Guide to Social Impact Assessment*. 3rd Edition. Social Ecology Press, Middleton, Wisconsin.

- 2.1.3 The Resource Management Act 1991 (RMA) has a focus on effects and also a focus on promoting *“development and protection of natural and physical resources”* in a way which *“enables people and communities to provide for their social, economic and cultural wellbeing and for their health and safety”*.
- 2.1.4 Frequently, in my experience, there is an incorrect inference that ‘impact assessment’ implies a focus only on adverse effects. The RMA, however, explicitly states at s3 that the term ‘effect’ refers to the full range of effects, both positive and adverse.
- 2.1.5 The principles of SIA practice require community involvement in the assessment process. This is useful both to understanding the nature of the community or communities being affected, and to making professional judgements about the social consequences of the proposal. Community involvement is also important for validating the findings of the SIA and subsequently for monitoring change and participating in adaptive management decision making in cases where consents are granted and projects proceed.
- 2.1.6 In some instances, SIA has the role of interpreting the findings of other technical assessments within a social perspective in order to draw conclusions about the likely social consequences. In the case of the Turitea wind farm proposal, this reliance on the findings of other technical assessments is most evident in relation to the visual and landscape assessment, noise assessment, ecological assessment, water quality and hydrology assessment, and traffic assessment.

2.2 Consultation coverage

- 2.2.1 Social Assessment, as practised by Taylor Baines, is built upon participation by stakeholders and potentially affected parties. It is not a desk exercise. During the course of this assessment, I and my team have contacted a broad range of people living and working in the Palmerston North area. The coverage of this consultation activity included interviews with -
- 8 people within the Palmerston North visitor/tourism sector;
 - 14 representatives of Palmerston North recreation groups;
 - representatives of all 3 existing wind farm companies;
 - 5 representatives of iwi organisations;
 - 3 representatives of Palmerston North businesses which service either wind farm construction or wind farm operations and maintenance;
 - 3 representatives of regional business and economic development agencies;
 - one farming couple who are participating landowners in the proposal.
- 2.2.2 Details of this consultation coverage are provided in Appendix JTB1.
- 2.2.3 Consultation activities at the local community level included a series of 5 focus group discussions -
- 8 residents of Turitea Valley on 22 April;
 - 8 residents of Ngahere Park on 22 April;

- 8 residents of the Pahiatua Track valley on 23 April;
- 10 residents of Kahuterawa Road and Greens Road on 28 April;
- 7 participating landowners in the proposal on 29 April.

2.2.4 In total, more than 80 people have participated directly in the consultation activities associated with this SIA.

2.2.5 In addition to the consultation activities summarised in the preceding three paragraphs, I was responsible for designing and implementing two surveys, which I describe in sections 2.5 and 2.6 of this statement. The first survey, which I refer to as the PNCC Citizens' Panel Survey, was a survey of a randomly-selected panel of 540 Palmerston North residents. The Citizens' Panel Survey attracted 226 responses. The second survey, which I refer to as the Ex-Post Survey, was a survey targeted specifically at households living within 5km of an existing wind farm, and indeed mostly within 3km of an existing wind farm. This survey involved 212 respondents.

2.2.6 Thus, in total, this assessment has drawn directly on the input of over 500 residents of Palmerston North City.

2.3 Frameworks for assessment

2.3.1 Two dimensions of analytical framework are particularly relevant to this SIA: the basic social well being framework and a framework for thinking about cumulative effects.

2.3.2 The social well being framework is based on a consideration of the elements which contribute to social well being. Having been adopted in a range of other SIAs and social research contexts in New Zealand in recent years, the framework used here comes from social indicators work in the Organisation for Economic Co-operation and Development ("OECD") and parallels closely the framework adopted by the Ministry of Social Development - see Appendix JTB2.

2.3.3 By way of examples -

- considerations of "physical and mental health" arise in relation to the potential effects of intrusive noise from nearby wind turbines or the potential effects on future levels of recreation in the Kahuterawa Reserve;

- considerations of "the quality of housing, shelter, neighbourhood and living place" arise in relation to potential landscape, visual and noise effects of the proposed wind farm on those living in the vicinity of turbines, and possibly in relation the impacts of construction traffic on residential amenity values for households living close to the construction routes;

- considerations of "opportunities for income, employment and the quality of working life" arise in relation to landowner revenues from the proposed wind farm and employment and income opportunities during construction and also during the on-going operational phase of the project;

- considerations of “opportunities for leisure and recreation, time to enjoy them, and access to quality outdoors/open space” arise in relation to the potential effects on enjoyment of recreational areas in the vicinity of the proposed wind farm;

- considerations of “the quality of the physical environment, a clean environment with aesthetic appeal” arise in relation to public perceptions of the windfarms potential effects on the landscape qualities of the ranges; and

- considerations of “influences on family life, social attachment, social contact, interaction and support” arise in relation to the effects of the wind farm proposal on social cohesion or social division, particularly in communities closest to the proposed site.

2.3.4 The conceptual framework for thinking about cumulative effects is based on methodology drawn from cumulative visual effects assessment (see Appendix JTB3)

2.3.5 In this framework, three types of cumulative effect are differentiated: simultaneous, successive and sequential:

- *simultaneous cumulative* effects are effects experienced from more than one development by any single recipient at a single location;

- *successive cumulative* effects are effects experienced from more than one development by any single recipient changing position (viewing direction) at a single location;

- *sequential cumulative* effects are effects experienced from more than one development by many recipients in different locations, although any single recipient may experience effects from only one development at a time.

2.3.6 In applying this conceptual framework to effects other than landscape and visual effects, it is probably necessary only to differentiate simultaneous from sequential types⁴. I use these terms in the summary of cumulative social effects which I present at paragraph 7.2.1

2.4 Sources of information

2.4.1 SIAs typically draw on a variety of information sources in order to triangulate data and observations. For this SIA the range of information sources has included the following -

- direct observation: a site visit and a drive around Palmerston North City and its rural environs;

- Mighty River Power's AEE documentation;

- population and dwelling statistics from Statistics NZ and PNCC building consents and sub-division data;

- data on existing wind farms (comparison cases) for employment in construction and operations & maintenance activity;

⁴ For example, simultaneous and successive noise effects are essentially the same thing, since a person does not have to be looking at a noise source in order to hear it.

- key informant interviews, as described at paragraph 2.2.1 and Appendix JTB1;
- survey results - Citizens' Panel Survey, Ex-Post Survey, Chamber of Commerce survey of its members, EECA surveys (2004 and 2009).

2.5 Citizens Panel Survey

- 2.5.1 The Citizens' Panel is a consultation mechanism which the PNCC first established in March 2008. Its aim is to provide a cost-effective, 'quick to set up' mechanism for hearing the views of 'the person in the street' - 'an attempt to get views of people who probably would not otherwise participate in Council's consultation'⁵. Surveys are run about every month. Panel participants were selected randomly from the telephone directory and phoned to confirm that they live in the PNCC area.
- 2.5.2 Unlike email panels used by some other Councils, in which respondents choose to enrol, the PNCC Citizens' Panel is based on random selection. The initial telephoning was by an independent call centre and the internet-based survey is administered for the Council by an independent research company. The Council receives the collated results but does not know the identities of panel respondents. The Council is aware that there is an over-representation of older people responding to the Panel Surveys, and is currently attempting to recruit new panel members 'especially amongst the under 50 years group' through a stratified random procedure.
- 2.5.3 Since March 2008, the Citizens' Panel Survey mechanism has been used by the Council on 6 occasions. Most recently, during March and April 2009⁶, the Citizens' Panel was used to survey attitudes to wind farm development and the arts in Palmerston North. Of 540 current Panel members, responses were received from 226, a response rate of 42%.
- 2.5.4 Within the overall SIA data gathering effort, this survey had a city/regional focus. Because of its random nature and geographical coverage, it has enabled me to gain a sense of regional community attitudes towards existing and further wind farm development, and thereby assist me in putting submissions in context, since by their very nature, those who make written submissions are self-selected, not randomly selected. This regional view is also an important aspect of assessing cumulative effects.
- 2.5.5 With knowledge of the potential and actual social effects gained as a result of assessing the impacts of several other wind farm proposals, care was taken when designing the questionnaire to ensure a balance between positive and negative aspects. Several steps were involved to ensure this balance: internal peer review by other experts in the assessment team, external peer review by several staff members at Massey University⁷, and a survey administration procedure which randomised the closed-question responses within the questionnaire⁸ so that responses were not presented to the respondents in any particular order.

⁵ Details of the Citizens Panel Survey mechanism were provided to me by Mr Andrew Boyle, Head of Community Planning at the PNCC.

⁶ One email invitation was sent out with two email reminders over a period of three weeks.

⁷ Dr Glenn Banks, Associate Professor Christine Cheyne and Dr Jeff McNeill in the School of People, Environment and Planning at Massey University.

⁸ Specifically to Qus 2A, 4 and 5.

- 2.5.6 The text of the survey questionnaire is provided in Appendix JTB4.
- 2.5.7 As noted in paragraph 2.5.2, the overall survey response showed a bias towards older respondents. I have therefore adjusted the raw responses to the Citizens' Panel Survey by applying weighting factors based on the population figures in the 2006 Census of Population and Dwellings. It is important to note that the results which I present in my evidence for the responses to each survey question are presented on this weighted basis. As discussed by Mr Kalafetelis in his evidence on a survey his company carried out for the applicant (paras 7.1-7.3), this weighting procedure ensures that the results quoted are representative of the population being sampled.
- 2.5.8 Also as noted by Mr Kalafetelis (paras 7.4-7.5), the accuracy of results for a survey where the sample has been randomly selected can be calculated arithmetically and expressed in terms of the "maximum margin of error" at a particular "confidence level". This Citizens Panel Survey produced 226 responses⁹ from the Palmerston North rating area. The corresponding maximum margin of error, based on this sample size is +/- 6.5% at the 95% confidence interval. This means that, if 50% of respondents gave the same answer to a particular question in the survey, we could reasonably expect 50+/- 6.5% of respondents to give this same answer on 95 occasions if we sampled the same population randomly 100 times. That is to say, we can be certain that the percentage of the whole population (if a census were to be taken) which would give the same answer to the question would lie in the range 43.5%-56.5%.
- 2.5.9 The Panel Survey posed several contextual statements and asked respondents whether or not they agreed with the statements. The first such statement enquired about their attitude to the role of the Manawatu region in contributing to the country's sustainable energy future (Table 1). It is evident that a large, absolute majority of respondents agree with this statement. The level of agreement outweighs the level of disagreement by a factor of 16:1. I note that applying population-based weightings to the raw responses made virtually no difference to the overall balance of responses¹⁰.

Table 1: Responses to the statement - "The Manawatu region should make a contribution to new Zealand's sustainable energy future"

<i>Disagree strongly</i>	<i>Disagree</i>	<i>Neither agree or disagree</i>	<i>Agree</i>	<i>Agree Strongly</i>	<i>Total # of responses</i>
2%	3%	13%	41%	41%	220

- 2.5.10 Another contextual statement enquired about attitude to the landscape values of the ranges to the east of the City (Table 2). In this case, an absolute majority of respondents agree with the statement, but there is also a relatively high level of respondents who neither agree nor disagree. Nevertheless, the level of agreement

⁹ Although the number of responses to individual questions varies slightly, since a few respondents elected not to answer every question.

¹⁰ For Table 1, the un-weighted, raw data showed 7% disagreement/83% agreement while the weighted responses showed 5% disagreement/82% agreement.

outweighs the level of disagreement by a factor of 4:1. As before, applying population-based weightings to the raw responses made only a small difference to the overall balance of responses¹¹.

Table 2: Responses to the statement - “The ranges to the east of the City have high landscape values”

<i>Disagree strongly</i>	<i>Disagree</i>	<i>Neither agree or disagree</i>	<i>Agree</i>	<i>Agree Strongly</i>	<i>Total # of responses</i>
3%	10%	34%	40%	13%	216

2.5.11 Two statements in the survey tested respondents attitudes to seeing existing turbines on the ranges (Table 3). Responses to the two statements show a high degree of consistency. Both indicate that a large, absolute majority of respondents have had a favourable response to the effect of seeing the existing wind farms on the ranges. These favourable responses outweigh the unfavourable responses by a factor of 5:1. Applying population-based weightings to the raw responses made only a small difference to the overall balance of responses¹².

Table 3: Responses to two statements about the effects of existing turbines on the landscape qualities of the ranges

<i>Disagree strongly</i>	<i>Disagree</i>	<i>Neither agree or disagree</i>	<i>Agree</i>	<i>Agree Strongly</i>	<i>Total # of responses</i>
(A) “I like having the wind farms here as they add interest to the City’s landscape”					
6%	9%	11%	52%	22%	218
(B) “I don’t like having the wind farms here; they have become an annoying feature of the City’s landscape”					
43%	34%	9%	8%	6%	220

2.5.12 The preceding statements in the survey all focussed on respondents experience of the existing wind farms; the turbines that they see already on the ranges to the east of the City. Respondents were then provided with additional background information on the number and location of turbines which have been consented but are yet to be built (refer to Appendix JTB4 for details). They were then asked to think about further wind farm development on the ranges and choose one of five responses (Table 4).

¹¹ For Table 2, the un-weighted, raw data showed 15% disagreement/56% agreement while the weighted responses showed 13% disagreement/53% agreement.

¹² For Table 3, for statement A, the un-weighted, raw data showed 18% disagreement/71% agreement while the weighted responses showed 15% disagreement/74% agreement; for statement B, the un-weighted, raw data showed 74% disagreement/16% agreement while the weighted responses showed 77% disagreement/14% agreement.

Table 4: Expressed preference on further wind farm development on the ranges east of the City

<i>I don't have a strong opinion about this</i>	<i>I don't know</i>	<i>I'd be happy to see more wind farm development on these ranges</i>	<i>There is about the right amount of wind farm development on these ranges</i>	<i>There is already too much wind farm development on these ranges</i>	<i>Total # of responses</i>
4%	6%	41%	33%	16%	218

2.5.13 It is evident from the results in Table 4 that somewhat more Palmerston North respondents are not in favour of further wind farm development - 41% in favour and 49% not in favour. Applying population-based weightings to the raw responses did make a difference to the overall balance of responses and narrowed the gap between those in favour and those not in favour of further wind farm development¹³.

2.5.14 I have examined the relationship between expressed attitudes to further wind farm development and expressed attitudes to seeing existing wind farms (Table 5).

Table 5: Relationship between expressed attitudes to further wind farm development and expressed attitudes to seeing existing wind farms

	<i>"I like having the wind farms here as they add interest to the City's landscape"</i>				
	<i>Disagree strongly</i>	<i>Disagree</i>	<i>Neither agree or disagree</i>	<i>Agree</i>	<i>Agree Strongly</i>
<i>I don't have a strong opinion about this</i>	0%	0%	18%	64%	18%
<i>I don't know</i>	0%	0%	33%	56%	11%
<i>I'd be happy to see more wind farm development on these ranges</i>	0%	3%	3%	65%	30%
<i>There is about the right amount of wind farm development on these ranges</i>	0%	12%	17%	59%	11%
<i>There is already too much wind farm development on these ranges</i>	40%	24%	10%	24%	2%

¹³ For Table 4, the un-weighted, raw data showed 36% 'happy to see more', 36% 'about the right amount' and 19% 'already too much', while the corresponding weighted proportions were 41%, 33% and 16%.

- 2.5.15 In my opinion, it is unsurprising that 64% of those who responded *“there is already too much wind farm development at present on these ranges”* do not like seeing the existing wind farms. Similarly, it is unsurprising that 95% of those who responded *“I’d be happy to see more wind farm development on these ranges”* do like seeing the existing wind farms there. I have encountered this polarisation of attitudes during much of the assessment activity. However, I believe an interesting finding of this survey is that 70% of those who say *“there is about the right amount of wind farm development on these ranges”* are people who like seeing the existing wind farms. That is to say, despite their favourable disposition to the existing wind farms, they believe that there is already “the right amount of wind farm development”. Combined with the overall results shown in Table 4, I interpret this to mean that the wider community of Palmerston North is saying ‘Enough is enough’.
- 2.5.16 I believe these survey results indicate that attitudes towards existing wind farm development in the ranges east of the City are generally favourable, but that in a cumulative sense the balance of public attitudes is clearly at a tipping point. In colloquial terms, these survey results are tantamount to about 23,700 residents of Palmerston North saying they are not in favour of any further wind farm development and about 21,300 residents saying they would be happy to see more wind farms built nearby.
- 2.5.17 I note that the Manawatu Chamber of Commerce conducted a brief email survey of its 530 members¹⁴ in March 2009. The question asked “Are you in favour of the Turitea Wind Farm Proposal from Mighty River Power”. Of the 60 responses received, 27 were in favour, 31 were opposed, while 2 stated no opinion. Most responses came back without comment (45 out of 60). However, of those in support of the Turitea wind farm proposal, two commented on the need for more alternative/sustainable energy sources, and of those opposed, eight commented on the cumulative adverse visual effects.
- 2.5.18 While the response rate to this survey was low (11%), the balance of responses is similar to the balance of responses gained from the Citizens’ Panel Survey.
- 2.5.19 Other results from the Citizens’ Panel Survey will be reported elsewhere in my statement, where they relate to particular issues.

2.6 Ex-post Survey

- 2.6.1 The purpose of the Ex-Post survey was to focus on residents’ experience of the visual and noise effects of existing wind farms, for those who have lived relatively close to them. I have described it as Ex-Post because all the questions relate to residents’ actual experience in the past; the survey did not ask them any questions about possible future wind farms. In fact the survey questions made no mention of any wind farm proposal.

¹⁴ The Chamber sends out a weekly email newsletter advising members of forthcoming events. In this particular message, the Chamber asked for responses to two questions, the first on the desirability of a second bridge, and the second on the desirability of the Turitea Wind Farm proposal.

2.6.2 The questionnaire for this Ex-Post survey, carried out during April 2009, was based on a similar survey carried out in April 2005 in Ashhurst¹⁵, when my company was involved in preparing an SIA of the T3 extension to the Tararua wind farm. Results from the 2005 survey were presented to the resource consent hearing for the T3 extension proposal, and have been cited in several consent hearings since, as well as by the Parliamentary Commissioner for the Environment¹⁶. The 2009 survey was targeted at a more extensive geographical area¹⁷ than the 2005 survey; it also had additional questions aimed specifically at investigating residents' experience of the cumulative effects of increasing numbers of wind farms on the nearby ranges. The text of the 2009 survey questionnaire, which was also subject to external peer review, is provided in Appendix JTB5.

2.6.3 I am interested in the 2009 survey results for what they indicate about current experience of existing wind farms, and also for how they compare with the 2005 survey results, to see if there has been a change in experience over time. In respect of the visual experience of survey respondents, it appears that the majority of Ashhurst residents are still happy to see the wind farms near them and fewer Ashhurst residents experience negative visual effects than four years ago. A degree of indifference or familiarity with the sight of the wind farms is evident in the proportions indicating no visual impact at all (Table 6). By contrast, the non-Ashhurst sub-sample of the 2009 survey respondents appear to be generally less favourably disposed to the wind farms they can see, with higher proportions reporting negative impacts and lower proportions reporting positive impacts.

Table 6: Response to visual effects of existing wind farms - 2005 & 2009

<i>Survey variable</i>	<i>Ashhurst 2005</i>	<i>Ashhurst 2009</i>	<i>Whole survey sample 2009</i>	<i>Non-Ashhurst sub-sample, 2009</i>
# interviewed	54	127	212	85
# who see turbines from their property	52	126	204	78
Pleasant impact %	58%	56%	48%	35%
No impact %	13%	26%	29%	33%
Mixed impact %	13%	10%	11%	13%
Negative impact %	15%	7%	12%	19%

¹⁵ The area deliberately targeted in Ashhurst was described as "the eastern fringe" and included houses on The Terrace, Wyndham St, Salisbury St, Lincoln St, Sherwood Grove, Hodgetts St, Durham St, Mulgrave St, Oruaiti Cres, Pembroke St, Saddle Road and River Road.

¹⁶ Parliamentary Commissioner for the Environment, 2006. *Wind power, people place*. Wellington. ISBN 1-877274-29-1. p.127

¹⁷ The more extensive geographical area referred to was a 5km band along the hills south of Ashhurst, incorporating as many households as possible within 3km of the existing wind farms of Te Apiti, Tararua and Te Rere Hau and some between 3km and 5km from existing turbines. This included a section along Napier Road which would probably be considered part of Ashhurst, but which was not sampled in the Ashhurst survey in 2005. Any comparisons between Ashhurst results for 2005 and 2009 therefore do not include the Napier Road results, in order to maintain consistency of survey area.

Moderate+high pleasant impact %	..	41%	37%	29%
Moderate+high negative impact %	10%	6%	10%	15%

2.6.4 The 2009 Ex-Post survey asked respondents whether or not their experience of the visual effects of the existing wind farms had changed over time and, if so, whether their experience had got better or worse over time (Table 7). It is evident that, while the experience of Ashhurst residents over time has improved slightly overall¹⁸ with increasing familiarity, the experience of non-Ashhurst residents over time has been somewhat less favourable, with a markedly lower level of “no change” responses and the numbers reporting worsening experience (22%) substantially outnumbering those reporting improving experience (2%). The differences in responses summarised here are perhaps not surprising, since the non-Ashhurst respondents all live further south in the direction where all the change in wind farm activity has been occurring¹⁹.

Table 7: Changes in experience of visual effects of existing wind farms over time

<i>Survey variable</i>	<i>Ashhurst 2009</i>	<i>Whole survey sample 2009</i>	<i>Non-Ashhurst sub-sample, 2009</i>
# interviewed	127	212	85
No change in experience	84%	74%	58%
Got better	6%	5%	2%
Got worse	4%	11%	22%

2.6.5 Respondents were asked if they had any additional comments to make on the visual impacts of the existing wind farms. These unsolicited responses produced 22 positive comments about wind farms, 10 negative comments about wind farms, and 25 comments either explicitly stating or implying that the respondents believe the present extent of wind farms is “enough”. Analysis of this last group (Table 8) is interesting, since it shows that a majority of these unsolicited comments came from residents of Ashhurst, and a majority also were not currently experiencing negative visual effects from the existing wind farms. In other words, it is not those people who may have been expressing negative sentiments ever since Te Apiti was built that are making these comments; rather, the comments come from people whose experience so far has been largely positive or neutral.

¹⁸ 84% responding with “no change” while improved experience (6%) slightly outnumbers worsening experience (4%).

¹⁹ Expansion of the Tararua wind farm (commissioned in 2007) and the progressive development of Te Rere Hau, beginning in 2006.

Table 8: Attributes of respondent experience of those making unsolicited comments that Palmerston North has enough wind farm development

	<i>Ashhurst 2009</i>	<i>Whole survey sample, 2009</i>	<i>Non-Ashhurst sub-sample, 2009</i>
# comments - "enough"	18	25	7
Experience of existing wind farms -			
pleasant visual impact	6	9	3
no visual impact	6	6	0
mixed visual impact	6	9	3
negative visual impact	0	1	1

2.6.6 Being unsolicited comments to an open question in the survey, I realise that the data in Table 5 do not carry the same weight as data from a random survey, or data which had been solicited systematically from every respondent being surveyed. Nevertheless, all respondents were given the same opportunity to make such comments, and as I have pointed out many did so. I believe it is worth drawing the Board's attention to the fact that the distribution of responses in Table 8 above bears a striking similarity to the "raw" responses received to Question 3A in the Citizens' Panel Survey, as illustrated in Table 9 below. This is a similar pattern to the Citizens' Panel Survey results described in paragraph 2.5.15 and Table 5.

Table 9: Comparing responses from the Ex-Post Survey and the Citizens Panel Survey

<i>Ex-Post Survey</i>	<i>Positive comments about visual impacts</i>	<i>Comments suggesting "enough"</i>	<i>Negative comments about visual impacts</i>
# comments	22	25	10
% comments	39%	43%	18%
<i>Citizens Panel Survey Qu.3A</i>	<i>"happy to see more wind farm development"</i>	<i>"about the right amount of wind farm development"</i>	<i>"already too much wind farm development"</i>
# responses	78	79	41
% responses	36%	36%	19%

2.6.7 I will now summarise the Ex-Post Survey responses on current experience of noise from existing wind farms in the region. The overall trend in the experience of wind farm noise for Ashhurst respondents is that negative impacts appear to have risen slightly over time, with proportionately more people actually hearing the turbine noise (Table 10). However, the more extreme negative impacts appear to be declining slightly.

Table 10: Response to noise effects of existing wind farms - 2005 & 2009

<i>Survey variable</i>	<i>Ashhurst 2005</i>	<i>Ashhurst 2009</i>	<i>Whole survey sample 2009</i>	<i>Non-Ashhurst sub-sample, 2009</i>
# interviewed	54	127	212	85
# who hear turbines from their property	24	80	114	34
Pleasant impact %	4%	2%	1%	1%
No impact %	30%	40%	30%	14%
Mixed impact %	2%	8%	6%	4%
Negative impact %	9%	13%	16%	21%
Moderate+high pleasant impact %	..	1%	1%	1%
Moderate+high negative impact %	9%	6%	10%	15%

2.6.8 Even though the non-Ashhurst respondents surveyed are overall less likely to actually hear wind turbines²⁰, they appear more likely to experience negative effects and also of a somewhat more intrusive nature²¹.

2.6.9 As for visual effects, the 2009 Ex-Post survey asked respondents whether or not their experience of the noise effects of the existing wind farms had changed over time and, if so, whether their experience had got better or worse over time (Table 11). As noted in the previous paragraph, the experience for Ashhurst respondents over time is that slightly more are noticing turbine noise but somewhat fewer are being disturbed by it. The experience of non-Ashhurst residents over time has been somewhat less favourable, with a markedly lower level of “no change” responses and the numbers reporting worsening experience (22%) substantially outnumbering those reporting improving experience (1%). This is a similar trend described previously for the experience of visual effects by non-Ashhurst respondents to the survey.

²⁰ This probably merely reflects the greater separation distances of some of those interviewed in the non-Ashhurst segment of the survey area.

²¹ This probably reflects the greater number of respondents living closer to existing turbines than is the case at Ashhurst. It may also reflect the fact that the greatest changes in recent wind farm development activity have occurred further away from Ashhurst.

Table 11: Changes in experience of noise effects of existing wind farms over time

<i>Survey variable</i>	<i>Ashhurst 2009</i>	<i>Whole survey sample 2009</i>	<i>Non-Ashhurst sub-sample, 2009</i>
# interviewed	127	212	85
No change in experience	87%	71%	48%
Got better	2%	2%	1%
Got worse	5%	12%	22%

2.6.10 In summary, it appears that as wind farm development has progressed in a southerly direction from the hills near Ashhurst to the hills nearer to Palmerston North, levels of reported adverse effects have increased somewhat.

2.6.11 To complete this analysis of the Ex-Post Survey results, I will now report what this same set of data reveals when analysed purely on the basis of separation distance between the respondent's dwelling and the nearest operating turbine. Table 12 summarises the proportions of respondents who report having experienced adverse visual impacts from the existing wind turbines. In my opinion, the analysis reveals a strong relationship between separation distance and experience of negative visual impacts. Bearing in mind the Citizens' Panel Survey responses reported in Table 3 about the attitudes of Palmerston North residents generally to seeing wind farms on the ranges, it might be expected that 14-15% of residents could report negative visual impacts. In the case of respondents to the Ex-Post Survey, it might also be reasonable to expect a somewhat smaller proportion than this, since 61% of the survey respondents have taken up residence in their current home during the past 9 years when wind farms have been operating on the ranges. Nevertheless, I believe it is not surprising that people living less than 2000m from their nearest turbine are more likely to report experiencing negative visual impacts than those living further away.

Table 12: Experience of negative visual effects by separation distance, 2009

<i>Separation distance</i>	<i># who see turbines</i>	<i># who report negative visual impacts</i>	<i>% who report negative visual impacts</i>	<i># who report moderate/high negative visual impacts</i>	<i>% who report moderate/high negative visual impacts</i>
up to 2000m	16	5	31%	4	25%
2000-3000m	155	17	11%	15	10%
3000-5000m	26	2	8%	1	4%

2.6.12 Table 13 repeats for the reported experience of noise impacts the analysis based on separation distance. As for reported visual impacts, it is my opinion that the analysis

reveals a strong and unsurprising relationship between separation distance and experience of negative noise impacts.

Table 13: Experience of negative noise effects by separation distance, 2009

Separation distance	# of interviews	# who report negative noise impacts	% who report negative noise impacts	# who report moderate/high negative noise impacts	% who report moderate/high negative noise impacts
up to 2000m	17	8	47%	3	18%
2000-3000m	158	25	16%	17	11%
3000-5000m	30	1	3%	1	3%

2.6.13 In my opinion, these survey results indicate that the experience of people living closer to turbines than 2000m is distinctly more negative than for those living further away. One-in three respondents report negative visual impacts and one-in-four report moderate to high negative visual impacts. Almost one-in-two report negative noise impacts and one-in-five report moderate to high negative noise impacts. These are not insignificant proportions. A similar comparison can be described for those living between 2000m and 3000m from their nearest turbine, although to a lesser extent.

2.6.14 In my evidence to the T3 Hearing, I concluded on the basis of the 2005 survey that -

“The rapid appraisal exercise has reinforced the significance of separation distance as one factor influencing the experience of off-site effects. These findings indicate that the visual and noise effects of the existing wind turbines abate with the distance between the turbines and particular properties.”²²

“For the immediate community of interest and neighbours, separation distance between dwellings and turbines is a critical factor in assessing the significance of effects. This highlights the importance of buffer areas between turbines and dwellings. A separation distance of 2.0-2.5 kilometres appears to be the threshold below which acceptance is more likely to be replaced by negative sentiments for neighbours who experience no direct benefits. However, factors such as local topography and house orientation are also likely to have a bearing on this.”²³

2.6.15 The results of the 2009 Ex-Post Survey, which I have reported here, reinforce the observations which I made to the 2005 wind farm resource consent hearing.

2.6.16 In my opinion, these survey results are not all bad news for the wind power industry. However, they serve as a wake-up call to the industry, not to over-reach levels of community support. To ignore the warning signs could well risk antagonising the community of Palmerston North and communities in many other parts of New

²² Paragraph 4.23.

²³ Paragraph 6.7.

Zealand, at a time when the industry needs to be building public confidence in what wind power has to offer.

3 SOCIAL AND COMMUNITY SETTING

3.1 Palmerston North

3.1.1 The host community for the proposed Turitea wind farm is undoubtedly the City of Palmerston North and its peri-urban rural hinterland. As Ms Melhuish points out in her evidence, there are few if any other locations in the world, let alone in New Zealand, where a series of wind farms is situated between 5km and 10km from a city of 75,000 inhabitants²⁴. The Tararua Ranges form a backdrop to the City on its eastern side, but the City does not turn its back on these ranges. As noted in section 2.5 of this evidence, a majority of Palmerston North residents rate the ranges to the east of the City as having high landscape values.

3.1.2 A number of other locational factors make this wind farm proposal distinctive in the Manawatu context, and in some cases unique. These include -

- its proximity to a sizeable and growing rural and rural-residential population in subdivisions which have been established progressively closer to the ranges and to an extent that is markedly different from elsewhere in the vicinity of Palmerston North and its neighbouring wind farms;

- the alignment of the predominant grid pattern of City streets in Palmerston North in relation to the Turitea Reserve section of the ranges and skyline;

- its proximity to an evolving outdoor recreational hub, to which entry is gained predominantly via the Kahuterawa Valley;

- much of the proposed wind farm site being a water reserve, with the corresponding importance attached to protecting the integrity of its town water supply function.

3.1.3 The nature of land ownership in the Turitea location has two notable implications for this wind farm proposal. One is that ownership of the Turitea Reserve by the PNCC would mean that if the wind farm proposal proceeds, the Council will receive between \$1.96m and \$2.27m in revenue²⁵ on an annual basis. The second implication of a wind farm in this location, with its pattern of fragmented rural land parcels, is that the MRP proposal creates opportunities to participate in commercial wind farming for substantially more private landowners than any preceding windfarm in the region.

3.1.4 In my opinion, it is significant that this is the fifth wind farm proposed for this region of the Tararua Ranges, not the first. Palmerston North has been a focus for wind farm development for more than a decade. Furthermore, its potential for such commercial

²⁴ While the City of Wellington is approximately 3-4km as the crow flies from the wind farm currently under construction on the hills south of Makara, relatively few residents of Wellington have direct views of the wind farm and the City cannot be said to face the wind farm.

²⁵ Updated "indicative production royalties" by email from Mr Henry of MRP, 14 May 2009.

development was identified more than two decades ago²⁶, a fact well known to some of the land owners now interested in participating in this proposal. Being the focus of wind farm development over a sustained period has also created substantial and sustained business opportunities for a number of Palmerston North companies.

- 3.1.5 It is not surprising to me that this level of wind farm activity, relatively concentrated close to an sizeable urban population centre, would at some stage lead to a consideration of the cumulative effects of such development and the issue of saturation.

3.2 Farming in the hills: pattern & trends

- 3.2.1 The area between the Pahiatua Track and the Kahuterawa Valley has witnessed a slow but steady decline in the number of viable farming operations. Local farmers suggested to me that forty years ago there were five main farming properties across this locality, but now there are two. Most of the hill country land is Class IV, VI or VII; not the most productive farm land but still capable of providing a livelihood if in sufficient size of land holding. Where smaller land holdings still support pastoral farming activities - sheep, cattle, farm forestry - they no are longer self-supporting of livelihoods and owners are generally involved in off-farm employment for financial reasons.
- 3.2.2 As in many other parts of the country, the highest financial returns for some rural land have resulted from the option of rural-residential sub-division leading to considerable fragmentation of land in this area (see section 3.3). Two previous farming properties, known as Ngahere and Manawahi have been converted to the rural-residential development of Ngahere Park.
- 3.2.3 The recent arrival of rural lifestyle property owners as neighbours has sometimes been challenging to traditional farming practices. It can also bring significant risks²⁷. Owners of smaller rural holdings come with a variety of expectations about what they will do with their land. The size of their lots and the zoning affords them the options and the space for a variety of developments and land uses on their properties. I will discuss rural-residential options in more detail in section 3.3.
- 3.2.4 Written submissions from many of these landowners indicate that all have lived on their properties for at least five years; indeed three identify residency in excess of 40 years, while a fourth indicated continuous family ownership of 80 years. The overall impression gained was that all these land owners have a long-term commitment to the area. The range of economic activities currently undertaken on these properties included beef and sheep grazing, dry-stock dairy support, forestry, a tourism venture, an eco-tourism business, and subdivision.. One already has a wind turbine on his property and an existing enterprise that provides renewable energy generators such as wind turbines and solar panels. Another two commented that they had held long-term plans to establish wind turbines on their properties.

²⁶ Cherry, N.J. 1987. *Wind Energy Resource Survey of New Zealand - National Resource Assessment. Summary and Final Report.* New Zealand Energy Research and Development Committee, Report No. 140, Auckland.

²⁷ Discussion at the landowner focus group raised issues such as non-farm dogs attacking and killing lambs, and new arrivals being unfamiliar with rural fire risks.

- 3.2.5 In addition to siting turbines in the Turitea Reserve, Mighty River Power's proposal involves turbines on private land belonging to twelve individuals or households. This group of rural landowners understand the quality of the wind resource, think that wind farming would be a good use of the Reserve land and provide revenue to the Council for better pest control. They do not see the wind farm option as being incompatible with continuing to live on their properties or, in one case, with developing tourist accommodation on the property. They also anticipate that the revenue from hosting turbines will allow them to achieve some of the goals they have for their properties.
- 3.2.6 Experience at the Tararua wind farm a few kilometres north demonstrates that wind farming is compatible with pastoral farming.
- 3.2.7 Options for these participating landowners, if the wind farm is not consented, or if the turbines proposed for their properties are not consented, will variously include more forestry, further rural sub-division, enhancing the productivity of their land, or diversification into rural tourism. However, they generally view sub-division as the least desirable future use of their land.

3.3 Rural residential patterns & trends around Palmerston North

- 3.3.1 The rolling country rising up to the ranges east of the City has become popular in recent years as a result of numerous rural sub-division developments permitted under the District Plan. Whilst some people moved out to this area to buy larger blocks of rural land which were relatively inexpensive, many have taken up residence on relatively small blocks. Nevertheless, these smaller blocks variously afforded space - for individual enterprises and also to enjoy being outdoors; an expectation of peace, quiet and privacy; a rural ambience and sense of closeness to nature; views over the Manawatu; these attributes of rural living while also being within easy reach of the City - many of these people connect with both town and country.
- 3.3.2 I have attempted to quantify the extent of residential and rural-residential development in this area east of the City by accessing Census²⁸ data from 1996 and 2006 and updating these data with data on new building completions²⁹.
- 3.3.3 I first present (Table 14) time series data which summarises where the most substantial increases in permanently occupied private dwellings (POPDs) have occurred across the City as a whole over the period 1996-2009. It is evident that the City's population growth over this period has been accommodated in five areas around the western, southern and eastern edges of the City. In absolute terms, the highest numbers of new dwellings have been constructed on the western side of the City³⁰. However, the relative growth rates have been higher on the eastern side of the City; that is to say, numbers of dwellings in the eastern areas have been growing faster on a proportional basis.

²⁸ Statistics NZ (various dates) *Census of Population and Dwellings* - data analysed for census area units.

²⁹ PNCC Code Compliance data - corresponding to Statistics NZ census area units.

³⁰ 1,156 in Kelvin Grove and Milsom and 768 in Aokautere and Turitea.

Table 14: Palmerston North City - areas of highest growth in new dwellings over the period 1996-2009

<i>Census Area Unit</i>	<i>Permanently Occupied Private Dwellings</i>			
	<i>#1996</i>	<i>#2006</i>	<i>#2009</i>	<i>% increase 1996-2009</i>
All Palmerston North City	25236	27729	28265	+12%
Kelvin Grove (<i>near the airport - north-west</i>)	999	1641	1950	+95%
Aokautere (<i>east of the City</i>)	516	1038	1074	+108%
Milsom (<i>west of the City</i>)	1746	1932	1951	+12%
Westbrook (<i>south of the City</i>)	1428	1599	1600	+12%
Turitea (<i>rural east of the City</i>)	363	543	573	+58%
Ashhurst (<i>for comparison</i>)	891	951	974	+9%

3.3.4 I then examined the distribution of residential and rural-residential growth in terms of its geographical relationship to the existing, consented and proposed wind farms on the Tararua Ranges - for the period 1996-2006³¹. I did this by identifying 5km contours from each wind farm foot-print³², and then allocating on a best-fit basis³³ the meshblock data for POPDs to each of these 'catchment areas' (Table 15).

Table 15: Permanently occupied private dwellings in each wind farm 'catchment area' - trends from 1996-2006

5km 'catchment area'	<i>Permanently Occupied Private Dwellings</i>			
	<i>#1996</i>	<i>#2006</i>	<i>Increase dwelling numbers: 1996-2006</i>	<i>% increase 1996-2009</i>
Te Apiti	1041	1149	108	+10%
Tararua Stages 1-3	162	216	54	+33%
Te Rere Hau	129	210	81	+63%
Turitea	402	1020	618	+154%
Motorimu	324	375	51	+16%

³¹ This analysis involved working with meshblock-level census statistics rather than area unit-level census statistics. Consequently, I was unable to update the 2006 census data with PNCC Code Compliance data to 2009.

³² Actual or proposed turbine locations, as at February 2009.

³³ In a few instances, I had to make judgements about including or excluding data because meshblock boundaries did not align well with the 5km contours. Nevertheless, I believe the comparative results are robust.

It is evident that in both absolute terms and relative terms, the rural area within 5km of the proposed Turitea wind farm has experienced the greatest increase in residential development. It is relevant to note that this increase occurred prior to the Council decision to change the purpose of the Turitea Reserve to include electricity generation from wind. Of all the areas close to the City and the hills, this is undoubtedly the area where peri-urban development has been most pronounced for a considerable period of time.

- 3.3.5 The census-based data presented in Table 15 reflects data on PNCC maps showing the locations of residential and rural-residential sub-division developments east of the City during this period³⁴ (refer to Map 2 in the evidence of Mr Baker). Not all these developments have been fully taken up at this point in time.
- 3.3.6 One consequence of this substantial increase in the numbers of rural residents living close to the hills and in the valleys is a change in sense of community. What used to be rural farming communities are now quite different. To some extent, members of the longer-resident rural community have experienced a sense of displacement as rural-residential development has increased around them. The traditional focal points in rural communities - the rural schools - now have a more diverse group of families on their rolls.
- 3.3.7 From the focus group discussions, it is evident to me that the most common basis of community relations and social interactions in these hill and valley locations is based on relatively small groups of neighbours, sometimes manifest in Neighbourhood Support Groups. The exception to this very localised pattern is the Turitea Valley, in which a strong and active group has for some years worked to encourage wider community cohesion through a range of community-based activities³⁵ and by maintaining a substantial local contacts list.
- 3.3.8 Not surprisingly, issues arise from time to time which create tensions within such small communities - and the issues are often about 'resource management' matters, such as forestry activities, legal boundaries, noise, 'green corridors', local commercial initiatives, and the like. It is also evident to me that the positions taken on some of these issues do not always differentiate people into the same 'camps' - such as 'farmers' vs 'lifestylers'. In my discussions for this assessment, I have observed a degree of common values and overlapping interests, as well as intensely conflicting situations.

3.4 Alignment of City streets

- 3.4.1 Palmerston North City has a predominant rectangular grid pattern to many of its streets. The axes of this grid pattern are essentially NW-SE³⁶ and NE-SW³⁷,

³⁴ These include the residential sub-division of Pacific Drive as well as the rural-residential sub-divisions in Moonshine Valley, Polson Hill Drive, Kingsdale Park, Polson Hill Drive, Stoneleigh Lane, Country Heights, Harrison Hill, Ngahere Park, Turitea Valley and Kahuterawa Valley.

³⁵ These activities have included the annual Duck Race, a country fair, several Trivial Pursuits nights, several big-shed movie nights, Quizz nights and Bingo, and education workshops to share skills.

³⁶ As represented by streets such as Fitzherbert Terrace, Rangitikei St, Victoria Ave and Ruahine St, for example.

³⁷ As represented by streets such as Main St, Tremaine Ave, Featherston St, Ferguson St and College St, for example.

although I am aware the City residents sometimes describe the street alignments as N-S and E-W. However they may be referred to, the point I wish to bring to the attention of the Board is the role of this street grid in creating view-shafts for people who use these streets, and particularly in creating views of the existing or potential wind farms on the ranges.

- 3.4.2 Mr Anstey will go into more detail on this matter in his landscape and visual assessment. My purpose here is simply to describe the situation from a community perspective.
- 3.4.3 People use streets for a variety of reasons - driving, cycling, walking, standing and having conversations, and so on. While people may not spend a high proportion of their time out on the streets of the City, it is unlikely that many residents would not use their streets at some point in every day. City streets are therefore a place where City residents experience their broader environment on a frequent and regular basis. This environmental amenity is therefore an element that is important to their sense of social well being.
- 3.4.4 The view-shafts afforded from streets vary in their breadth - how much of the ranges or how little of the ranges are seen as part of the more distant landscape will be influenced by one's position on the street and by factors such as the height of buildings adjacent to the street, the extent of mature trees spreading a canopy across the street, or the extent of open space adjacent to the viewing point. The views of the ranges, as seen along streets in the City, are sometimes narrow and limited literally to the width of the street in the distance; they are also sometimes wide-angled and expansive, revealing a considerable stretch of hills and skyline.
- 3.4.5 At present, people can have views of the ranges from many streets on the City. The wide-angled, expansive views will already encompass views of hills with and without wind farms. Where views of the ranges are limited more to the width and alignment of the street itself, there are relatively few streets in Palmerston North which afford any views of existing wind farms. For streets that are aligned in the NW-SE direction, from Keith Street at the NE end of the City to Maxwell's Line at the SW end of the City, where they have narrow views, these views intersect with the ranges from the Pahiatua Track to the Kahuterawa Valley. Similarly, for streets aligned in the NE-SW direction, from College St to Tremaine Avenue, where they have narrow views, these views intersect with the ranges north of Ashhurst (see Appendix JTB6).
- 3.4.6 In summary, at the present time, where view-shafts along the City's streets are confined to narrow views, these views rarely incorporate views of existing wind turbines. I am not saying that residents do not currently see wind turbines quite often when they are "out and about" in their City. However, views of turbines are not currently ever-present for many City residents.

3.5 Recreation patterns & trends

- 3.5.1 During this assessment, interviews were conducted with representatives of a wide range of outdoor recreation organisations in Palmerston and Manawatu³⁸ incorporating interests in walking, running, cycling, fishing, hunting, shooting,

³⁸ See Appendix JTB1 for details.

tramping and 4-wheel driving³⁹. These interviews elicited data about the organisations, their activities, and the locations which their members tend to use and which are most popular. A tabular summary of this information is provided in Appendix JTB7.

- 3.5.2 Of the 14 groups for which information on outdoor recreation activities was collected, 12 have established patterns of visiting either the Turitea Valley or the Kahuterawa Valley, or both since tracks easily link up. Eight groups included places or routes through these areas amongst their members' more popular locations, while the Rifle, Rod & Gun Club has been based in the Turitea Valley for many years. Members of the Manawatu Freshwater Anglers Club actively fish the Turitea Stream and the Kahuterawa River, acting as "watchdogs for Horizons Regional Council" on the health of the trout habitat. They advised that these streams are important as trout spawning habitats in the wider Manawatu River context.
- 3.5.3 Although wind farms are not necessarily incompatible with these recreational activities, several groups described past displacement of recreational opportunity. For example, the old North Range Road track used to be the closest location for a day's outing for the Manawatu 4-Wheel Drive Club, on 2-3 day-long outings each year. However, since the Te Rere Hau and T3 wind farms have become established along North Range Road, the quality of the road has been improved and it no longer provides the off-road challenge that it used to. Similar displacement was described by Cycle Aware Manawatu for the area north of the Pahiatua Track on North Range Road. During wind farm construction they were unable to use the road, and as a consequence of the road being sealed, experienced mountain bikers no longer use it.
- 3.5.4 The Citizens' Panel Survey investigated a proposition about the effect the existing wind farms may have had on the enjoyment of the experience at "recreational locations around the City"⁴⁰ (Table 16). The results indicate that most residents⁴¹ have not so far experienced a reduction in their enjoyment of these recreational locations as a result of the existing wind farms. The level of disagreement outweighs the level of agreement by a factor of 11:1. I note that applying population-based weightings to the raw responses made virtually no difference to the overall balance of responses⁴². The small number of responses which did comment explicitly on reduction in recreational enjoyment were all in the vicinity of the Manawatu Gorge and Ashhurst⁴³.

³⁹ The 4-wheel driving activities referred to here are specifically those organised events under the planning and control of the 4-Wheel Drive Club. It does not refer to the uncontrolled off-road driving by individuals which often attracts adverse comment because of the noise and damage created.

⁴⁰ For example, walking tracks, parks and playing fields in or near the City.

⁴¹ In response to the statement "*The wind farms have reduced the enjoyment of the recreational experience at other locations around the City*", 65% disagreed while 8% agreed, a ratio of 8:1. In the context of this statement "other" refers to recreational locations other than recreation on the existing wind farm sites themselves - see previous footnote.

⁴² For Table 16, the un-weighted, raw data showed 65% disagreement/7% agreement while the weighted responses showed 65% disagreement/6% agreement.

⁴³ Sixteen written comments were recorded from survey respondents. Of these, 6 comments referred explicitly to the Manawatu Gorge or Gorge Walk, and one comment each to the Ashhurst Bridge, the Ashhurst Domain and to Ashhurst generally. Of the 6 references to the Gorge, five relate to recreational walking and one to fishing.

Table 16: Responses to the statement - “The wind farms have reduced the enjoyment of the recreational experience at other recreational locations around the City”

<i>Disagree strongly</i>	<i>Disagree</i>	<i>Neither agree or disagree</i>	<i>Agree</i>	<i>Agree Strongly</i>	<i>Total # of responses</i>
24%	41%	29%	5%	1%	217

- 3.5.5 As part of understanding the outdoor recreation aspects of community setting relevant to this assessment, I draw the attention of the Board firstly to data describing the level of interest in outdoor recreation activities, and secondly to the role of the Kahuterawa Valley in providing access to a particular range of outdoor recreational opportunities for the citizens of Palmerston North.
- 3.5.6 Several surveys by Sport and Recreation New Zealand (SPARC) in 2007/08 and the Hillary Commission in 1997 provide us with snapshot and trend data on the level of interest in outdoor recreational activities, some of which is differentiated by age or by sex. Detailed tables are provided in Appendix JTB7.
- 3.5.7 In 2007/08, more than two-thirds of surveyed Manawatu adults (69%) said they enjoy walking as a form of recreation, slightly higher than the national participation rate of 64%. More than half of Manawatu adults (59%) enjoy gardening, which is considerably higher than the national average of 43%. More than one in every five adults (22%) enjoy cycling and mountain bike riding, on a par with national participation rates (23%). Participation in jogging/running in Manawatu (15%) is slightly below the national average (18%) while participation in tramping in Manawatu (12%) is slightly above the national average (9%).
- 3.5.8 Nationally, participation rates over the past decade have declined markedly for gardening (62% to 43%), slightly for walking (70% to 64%) and tramping (11% to 9%), but increased slightly for cycling and mountain biking (21% to 23%), and increased markedly for jogging and running (13%-18%).
- 3.5.9 Regarding the role of the Kahuterawa Valley in the spectrum of outdoor recreation opportunities available to the residents of Palmerston North, I quote from the draft Kahuterawa Outdoor Recreation Plan⁴⁴ -

“Outdoor recreation use of the Kahuterawa has developed naturally due to its close proximity with Palmerston North and the variety and nature of the opportunities present.

In 2002 Palmerston North City Council (PNCC) adopted the Outdoor Recreation Strategy (ORS) to set priorities and provide guidance for the provision of outdoor recreation in the future. One of the key objectives identified in the ORS was to ‘develop the Kahuterawa Valley as an Outdoor Recreation Hub’.

In 2005 PNCC adopted the core policies which provide the foundations for planning and policy. Action 1.4 confirmed Councils intent to implement the Outdoor Recreation Strategy 2002.

⁴⁴ PNCC, 2009. *Kahuterawa Outdoor Recreation Plan: Goals and Actions*. 9 March 2009. 49p.

In 2006, PNCC acquired Woodpecker Forest, at the end of Kahuterawa Road. This was of strategic importance, with the privately owned forest needing to come in to public ownership to allow for recreation development and access.

The purpose of this plan is to set the direction for the management of the Kahuterawa Outdoor Recreation area,.....⁴⁵

“Scope of the Plan

The plan addresses the management of linked areas and facilities that form part of a Kahuterawa Outdoor Recreation Hub. Areas and facilities included are:

- Woodpecker Forest
- Kahuterawa Reserve
- Gordon Kear Forest
- Hardings Park
- Back Track
- Sledge Track
- Kahuterawa Road
- Greens Road
- Scotts Road

The objective is to provide an integrated plan for the management of PNCC outdoor recreational assets within the Kahuterawa Valley, to ensure they provide maximum benefit for the community within the framework of the Outdoor Recreation Strategy (ORS) and the Long Term Council Community Plan (LTCCP).

The plan does not control activities on adjacent privately owned land.⁴⁶

Two maps⁴⁷ indicating the Kahuterawa Outdoor Recreation Area Development and the Woodpecker Forest Development are shown in Appendix JTB8. Similar information, but extending over a wider area including the Turitea Reserve itself, was shown in Map 5:Turitea Reserve - Development Plan in the 2006 Council Decision document⁴⁸.

3.5.10 I understand from my discussions with the landowner, that part of the Sledge Track passes over private land, which has been covenanted with the QEII Trust in order to protect its biodiversity and ecological values.

3.5.11 The Kahuterawa Outdoor Recreation Plan document goes on to describe the “environment and resources” of the area (p.8-9) stating -

“Recreation: The area is already important for outdoor recreation. There is wide use of the Sledge Track and Back Track by walkers and runners. The Te Araroa Trail passes through the area along the Back Track and through Gordon Kear Forest. The Woodpecker Forest forms an important mountain biking resource and has hosted national mountain bike events. Picnicking and swimming are important around the road end area.

Water: The Kahuterawa Stream is an important high quality water resource for native fish species and trout spawning. It also provides high quality water for swimming. It is used for canoeing in flood flows.

⁴⁵ Ibid., p.6

⁴⁶ Ibid., p.7

⁴⁷ Ibid., pp.47 and 49

⁴⁸ PNCC, 2006. *Turitea Reserve Management Plan - Proposed Amendments 2006*. March 2006. p.47

Exotic forests: Important exotic forest resources are present. Woodpecker forest is a mature radiata pine forest. Managing this forest and minimising the impacts of wind damage is important. Other major forests are present in Gordon Kear Forest and forests on private land. Gordon Kear Forest is managed primarily for commercial forestry returns but has some secondary recreational use.

Landscape: The area is identified as having a high quality rural and conservation landscape. It connects to large, intact, ecological areas, and the Tararua Range.

Energy: A number of wind farm proposals are currently being considered adjacent to this area.

Cultural & Historic: The area has a history of Maori use and later European settlement.”

- 3.5.12 The document describes (pp.9-10) the extent of community involvement in the development of the Plan, and its potential contributions to community outcomes (p.10) -

“The Kahuterawa Outdoor Recreation Plan primarily contributes to ‘People have lots of fun things to do’ by providing outdoor recreation opportunities to our community.

By adding to the suite of visitor attractions in Palmerston North, such as hosting rounds of the national mountain biking series, there are also contributions to ‘Business grow here and people have lots of job opportunities’.

Through the provision of walkways, maintenance of reserves and other areas of public land and enhancement of biodiversity in the area, the Plan will also contribute to ‘Palmerston North is attractive, clean and green’.

- 3.5.13 From reading the Kahuterawa Outdoor Recreational Plan and from the interviews conducted for this assessment, I am left in no doubt that the Kahuterawa Valley is already an important recreational resource for Palmerston North residents, due to the mix of opportunities it provides and to its location, so conveniently close to the City. Furthermore, it is expected to develop further as an important outdoor recreational hub in the decades to come. Current levels of use would therefore be expected to increase substantially in the future.

3.6 Presence of the Turitea Special Purpose Reserve

- 3.6.1 By contrast, the Turitea Reserve is not open to general public access at all. Records show this to have been the case since 1951⁴⁹ (see Appendix JTB9).
- 3.6.2 The Turitea Reserve has been in Council ownership for over 100 years. Access to the reserve has been restricted to protect the City’s water supply. Effort to regenerate the indigenous vegetation in the Reserve from animal pest control has taken place since the 1970s.
- 3.6.3 In recent years, the status of Hardings Park was changed to allow greater access for the benefit, enjoyment and use of the public subject to some conditions.

⁴⁹ Refer Appendix JTB9 for a brief social history of the Turitea Reserve.

3.6.4 Over the years, interest in the Turitea Reserve has been shown by many organisations in the District including those involved in education, research, tramping, conservation, defence and hunting, as well as many private citizens of Palmerston North.

3.7 Iwi interests in the land

3.7.1 Rangitaane iwi have traditional interest in the land, which includes the Turitea Reserve and its environs. I understand that the Turitea Reserve area is part of the Mangahao Block, to which several runanga jointly claim mana whenua status. Having met with representatives of each of the runanga during this assessment⁵⁰, I understand that unresolved issues over land interests or relationships with statutory bodies are not at the present time matters that need to be discussed in the context of this wind farm application.

3.7.2 I also understand that the several runanga within the Rangitaane iwi will each be making presentations to this hearing and will therefore make their own representations as to their interests in the land.

3.8 Wind farming and associated local/regional economic development

3.8.1 The development of three wind farms in the Manawatu District has provided a decade of opportunities for local businesses to accumulate experience and expertise to the point where they are able to compete successfully for wind farm tenders elsewhere - around the South Island, around New Zealand, even in Australia.

3.8.2 A number of Palmerston North-based companies which provide services either to wind farm construction or the operation and maintenance of wind farms now compete successfully in a New Zealand-wide market for business opportunities. Some have been part of the construction efforts on several or all of the existing Manawatu wind farms. Several of these companies were engaged in the construction of Meridian's recent wind farm developments in Wellington and Southland or have contracts to operate and maintain existing windfarms both in the Manawatu and in Southland. For companies contributing to construction activities, I was advised⁵¹ two-thirds of all the employees live in Palmerston or the Manawatu, while the other one-third generally are drawn from the wider Central Districts.

3.8.3 Future employment in these companies no longer relies on the future construction or operation of additional wind farms in the Manawatu. However, employees would clearly benefit if these companies were successful tenderers for any future wind farm projects in the Manawatu.

3.9 Common aspirations and cultural clashes

3.9.1 The current Mighty River Power wind farm application is undoubtedly a divisive issue which is generating strong tensions within the local rural community. This is not a

⁵⁰ Refer Appendix JTB1 for details

⁵¹ Higgins Construction. Pers.Comm. 30 April 2009.

unique situation for a major resource development proposal. Clearly the proposal is also polarising attitudes in the wider regional community as evidenced by the written submissions and the Citizens' Panel Survey results.

- 3.9.2 A review of the locations of those who have sent in written submissions to the Board on this proposal indicates that supporters and opponents of this proposal are spread throughout the City, and even within the non-participating rural residential population closest to the proposal - in the Turitea Valley.
- 3.9.3 This polarised situation is hardly surprising, given the range of Council policies which converge in this locality to produce the potential for conflict. Council policies and past actions have simultaneously created expectations for -
- ecological enhancement and water supply protection in the Turitea Reserve through historic Council policies for the Reserve;
 - increasing rural-residential development in these hills and valleys east of the City through the relatively permissive zoning and land-use rules;
 - participation in commercial wind farming, through the process of inviting expressions of interest not only from power companies but also from other private landowners;
 - enhanced recreational opportunities in the Kahuterawa Valley through the process of developing the Kahuterawa Outdoor Recreation Area Management Plan.
- 3.9.4 This polarised situation was evident in the controversy over the change of purpose for Turitea Reserve in 2006, which itself created expectations for some and concerns for others over how public land resources would be developed.
- 3.9.5 This polarised situation may mask the fact that common aspirations and common values sometimes straddle the divide. For example -
- some people say they do not want the wind farm to proceed because it is contrary to their vision of a natural area with important ecological values and a valued landscape; others say they want a wind farm precisely because it will provide revenue for more effective protection of ecological values;
 - some people put considerable effort into native planting and re-generating native bush areas and taking part in 'green corridor' activities in the hills, and see large-scale, commercial wind farming in the area as anathema to these efforts; others who have invested considerable effort in developing farming properties and wish to participate in the wind farm proposal but at the same time have voluntarily covenanted areas of native bush on farmland or also are active in 'green corridor' activities;
 - many residents of Palmerston North enjoy the existing wind farms and are supportive of their continuing operation. As a result of this experience some are happy to see more such development occur, while others state a diametrically opposed stance against further wind farm development.
- 3.9.6 In this confusion of community expectations, any decision on this wind farm proposal will have profound effects on the future balance between competing interests.

4 IDENTIFICATION OF SOCIAL ISSUES & EFFECTS

4.1 Sources of information

4.1.1 I have used several sources of information to identify the range of social issues and effects that is of interest to various stakeholders. These include the written submissions to the Board of Inquiry, the written comments in the Citizens' Panel Survey responses, discussions during the five focus groups and interviews with a range of other key informants during this assessment.

4.1.2 I have prepared a summary of the social issues and effects in Appendix JTB10, using the same basic categorisation as that provided in the Section 4 of the Summary of Submissions⁵². In Appendix JTB10 I have indicated where the other sources of information pointed to the same issues.

4.2 Priority social issues

4.2.1 From a review of all these sources of information, I believe the issues of greatest concern stand out clearly.

4.2.2 The main national-level issue which stands out is that of a desire to increase the level of renewable electricity generation. This is linked to concerns about the need to reduce national dependence on fossil fuels and greenhouse gas emissions.

4.2.3 The main regional-level issues highlighted most frequently are -

- use of the Turitea Reserve: ecological effects and potential risks to the City's water supply from sediment, disease or chemical spills during construction.

- effects on amenity values in the ranges, particularly visual and noise effects: visual effects of turbines and transmission lines and the cumulative effects on landscape character. This issue was strongly articulated in all sources of information drawn upon.

4.2.4 The main local-level issues highlighted most frequently concern -

- construction effects related to noise, dust, and road-user safety: related to managing a period of elevated traffic flows, particularly the involvement of heavy vehicles.

- the potential for noise nuisance for neighbours from turbines: associated with uncertainty about the appropriateness of current noise standards and the adequacy of proposed noise mitigation measures.

- concerns about the proximity of turbines to some dwellings: related to the issue of visual dominance.

⁵² Hill Young Cooper Limited, 2009. Summary of Submissions – Turitea Wind Farm Project

5 LINKING PEOPLE'S SOCIAL WELL BEING CONCERNS TO OTHER EXPERT'S EVIDENCE

5.1 Introduction

5.1.1 I noted at paragraph 2.1.6 that SIA often relies on the findings of other expert assessments. In this instance, I rely on the following assessments -

- Ms Melhuish - strategic electricity considerations;
- Mr Anstey - visual and landscape effects;
- Mr Lloyd - noise assessment;
- Dr Blaschke - ecological assessment;
- Messrs Taylor and Male - assessment of water quality and associated public health risks; and
- Mr Tate - traffic effects.

5.2 Access to reliable electricity supply

5.2.1 Access to a reliable supply of electricity is important to people's social well being because of the essential nature of the service and the risks to their health and welfare if supply is interrupted for more than a short period of time.

5.2.2 Ms Melhuish describes how Palmerston North is already well provided with renewable electricity supply. Access to reliable electricity supply for consumers elsewhere in the country is certainly a social benefit on a national basis but there is no reason why this benefit should rely on building another windfarm in Manawatu. In my opinion, the same argument applies to other national benefits such as the impacts on carbon dioxide emissions from electricity generation.

5.2.3 The Citizens' Panel Survey sought responses to the statement "*The Manawatu region should make a contribution to New Zealand's sustainable energy future*" (see Table 1). I have cross-tabulated these responses with respondents' expressed attitudes to further wind farm development in Manawatu (Table 17). It is evident that those who express the position that "*There is about the right amount of wind farm development on these ranges*" are just as strongly in agreement with the proposition about contributing to New Zealand's sustainable energy future as those who say "*I'd be happy to see more wind farm development on these ranges*". I infer from this that the former group view Manawatu's existing contribution to the country's sustainable energy future as adequately discharging their sense of national obligation, while the latter would be happy to see Manawatu's contribution increase in future, as it will when Te Rere Hau is fully commissioned and Motorimu constructed.

Table 17: Relationship between expressed attitudes to further wind farm development and expressed attitudes to Manawatu’s contribution to New Zealand’s sustainable energy future

	<i>“The Manawatu region should make a contribution to New Zealand’s sustainable energy future”</i>				
	<i>Disagree strongly</i>	<i>Disagree</i>	<i>Neither agree or disagree</i>	<i>Agree</i>	<i>Agree Strongly</i>
<i>I don’t have a strong opinion about this</i>	0%	9%	0%	27%	64%
<i>I don’t know</i>	0%	0%	11%	67%	22%
<i>I’d be happy to see more wind farm development on these ranges</i>	0%	1%	5%	41%	53%
<i>There is about the right amount of wind farm development on these ranges</i>	0%	1%	7%	55%	37%
<i>There is already too much wind farm development on these ranges</i>	17%	12%	24%	39%	7%

5.3 Landscape and visual effects

5.3.1 The character of the landscape and the visual impacts of introducing new elements into the landscape is important to people’s social well being because it affects the character of the neighbourhood people live in and the aesthetic appeal of the visual environment.

5.3.2 Mr Anstey has assessed the effects of the proposal on landscape quality and on visual amenity.

5.3.3 I have already provided the results of the Citizens’ Panel Survey on the attitudes of Palmerston North residents to the landscape values of the ranges (Table 2) and to the visual effects of the existing wind farms (Table 3). In Table 4, I provided a cross tabulation between attitudes to further wind farm development and attitudes to seeing existing wind farms. In the context of Mr Anstey’s landscape assessment, I have prepared a similar cross tabulation between attitudes to further wind farm development and attitudes to the landscape values of the ranges (Table 18). The results display a clear alignment of values. Those who would be happy to see more wind farm development are less in agreement about the landscape values of the eastern ranges (49% agree) than those who say there is already too much wind farm development (71% agree). Those who say there is about the right amount of wind farm development expressed an intermediate level of agreement on landscape values (60% agree). It appears that consideration of landscape values is an important factor influencing residents’ attitudes to further wind farm development.

Table 18: Relationship between expressed attitudes to further wind farm development and expressed attitudes to the landscape values of the ranges east of the City

	<i>“The ranges to the east of the City have high landscape values”</i>				
	<i>Disagree strongly</i>	<i>Disagree</i>	<i>Neither agree or disagree</i>	<i>Agree</i>	<i>Agree Strongly</i>
<i>I don’t have a strong opinion about this</i>	0%	27%	27%	36%	9%
<i>I don’t know</i>	0%	11%	56%	22%	11%
<i>I’d be happy to see more wind farm development on these ranges</i>	8%	11%	33%	41%	8%
<i>There is about the right amount of wind farm development on these ranges</i>	0%	10%	30%	49%	11%
<i>There is already too much wind farm development on these ranges</i>	7%	10%	12%	38%	33%

5.3.4 I have already pointed out (at paragraph 2.6.6) how the Ex-Post Survey responses lend support to this conclusion.

5.4 Noise effects

5.4.1 Noise is important to people’s social well being because it affects the quality of the immediate neighbourhood they live in. In certain circumstances, intrusive noise may affect people’s physical and mental health, and their freedom to choose how they use their own property.

5.4.2 Mr Lloyd has assessed the effects of the proposal in terms of compliance with existing noise standards. His main conclusions relevant to social well being are that since the proposed Turitea Wind farm has an interface of some 15 km with Palmerston North land, noise emissions from the wind farm will potentially impact on a large number of rural and lifestyle dwellings.

5.4.3 This is not the same as assessing the likelihood that residents living nearby will hear the turbines proposed for Turitea, and it is certainly not the same as assessing the likelihood that these residents will or will not experience adverse affects from turbine noise.

5.4.4 I draw the board’s attention to the Citizens’ Panel Survey responses when presented with the following statement *“It is unacceptable that turbine noise disturbs any people living near wind farms”* (Table 19). Overall, those agreeing with this statement outnumbered those disagreeing by a factor of 1.7:1, the ratio increasing with

increasing age. I note that applying population-based weightings to the raw responses made a small difference to the overall balance of responses⁵³.

Table 19: Responses to the statement - “It is unacceptable that turbine noise disturbs any people living near wind farms”

<i>Disagree strongly</i>	<i>Disagree</i>	<i>Neither agree or disagree</i>	<i>Agree</i>	<i>Agree Strongly</i>	<i>Total # of responses</i>
7%	20%	28%	33%	13%	220

5.4.5 I have prepared a cross tabulation between attitudes to further wind farm development and attitudes to the acceptability of neighbours being disturbed by turbine noise (Table 20). The results display a clear alignment of values. Those who expressed the view that “*There is already too much wind farm development*” were much more likely to agree with the statement about the unacceptability of noise disturbance (91%) than those with any other attitude to further wind farm development - “*there is about the right amount of wind farm development*” (57%); “*I’d be happy to see more wind farm development*” (31%); “*I don’t know*” (22%). It appears that consideration of the risk to neighbours of intrusive turbine noise is a particularly discriminating factor influencing residents’ attitudes to further wind farm development.

Table 20: Relationship between expressed attitudes to further wind farm development and expressed attitudes to the acceptability of neighbours being disturbed by turbine noise.

	<i>“It is unacceptable that turbine noise disturbs any people living near wind farms”</i>				
	<i>Disagree strongly</i>	<i>Disagree</i>	<i>Neither agree or disagree</i>	<i>Agree</i>	<i>Agree Strongly</i>
<i>I don’t have a strong opinion about this</i>	0%	27%	45%	27%	0%
<i>I don’t know</i>	11%	11%	56%	22%	0%
<i>I’d be happy to see more wind farm development on these ranges</i>	11%	30%	29%	28%	3%
<i>There is about the right amount of wind farm development on these ranges</i>	2%	17%	24%	40%	17%
<i>There is already too much wind farm development on these ranges</i>	2%	2%	5%	48%	43%

⁵³ For Table 19, the un-weighted, raw data showed 25% disagreement/50% agreement while the weighted responses showed 27% disagreement/46% agreement.

- 5.4.6 I am not an expert in the field of health impacts associated with people’s exposure to environmental noise. I have read the evidence presented to the resource consent hearing for Meridian Energy’s Mill Creek wind farm proposal by Messrs Wilson, Palmer and Bellhouse on behalf of the Hutt Valley District Health Board. Referring to concerns which had been raised about the potential for wind turbine-generated infrasound to lead to vibroacoustic disease, Dr Palmer concluded⁵⁴ *“there is insufficient evidence to support recommending the precautionary approach to vibroacoustic disease.”*
- 5.4.7 Nevertheless, several other findings of the Ex-Post Survey on experience of noise effects from existing wind farms are worth bringing to the attention of the Board. These findings demonstrate just how much people’s experience of the noise effects of nearby, large wind turbines varies - from never hearing them, to hearing them frequently, from no impact to highly negative impact.
- 5.4.8 Table 21 provides you with a summary of responses to the question *“How often do you hear the turbines?”*, analysed by separation distance. It is evident from the results in Table 21 that a person living within 2km of existing wind turbines is more likely to hear them frequently than not to hear them at all. As you move further away, the likelihood of hearing the turbines at all decreases, as does the likelihood of hearing them frequently.

Table 21: How often respondents report hearing turbine noise, by separation distance

Separation distance	Up to 2000m	2000m-3000m	3000m-5000m
Total responses	17	158	30
# hearing turbines once/week or more frequently	5	19	1
% hearing turbines once/week or more frequently	29%	12%	3%
# hearing turbines occasionally (1x or 2x/month)	6	33	1
% hearing turbines occasionally (1x or 2x/month)	35%	21%	3%
# rarely hearing turbines	2	43	1
% rarely hearing turbines	12%	27%	3%
# never hear turbines	4	63	26
% never hear turbines	24%	40%	90%

- 5.4.9 To give you an idea of how people describe their experiences of the turbine noise on their own properties, here are the comments from respondents living within 3000m of their nearest turbine and who described their impacts as moderately or highly negative -

⁵⁴ Statement of evidence of Dr Stephen Geoffrey Palmer to the Mill Creek resource consent Hearing. p.8

“Woken up at night”
“Makes me unhappy. Destroys nature and its sounds”
“Irritating to the point where you can’t ignore it”
“Worse than visual effects; impacts on quiet times, in evenings - going to sleep it is disturbing”
“It’s a conscious noise; always there; sounds like a train that never arrives”
“Industrial noise; quite loud; grinding”
“Mistakenly heard the sound of the wind turbines as a river”
“It could sound like a freight train depending on the wind; highly annoying”
“Wouldn’t like to hear it all the time”
“Can get annoying”
“Hoping we will get used to it, but not a constant noise”
“Encroaches on quiet times; loud enough to have to turn up the TV. Have been woken up; and is difficult to get to sleep to”
“Unnatural sound”
“Annoying”

5.4.10 In my opinion, these respondents are describing significant reductions in residential amenity values, without being extremist or alarmist. With slightly more separation distance allowed, the risk of these amenity losses would be largely avoided.

5.4.11 I have been informed⁵⁵ that there are 122 existing houses that would be within 2km of the proposed Turitea turbines, and a further 19 potential house sites. By my estimate, this is a considerably larger number of dwellings than currently exists within 2km of an existing turbine, perhaps as much as four times as many dwellings. The Ex-Post Survey indicates that, although three-quarters of the occupants are likely to hear turbines at this distance, the majority will hear them only occasionally or rarely. Nevertheless, if 18%⁵⁶ of these residents could expect to experience the kind of noise impacts described above, that will be a significantly larger number than the number of households who stand to benefit directly from hosting these same turbines.

5.5 Ecological effects

5.5.1 Dr Blaschke has assessed the potential ecological effects of the proposal. His main conclusions relevant to social well being are those concerned with the risks to aquatic habitats and native bird species and the loss of native vegetation.

5.5.2 Adverse effects from sediment transfer into the principal streams draining from the wind farm and the headwaters of all catchments in which fill sites are proposed could have consequences for the health of fisheries and their corresponding amenity value as recreational resources.

5.5.3 I understand from my discussions with iwi representatives that several of them have expressed their concerns about risks to native birds, including threatened species. Dr Blaschke has concluded that these risks can be reduced to minor if there is detailed monitoring and an adaptive management programme in place.

5.5.4 The social significance of the loss of native vegetation and horopito-dominated forest which Dr Blaschke refers to is difficult to assess, given the fact that the area of

⁵⁵ Mr Jeff Baker, PNCC Senior Planner. Pers.Comm. 19 May 2009.

⁵⁶ As indicated by the results in Table 13.

concern is within the Turitea Reserve and therefore unlikely to be accessible by members of the public. What is difficult to assess is the possible impact of this loss of forest on the recreational experience of those visiting the adjacent Hardings Park, where the Sledge Loop Track could well afford views into this area.

5.6 Water supply risks

- 5.6.1 Protection of the public water supply is important to social well being to secure access to the essential resource of potable water, for which people's health depends on the absolute assurance of quality.
- 5.6.2 Mr Male has assessed the potential effects of the proposal on the major water supply source for Palmerston North City in terms of potential risks to the integrity of the reservoir. He has concluded that there is no water quality baseline at present against which an assessment of effects can be undertaken. He has then stated the steps required to remedy this situation in order to ensure that developing the proposed wind farm would have only minor effects.
- 5.6.3 Mr Taylor has assessed the potential effects of the proposal on the major water supply source for Palmerston North City in terms of potential risks to public health. His main conclusion relevant to social well being is that risks to public health in relation to the Applicants proposal will be less than minor provided a number of changes are made and conditions met, as stated in the Summary of his evidence.

5.7 Traffic effects

- 5.7.1 The management of road traffic is important to social well being not simply in terms of providing people with adequate access to safe and efficient vehicular transport, but also because vehicular traffic has the potential to affect the amenity values of road-side properties and the personal safety of other, not necessarily vehicular road users such as cyclists, walkers and those riding horses..
- 5.7.2 I note that MRP has altered its intentions for construction traffic along Kahuterawa Road in response to concerns expressed about these issues.
- 5.7.3 Mr Tate has assessed the traffic implications of the proposal.
- 5.7.4 I have already discussed with Mr Tate the use of local community liaison groups as a mechanism for providing local input to the development of Construction Traffic Management Plans, the monitoring of traffic-related effects during construction, and as a mechanism for providing accountability and assurances that suitable mitigation measures will be implemented. I note his references to the establishment and functions of such community liaison groups in his paragraphs 51, 52, 60, 83, 87. I also note his recommendations for the mitigation of residential amenity effects through dust suppression measures and restrictions on the hours during which construction traffic may use Kahuterawa and Greens Roads and South Range Road in his paragraph 87(1)(d).
- 5.7.5 I concur with these recommendations.

6 ASSESSMENT OF OTHER SOCIAL EFFECTS

6.1 Introduction

6.1.1 In this section of my evidence, I address the main social effects that have not been covered by the assessments of other expert witnesses, and discussed in the previous section. These include -

- benefits to participating landowners;
- benefits to Palmerston North ratepayers;
- employment effects;
- effects on recreational activities; and
- effects on tourism activities.

6.2 Benefits for participating landowners

6.2.1 Twelve owners of private land adjacent to the Turitea Reserve have negotiated contracts with MRP to have up to a maximum total of 65 turbines on their land, if the proposal proceeds. Of these twelve landowners, eight would host no more than four turbines each, while the remaining landowners would host between 6 and 22 turbines. A further six owners of private land along the proposed transmission route have also signed agreements with MRP.

6.2.2 Actual data on revenue payments to landowners and to the Council are confidential. However, I have made order-of-magnitude estimates based on data contained in the AEE documents⁵⁷. I have assumed that the total revenue is shared between the PNCC and the 12 private landowners in proportion to the number of turbines on each category of land. Total annual revenue to the 12 private landowners I have estimated in the range \$820,000-\$970,000, which implies an annual revenue of \$12,600-\$14,900 per turbine.

6.2.3 These are significant financial benefits to the landowners and also to the regional economy - to the extent that these revenues are then spent in the region. In general terms, the significance for individual landowners is that at least four would earn reasonable livelihoods⁵⁸ from wind farm revenues alone, while the remaining eight would have substantial supplements to their existing sources of livelihood.

6.2.4 I report below the Citizens' Panel Survey responses on the perceived benefit attached to local landowner revenues from wind farms (Table 22). Overall, those agreeing with this statement outnumbered those disagreeing by a factor of 4:1. I

⁵⁷ Table 6-2 in the AEE indicates landowner income in the range \$1.6m to \$1.9m per year from wind farm revenues. In making this estimate, NZIER assumed ground rents of 2% of gross revenue. These figures may have changed in the meantime as a result of indexation mechanisms incorporated into individual contracts.

⁵⁸ When compared with the distribution of household incomes in the Manawatu-Wanganui Region at the 2006 Census, revenue from six turbines would be approximately equivalent to household income in the top 25% of households.

note that applying population-based weightings to the raw responses made a small difference to the overall balance of responses⁵⁹.

Table 22: Responses to the statement - “Wind farm revenues to local landowners provide an important economic benefit to the City”

<i>Disagree strongly</i>	<i>Disagree</i>	<i>Neither agree or disagree</i>	<i>Agree</i>	<i>Agree Strongly</i>	<i>Total # of responses</i>
2%	12%	31%	44%	11%	217

6.2.5 However, this majority sentiment did not translate into strong support for more wind farm development (Table 23). It is evident that the perceived economic benefits from land rentals are not considered sufficient justification for having more wind farms by most respondents to the Survey. While those who support more wind farm development are likely to agree on the economic importance of landowner revenues (72% agree) , those who think there is already enough wind farm development are not so persuaded (42% agree of those who say “*there is about the right amount of wind farm development*” and 19% agree of those who say “*there is already too much wind farm development*”)

Table 23: Relationship between expressed attitudes to further wind farm development and expressed attitudes to the perceived benefit attached to local landowner revenues from wind farms

	<i>“Wind farm revenues to local landowners provide an important economic benefit to the City”</i>				
	<i>Disagree strongly</i>	<i>Disagree</i>	<i>Neither agree or disagree</i>	<i>Agree</i>	<i>Agree Strongly</i>
<i>I don’t have a strong opinion about this</i>	0%	0%	36%	64%	0%
<i>I don’t know</i>	0%	11%	44%	33%	11%
<i>I’d be happy to see more wind farm development on these ranges</i>	0%	4%	25%	58%	14%
<i>There is about the right amount of wind farm development on these ranges</i>	2%	10%	46%	38%	4%
<i>There is already too much wind farm development on these ranges</i>	10%	38%	33%	17%	2%

6.3 Benefits for Palmerston North ratepayers

⁵⁹ For Table 22, the un-weighted, raw data showed 15% disagreement/52% agreement while the

- 6.3.1 As noted in paragraph 3.1.3, recently updated indicative production royalties payable to PNCC from the wind farm development inside the Turitea Reserve are expected to be between \$1.96m and \$2.27m per year for its 62⁶⁰ turbines. These estimates assume that all 62 turbines are consented. Actual revenue is directly proportional to the number of turbines.
- 6.3.2 Data provided to me by the PNCC shows that for the 2008/09 fiscal year there were 28,272 residential units in the City, paying an average of \$1,645 in annual rates.
- 6.3.3 On the basis of these figures, I estimate the annual turbine revenue to the PNCC is equivalent to between \$69 and \$80 per residential ratepayer, or 4.2-4.9% of their most recent annual rates bill. This level of annual revenue is approximately equivalent to or slightly above the average, nominal increase in residential rates each year over the past decade⁶¹, or 43-49% of the latest annual increase in residential rates, although this appears to have been an exceptional increase⁶².
- 6.3.4 Over the period 2004/05-2007/08, annual PNCC expenditures for possum control, possum monitoring, goat control and weed control in the Turitea Reserve have averaged \$142,000 per year, with \$169,000 spent in 2007/08. If this level of expenditure reflects the 1971 decision of Council⁶³ to “adopt the principle of relentless animal control, excluding the use of poison” for the Turitea Reserve”, it suggests that the potential annual revenues from the proposed 62 turbines will leave between \$1.8m and \$2.1m each year for use elsewhere.
- 6.3.5 I understand that the October 2006 resolution of Council⁶⁴ specified that -
- “Income from the Water Catchment turbines shall be applied in the first instance to:*
- (i) pest control across the entire Eco Park comprising the Water Catchment, Hardings Park and Browns Flat and then:*
- (ii) progressive development of the Eco Park until such time as the Council is satisfied the Eco Park is substantially established.*
- (iii) any surplus funds shall be spent on specific additional projects to be determined through the Long Term Council Community Plan process.”*
- 6.3.6 I am informed⁶⁵ that since that time there have been no further Council resolutions on the development of an Eco Park in the Turitea Reserve.
- 6.3.7 Council’s are always under pressure to minimise increases in rating charges, particularly when they are frequently required by central government to take on additional responsibilities without being granted financial resources to match.

eighted responses showed 14% disagreement/55% agreement.

⁶⁰ The range of estimates corresponds to the use of 2.3 MW turbines or 3.0 MW turbines.

⁶¹ PNCC data for the period 1999/2000 to 2008/09 show an average annual increase in rates of \$66/year.

⁶² PNCC data for 2007/08 and 2008/09 showed a rates increase of \$162 when averaged over all ratepayers.

⁶³ See Appendix JTB10.

⁶⁴ PNCC, 2006. p.48

⁶⁵ Virginian Shaw, Principal Planner, PNCC. Pers.Comm. 18 May 2009.

Consequently, the potential turbine revenue would be a significant on-going benefit to ratepayers, although its relative significance will decline over time unless the level of revenue is indexed to the trend in rate increases.

- 6.3.8 With a majority of City residents likely not to be in favour of further wind farm development at this stage, it would be interesting to know whether residents think a 4.2-4.9% reduction in their annual rates is sufficient to tip the balance of sentiment back in favour of further wind farms. However, such information does not exist at the present time.

6.4 Employment effects

- 6.4.1 Employment opportunities will be created by the wind farm during both the construction and operational phases of its life. Given the experience which has been gained over the past decade by businesses in the region contracting successfully for wind farm work, it can be expected that Manawatu businesses would stand a good chance of winning much of this work.

- 6.4.2 My assessments of the potential employment effects are based on data collected during interviews with local businesses and generally corroborate the estimates made by NZIER⁶⁶.

- 6.4.3 I assess that construction activities are likely to provide employment opportunities for up to 220-250 people (peak) over a two-year period. This includes those involved in on-site work as well as those providing support services to the on-site work such as transportation and engineering services. It is probable that at least two-thirds of these people will be residents of Palmerston North, with many of the others also living in the wider Central Districts. Where workers come from further afield, this will result in additional indirect business activity, particularly in the rental accommodation sector, although I have not attempted to quantify this.

- 6.4.4 This is a significant contribution to the livelihoods of people working the construction industry over a two-year period. I note however that a similar size wind farm construction project anywhere else in the North Island could provide a similar level of direct benefit to Palmerston North employees, if their companies were as successful in such tenders as they have been in the past. However this would not provide the same level of indirect business activity.

- 6.4.5 On-going employment in wind farm operations and maintenance activity is typically an order of magnitude lower than the peak construction workforce numbers. On the basis of estimates provided to me by industry sources, I assess these at about 15 on-site maintenance personnel.

- 6.4.6 This would provide on-going livelihoods for 15 households in the region - 0.05% of the City's households.

6.5 Recreation effects

⁶⁶ See Appendix I to the AEE documents lodged by MRP.

- 6.5.1 To the extent that wind farm construction traffic will use Kahuterawa and Greens Roads to access the site, there are likely to be impacts on some recreational users of the Kahuterawa Valley during the two-year construction period. Similarly, the increase in construction traffic along the Pahiatua Track, particularly the increase in heavy vehicles, is likely to exacerbate road safety risks for cyclists who use this road for recreation or training for the period of the construction.
- 6.5.2 In my opinion, the construction-phase disruptions to other road users can probably be managed by appropriate information and liaison arrangements, similar to those which can be expected to be established for local residents along the construction routes, as discussed in paragraph 5.7.4.
- 6.5.3 Anglers are concerned that construction activities will inadvertently pose risks of erosion and siltation which will affect spawning areas in the upper catchments. They are similarly concerned that the construction of tracks and culverts within the proposed wind farm site could have the potential to disrupt waterways and the fish passage along them. The ecological effects will be addressed by Mr Blaschke. If adverse effects on fish life are not avoided, impacts on anglers must be expected.
- 6.5.4 Deerstalkers are concerned that they will face restrictions on their hunting activities in the Reserve both during construction and after construction because of proximity to construction workers in the first instance and maintenance workers or other visitors later on.
- 6.5.5 While proximity to large turbines does not necessarily affect the recreational ambience for everyone, either negatively or positively, there is no reason to expect the recreational users of the City's rural hinterland to be markedly different from Palmerston North residents in general in their range of attitudes towards the presence of wind turbines in their environment.
- 6.5.6 As I described at paragraph 3.5.3, existing wind farms nearby have already resulted in several cases of recreational displacement - of mountain bikers, deerstalkers and 4-Wheel drive enthusiasts.
- 6.5.7 In my opinion, an operating wind farm of the scale currently proposed for the Turitea site is likely to displace some of the intended future recreational activity - for those who wish to enjoy a turbine-free environment during their recreation - particularly some walkers/joggers, some cyclists, some trampers, some picnickers. I do not have data to estimate what proportion might be affected in this way. However, on the basis of the responses in the Citizens' Panel Survey described in Table 4 (para. 2.5.12), I would suggest that the proportion might lie somewhere between 16% and 49%. I can say with certainty that the Kahuterawa Valley recreational area is by far the closest outdoor recreation area which offers a sense of isolation and easy access to remoteness; and the Turitea/Kahuterawa Roads are undoubtedly popular locations for a variety of outdoor recreational pursuits for Palmerston North residents.
- 6.5.8 Based on a recent User Survey of the tracks at the Kahuterawa Outdoor Recreation Area⁶⁷, the PNCC has estimated ~12,000 visits to that location per year at the

⁶⁷ Wed 4 March to Sunday 8 March 2009. A surveyor counting people and noting whether they used the Back Track or the Sledge Track

present time, with a likely split being 4,600 visiting the Sledge Track and 7,400 visiting the Back Track.

- 6.5.9 In my opinion, the factors that make any notable displacement of such recreational activities a significant adverse social effect is that there is no easily accessible substitute location within such a short distance from the City, combined with the fact that displacement is likely to affect several types of recreational activity which are amongst the ten most popular outdoor recreational pursuits for residents of Manawatu.

6.6 Tourism effects

- 6.6.1 In May 2005, I presented evidence to a commissioners hearing for the resource consent applications by TrustPower Ltd to construct the T3 extension to its Tararua wind farm. I believe it provides relevant background for this assessment and I have therefore included that specific section of my 2005 evidence as Appendix JTB11.
- 6.6.2 Six visitor transport companies⁶⁸ in Palmerston North were interviewed for this assessment. All six companies have been engaged to take visitors to the see wind farms up close. When Tararua 1 was the only one operating, it was popular, especially in the early days as a novelty. However, Te Apiti has become a more popular choice of wind farm to visit due to better road access and the absence of additional access fees. Public road access and display boards allow visitors to view information more easily.
- 6.6.3 School groups, conference trips, shareholder tours, general tourists, locals, service groups, and power companies themselves all use the operators. The taxi service is used only by tourists. Bus companies and the helicopter charter are used by groups. Helicopters are also chartered by power companies frequently before and during construction. At its peak, based on the combined data provided by all the companies, I estimate ~50 bus trips a year, taking between 20 and 50 people at a time. This occurred around the time that T3 was being constructed and Tararua Stages 1&2 and Te Apiti were in full operation.
- 6.6.4 All companies reported that demand for such wind farm tours has slowed down compared with the early days when it was considered a novelty. Furthermore, this pattern and trend was confirmed in interviews with operators at each of the existing wind farms.
- 6.6.5 The Visitors Information Centre reported that the overall trend in enquiries to visit the wind farms has been fairly constant for a number of years⁶⁹, but that the proportion of locals coming in and asking about how to visit the wind farms has increased in recent times.
- 6.6.6 Asked if the advent of another wind farm at Turitea is likely to have any impact on overall levels of visitor interest, there was virtual unanimity that this is most unlikely. The road to Te Apiti is an easy drive, while access to Turitea along a more winding road would likely be less popular with tourists. If a wind farm at Turitea were to

⁶⁸ Four bus companies, one taxi company and one helicopter charter company.

⁶⁹ Typically between 10 and 20 enquiries per day, with little seasonal difference.

attract visitor attention for a while, this would probably be instead of visiting another wind farm.

7 ASSESSMENT OF CUMULATIVE EFFECTS FROM THIS PROPOSAL

7.1 Introduction

7.1.1 The Turitea wind farm proposal is the fifth proposed for this region. Two others are fully constructed and operating, one is partially constructed and operating, and a fourth is consented but yet to be built.

7.1.2 In this section I will draw together the social effects discussed in Section 5 and 6, and consider the likely cumulative effects from the Turitea wind farm proposal. I will also review the trend of increasing concern for cumulative effects that can be observed from an analysis of public submissions to the sequence of wind farm applications.

7.2 Summary of cumulative social effects

7.2.1 I have previously discussed the concepts of simultaneous, successive and sequential cumulative effects (refer to Appendix JTB3). In the following tabular format I apply these concepts to each category of social effect and provide a summary assessment of the cumulative effect of the proposed Turitea wind farm in each case.

Social effect for a single wind farm	Potential for cumulative effect from multiple wind farms	Assessment of cumulative effect for the proposed Turitea wind farm
Landscape and visual effects of turbines	Definite potential for cumulative effects - simultaneous, successive and sequential.	<p>From the Citizens' Panel Survey 74% expressed agreement with the statement <i>"I like having wind farms here as they add interest to the City's landscape"</i> in reference to the existing wind farms which can be seen from the City now. However, only 42% agreed with the statement <i>"I'd be happy to see more wind farm development on the ranges"</i>.</p> <p>Constructing the proposed wind farm on the Turitea site would result in virtually complete saturation of the eastern skyline with turbines visible along the ranges.</p> <p>Whereas many streets in Palmerston North City at the present time afford relatively limited views of the turbines on the hills, the location of the proposed Turitea wind farm and the alignment of the City streets grid pattern would make views of turbines on the hills a much more commonplace occurrence for many City residents. The cumulative effect is likely to be simultaneous, successive and sequential for increasing proportions of the Palmerston North population.</p> <p>These observations point to potentially significant and unavoidable adverse social effects of a cumulative nature.</p>
Landscape and visual effects of construction access tracks	Probably not cumulative	In time, the visual effects of construction access tracks generally become negligible.

Social effect for a single wind farm	Potential for cumulative effect from multiple wind farms	Assessment of cumulative effect for the proposed Turitea wind farm
Operational noise effects	Definite potential for cumulative effects both simultaneously and sequentially	<p>Evidence of the potential for simultaneously cumulative noise effects can be found in the results of the Ex-Post Survey which indicates 9 respondents reporting that they hear turbine noise on their property from more than one wind farm⁷⁰.</p> <p>The same survey also provides evidence for sequentially cumulative noise effects since each of the three existing wind farms is reported as being the source of turbine noise heard by respondents. Furthermore, each of the three existing wind farms is reported as being the source of moderately or highly negative impacts on a few people living within 2-3km of their nearest turbine.</p> <p>Since the proposed Turitea wind farm is located approximately 2.5km south-west of the Te Rere Hau wind farm, and has several dwellings approximately 1.8km from its nearest turbine whose residents already report adverse noise impacts from Te Rere Hau, it is likely that some of these people would experience simultaneous noise impacts from both wind farms, particularly under easterly wind conditions.</p> <p>Since the proposed Turitea wind farm is located close to the most densely populated rural-residential area between the City and the ranges, with the 122 of the closest non-participating landowners located within 2km of the nearest turbine, it is likely that its operation would result in at least 20 more nearby residents experiencing adverse noise impacts in the same way as has been reported already for the existing wind farms.</p>
Local/regional employment in construction	No cumulative effects unless more than one wind farm is being constructed simultaneously or in direct succession	This might occur if the already consented Motorimu wind farm has a construction schedule which overlapped with that of the Turitea wind farm.
Construction traffic effects	as above	Even if the construction schedules for Motorimu and Turitea overlapped, the sites are sufficiently far apart to avoid any simultaneously cumulative impacts; impacts would be sequentially cumulative (i.e. in different locations at the same time)
Local/regional employment in maintenance work	Definitely cumulative simultaneously	Actual maintenance FTEs for Te Apiti and Tararua 1-3 total 27; maintenance FTEs for the completed Te Rere Hau are estimated at 7 and for Motorimu at 10, yielding a total for currently consented wind farms of 44 FTEs. It is estimated that a 122-turbine Turitea wind farm would add a further 17 maintenance FTEs (proportional to the number of turbines ultimately consented).

⁷⁰ 9 out of the whole survey sample of 212, of whom 114 responded that they hear turbines from their property.

Social effect for a single wind farm	Potential for cumulative effect from multiple wind farms	Assessment of cumulative effect for the proposed Turitea wind farm
Effects on recreational activities	Potential for cumulative effects simultaneously and sequentially	<p>A small amount of recreational activity involving horse trekking, quad biking and mountain biking has been reported occurring on the Tararua wind farm in the past⁷¹. Occasional use of the Te Rere Hau site by an orienteering club has been permitted while construction activities were not in progress. No recreational activities have been reported for the Te Apiti wind farm.</p> <p>There are also several reports of displacement of recreational activities from existing wind farms affecting mountain bikers, deerstalkers and 4-Wheel drive enthusiasts.</p> <p>That portion of the proposed Turitea wind farm sited on the Turitea Reserve itself has had limited public access for many years as a protection measure for the City's water supply, a situation which is not expected to alter in future. Future access to this area for deerstalkers, even as a pest control measure may be problematic with other personnel regularly on the site during wind farm construction and operation.</p> <p>Proximity of the proposed Turitea wind farm to the popular Turitea Valley recreational circuit and to the Kahuterawa Valley Outdoor Recreation Area is likely to result in a degree of further recreational displacement, displacing a proportion of people who currently use the area as well as a proportion of future users, who prefer not to recreate in areas close to turbines.</p>
Effects on regional tourism opportunities	Potential for cumulative effects, simultaneously and sequentially	<p>Existing wind farms have definitely been a significant regional tourist attraction. There are already indications that visitor activities are focussed mainly on Te Apiti because of easy access. Also indications that visitor interest has levelled off.</p> <p>Unlikely that the proposed Turitea wind farm would stimulate a resurgence in greater visitor interest.</p>
Ground rental revenues to landowners	Definitely cumulative simultaneously	<p>Te Apiti: 3 private land owners Tararua: 9 private landowners Te Rere Hau: land in private company ownership (no Palmerston North shareholders at present, although there were originally 6 out of 25⁷²) Motorimu: 4 private land owners Turitea would add 12 private landowners with turbines + 6 with transmission agreements.</p>
Risk to water quality	Little likelihood of cumulative effects	<p>Turitea is the only wind farm site which involves a local purpose water reserve.</p> <p>The Kahuterawa River and Turitea Stream are reported to have particular importance in their role as trout spawning waterways when compared with water ways on the existing wind farms.</p>

⁷¹ SIA evidence of James Baines to the commissioner hearing on the T3 extension, May 2005.

⁷² G Henderson. Pers.Comm. 7 May 2009.

7.2.2 In summary, there is a mix of potentially beneficial and adverse effects for the people of Palmerston North. It is not possible to quantify these effects with a single measure in order to provide a simple calculus for decision making on social criteria. It is possible to attempt some order-of-magnitude estimates of the numbers of people who might be affected in each instance. This I have attempted to do in Table 24 below, merely for the purpose of trying to bring into focus the extent of the social trade-offs being considered.

Table 24: Summary of social well being effects from the proposed Turitea wind farm

<i>Potentially positive social effects</i>		<i>Potentially negative social effects</i>	
<i>Summary description</i>	<i>Scale of effect (# affected)</i>	<i>Summary description</i>	<i>Scale of effect (# affected)</i>
Ratepayer revenue from turbines in the Turitea Reserve: on-going; uses as yet undetermined; equivalent to 4-5% of current annual residential rates bill, or \$70-\$80/year/ratepayer	All ratepayers ~28,000	Risk to City public water supply: mainly during construction, but possibly over an extended period; no water quality baseline at present against which an assessment of effects can be undertaken	All ratepayers ~28,000
Local employment in construction: for two years	220-250	Disruptions from construction traffic: for two years; residents and recreational users of the access roads	tens - hundreds
Landowner revenues from ground rentals: on-going; turbines and transmission line	12 (turbines) 6 (transmission corridor)	Risk of intrusive noise to neighbouring residents - on-going: ~18% within 2km	20-25
Local employment in operations & maintenance work: on-going	17	Landscape and visual effects: on-going; saturation of the ridge-line; pervasive presence of turbines	thousands (nett) affected negatively across the City
		Recreational displacement: on-going; from Kahuterawa Outdoor Recreation Area	hundreds - thousands

7.3 Summary of submissions over time.

7.3.1 In March 2009 at my request, Mr Baker, Senior Planner for the PNCC, carried out a review of submission statistics and submission content/topics for all wind farm applications so far in the Manawatu (see Appendix 12).

7.3.2 I wish to draw the Board's attention to several aspects of this information because I believe it is pertinent to a consideration of the cumulative effects of the Turitea wind farm proposal.

- 7.3.3 Firstly, the total numbers of submissions received has grown by more than an order of magnitude from the first application in 1996 (24 submissions to Tararua Stage 1) to the sixth application in 2008 (655⁷³ submissions to Turitea). This demonstrates the level of public interest; the majority are submissions from the region.
- 7.3.4 Secondly, the balance of support and opposition for these applications, as expressed in written submissions, has changed markedly over this period. For the first two applications, supporting submissions outnumbered those in opposition. For the last two applications, opposing submissions have outnumbered supporting submissions by between 3:1 and 4:1.
- 7.3.5 Thirdly, an analysis of the issues and topics (see Appendix JTB12) shows that the application for Tararua Stage 3 was the first occasion on which cumulative effects gained some attention. I referred to public concern about cumulative effects in my own evidence to that hearing, noting that “97 of the 230 submissions in opposition allude to this issue”⁷⁴. The issue arose again for Te Rere Hau and Motorimu. And now the submissions analysis⁷⁵ for the Turitea wind farm proposal notes -

“With regard to visual effects, the most common theme was that there are already too many turbine on the Palmerston North skyline. Many people noted that the proposed wind farm will ‘fill the only remaining gap’ in the ranges. Many people thought that 488 turbines in the area could be considered excessive. Many submitters believe that the effects of this proposal need to be considered in context with all of the other turbines in the area, existing and consented.”

- 7.3.6 In my opinion, there is compelling evidence from a variety of sources that the wider community of Palmerston North has an increasing level of concern about the cumulative effects of wind farm development. I have formed this opinion from considering the trend in public submissions over the course of all the wind farm applications in the past decade, from the responses to both the Citizens’ Panel Survey and the Ex-Post Survey, and from my other assessment activities.

⁷³ At the time of this review, late submissions had not formally been accepted.

⁷⁴ Statement of evidence of James Talbot Baines, 2005. paragraph 5.2

⁷⁵ Hill Young Cooper, 2009. *Summary of submissions - Turitea Wind Farm Project.* p.20

8 COMMENTS ON THE RESEARCH NZ SURVEY

- 8.1 I have read the evidence of Mr Kalafetelis on behalf of Mighty River Power. His evidence is devoted to presenting the results of a public perception survey commissioned by Mighty River Power and carried out by his company by telephone between 27 March and 7 April 2009 of residents living within a 15km radius of the proposed wind farm site.
- 8.2 Having read his evidence, I requested additional information in order that I might explore possible comparisons between that survey and the Citizens' Panel Survey I have described in my evidence. I received promptly almost all the additional information requested. The missing additional data set which was not provided was the set of 'weights' used "to correct for any minor demographic imbalances so that any result quoted on the basis of the total sample was representative (within definable confidence limits and error margins) of the total population of the 'survey catchment area'"⁷⁶. Although he described to me the general principles and demographic parameters used as well as the source of his data, it is not possible for me to replicate his results in the absence of specific weights. Consequently, my analysis of Mr Kalafetelis' survey results has been limited. Nevertheless, I will make some observations, based on the material provided. For ease of reference, I shall refer to his survey as the 'MRP survey'.
- 8.3 It is obvious that the MRP survey gives results that appear to indicate a very different response from those surveyed to the response gained via the Citizens' Panel Survey. This occurs when comparing results for the entire MRP survey sample or the results of just the Palmerston North sub-sample in the MRP survey.
- 8.4 I will comment first on differences between responses from apparently similar sampling areas; that is to say differences between Palmerston North City responses in the MRP survey and responses from City residents to the Citizens' Panel Survey. In Tables 25(a) and (b) below I have summarised two sets of responses, by way of example -

Table 25(a) Citizens' Panel Survey responses to statements about further wind farm development on the ranges to the east of the City⁷⁷

<i>I don't have a strong opinion about this</i>	<i>I don't know</i>	<i>I'd be happy to see more wind farm development on these ranges</i>	<i>There is about the right amount of wind farm development on these ranges</i>	<i>There is already too much wind farm development on these ranges</i>	<i>Total # of responses</i>
4%	6%	41%	33%	16%	218

⁷⁶ Mr Kalafetelis letter responding to the request for additional information. 13 May 2009.

⁷⁷ These are weighted responses.

Table 25(b) MRP survey responses to the question “Do you support the/a proposal to build a new wind farm near Turitea? And do you strongly support/oppose or somewhat support/oppose this proposal?”

<i>Sub-sample area (total # responses)</i>	<i>Don't know</i>	<i>Strongly support</i>	<i>Somewhat Support</i>	<i>Neither support nor oppose; no opinion</i>	<i>Somewhat Oppose</i>	<i>Strongly oppose</i>
Palmerston North City (262)	6%	33%	25%	16%	10%	9%
Turitea (57)	0%	23%	25%	7%	14%	31%

- 8.5 In my opinion, apparent differences in responses could arise for several reasons. Firstly, the MRP survey provided very little contextual information to its respondents, while the Citizens' Panel Survey provided contextual information in several ways (refer to Appendix JTB4 for details): it asked respondents to think about the existing wind farms they can see on the hills near the City; it asked respondents to think about the benefits and dis-benefits they were aware of that people have experienced from the existing wind farms; before asking respondents to state a position on future possible wind farm developments in the ranges it provided them with summary information about developments already consented but not yet appearing on the hills - in other words, in addition to what they can see and experience already. The Citizens' Panel Survey provided contextual information and asked people to make considered responses which were informed by their specific relevant experience. The MRP survey provided no such contextual information.
- 8.6 Secondly, the MRP survey approached the issue of further wind farm development in a binary fashion; that is to say, the MRP survey essentially asked people whether they supported or opposed the Turitea wind farm proposal. This kind of question structure tends to split people into two groups with definite views and a large group in the middle who are not so sure of their position. In contrast, the Citizens' Panel Survey offered respondents three basic positions, but each option was a positive choice. It is interesting to compare in the Tables above the similarities in level of “Don't know” responses - 6% in each case - and the difference in levels of “Neither/Nor/No opinion” responses - 16% for the MRP survey against 4% for the Citizens' Panel Survey. It leaves open to considerable conjecture how many of these middle, less certain respondents - including “somewhat support”, “Neither/Nor/No opinion” and “somewhat oppose” might have made a positive selection for an option like “There is about the right amount of wind farm development on these ranges”.
- 8.7 Viewed in this light, the results of the two surveys may not be as different as they first appeared to be.

- 8.8 However, the MRP survey actually adopted an approach based on sampling a much larger geographical area and population than that covered by the Citizens' Panel Survey. While the 15km radius seems plausible enough, since on the western side of the ranges 15km takes you only to the western outskirts of Palmerston North City, it leads to a situation where a large number of people are included in the survey who demonstrably have little interest in the issue, as I will demonstrate shortly. The MRP survey of public perceptions per se may have wished to sample from a wider geographic area for reasons of their own choice, but my interest was to survey the perceptions/attitudes of the population that is most likely to be directly affected by the Turitea proposal - and that is a more focussed area. The RMA has a focus on effects rather than attitudes of support or opposition, and I think these two different approaches are exemplified by the two surveys being compared here.
- 8.9 I now wish to provide the Board with a brief comparison of responses from people living on either side of the Tararua Ranges. This comparison is based on the additional information provided to me by Mr Kalafetelis. As explained to you by Mr Kalafetelis in his evidence (his Figure 1), the survey catchment area was divided into five sub-areas. Table 26 summarises for you the numbers of respondents in each sub-area, divided between the eastern and western sides of the ranges, and shows that 29% of the whole survey sample responses came from the eastern side of the ranges.

Table 26: MRP survey sub-samples

<i>West of the Tararua Ranges</i>		<i>East of the Tararua Ranges</i>	
<i>Sub-area label</i>	<i># responses</i>	<i>Sub-area label</i>	<i># responses</i>
Northern Tararuas	88	Northern Tararuas	62
		South-East of Tararuas	110
South-West of Tararuas	22		
Palmerston North City	262		
Turitea	56	Turitea	1
Total West side	428	Total East side	173

- 8.10 I simply wish to point out this major difference between the two surveys. The MRP survey incorporated 29% of responses from the eastern side of the ranges while the Citizens' Panel Survey did not include any respondents from that area.
- 8.11 I will now present several tabular summaries which demonstrate significant differences between the responses from each sub-area and each side of the ranges. Questions 1 and 2 of the MRP survey asked respondents "*what local issues are you personally interested in or concerned about, at present?*" without any prompting by the interviewer. Table 27 indicates the numbers⁷⁸ and percentages who volunteered "windfarms/power generation" as a local issue.

⁷⁸ The data presented here are raw data, without weighting factors applied.

Table 27: Those identifying (unprompted) “windfarms/power generation” as a local issue

<i>West of the Tararua Ranges</i>			<i>East of the Tararua Ranges</i>		
<i>Sub-area label</i>	<i>#</i>	<i>%</i>	<i>Sub-area label</i>	<i>#</i>	<i>%</i>
Northern Tararuas	11	13%	Northern Tararuas	3	5%
			South-East of Tararuas	1	1%
South-West of Tararuas	10	45%			
Palmerston North City	26	10%			
Turitea	27	48%	Turitea		
Total West side	74	17%	Total East side	4	2%

8.12 Question 4 stated “*Now thinking about wind farms as a form of generating power. Firstly, are you aware of any existing or proposed wind farms located in the Manawatu area? Which ones?*” with no interviewer prompting. Table 28 indicates the numbers who volunteered the proposed Turitea wind farm.

Table 28: Those identifying (unprompted) “Turitea wind farm”

<i>West of the Tararua Ranges</i>			<i>East of the Tararua Ranges</i>		
<i>Sub-area label</i>	<i>#</i>	<i>%</i>	<i>Sub-area label</i>	<i>#</i>	<i>%</i>
Northern Tararuas	34	39%	Northern Tararuas	12	19%
			South-East of Tararuas	16	15%
South-West of Tararuas	5	23%			
Palmerston North City	70	27%			
Turitea	35	63%	Turitea		
Total West side	144	34%	Total East side	28	16%

8.13 Question 6 asked “How informed would you say you are about this proposal in terms of, for example, its location, its size, and any positive or negative impacts on the community and the environment” and offered four options as well as recording “don’t know” responses. Tables 29 and 30 indicates the numbers who responded “Not at all informed” and “Well informed”.

Table 29: Those responding “Not at all informed”

<i>West of the Tararua Ranges</i>			<i>East of the Tararua Ranges</i>		
<i>Sub-area label</i>	<i>#</i>	<i>%</i>	<i>Sub-area label</i>	<i>#</i>	<i>%</i>
Northern Tararuas	11	13%	Northern Tararuas	19	31%
			South-East of Tararuas	34	31%
South-West of Tararuas	6	27%			
Palmerston North City	50	19%			
Turitea	3	5%	Turitea		
Total West side	70	16%	Total East side	53	31%

Table 30: Those responding “Well informed”

<i>West of the Tararua Ranges</i>			<i>East of the Tararua Ranges</i>		
<i>Sub-area label</i>	<i>#</i>	<i>%</i>	<i>Sub-area label</i>	<i>#</i>	<i>%</i>
Northern Tararuas	20	23%	Northern Tararuas	9	15%
			South-East of Tararuas	12	11%
South-West of Tararuas	4	18%			
Palmerston North City	34	13%			
Turitea	28	50%	Turitea		
Total West side	86	20%	Total East side	21	12%

8.14 Tables 27-30 demonstrate the contrasting contexts between respondents to the MRP survey on either side of the Tararua Ranges. However, when asked a general question about preference for power generation in New Zealand, there was no overall difference between responses from east and west sides - see Table 31.

Table 31: Those identifying (unprompted) “Using the power of the wind” as their preferred method of power generation in New Zealand

<i>West of the Tararua Ranges</i>			<i>East of the Tararua Ranges</i>		
<i>Sub-area label</i>	<i>#</i>	<i>%</i>	<i>Sub-area label</i>	<i>#</i>	<i>%</i>
Northern Tararuas	74	84%	Northern Tararuas	50	81%
			South-East of Tararuas	78	71%
South-West of Tararuas	15	68%			
Palmerston North City	186	71%			
Turitea	43	77%	Turitea		

Total West side	318	74%	Total East side	128	74%
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8.15 I have demonstrated to you the contrasting contexts in which respondents on each side of the ranges might have approach their answers to the MRP survey. This leads me to consider other factors which explain the differences in responses, particularly for people living further away from the proposed site and less engaged with wind farm issues. Firstly, this substantial group of respondents on the east side (29% of the whole sample) are demonstrably not interested in wind farm issues, have little at stake and are not well informed. Secondly, the one piece of specific information which was provided to respondents is, in my view, potentially quite misleading for people not so familiar with the location. It said *“The Turitea Reserve lies approximately 10km southeast of PN city centre and approximately 11km west of Pahiatua. The proposed wind farm would be located along an approximately 14km stretch of the Tararua Ranges within and around the Turitea Reserve.”* This statement could be taken to imply that the proposed wind farm is roughly equi-distant between Palmerston North and Pahiatua. Most of the land 11km east of the site is sparsely populated rural land, which if you did not know better is very different from the situation which prevails for most of the 10km west of the site. Thirdly, the question (Qu.8) asking about support or opposition appears to have a strange wording option - it says *“Do you support/oppose [the/a] proposal to build a new wind farm near Turitea?”* It is unclear to me why this option should exist and what effect the substitution of one word for the other might have had in the mind of the interviewee when attempting to answer the question. These are all reasons which potentially could explain different responses from those gained from people living on the west side of the ranges. And indeed their responses were very different, as shown in Table 32⁷⁹.

Table 32: Responses to the question on support/opposition for the Turitea wind farm proposal

<i>West of the Tararua Ranges</i>				<i>East of the Tararua Ranges</i>			
<i>Sub-area label</i>	<i>% Supp.</i>	<i>% N/N</i>	<i>% Opp.</i>	<i>Sub-area label</i>	<i>% Supp.</i>	<i>% N/N</i>	<i>% Opp.</i>
Northern Tararuas	61%	13%	24%	Northern Tararuas	61%	18%	10%
				South-East of Tararuas	75%	10%	5%
South-West of Tararuas	68%	5%	18%				
Palmerston North City	63%	14%	19%				
Turitea	46%	7%	48%	Turitea			
Total West side	61%	12%	24%	Total East side	70%	13%	7%

⁷⁹ In this table I have combined data for Strongly Support and Somewhat Support, and Strongly Oppose and Somewhat Oppose.

- 8.16 A big difference between responses from the eastern and western sides of the ranges is evident in Table 32; on the eastern side, expressions of support for the Turitea wind farm proposal outnumber expressions of opposition by a factor of 10:1 whereas on the western side the ratio is 2.5:1.
- 8.17 I will conclude my commentary on the MRP survey findings with one final illustration of the effects of expanding the survey area to include those who are only minimally engaged with this issue. The MRP survey gained 110 responses from South-East Tararua (i.e. eastern side of ranges from Pahiatua south to the 15km limit) and 56 responses from Turitea (an area defined to include down to Old West Road/ Aokautere Drive).
- 8.18 In response to their question about support/opposition for the Turitea Wind Farm proposal, they received the highest level of support (75%) from South-East Tararua, an area in which their own data shows -
- wind farms are barely an issue (1% unprompted)
 - awareness of the proposal is least (15% unprompted)
 - has the highest level of those who said they were not at all aware, even after prompting (31%)
 - has the lowest level of people who experience living in a house from where you can see a wind farm (68%)
 - has the lowest level of visiting the Turitea valley in the past 12 months (18%)
- 8.19 By contrast, they received the lowest level of support (46%) from Turitea, an area in which their own data shows -
- wind farms are most of an issue (48% unprompted)
 - awareness of the proposal is greatest (63% unprompted)
 - has the lowest level of those who said they were not at all aware, even after prompting (5%)
 - has the second highest level of people who experience living in a house from where you can see a wind farm (82%)
 - has the highest level of visiting the Turitea valley in the past 12 months (86%)
- 8.20 I conclude that there is little to be gained from trying to compare these two surveys, since the approaches adopted were so different. I have already pointed out, when discussing the results in Tables 25(a) and (b), that the numerical differences may not actually be as great as they appear on first reading.
- 8.21 On reflection, there is little in the MRP survey results as presented in the evidence of Mr Kalafetelis to make me question the validity of the Citizens Panel Survey which I have reported to you.

9 DISCUSSION AND CONCLUSIONS ON SOCIAL EFFECTS

9.1 Discussion

9.1.1 This assessment has used a variety of research methods and tapped into a variety of sources of information, drawing on the knowledge of more than 500 residents of Palmerston North City.

9.1.2 It is my view that the Citizens' Panel Survey and the Ex-Post Survey have provided a robust and coherent body of independent empirical data about Palmerston North's experience of wind farm developments to date and attitudes to the future of wind farming in this region.

9.1.3 In my opinion, the results of these surveys are realistic, plausible and defensible. I also believe they are replicable.

9.1.4 The site of Mighty River Power's proposed Turitea Wind Farm is unique in a number of respects, which my evidence has attempted to illustrate. It is unique -

- in its proximity to 80,000 urban residents; unique in New Zealand and perhaps even unique in the world in this respect; as such, it is an important part of the City's enduring landscape;

- in its proximity to a rural and rural-residential population which has been moving towards the ranges for some years in a manner quite different from elsewhere along these ranges; that is to say, unique in its regional setting; as such, it is competing in its use of natural resources, not just of wind, but of living space;

- in its proximity to an outdoor recreational hub; unique in its local setting; as such, it is competing in its use of natural resources, not just of wind, but of high-quality recreational space;

- because much of the proposed site is a water reserve, with the attendant importance attached to protecting its water supply function, but also creating a source of revenue for funding other 'reserve purposes' including pest control; unique in its regional setting; as such, it creates the possibility of a high-consequence risk as well as the certainty (if consented) of a steady benefit stream to City ratepayers;

- because the Mighty River Power proposal creates opportunities to participate in commercial wind farming for substantially more private landowners than any previous windfarm development in the region; unique in its regional setting; and

- it is the fifth windfarm proposed in the region, not the first, and has the cumulative effect of saturating the ridgeline with tall turbines; unique in both a regional and local setting.

9.1.5 In one respect it is not unique - it is another energy sector proposal of the Think Big variety, that this country has experienced on numerous occasions. It is sited here, not because Palmerston North needs the electricity, but principally because other parts of the country want more electricity. It is not the only location for the next increment of electricity generating capacity.

- 9.1.6 For all its unique characteristics, the proposal is also important for its cumulative effects, particularly from a regional perspective. It comes down to a question of trade-offs, because there are potential benefits as well as potential disadvantages for the people of Palmerston North.

I believe that the Citizens' Panel Survey provides clear evidence of Palmerston North residents' desire for a balance; they acknowledge the benefits of having the existing wind farms but are wary of the dis-benefits of having too many wind farms.

They acknowledge the benefits which have come to the City by way of employment in wind farm construction, employment in servicing and maintaining these wind farms, the added interest to the City's landscape, the attraction for tourists and visitors to the City, and the revenues to local landowners. At the same time, they are similarly persuaded that wind farm development should not cause noise disturbances to people living nearby, nor result in adverse risk effects on neighbouring residential property values.

Taking all these factors into account, the survey results indicate that somewhat more residents of Palmerston North are now no longer in favour of further wind farm development in their region than those in favour. The balance between these two sentiments may not show a big difference - 47% not in favour of further wind farm development vs 42% in favour. However, in my view this is a significant difference. The residents of Palmerston North are not rejecting wind farms, but they are beginning to reject the idea of more wind farms nearby.

- 9.1.7 In my opinion, what makes this situation significant is that the residents of Palmerston North have come to this position on the basis of real, first-hand experience of operating wind farms, a situation not prevailing in many other parts of the country at present. This is why the Citizens' Panel Survey results are so different from the standard results of surveys canvassing the views of a national sample¹, or the Research NZ survey which canvassed the views of people over a much broader geographical area than the Citizens Panel Survey.

- 9.1.8 In coming to a conclusion about this proposal, my mind keeps turning to an analogy; that of hydro-electric development of a river. In assessing the pros and cons of any hydro-electric proposal in order to achieve an appropriate balance amongst competing uses for the water resource so that people and communities are best enabled to provide for their well being, there is universal acceptance of the need for some level of minimum in-stream flow. This is the flow that allows natural processes to be sustained, and peoples enjoyment of those natural processes. I suggest that it would be unthinkable in today's world to operate a hydro-electric development in such a way as to let the downstream river run dry, simply because the country demanded maximum possible electricity production. Just because there is an excellent wind resource by world standards available for harvesting on the Tararua ranges east of the City, to conclude that all of the Palmerston North wind resource has to be harnessed simply because it is in the national interest to do so, would be akin to saying that we should no longer have minimum-flow limits on the country's

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e.g. national perception studies conducted periodically by the Energy Efficiency and Conservation Authority (EECA/MRL, 1994; EECA/UMR, 2004; EECA/Nielsen, 2008)

hydro-electric operations simply because climate change policy and CO₂ considerations demand greater levels of renewable electricity generation.

- 9.1.9 It is unfortunate that so many people have experienced mixed messages about the future development of this area and the prospects for further wind farm development on the ranges. Council's role in inviting tenders for a wind farm application, in enquiring after landowners potential interests in participating in a possible wind farm development; in changing the purpose of the Turitea Reserve has certainly created an expectation that further wind farm development in this part of the ranges would be seriously considered. However, 'seriously considered' is not the same as 'consented'. The change of purpose decision made it quite clear that any application would need to be subject to thorough independent assessment of effects.

9.2 Conclusions

- 9.2.1 I have concluded from this social impact assessment that community support for wind farming in the Manawatu, near Palmerston North, whilst still strong, is at a tipping point. I do not think that granting consents for the entire Mighty River Power proposal, which would have the effect of saturating the ridgelines east of the City with the sight of turbines would be considered by the majority of the wider community to be a sustainable use of resources, nor enabling of their community to provide for its social and economic well being in the broadest sense. The challenging question is just where to strike the balance in a way which could be deemed to best meet the purpose of the Act, given alternatives that exist on the national scene.

10 APPENDICES

- JTB1: Consultation coverage for this SIA
- JTB2: Social well being assessment framework
- JTB3: Cumulative assessment framework
- JTB4: Citizens Panel Survey on wind farm development - questionnaire
- JTB5: Ex-Post Survey on visual and noise effects - questionnaire
- JTB6: Indicative view-shaft map from Palmerston North street grid
- JTB7: Data on outdoor recreation organisations and levels of participation in outdoor recreational activity
- JTB8: Kahuterawa Outdoor Recreation Area maps
- JTB9: Social history of the Turitea Reserve
- JTB10: Range of social issues and effects
- JTB11: Extract on wind farm tourism from evidence by James Baines to May 2005 commissioners hearing for T3 extension
- JTB12: Manawatu Windfarms – Submissions Statistics Overview