

IN THE MATTER of the Resource Management Act 1991

AND

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

REBUTTAL EVIDENCE OF PETER PHILLIPS

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1. INTRODUCTION

- 1.1 My name is Peter Phillips. I am the Managing Director of Dialogue Consultants Limited, which I set up in 1983. I hold a Doctorate of Philosophy. Over the last 25 years I have undertaken a wide range of public consultations and social impact assessments both here and overseas, mainly on infrastructure development and public policy. These have included water treatment, sewage treatment and disposal, housing developments, airports, power stations, and motorways. Most recently I was the consultation adviser to Transpower on the North Island Grid Upgrade Project. My colleagues and I also undertook the social impact assessment for the project comprising 186 km of overhead line and 20 km of underground cable route.
- 1.2 Over the last 30 years I have undertaken a wide range of applied social science research projects including a range of social surveys. One of these surveys was my introduction to the energy sector, being the first national study of household attitudes to energy use and conservation in this country, with over 10,000 respondents. Most recently I have completed surveys related to the motorway network for the Auckland Motorway Alliance and surveys related to bird flu preparedness planning in Kiribati and Fiji for UNICEF.
- 1.3 Following the initial survey work I subsequently provided the social science input to a wide range of research projects undertaken by the New Zealand Energy Research and Development Committee including a range of market development studies. For ten years I was retained by ECNZ to provide a social science input into corporate and strategic planning. At various stages in my career I have also tutored in Social Statistics and lectured in Population and Resources, and in Environmental Planning.
- 1.4 I confirm that I have read and am familiar with the Code of Conduct for Expert Witnesses in the Environment Court Consolidated Practice Note (2006). I have approached the preparation of this evidence in the same way that I would for the Environment Court.
- 1.5 I am providing this rebuttal evidence to comment on and respond to some of the primary evidence presented in respect of these applications that relate to social impact matters. In particular, I will comment on the evidence of James Talbot Baines presented on behalf of Palmerston North City Council. I will also comment briefly on the evidence of Mr Anstey, Dr Thorne, and Mr Baker where this relates to social science method in relation to the interpretation of qualitative information.

1.6 Specifically, I shall address the following matters:

- (a) Quantification of effects;
- (b) Coverage of the communities of interest;
- (c) Social aspects of effects;
- (d) Ad hoc versus objective measures;
- (e) Submissions over time;
- (f) Focus on opinion;
- (g) Interpretation of Citizens Panel results;
- (h) The (alleged) tipping point;
- (i) Standards of objectivity;
- (j) Generalisation of focus group discourse in the evidence of Mr Anstey;
- (k) Inferences from small sample surveys by Dr Thorne; and
- (l) Imputation of motive in the evidence of Mr Baker.

2. QUANTIFICATION OF EFFECTS

2.1 In Paragraph 2.1.1 of his evidence, Mr Baines quotes Professor Burdge's definition of social impact assessment as "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".

2.2 As a starting point, the evaluation of effects requires that there be a systematic description of the individuals, social groups, communities and regions that may be affected by or interested in a proposal. In another project Mr Baines has undertaken, the SIA on a proposed windfarm at Lake Mahinerangi near Dunedin (referred to in paragraph 1.1.5 of his evidence), Mr Baines used Census data to provide some baseline information about community structure and dynamics. In this case Mr Baines did not, preferring an *ad hoc* presentation of data. For example, in paragraph 3.3.4 Mr Baines refers to rural residential

development and presents dwelling numbers. There are references to a changing sense of community in areas close to the hills and in the valleys east of the river in paragraph 3.3.6. There is also a reference to a more diverse group of families sending their children to (unnamed) rural schools in paragraph 3.3.6, but the implications for social impacts are not assessed. It is not possible from Mr Baines' evidence to rigorously assess potential effects on individuals, households or communities, or how they might respond to, or absorb change because the local and regional populations have not been described.

- 2.3 Mr Baines identifies a range of effects. He provides non-specified examples in paragraph 2.3.3; he defines the priority social issues in section 4.2; specifies effects in sections 5 and 6; he summarise effects in paragraph 7.2.1 (table not numbered) and Table 24; and he tabulates a range of social issues and effects in Appendix JTG10. Having indicated that he was using a framework for his assessment derived from social indicators work undertaken in the OECD (as set out in Appendix JTB2), Mr Baines does not systematically assess the range of effects against the framework. I can appreciate that Mr Baines concentrates on those effects that he deems to be important, but this means the only inference that can be drawn for items in the OECD framework that he does not measure in his analysis is that they have no effects in this case. For example, Mr Baines provides no evidence on how the proposal would affect either positively or negatively “Influences on participation in community or society, including participation in organised groups and social activity” beyond the potential displacement of some recreation groups, and leisure and recreation are explicitly addressed by a separate item in the framework.
- 2.4 Mr Baines uses a range of qualitative and quantitative variables to scale some of the effects. These include the number of jobs; dollar revenues to landowners and the Council; reported experience of exposure to noise; and opinion of the visual effects of windfarms on the landscape and recreation using rating scales. There are, however, significant gaps in the metrics used.
- 2.5 In section 6.5 of his evidence, for instance, Mr Baines discusses recreation effects. Mr Baines tabulates the membership and activities of 14 groups he canvassed in his consultation in Appendix JTB7A. This tabulation includes references to various recreation types using areas in the Kahuterawa Valley. Unfortunately there is no way of relating the generalised information on the range of locations visited to the User Survey that provides estimates of annual usage based on five days of observation in early March 2009.

Furthermore, in paragraph 6.5.5 Mr Baines has to speculate about the effects of turbines on the recreational experience as this critical aspect of Mr Baines' assessment has not been undertaken in a systematic fashion for the site of the proposed wind farm, either with the recreation groups or with the wider population.¹

- 2.6 Mr Baines makes a number of other statements which he does not substantiate with quantitative data or even an adequate proxy. For example, in paragraph 6.5.7 he states his opinion that there is likely to be the displacement of some of the intended future recreational activity. Mr Baines then goes on to state: "I do not have the data to estimate the proportion who might be affected in this way". For reasons I will discuss in section 8 of my evidence, in my opinion it is not possible to extrapolate from the Citizens Panel results as Mr Baines does. It is therefore inappropriate to then discuss a potential significant adverse effect (as discussed in paragraph 6.5.9 of Mr Baines' evidence) when the negative or positive responses of recreationalists have not been established.
- 2.7 Mr Baines does not routinely follow normal social impact assessment practice which distinguishes effects across four stages of a project covering: planning, construction; operation/maintenance; and abandonment/decommissioning. Mr Baines does address both the economic effects of the construction and operation phases in terms of employment, but this is only a particular view as he mentions indirect business activity, such as accommodation rentals, and he states in paragraph 6.4.3, "I have not attempted to quantify this." Mr Baines also covers the issue of construction traffic in section 5.7. He agrees with the recommendations of Mr Tate on the use of liaison groups and other mitigation measures, which I understand have been accepted by Mighty River Power. Mr Baines also mentions in paragraph 5.7.1, but does not quantify, effects on adjoining properties.
- 2.8 I have reviewed the range of social issues and effects presented by Mr Baines in his Appendix JTG10 and analysed for each of the sections of his evidence that Mr Baines' identifies as addressing this effect. The results of this analysis are presented in

¹ Mr Baines did seek responses to the proposition that "*The wind farms have reduced the enjoyment of the recreational experience at recreational locations around the City*" as reported in Section 3.5.4 where he notes that "the level of disagreement outweighs the level of agreement by 11:1." The survey also included the proposition that "*The wind farms have reduced the enjoyment of the recreational experience at other recreational locations around the City*" as reported in footnote 41 of his evidence where he noted that "65% disagreed while 8% agreed, a ratio of 8:1."

Attachment 1. This analysis shows that even where social effects have been identified, in most cases the alleged effects have not been quantified.

3. COVERAGE OF COMMUNITIES OF INTEREST

3.1 In his consultation Mr Baines reports consulting five runanga who represent a significant ethnic minority in the city with 15 percent of the population identified in the 2006 Census as being Maori (although some of these will no doubt be from other rohe). Mr Baines identifies in paragraph 3.7.1 of his evidence that the Rangitane iwi have traditional interest in the land, which includes the Turitea Reserve and its environs. Mr Baines further states that “Having met with representatives of each of the runanga during this assessment, 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 the wind farm application.” This may well be the case but this does not provide any indication of the nature and extent of any social effects that might arise from the proposal. In my experience tangata whenua typically take a holistic view of projects considering economic, social, cultural and environmental aspects. The Board will have the benefit of the Maori perspective through submissions from Te Runanga O Rangitaane o Tamaki-nui-a Rua; He Kupenga Hao I Te Reo Trust; and Tanenuiarangi Manawatu Incorporated according to the published list of submitters, but this does not correct the omission of Maori input from the evidence presented of the assessment.

3.2 Mr Baines does not recognise any other potentially under-represented and vulnerable stakeholders and populations in his analysis. Furthermore, the methodological issues of the Citizens Panel on which Mr Baines relies heavily are likely to mean that the views of low income groups are not properly represented (data on income of participants was collected but is not in the report on the Panel) and, as discussed in Section 8.4 of this evidence, the views of people between 15-24 years of age.

4. SOCIAL ASPECTS OF EFFECTS

4.1 When assessing social impacts it is critically important to separate out the social aspect of an issue from what might be referred to as the technical aspects. For instance, at paragraph 4.2.3 Mr Baines identifies what he terms to be “regional-level issues” identified most frequently in the several sources of information he used. One of these is the “use of Turitea Reserve: ecological effects and potential risks to the City’s water supply from

sediment, disease or chemical spills during construction.” In his summary of social well-being effects in Table 24 he presents the issue under “Potentially negative social effects” and defines it as “Risk to City public water supply: mainly during construction but possibly over an extended period...” Mr Baines estimates the scale of effect as “All ratepayers ~ 28,000”.

- 4.2 Setting aside why Mr Baines might draw a distinction between ratepayers and residents in terms of public drinking water, this is an example of the failure to distinguish between the social and the technical. The substantive issue is actually addressed in section 5.6 of Mr Baines’ evidence entitled “Water supply risks”. There he states, when commenting on the evidence of Mr Taylor, “His main conclusion relevant to social well-being is that risks to public health in relation to the Applicants (*sic*) proposal will be less than minor provided a number of changes are made and conditions met...” I understand that principal technical conditions have been accepted by Mighty River Power.
- 4.3 Given that the actual risks are “less than minor” then the only remaining social aspect is that some individuals may have residual concerns about the issue. This is a matter of perception (social) not of physical risk to the water supply (technical). Failure to separate out the social component of this issue opens the potential that an effect will be double counted or, as in this case, presented as a physical risk when this has been discounted by the evidence of an expert witness.

5. AD HOC VERSUS OBJECTIVE MEASURES

- 5.1 In his Ex-post survey, Mr Baines uses distance from a turbine as a proxy for noise exposure. This is inevitably a crude substitute as it does not take into account a range of factors, such as terrain. It is reasonable in the circumstances as a simple way of presenting the results of the survey (although there are always issues about how a continuum such as distance is divided).
- 5.2 Such lay-person measures, however, are not appropriate as a basis for predicting effects as Mr Baines seeks to do in paragraph 5.4.11. Noise modelling and field measurements provide a more robust basis for assessing effects than such *ad hoc* measures, and are the subject of evidence from expert witnesses. The presence of 122 existing houses and potentially more within this arbitrary boundary is not a reliable measure of the scale of effect. It is interesting to observe that Mr Baker uses a similar “rule of thumb” of 3km in

paragraph 64 of his evidence when calculating the number of existing dwellings (256) within that distance from the nearest of the proposed turbines. This is a statement of potential not actual effects which needs to be formally assessed. I note the terminology of “potential” effect is used by Mr Bray in paragraph 122 of his evidence.

- 5.3 Mr Anstey’s evidence provides an indication of the effect of making a more detailed assessment on the generalised numbers when he comments in paragraph 72 on what he states are “61 existing houses in the Pahiatua Track area within 3 km of turbines”. Mr Anstey states “I would estimate that 40 of the 62 houses would have views of the Turitea Turbines.” This is a 35% reduction (using Mr Baker’s count of the number of existing dwellings) just based on an estimate.
- 5.4 In interpreting his distance measure Mr Baines also makes use of a series of unattributed quotations from people about whom no information is supplied, to the point that it is not possible to determine whether these statements are from fourteen individuals or some lesser number, or anything else about the sources which might be of value in interpreting them, such as the time period covered by these symptoms. Such profile information is essential for interpretation, and should include, for instance, information about the duration of residence (which Mr Baines collected in his Ex-post Survey) given that many people become accustomed to noises in the local environment over time.

6. SUBMISSIONS OVER TIME

- 6.1 Mr Baines presents in section 7.3, the results of a review of submission statistics undertaken by Mr Baker of Palmerston North City Council. Mr Baines discusses both the growth in volume of the submissions and the change in “the balance of support and opposition for these applications” at paragraphs 7.3.3-4.
- 6.2 As determined in *Upland Landscape Protection Society v Central Otago District Council*² the quantity of submissions for or against a proposal is not relevant in RMA proceedings. Furthermore, the submission process is not a reliable measure of community concern. Growing numbers of submissions could, for instance, be a measure of the increasing efficiency of advocacy groups. Mr Baines expresses the view in paragraph 7.3.6 that “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

² HC Dunedin, 16/09/08, Fogarty J [66]

farm development”. To the extent that this relies on the submission analysis undertaken by Mr Baker, then this statement is undermined. As discussed in section 8 in this rebuttal evidence, its reliance on the results from the Citizens’ Survey means this conclusion is further weakened.

7. FOCUS ON OPINION

7.1 In his evidence Mr Baines places great reliance on opinion surveys, in particular the Citizens Panel Survey. As a social scientist by training with over 30 years consulting experience, I am surprised by the weight assigned to this aspect, as opinion is but one facet that social scientists investigate as part of a social impact assessment.

7.2 A thorough investigation complements analysis of peoples’ opinions with, as a minimum:

- (a) corroborating evidence to confirm people’s assertions and to objectively evaluate the nature and scale of the alleged effect;
- (b) an analysis of what people say they will do, what is social science is called “behavioural intention”, particularly in terms of possible flow-on effects from household decisions for the wider community; and
- (c) objective evidence of the way that people are acting in response to a project.

7.3 Mr Baines does not assess the potential ramifications of the project on the local community besides reporting, but not substantiating, in paragraph 3.9.1 “strong community tensions.” Mr Baines does note in paragraph 3.3.5 that the sense of community in the area “close to the hills” has changed with the “substantial increase in the number of rural residents. Such change is unsurprising given that in 2006 only 33% of the population of Palmerston North were at the same usual residential address as five years before. Mr Baines does not interpret, however, any implications from the project on this changing community dynamic.

7.4 I find it ironic that Mr Baines does not interpret this direct evidence of observed behaviour. Mr Baines’ evidence at paragraph 3.3.4, Table 15, shows what he refers to as the Turitea “catchment area” had an increase of 618 permanently occupied private dwellings between 1996 and 2006. This, as Table 15 indicates, is an increase of 154% into an area where there are wind farms to the north and as Mr Baines states at paragraph 3.1.4, into an area

close to the Tararua Ranges where “the potential for such commercial windfarm development was identified more than two decades ago”. It is hard to imagine that none of these over 600 households, or their advisers, considered the possibility that further windfarm development might occur in the hills when, as Mr Baines asserts in paragraph 3.1.4, “Palmerston North has been the focus of wind development for more than a decade.” The observed behaviour is that people have moved into an area close to the ranges notwithstanding the known wind generation potential of those hills and the proximity of existing wind farms.

- 7.5 Mr Baines also provides more direct evidence of people’s behavioural response to wind farms in his Ex-post survey in Ashhurst. Notwithstanding the limitations of the study, one particular piece of information stands out. In paragraph 2.6.11 he states “61% of the survey respondents have taken up residence in their current home during the past 9 years when wind farms have been operating in the ranges.” In this case, the behaviour is unequivocal. People have moved into their homes knowing the wind turbines were there. While individual decision-making no doubt was complex, none of these households were deterred by the presence of the windfarms.

8. INTERPRETATION OF CITIZENS PANEL RESULTS

- 8.1 As I have noted, Mr Baines places great weight in his evidence on the so-called “Citizens Panel Survey” (*the Panel*). I have reviewed the information provided on the way the panel was conducted.³ The problem with the Panel, in terms of applying the results to the wider population of Palmerston North, is that it is not a random sample of Palmerston North residents. Three stages of filtering have been used in establishing the panel:

- (a) First, the potential participants were selected from the telephone directory. Hence all persons without a fixed line telephone, or choosing not to have their number published, were excluded. This selection can be expected to bias the Panel away from younger people, from those on low incomes, and those in sensitive occupations. The 2006 Census data show that 11% of households in Palmerston North City did not have a telephone.

³ Rock Research (April 2009), *PNCC Citizens Panel: Wind Farms in Palmerston North: Results from Citizens Panel Survey undertaken in April 2009*, p 24

- (b) Second, the panel was conducted over the internet thereby excluding all residents without internet access. This selection can be expected to strongly bias the Panel away from those on low incomes and requires familiarity email for enrolment and with the use of a web browser to undertake the survey. The 2006 Census shows that 41% of the households in Palmerston North did not have Internet access.
- (c) Third, the participants in the Panel were a self-selected subset of those approached to be on the Panel. No information has been provided on the number of people that were contacted to achieve the number of participants in the Panel meaning that this is a completely undefined source of potential bias. At the simplest level this could bias participation in the Panel toward those with ample leisure time, or those who take a particular interest in civic issues, but it could have more profound effects.

8.2 A further selection occurred in conducting this Panel as only a portion of those on the Panel chose to take part; only 226 of the 540 possible participants. This is a response rate of just 42%. Considering that these were people who had previously agreed to participate in the Panel, this is a surprisingly poor response rate.

8.3 In the case of the Citizens Panel, it is clear that the selection of persons to interview fails the test of being a random sample of Palmerston North’s population. Mr Baines notes that the Panel has “an over-representation of older people” and that he adjusted the results to correct for the maldistribution. I have reviewed the data presented in the survey report⁴ to assess the extent of this bias. The results are presented in Table 1.

Table 1 Comparison of the age distribution of Palmerston North Population in the 2006 Census and the Citizens Panel

	15-19yrs	20-24yrs	25-29yrs	30-34yrs	35-39yrs	40-44yrs	45-49yrs	50-54yrs	55-59yrs	60-64yrs	65+yrs
Census 2006	11%	13%	9%	8%	8%	9%	8%	7%	6%	5%	15%
Survey	1%	1%	4%	3%	7%	10%	16%	12%	14%	12%	21%

8.4 The extent of the bias towards middle aged and older people is fully apparent. 75% of the participants in the Panel were 44 years or older, compared with 41% in the City’s population. One third of the Panel participants (33%) were 60 years of age or older compared with 21% of the City’s population. At the lower end of the age spectrum the under-representation is considerable. The Panel had one percent instead of 11% in the

⁴ Rock Research (April 2009), *op. cit.*, p 24

15-19 years age group and one percent instead of 13% in the 20-24 years group - that is two percent instead of 24% in the age range 15-24 years. In my opinion, the under-representation is so large that scaling the results is entirely inappropriate because there can be no assurance that these two percent represent the views of almost one quarter of the survey population.⁵

8.5 Mr Baines does not mention in his evidence other ways in which the sample is not representative of the population of Palmerston North. The survey report by Rock Research,⁶ however, includes information on the suburbs in which 231 of the 237 Panel participants lived.⁷ I have compared this with the usually resident population of Palmerston North in the 2006 Census by Area Unit.⁸ The results are set out in Table 2.

Table 2 Comparison of distribution of Palmerston North Population in the 2006 Census and the Citizens Panel by Census Area Unit

	Area Unit		Panel		Variation
	Usually resident	Percent	Number	Percent	
Aokautere (incl Summerhill)	3,171	4.2%	21	9.1%	217%
Ashhurst	2,529	3.3%	1	0.4%	13%
Awapuni (incl Riverdale)	8,043	10.6%	24	10.4%	98%
Cloverlea	2,046	2.7%	4	1.7%	64%
Highbury	3,204	4.2%	11	4.8%	112%
Hokowhitu	10,551	14.0%	57	24.7%	177%
Kelvin Grove	4,845	6.4%	13	5.6%	88%
Linton Military Camp	1,788	2.4%	1	0.4%	18%
Massey University	771	1.0%	1	0.4%	42%
Milson	5,226	6.9%	19	8.2%	119%
Palmerston North Central	3,099	4.1%	6	2.6%	63%
Palmerston North Hospital	2,673	3.5%	2	0.9%	24%
Papaeoia	2,775	3.7%	3	1.3%	35%
Roslyn	5,382	7.1%	15	6.5%	91%
Takaro	5,229	6.9%	8	3.5%	50%
Terrace End	2,982	3.9%	20	8.7%	219%
Turitea	1,614	2.1%	6	2.6%	122%
West End	4,638	6.1%	10	4.3%	71%
Westbrook	4,206	5.6%	6	2.6%	47%
Whakarongo	774	1.0%	3	1.3%	127%
	75,546		231		

⁵ Depending on rounding in calculating these percentages, these 2% could represent as few as four people. In March 2006 there were 14,724 people in these two age groups in Palmerston North.

⁶ Rock Research (April 2009), *op. cit.*, p 25

⁷ The discrepancy between the 237 in the Rock Research table on page 25 of the report and the 226 cited as responding to the wind farm survey indicates another level of non-response in the survey results. It is normal practice when reporting survey results to show the actual number of respondents to questions. This is usually indicated as N=###. Mr Baines does not do this, so the level of non-response to any question is unknown.

⁸ The two participants reported for Summerhill were incorporated into Aokautere and the three in Riverdale were incorporated into Awapuni as these are the Area Units in which they lie.

- 8.6 What Table 2 shows is a significant over-representation in some suburbs and significant under-representation in others. The residents of Hokowhitu, for instance, made up 14.0% of the City's population but 24.7% of the Panel. The residents of Aokautere made up 4.2% of the City population but 9.1% of the Panel. In my opinion, the distribution is so badly distorted that weighting would have been inappropriate. It is my view that on this basis alone the survey results cannot represent the residents of Palmerston North.
- 8.7 Given the biases apparent with respect to age and location it seems likely that these will be by no means the only biases from which the Citizens Panel suffers. Yet Mr Baines reports that he adjusted his results for the age structure bias among the respondents, and claims in paragraph 2.5.7 that "this weighting procedure ensures that the results quoted are representative of the population being sampled". Furthermore, in paragraph 2.5.8 of his evidence, Mr Baines asserts that there is a maximum margin of error of 6.5% at the 95% confidence level. Mr Baines then illustrates this by way of a hypothetical result of 50% answering one way to indicate that if applied to the wider population would result in an answer between 43.5-56.5%.
- 8.8 Mr Baines makes an important comment in paragraph 2.5.8 when seeking to explain confidence limits when he states that "we could reasonably expect 50+/- 6.5% if we sampled the same population randomly 100 times". In my view, the population has not been sampled randomly at all and the claimed precision is spurious due to the multiple levels of biased sampling. There is no means available to assess the severity of most of these biases, let alone adjust for them. Weighting the responses to reflect the age distribution of the population may sound scientific but in this case I believe it to be totally inappropriate. In my opinion, there is no justification for claiming that the sample is even qualitatively representative of the city-wide population, let alone that a numerical limit can be placed on the sampling error.
- 8.9 There are two well established procedures in social survey to address the problem of non-response and bias evident in the Citizens Panel:
- (a) Establish by some means that the non-respondents are not systematically different from the respondents; or
 - (b) Qualify conclusions obtained from the survey by noting that they represent only those motivated to join the Panel and then reply to the questionnaire, and not the wider population.

The first of these techniques is discussed by a colleague of Mr Baines in his text on social assessment who, after noting that survey response rates can typically be 10-40% of the sample state, suggests “The rule of thumb here is that the higher the non-response rate the more important it is to establish whether the non-response has a systematic bias.”⁹ Mr Baines presents no evidence of seeking to establish the views of the 58% non-respondents (procedure a) and, in quite the reverse of procedure b, continually asserts that the Citizens Panel results are representative of the wider population.

- 8.10 In my opinion, the failure to obtain a proper random sample renders invalid all statements which assert that the results from the Citizens Panel are representative of the wider population of Palmerston North. This conclusion applies, but is not limited to, the statements in Mr Baines’ evidence listed in Attachment 2.
- 8.11 None of these statements, such as that in Para 2.5.15 “the wider community of Palmerston North is saying “Enough is enough”, can be sustained because the Citizens Panel was not a random sample. In my opinion, all generalisations, tables (including portions of Table 24) and all comments in Mr Baines’ evidence which represent the views as those of anyone other than the participants in the Panel should be disregarded.
- 8.12 Similarly, any other evidence which relies in whole or in part on interpretations made from the results of the Citizens Panel should be similarly discounted. Such instances, include paragraph 60 of the evidence of Mr Jeff Baker which reports with approbation on Mr Baines’ assessment; and paragraph 64 (b) of Mr Baker’s evidence where he refers to Mr Wyatt’s lack of access to the social impact analysis as one of a number of reasons to prefer the evidence of Mr Anstey.

9. THE (ALLEGED) TIPPING POINT

- 9.1 In his concluding remarks on the social impact assessment Mr Baines commented on his view of the balance of public opinion. He asserts that “community support for wind farming in the Manawatu, near Palmerston North, while strong, is at a tipping point”.
- 9.2 The flaws in the structure of the Citizens Panel mean that I have refrained up until now from commenting on individual results. But issues of methods in relation to the “tipping point” conclusion in paragraph 9.2.1, and previous assertions in paragraphs 2.5.15 and

⁹ C. N Taylor, C. H Bryan, C G. Goodrich, (2004). *Social Assessment: Theory, Process and Techniques*, 3rd Edition, Social Ecology Press, Middleton, Wisconsin, p 126.

2.5.16 of Mr Baines' evidence that "the wider community of Palmerston North is saying 'enough is enough'" and that "the balance of public attitudes is clearly at a tipping point" require that some comment is made in this instance.

9.3 The basis for this interpretation is a classification by Mr Baines of respondents into two groups defined as being "for" and "against" further development. In my opinion it is simply not appropriate to classify those who agreed that "there is about the right amount of wind farm development" as being against further development. Yet Mr Baines does just this to construct a result of 41% in favour and 49% not in favour. The numbers could be similarly re-presented to say 74% "not opposed" and 16% "opposed".

9.4 The problem is that the meaning of "about the right amount" is open to multiple interpretations on whether more development (and how much) would trigger opposition. The upshot is that neither Mr Baines' interpretation nor the counter one I have presented above for illustrative purposes, is appropriate. This ambiguity could have been avoided if Mr Baines had used a simple Likert scale from strong opposition to strong support where the central class was "neither support nor oppose" as in the EECA surveys he has quoted in the Lake Mahinerangi windfarm SIA cited earlier. Then the result would not have been subject to uncertainty and re-interpretation. It could similarly have been avoided if Mr Baines had asked a specific question about the proposal rather than a generalisation of windfarm development of unspecified characteristics.

10. STANDARDS OF OBJECTIVITY

10.1 There are a number of instances where, in my opinion, this assessment falls short of appropriate standards of professional objectivity, particularly through the use of pejorative or emotive language. An example of this is the reference in paragraph 9.1.5 "In one respect it is not unique – it is another energy sector proposal of the Think Big¹⁰ variety, which this country has experienced on numerous occasions." There is no aspect of this statement that could be considered to be related to an objective, independent assessment of the social impact of the proposed windfarm and the comparison strains credibility.

¹⁰ "Think Big", for those who may not have met the expression, generally refers to a series of projects which included the Mobil synthetic gasoline plant at Motunui, the Kapuni Ammonia-Urea plant, the Waitara methanol plant, the expansion of the New Zealand Steel plant at Glenbrook, the electrification of the North Island Main Trunk railway, and a third potline at the Comalco aluminium smelter at Bluff, which were all approved/constructed in the early 1980s. The term is closely associated with the Hon. William F Birch who became the Minister of Energy in 1978.

11. CONCLUSIONS ON THE EVIDENCE OF MR BAINES

- 11.1 It is inevitable that significant projects will have social impacts. These begin with the announcement of a project which shatters people's illusions that they are in control of their own lives and that change will always be of a nature and in a direction that suits them. Few people, for instance, anticipate that they might have a transmission line built in their view and yet a Board of Inquiry recently approved a transmission line comprising 426 towers. The hiatus created by consultation and planning process frequently interrupts people's lives – for example, it is common that somebody is about to buy or sell a property, be they an individual or property developer, and such transactions typically go on hold or even fall through. Further effects can occur in the construction, operation and decommissioning phases of development.
- 11.2 Returning to the definition by Professor Burdge, as quoted by Mr Baines in paragraph 2.1.1, social impact assessment "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." In my opinion, Mr Baines' assessment do not fulfil the requirements of 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". Furthermore, in my opinion, Mr Baines' conclusion on the views of the majority of the wider community on sustainable use of resources, or provision for its social and economic well being in the broadest sense" is not supported by his evidence because the views of the wider community have not been properly assessed.

12. GENERALISATION OF FOCUS GROUP DISCOURSE

- 12.1 I have previously referred to Mr Anstey's evidence at paragraph 5.2. I would like to return to it to discuss two further issues.
- 12.2 First, in paragraph 8 of his evidence Mr Anstey states that "I have attended four 'focus group' meetings with Mr Baines where we engaged with community groups to explore their perceptions, aspirations and concern." Mr Anstey refers to the focus groups again in paragraph 34 of his evidence, where he states: "I assisted Mr Baines with focus group meetings held in the foothills communities of Pahiatua Track, Turitea Valley, Ngahere

Park, and Kahuterawa Valley, attending them all.” In Mr Baines’ evidence he indicates at paragraph 2.2.3 that he also held a focus group with seven landowners participating in the proposal. Mr Anstey does not report attending this meeting to gain these landowners views.

- 12.3 Setting aside the influence that the presence of a landscape architect might have on the discussions in these focus groups, it is important to recognise the strengths and limitations of focus groups as a research tool. They are excellent for exploring topics qualitatively and understanding the language people use in discussing various matters. The results, however, cannot be generalised to represent any more people than those who actually took part, who typically selected for their views or some particular attribute. They are essentially anecdotes, useful in their context, but limited in application. Providing robust evidence on the views of wider groups is the role of scientifically conducted surveys, typically using probability sampling.
- 12.4 The respective roles in social research of focus groups and surveys are critical in Mr Anstey’s endeavour “to gain at least some appreciation of how individuals and their communities relate to the foothills landscape and what they think is important.” Mr Anstey may have gained some insights into the views of the 34 individuals, from an undefined number of households, attending the focus groups. But it is entirely inappropriate to assert this as the basis of understanding the views of “their communities” because there is no way of ensuring that they were representative. Similarly, a social scientist would qualify the statement of Mr Anstey in paragraph 37 of his evidence when he states “The responses of the residents” and restate it as “The responses of the residents attending these focus groups”, because that is all that they are. There are other instances in Mr Anstey’s evidence where the same qualification should be applied, such as paragraph 87.
- 12.5 To give a sense of scale I have analysed the meshblock data for the area parallel and including the ranges from Ashhurst Bridge to the Kahuterawa Valley and Greens Road. The data is presented in Table 3 which shows a total of 4,398. Even within the more restricted area from which the focus groups may have been drawn numbers of people invalidates any notion of representativeness of the 34 participants.

Table 3 Population of localities between the Manawatu River and the Ranges

Locality	Residents
Ashhurst Bridge to Pahiatua Track	390
Aokautere	612
Ngahere Park Rd	384
Turitea - upper	39
Turitea - lower	744
Summerhill	1044
Massey periphery	759
Linton (not military camp)	243
Kahutarewa & Greens Rd	183
Total	4398

- 12.6 It is unclear to me whether Mr Anstey is generalising again in paragraph 115 of his evidence when he states “At the four community meetings I attended in the foothills there appeared to be very little support for turbines, presumably because residents regard their environment as one of “the most sensitive locations””. This statement raises two issues from a social research perspective. First, the use of the term “community” could be interpreted as indicating some degree of wider representation, when I have been informed that participation was by invitation. The term is therefore an unnecessary, and potentially misleading, embellishment. Second, it is not appropriate from a social science perspective to impute motive or reason on behalf of the focus group participants by making a statement starting with “presumably”. If this matter was not unequivocally established through the focus groups, then Mr Anstey should not infer it.
- 12.7 In summary, it is my opinion that Mr Anstey, a landscape architect, draws inappropriate inferences from the focus groups he attended. These inferences, which are not attributed to any other person, break the basic rules of social science research of not stretching the interpretation of research results. I note in paragraph 7 that Mr Anstey states “Except where I state that I am relying upon the specified evidence of another person, my evidence in this statement is within my area of expertise.” In my opinion, Mr Anstey may have strayed outside his expertise in making these statements.

12.8 Second, Mr Anstey states in his evidence at paragraph 33 that “Mr Baines (sic) evidence fills the ‘gap’ that landscape architects struggle with. The evidence he provides is crucial to informing the process of resolving the tensions between interests, between those who find the proposed wind farm acceptable and those who have reservations.” Mr Anstey does not return to these matters in his evidence to show specifically how this contribution is made. To the extent that this may depend on Mr Baines’ opinions based on the Citizens Panel, such as the alleged tipping point, or any responses to specific questions, then in my opinion Mr Anstey must “struggle” on, as Mr Baines’ evidence does not resolve these matters.

13. INFERENCES FROM SMALL SAMPLE SURVEYS

13.1 Dr Thorne provides information on “The Manawatu Pilot Study” in Topic H of his evidence. I have reviewed this material and wish to comment as follows.

13.2 In paragraph H8, Dr Thorne states “The Manawatu – Brisbane Pilot Study was established as a focus survey with study offered to respondents to an earlier survey investigating wind farm issues.” I am not familiar with the term “focus survey” as a distinct method but the if the term “study” offered to respondents to an earlier survey investigating wind farm issues means that the participants had previously been surveyed on these matters, then there is a risk that these respondents will have been preconditioned in their responses by the earlier survey.

13.3 Continuing in paragraph H8 Dr Thorne states “The Manawatu respondents are determined as being an ‘environmentally aware’ population. This group was chosen on the basis that this segment of the research required responses from persons who had an interest in their environment and who would be willing to answer a lengthy questionnaire”. Quite what being “environmentally aware” might mean as a sampling criterion is unclear. It would be unfortunate if it were a proxy for “anti-development”. .Furthermore, “willingness to complete a long questionnaire” is an unusual qualification to take part in any survey (persistence can sometimes be an indicator of an axe to grind). The key issue I have with this statement, however, is that Dr Thorne states at the outset that participants were specifically selected. This is a type of non-probability sampling, sometimes referred to as “purposive” sampling. While convenient and sometimes useful to explore the views of a particular group, any results from such a sample cannot be generalised to a wider population.

- 13.4 Dr Thorne concludes paragraph H8 by stating “The occupational status of the Manawatu group was not identified.” In practice, no profile information on the participants in his study is provided in Dr Thorne’s evidence. Even if it were, however, the small numbers (57 participants in the Manawatu according to paragraph H13) and the non-random nature of the sample would mean it would have no utility. In my opinion, the numbers are so small and the sampling procedure so abstruse that nothing could be made of any profile data.
- 13.5 In paragraph H9, Dr Thorne states “It was anticipated that the Manawatu group would exhibit a wide range of noise sensitivities as the group was drawn from different ‘zones’ within the Manawatu: wind-farm affected urban and/or rural locales; and ‘greenfields’ unaffected by wind farms. Setting aside the pejorative language of “affected by” and “greenfield”, and the potential bias in the working hypothesis, in my opinion the notion that any reliable conclusions in relation to a wider population than the respondents themselves could be drawn from a non-random sample of 57 divided between four zones is simply not sustainable.
- 13.6 Dr Thorne indicates in paragraph H10 that “A control group was selected in Brisbane. The Brisbane group was self selected from invitations to musicians, teachers, lawyers and acoustical professionals. The Brisbane group was defined on the basis of previous investigations that indicated these occupations showed considerable attention to detail and focussed on issues more than ‘ordinary’ individuals.” In my opinion, such a peculiarly selected group has no value as a control for anything. If Dr Thorne was seeking a control group he would have been better, in my view to sample his Zone 4. It is unclear from Dr Thorne’s evidence why the Brisbane group is needed at all. The Zone 4 people live well away from existing turbines and are much more likely to be otherwise similar to those who live closer. Even so, the numbers required in both the groups under investigation and the control group would have needed to be very significantly larger, and the sampling process undertaken on an equal probability basis, for the results to be applied to a wider population.
- 13.7 In paragraph H13 Dr Thorne states “The analysis of the results from 69 responses (57 in the Manawatu, 12 in Brisbane) indicates that Zone 3 responses are statistically different from the other zones and the Brisbane control. All respondents to the survey are considered to be noise sensitive. This is an unexpected outcome from the study.” In my opinion, such a statement is unfounded. The numbers of persons surveyed, especially

considering the Manawatu sample of 57 is divided into four zones, are so small that nothing derived from them will have any statistical significance. The claim “that Zone 3 responses are statistically different from the other zones and the Brisbane control” in this instance is simply incorrect, and still would be even if the groups were randomly selected.

13.8 In paragraphs H15-H21 Dr Thorne reports the experiences of his esoteric samples in a way more commonly found in random sample surveys. In my opinion, none of these results have any value whatsoever in understanding the experiences of people living in either the Manawatu or Brisbane. It is worth considering the numbers involved in the results for Brisbane, a city of 1,857,594 people, of whom Dr Thorne sampled an eclectic selection who then self-selected to participate in his survey. These are set out in Table 4 based on the information supplied in paragraph H13 stating 12 respondents in Brisbane.

Table 4: Brisbane component of Dr Thorne’s Table H.1

Locale	Reading		Watching TV		Listening, Talking		Relaxing		Sleeping	
Percent	33%	67%	13%	87%	13%	87%	48%	52%	52%	48%
Number	4	8	2	10	2	10	6	6	6	6

13.9 In addition to the statistical issues in the results presented, in my opinion, there are also issues of relevance. None of the results are other than descriptive of the experiences of a few individuals as there were only 57 responses in the “Manawatu” survey. It is also unclear to me what significance should be attributed to the result that 65% of the small group in the Manawatu found noise in your environment (including your home environment) a problem.” The sources of such problematic noises (such as neighbours, boy racers, freight trains or an approach to Runway 25 at Palmerston North Airport) are completely unspecified.

13.10 In paragraph H19, Dr Thorne has apparently a smaller number of respondents to individual questions as he states “Questions concerning the character of the sounds within the local environment were answered mainly by the Zone 1 respondents (27 of the Manawatu total of 32). This appears to be a significant non-response rate compared with the 57 referred to in paragraph H13, but it is hard to interpret from the evidence presented.

13.11 It is worth considering the numbers involved in Dr Thorne’s Brisbane study as set out in his Table H.2. In my opinion, the numbers are so small as to have no value as indicators of anything.

Table 5: Responses to “Does noise affect you while...” in Dr Thorne’s Table H.2

Locale	Reading		Watching TV		Listening Talking		Relaxing		Sleeping	
Manawatu %	8%	92%	0%	100%	14%	85%	31%	69%	31%	69%
Manawatu #	1	12	0	13	2	10	4	9	4	9
Brisbane %	29%	71%	0%	100%	15%	85%	36%	64%	7%	93%
Brisbane #	4	10	0	14	2	12	5	9	1	13

13.12 The final paragraph in this section, H38, states “Based on my research I hold the opinion that the proposed Turitea wind farm will not be acceptable within the Manawatu community as the evidence is that wind farms are held very negatively by the community most affected.” In my opinion, none of the information presented by Dr Thorne in any way sustains such a conclusion if the “Manawatu community” in question is the residents of Palmerston North and Manawatu District. Dr Thorne has undertaken a small pilot study with a peculiar sample which simply cannot be generalised beyond the very limited number of people involved for a specific purpose and none of the questions he presents in his evidence provides any information related to the Turitea proposal.

13.13 Dr Thorne then goes on in paragraph 38 to state that It can be inferred that a “tipping point” may have been reached, with another wind farm just one wind farm too many.” In my opinion, there is nothing in the evidence that Dr Thorne presents that even remotely relates to the notion of a “tipping point” which, as I noted earlier, cannot be sustained by Mr Baines’ evidence either. In my opinion, this conclusion is so unrelated to any of the foregoing evidence such that it is impossible to identify on what it might be based.

14. IMPUTATION OF MOTIVE IN THE EVIDENCE OF MR BAKER

14.1 Mr Baker states in paragraph 67 of his evidence that “I do not in my evaluation place any weight on the landscaping mitigation proposed by the applicant.” He also states “where

the effects are experienced in highly populated areas, such as in this case this mitigation response is in my opinion unrealistic and unacceptable. My reason for this is that it imposes the burden of managing visual effects on private property owners who have likely bought their properties in the first place for the sense of space, openness and vistas of the hillside". Mr Baker presents no information to support his interpretation that property owners "likely bought their properties in the first place for the sense of space...." There are a significant number of recent location decisions involved, as in the Census Area Unit of Aokautere (N=3,171), 50% of the residents at the 2006 Census were living elsewhere in New Zealand and a further 15% were overseas. As with Mr Anstey, it is simply not appropriate for Mr Baker to impute motive.

15. CONCLUSIONS

- 15.1 Social impact assessment has an important role to play in decision-making on projects. In my opinion the evidence of Mr Baines does not fulfil the requirements of an SIA. Furthermore, Mr Baines' reliance on the unrepresentative Citizens Panel invalidates all the generalisations he makes about the views and values of the population of Palmerston North and all those made by other witnesses that rely on his evidence. It is unfortunate that both Mr Anstey and Dr Thorne fall into the same trap of generalising from data that is relevant only to a small group of people, and that Mr Anstey and Mr Baker both make inappropriate statements inputting motive. In my opinion, the evidence presented by these experts on social impacts and social surveys is not a reliable basis for assessing the social effects of this proposal.
- 15.2 Finally, I note that my rebuttal evidence has been subjected to peer review by Mr Murray Ellis (a standard step in SIA best practice as defined by the International Association for Impact Assessment). Mr Ellis' formal qualifications include a Bachelor of Arts in statistics and economics, a Bachelor of Science (with Honours) in mathematics, and a Master of Philosophy in engineering economics. He has significant project experience in applied statistics and is regularly involved in the design, implementation and analysis of random sample surveys.

Dr Peter Phillips

23 July 2009

Attachment 1: Review of Appendix JTB10: Range of social issues and effects

Effects on the natural environment (with social consequences)	
<p>Effect: Increased renewable electricity generation</p> <p>Addressed in: 5.2.1 <i>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.</i></p> <p>Addressed in: 5.2.2 <i>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.</i></p>	<p>Analysis: Risk to supplies is a function of the security of the National Grid, not <i>per se</i> to the “increased renewable electricity generation”. Reference to local renewable supplies is to all intents and purposes irrelevant.</p> <p>Conclusion: No specific social effect demonstrated</p> <p>Analysis: Benefit derives from additional generation by the project. Provided nationally through the National Grid which also ensures reliable supplies to Palmerston North from generation elsewhere. Notion of “rely on” a <i>non sequitur</i>.</p> <p>Conclusion: Social benefit acknowledged</p>
<p>Effect: Decreased greenhouse gases</p> <p>Addressed in: 5.2.2 <i>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</i></p>	<p>Analysis: Notion of “rely on” a <i>non sequitur</i>.</p> <p>Conclusion: Social benefit acknowledged</p>
<p>Effect: Good wind resource</p> <p>Addressed in: Cites 5.2. which deals with reliability of supply (see above); cites 5.3. which deals with landscape and visual effects; cites 5.6 which deals with water supply risks;</p> <p>Addressed in: 6.2.3 <i>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:</i></p> <p>Addressed in: 6.3.1 <i>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 62 turbines. These estimates assume that all 62 turbines are consented. Actual revenue is directly proportional to the number of turbines.</i></p>	<p>Analysis: there are no social consequences of the “good wind resource” identified in the first three citations. The effects in the fourth and fifth citations are essentially financial for landowners and citizens of Palmerston North derived from use of the resource. Whether resource status actually constitutes an “effect” is open to question. No discussion of effects as per OECD “<i>Living Conditions in OECD Countries</i>” cited by Baines such as those covered in Chapter V “<i>Command over goods and services</i>”, including impact on income distribution of the population.</p> <p>Conclusion: No specific social dimensions of this “effect” have been identified.</p>
<p>Effect: Not environmentally friendly as believed because of resources required for construction of the project</p> <p>Addressed in: Not addressed</p>	<p>Analysis: Not addressed</p> <p>Conclusion: No social effect identified</p>
<p>Effect: Turitea Reserve should be left in current unspoilt state; negative effects in</p>	<p>Analysis: Potential effects on recreation resources raised</p>

<p>threatened species, bush, soil stability; Eco park would add limited value.</p> <p>Addressed in: 5.5.2 <i>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.</i></p> <p>Addressed in: 5.5.4 <i>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 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.</i></p> <p>Addressed in: 5.6.1 <i>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.</i></p> <p>Addressed in: 5.6.3 <i>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.</i></p>	<p>but risk and therefore potential scale of effect not quantified and not related to recreational use of potentially affected waterways.</p> <p>Possible effect on recreational experience on those visiting the adjacent Hardings Park, where the Sledge Loop Track not assessed and inter-visibility not established (<i>could well afford views into this area</i>).</p> <p>Public health risk assessed by technical expert as “less than minor provided a number of changes are made and conditions met”</p> <p>Conclusion: No effect on recreation quantified, and public health risk assessed as less than minor subject to meeting of conditions</p>
<p>Effect: Good use of Turitea Reserve and enable pest control in the area</p> <p>Addressed in: Cites 5.5 but not addressed</p>	<p>Analysis: Not addressed</p> <p>Conclusion: No social effect established</p>
<p>Effect: Clean energy should be restricted to remote areas and not located on reserve land</p> <p>Addressed in: Not addressed</p>	<p>Analysis: Not addressed</p> <p>Conclusion: No social effect identified</p>
<p>Effect: Negative effects of hazardous events during construction – malfunctions and chemical spills</p> <p>Addressed in: 5.5.2 <i>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.</i></p> <p>Addressed in: 5.5.3 <i>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.</i></p> <p>Addressed in: 5.5.4 <i>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 concern is within the Turitea Reserve and therefore unlikely to be accessible by</i></p>	<p>Analysis: Essentially repeats earlier “effect” namely: <i>Turitea Reserve should be left in current unspoilt state; negative effects in threatened species, bush, soil stability; Eco park would add limited value.</i></p> <p>Chemical spills raised as a “main local-level issue highlighted most frequently” in 4.2.4 but no other mention in the body of Mr Baines’ evidence.</p> <p>Conclusion: No effect on recreation quantified; expert evidence that risks to native birds can be reduced to minor (addressing cultural concerns); and expert evidence that public health risk assessed as less than minor subject to meeting of conditions.</p>

<p>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.</p> <p>Addressed in: 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.</p> <p>Addressed in: 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.</p>	
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Social and cultural effects	
<p>Effect: Wind farms have less effect on people</p> <p>Addressed in: Cites section 7 but no comparative discussion</p>	<p>Analysis: "Less effect" has an unspecified referent i.e. not stated what it is "less" than. Discussion focuses on cumulative effects and an attempt to quantify effects on well-being</p> <p>Conclusion: No comparative effect established</p>
<p>Effect: Improvements in recreation and tourism opportunities in the area</p> <p>Addressed in: Cites 6.5 but no recreation benefits identified, rather discussion focuses on potential displacement of recreational users and hazards posed during construction.</p> <p>Addressed in: 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 attract visitor attention for a while, this would probably be instead of visiting another wind farm.</p>	<p>Analysis: No positive effects identified in body of Mr Baines' evidence for either recreation or tourism.</p> <p>Conclusion: No social benefit quantified</p>
<p>Effect: Ensure land is productive and continue to live on property</p> <p>Addressed in: 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 livelihoods from wind farm revenues alone, while the remaining eight would have substantial supplements to their existing sources of livelihood.</p>	<p>Analysis: Positive financial effects quantified as in range \$820,000-\$970,000 (6.2.2). No social effects beyond individual households assessed as per OECD "Living Conditions in OECD Countries" cited by Baines such as those covered in Chapter V "Command over goods and services", including impact on income distribution of the population.</p> <p>Conclusion: Positive financial effect quantified</p>
<p>Effect: Health risks including negative effects such as sleep deprivation, migraines, stress, mental illness, social behaviour</p>	<p>Analysis: Mr Baines presents no systematic evidence on health effects and quotes an expert witness at another</p>

<p>Addressed in: 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.</p> <p>Addressed in: 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 concluded "there is insufficient evidence to support recommending the precautionary approach to vibroacoustic disease."</p> <p>Addressed in: 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</p>	<p>hearing on vibroacoustic disease. The only evidence presented is anecdotal comprising a series of "comments": "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"</p> <p>Conclusion: No systematic evidence of health risks or levels of risk of "sleep deprivation, migraines, stress, mental illness, social behaviour" is established.</p>
<p>Effect: Loss of rural lifestyle and enjoyment from the presence of turbines and transmission lines. Industrialisation of rural area.</p> <p>Addressed in: 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.</p>	<p>Analysis: Beyond the initial statement in 5.3.1 there is no evidence in relation to the social dimensions of this "effect" in the body of Mr Baines' evidence to assess assertions made by submitters or in focus groups.</p> <p>Conclusion: No social effect has been quantified.</p>
<p>Effect: Negative effect on recreational activities in the area from loss of tranquility and increased road traffic</p> <p>Addressed in: 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.</p> <p>Addressed in: 6.5.7 In my opinion, an operating wind farm of the scale currently proposed for the Turitea site is likely to displace <u>some</u> 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.</p>	<p>Analysis: Data from the Citizens Panel survey is used to infer that the proportion of recreationalists who might be displaced by the presence of turbines in the reserve might vary between 16-49%. The Citizens Panel survey is not, however, a representative sample of Palmerston North residents and there is no data to link the Panel sample to recreational behaviour. Such an inference, therefore, is entirely speculative.</p> <p>Conclusion: A social effect has been identified but not quantified.</p>
<p>Effect: Traffic safety issues for residents during construction</p> <p>Addressed in: The 5.7.1 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</p>	<p>Analysis: Mr Baines endorses recommendations from Mr Tate related to the management of construction traffic.</p> <p>Conclusion: A potential social effect has been identified</p>

<p><i>transport, but also because vehicular traffic has the potential to affect the amenity values of roadside properties and the personal safety of other, not necessarily vehicular road users such as cyclists, walkers and those riding horses.</i></p>	<p>and management proposals defined, including the use of community liaison groups.</p>
<p>Effect: Adverse effect on the city's water supply from sediment, disease, chemical spills during construction. Addressed in: same sections as previously discussed effects: "Turitea Reserve should be left in current unspoilt state; negative effects in threatened species, bush, soil stability; Eco park would add limited value" and "Negative effects of hazardous events during construction – malfunctions and chemical spills"</p>	<p>Analysis: Essentially repeats previously discussed issues. Conclusion: No effect on recreation quantified; expert evidence that risks to native birds can be reduced to minor (addressing cultural concerns); and expert evidence that public health risk assessed as less than minor subject to meeting of conditions.</p>
<p>Effect: Establishing wind farm on the reserve would set a precedent for rest of the country Addressed in: Not addressed</p>	<p>Analysis: Not addressed Conclusion: No effect established</p>
<p>Effect: Division within community has been generated by the project as only some landowners will benefit while other residents will experience negative effects. Addressed in: Table cites "Section 7" but no discussion of community divisions in this section. There is a reference to the generic issue earlier in the evidence at: 3.3.7 <i>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.</i> There is also a discussion of community interactions in 3.3.6 <i>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.</i> No assessment is made, however, of how this might change as a result of the construction of the wind farm.</p>	<p>Analysis: Not specifically discussed in terms of an assessment of potential effects of the windfarm development on community relations or demographics. Conclusion: No social effect established</p>
<p>Economic effects (with social consequences)</p>	
<p>Effect: Reduction in cost of meeting country's treaty obligations re climate change Addressed in: 5.2.2 <i>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</i></p>	<p>Analysis: No specific discussion of Kyoto (or post-Copenhagen) obligations Conclusion: Effect identified but not quantified</p>

<p><i>applies to other national benefits such as the impacts on carbon dioxide emissions from electricity generation</i></p>	
<p>Effect: Stimulate local and national economy through increasing revenue and job creation during construction, landowner royalties, and rate reductions by PNCC</p> <p>Addressed in: 6.2.2 <i>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.</i></p> <p>Addressed in: 6.2.3 <i>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:</i></p> <p>Addressed in: 6.3.1 <i>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 62 turbines. These estimates assume that all 62 turbines are consented. Actual revenue is directly proportional to the number of turbines.</i></p> <p>Addressed in: 6.4.3 <i>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.</i></p> <p>Addressed in: 6.4.5 <i>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.</i></p>	<p>Analysis: An assessment of financial benefits and job creation is provided, although as noted in 6.4.3 this does not include indirect business activity</p> <p>Conclusion: Effects identified and quantified</p>
<p>Effect: Increase tourism activities in the area and national emblem for Manawatu</p> <p>Addressed in: 6.6.6 <i>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 attract visitor attention for a while, this would probably be instead of visiting another wind farm.</i></p>	<p>Analysis: No increase in tourism anticipated and no discussion of emblematic value of wind turbines</p> <p>Conclusion: No social benefit quantified</p>
<p>Effect: Devaluation of properties</p> <p>Addressed in: Not addressed</p>	<p>Analysis: Not addressed</p> <p>Conclusion: No social effect established</p>
<p>Effect: Concern that no compensation is to be paid to near neighbours of turbines</p> <p>Addressed in: Not addressed</p>	<p>Analysis: Not addressed</p> <p>Conclusion: No social effect established</p>

Effects on amenity (with social consequences)	
<p>Effect: General perception of negative effects on amenity values – particular landscape/visual and noise</p> <p>Addressed in: 5.3.1 <i>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.</i></p> <p>Addressed in: 5.4.1 <i>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.</i></p>	<p>Analysis: The Citizens Panel survey is not a reliable basis for drawing conclusions about the assessments made by residents of Palmerston North of the visual impact of wind farms. The Ex-post survey does not add reliable information to the technical assessments made by noise experts. In both cases the surveys have not been based on random sampling procedures so it is not appropriate to generalise from the samples to wider populations.</p> <p>Conclusion: Social effect identified but not quantified</p>
<p>Effect: Negative effects of turbines and transmission lines on visual appearance of landscape – industrializing rural character, cumulative effects of 488 existing, consented and proposed turbines</p> <p>Addressed in: 5.3.1 <i>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.</i></p> <p>Addressed in: while not cited in the table by Mr Baines, cumulative effects addressed in 7.2.1 <i>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. 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. These observations point to potentially significant and unavoidable adverse social effects of a cumulative nature.</i></p>	<p>Analysis: The Citizens Panel survey is not a reliable basis for drawing conclusions about the assessments made by residents of Palmerston North of the visual impact of wind farms. The notion that wind farms and transmission lines “industrialise” the landscape has not been tested. Estimate in Table 24 of “<i>thousands (net) affected negatively across the City</i>”</p> <p>Conclusion: A potential cumulative social effect has been identified but has not been reliably quantified.</p>
<p>Effect: Uncertainty associated with noise effects of turbines because of increased size, noise cannot be adequately mitigated outside buildings, levels would not meet current NZ standard, effects of low frequency noise unknown, proximity of turbines to homes</p> <p>Addressed in: cites 5.4 but no reference to turbine size, noise mitigation, current NZ standard or effects of low frequency noise beyond: 5.4.6 <i>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.</i></p>	<p>Analysis: The discussion of social effects in section 5.4 does not address issues related to turbine size (whether “increased” or not), noise mitigation, or the current NZ standard which are all clearly technical matters rather than social effects. The effects of low frequency noise are addressed in section 5.4.6. In Table 24 Mr Baines assesses that 20-25 neighbouring residents are at risk of on-going noise, although this is based on the Ex-post survey which</p>

<p><i>Referring to concerns which had been raised about the potential for wind turbine-generated infrasound to lead to vibroacoustic disease, Dr Palmer concluded "there is insufficient evidence to support recommending the precautionary approach to vibroacoustic disease" and 5.4.10 I have been informed 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% 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.</i></p>	<p>was not undertaken on a random sample basis. If Table 24 were taken as accurate then to 20-25 neighbouring residents would be unlikely to be a significantly larger number than the residents in the 12 households who will have turbines on their properties (event excluding the further six households whose properties would be crossed by the transmission lines. Uncertainty as an effect can be addressed to a greater or lesser extent by information.</p> <p>Conclusion: Text</p>
<p>Effect: Construction effects of noise, dust and traffic volumes</p> <p>Addressed in: <i>The 5.7.1 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 roadside properties and the personal safety of other, not necessarily vehicular road users such as cyclists, walkers and those riding horses.</i></p> <p>Addressed in: <i>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.</i></p>	<p>Analysis: Mr Baines endorses recommendations from Mr Tate related to the management of construction traffic.</p> <p>Conclusion: A potential social effect has been identified and management proposals defined, including the use of community liaison groups.</p>

Attachment 2: Inappropriate generalisations from Citizens Panel survey results

In my opinion, the failure to obtain a proper random sample renders invalid all statements which assert that the results from the Citizens Panel are representative of the wider population of Palmerston North. This conclusion applies to, but is not limited to, the following statements in Mr Baines' evidence:

- (a) Para 2.5.15 *"the wider community of Palmerston North is saying "Enough is enough"*
- (b) Para 2.5.16 *"In colloquial terms, these survey results are tantamount to about 23,700 residents of Palmerston North..."*
- (c) Para 3.1.1 *"a majority of Palmerston North residents rate the ranges...."*
- (d) Para 3.5.4 *"most residents have not so far experienced a reduction in their enjoyment...."*
- (e) Para 3.9.1 *"Clearly the proposal is also polarising attitudes in the wider regional community....."*
- (f) Para 5.3.3 *"results of the Citizens Panel survey on the attitudes of Palmerston North residents to the landscape values....."*
- (g) Para 6.3.8 *"With the majority of City residents likely not to be in favour...."*
- (h) Para 6.5.5 *"Palmerston North residents in general...."*
- (i) Para 6.5.7 *"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...."*
- (j) Para 7.3.6 *"the wider community of Palmerston North has an increasing level...."*
- (k) Para 9.1.2 *"the Citizens Panel Survey and Ex-Post survey have provided a robust and coherent body of independent empirical data about Palmerston North's experience of wind farm developments...."*
- (l) Para 9.1.7 *"Citizen Panel Survey provides clear evidence of Palmerston North residents' desire....."*

- (m) Para 9.1.9 *“somewhat more residents of Palmerston North are no longer in favour of further wind development....”*
- (n) Para 9.1.9 *“The residents of Palmerston North are not rejecting wind farms but they are beginning to reject the idea of more wind farms nearby.”*
- (o) 9.2.1 *“would be considered by the majority of the wider community....”*