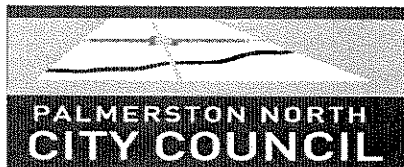

BEFORE THE BOARD OF INQUIRY

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

SUPPLEMENTARY EVIDENCE
OF JAMES TALBOT BAINES ON S.42A REPORT

Dated: 15th July 2009



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Executive Summary

- 1 Ms Rose (the S.42A reviewer) and I agree that MRP has not, but should have, carried out a social impact assessment. Dr. Phillips evidence is not a social impact assessment but confined to a critique of my evidence and others. Mr Kalafateli's survey is not a social impact assessment. A survey on its own has limited usefulness. In that regard Dr Phillips said in paragraph 6.1 of his original rebuttal, referring to my analysis of the survey of PNCC's resident's panel:

"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. In many respects it is one of the least reliable – words are cheap."

I do not agree with the criticism by Dr Phillips (and endorsed by Ms Rose) that I have placed undue weight on the survey panel results I analysed for the reasons I explain below. However, this is a valid criticism of Mr Kalafateli's evidence that relies solely on a survey.

- 2 My principal evidence relied on a range of sources including:
 - (a) focus group discussions:
 - (b) detailed analysis of local populations and development trends in the eastern side of the City;
 - (c) the residents panel survey;
 - (d) the *ex-post* survey of residents within 5km of existing wind farms;
 - (e) submissions both in respect of the Turitea Windfarm and preceding

wind farms;

- (f) the technical evidence of the Council's experts;
- (g) relevant background literature including Environment Court judgments;
- (h) my own work on social impact assessments of other wind farm projects, both in Manawatu and in other parts of the country.

3 **Attached** to this supplementary statement is a statistical analysis of the results of my *ex-post* survey of residents within 5km of existing wind farms in the rural residential area based on raw data already covered in my principal statement of evidence. This statistical analysis demonstrates that a significant percentage of rural residents experience negative visual and noise effects up to 3,000m *post* construction and there is a strong statistical correlation between distance and experience. Based on a comparison between pre-construction perceptions undertaken prior to previous projects and the *ex-post* survey it appears that pre-construction perceptions are not a good indicator of likely experience.

4 **I consider** that Ms Rowe's review is deficient in that it lacks a depth of reasoning and *justification* and is in contrast with the depth of analysis and reasoning found in the S.42A Reports on noise and visual effects. The ultimate contradiction is the finding by Ms Rowe that there is a "valid" social effects assessment by MRP combined with the acknowledgment that there was no social impact assessment by MRP. It appears to me that the report was prepared without full information and without sufficient time to be comprehensive and well reasoned.

Introduction

5 My full name is James Talbot *Baines*. My expertise and experience has been described in my primary statement of evidence.

- 6 This supplementary statement of evidence addresses the S.42A Report commissioned by the Board of Inquiry prepared by Julie Meade Rose, dated June 2009, under contract to MWH New Zealand Ltd (MWH) and the rebuttal statements of Mr Kalafatelis and Dr. Phillips.
- 7 There has been no communication between Ms Rose and myself, either during the period when she was preparing her report or when I was preparing this rebuttal.
- 8 In preparing this rebuttal statement, I have read not only the S.42A Report regarding social effects but also the S.42A Reports which reviewed the landscape/visual and the noise effects assessments.
- 9 The only social impact assessment carried out in respect of the Turitea Windfarm project is the social impact assessment that I carried out. This was carried out within the window of time available and draws from a range of sources of information to reach conclusions that I consider to be robust.
- 10 I consider under the separate heading below dealing with the S.42A Report that the analysis of Ms Rose lacks transparency and internal consistency and objectivity.
- 11 Ms Rose and I agree that the absence of a social impact assessment in the Mighty River Power application is a deficiency.
- 12 The wind industry has relied to a significant extent on the results of attitudinal surveys at the national or regional level, where respondents have been responding to generalised propositions about renewable energy or about a wind farm. They have used the high levels of support expressed in such surveys to contend that the social impacts of wind farms are small and that the wind farm proposals enjoy widespread public

support in this country. In my opinion, that notion is simplistic and not borne out by a more in-depth analysis of such data. It is for that reason that a much higher level of sophistication of public attitude assessment was encouraged by the Parliamentary Commissioner for the Environment in the report *Wind power, people, and place*¹.

- 13 In relation to the ex-post survey referred to in my primary SOE I attach a statistical analysis of the correlation between distance and experience of adverse noise and visual effects based on the raw data already presented.
- 14 I have not in this rebuttal referred to the evidence of Dr. Phillips and Mr Kalafatelis in reply as I understand this will be dealt with in cross examination. I have not changed any of my conclusions as a result of reading those statements.

S.42A Report

- 15 The S.42A Report on social effects assessment is difficult to rebut because it lacks any meaningful detail, is internally inconsistent, and provides little justification for the conclusions reached.
- 16 As the author of the only principal social impact assessment evidence being presented to the Board of Inquiry, I am struck by the contrast between the S.42A Report of Ms Rose and the S.42A Reports of "landscape, visual and cumulative effects" prepared by Ms Julia Anne Williams and of "noise effects" prepared by Dr Jeremy Trevathan. The latter two reports contain extensive details of the material being reviewed, the issues and arguments being discussed and the justification for the conclusions reached. This contrasts with the situation I find myself in when responding to the S.42A Report on social effects.

¹ Parliamentary Commissioner for the Environment. 2006 *Wind power, people, and place*. Wellington: Parliamentary Commissioner for the Environment – See in particular recommendation 7, page 117

- 17 My concerns about the S.42A Report on social effects (hereafter "the report") are four-fold. They are to do with:
- a. not addressing the scope of work described at the beginning of the report;
 - b. a lack of transparency in the findings reported;
 - c. a lack of internal consistency in the findings reported; and
 - d. apparent inconsistency in the criticisms made of my evidence when compared with the other statements of evidence reviewed.
- 18 In section 2 of the report, the Scope of Work is described as "a review and assessment of social effects" of the Turitea wind farm proposed by Mighty River Power.
- 19 From my reading of the report, I can find no such review or assessment of these social effects. The comments on the primary evidence of Mr Pollock for the applicant (at section 6(a)) gives a list of types of effect covered in the planning information but provides no review discussion, nor any assessment of those effects.
- 20 At the beginning of section 5 of the report, Ms Rose states that "*the social effects information that is included in the AEE is valid*" without specifying which social effects this statement refers to, nor indicating what criteria have been used as the basis for this judgement about the validity of the data.
- 21 At the beginning of section 7(a) of the report, when discussing the validity of information presented in my evidence, Ms Rose states "*there are flaws in some of the data Mr Baines has used. Also Mr Baines has inappropriately interpreted some data.*" The report goes on to say:

"Flaws in sources of data include the following.

- a. *The Citizen's Panel survey is not a random sample. Thus there is no statistical base to say the survey results are representative of the population."*

22 I can find no factual basis in the report to substantiate the assertion made that the survey did not make use of a random sampling approach. Nor is there explanation of any enquiries made to establish whether or not the assertion is correct. On the basis of my enquiries with the survey administrator, I believe the assertion by Ms Rose to be incorrect.

23 The report goes on to say:

"Inappropriate interpretation of data includes the following.

- a. *In the Citizens Panel Survey Tables 5, 17, 18, 20 & 23, Mr Baines has over-emphasised results where small numbers are involved.*
- b. *The following statements are made without statistical certainty"*

24 There is no explanation of what constitutes over-emphasis of results. In my use of the tables referred to, I am drawing attention to comparisons between percentages and trends across the spectrum of responses, not to the absolute values of responses represented by each cell in the tables. Therefore, I am in fact making use of all the relevant data points in the survey, not just the small numbers of data points in some cells. I disagree that this represents over-emphasis. It is not clear on what basis the assertion is made about the lack of statistical certainty. If it relates to the (suggested) issues of random sampling or over-emphasis of results, then I disagree with the statement, for the reasons already given.

25 Towards the end of section 7(a) of the report, Ms Rose asserts the following:

"Short comings in information include the following.

- a. *The range of social effects identified in 4.2 have not all been systematically assessed*
- b. *Data is confusing in the cross analysis tables as it does not clearly show positive and negative opinions."*

26 There is no indication of which social effects have not been systematically assessed, nor is there any explanation of which data are confusing and why the positive and negative opinions are unclear.

27 In section 5 of the report, when expressing her opinion on the conclusions drawn by the Applicant in the Resource Consent Applications and AEE, Ms Rose states that *"Overall the conclusions are sound"*. No explanation for this opinion is offered. Furthermore, Ms Rose goes on to make the following statements:

"However an assessment of effects would have provided more robustness to discussion on the social environment and social effects, and to the conclusions drawn"

"In my opinion an assessment of the social environment is necessary to meet these requirements. One has to know who the neighbourhood and wider community is to make such an assessment." (Referring to the requirements of Schedule 4 of the RMA)

28 Later in section 5, when discussing short comings or gaps, Ms Rose states:

"A social assessment has not been undertaken for the resource consent applications"

"Section 2 Existing Environment does not include information on the social environment. In my professional opinion a scoping and profiling of the social environment is required"

- 29 *"Knowing the people, communities and institutions that may be affected, and benchmarks against which to measure effects, would have enabled a more robust assessment of social effects to be made. Such an assessment is a gap in Section 6 Assessment of Effects."*
- 30 In my opinion, there is an inconsistency between the observations of Ms Rose that I have quoted in paragraphs 18-20 above and her conclusion that *"Overall the conclusions are sound"*. Here she is referring to conclusions about social effects. I say this bearing in mind not only that none of the Applicant's experts carried out a social assessment of the Turitea wind farm proposal but also that Ms Rose has not carried out such an assessment either, even in the most preliminary manner. I do not see how Ms Rose could have been in the position to make such a conclusion.
- 31 The same apparent inconsistency occurs in section 6(a) of the report where Ms Rose comments on the evidence of Mr Pollock for the applicant.
- 32 In commenting on the validity of information, Ms Rose states that *"The social effects information included in Mr Pollock's evidence is valid"*. Once again, no explanation for this opinion is offered.
- 33 Furthermore, when discussing short comings or gaps, Ms Rose states that *"In my opinion, Section 4 Statutory Context and Analysis should have included a brief assessment of social effects and reference to Schedule 4 of the RMA."*

- 34 In my opinion, there is an inconsistency where a conclusion is drawn that social effects information is valid when it is also acknowledged that no assessment of social effects has been carried out.
- 35 There are several instances where Ms Rose criticises apparent shortcomings in my evidence but does not appear to criticise similar shortcomings in the evidence of the applicant's expert witnesses. I will present three specific examples of this.
- 36 First, in section 7(a) of the report, when describing flaws in my data sources, Ms Rose states that "*The introduction to the Ex-Post Survey and the focus groups are not included in evidence. The influence of the introductions on responses is thus not known and cannot be assessed.*"
- 37 I accept that the text of the introduction which the field interviewers used when beginning their interviews for the Ex-Post Survey was not included in my primary statement of evidence, although it was explicitly referred to in the questionnaire which was included in my evidence, and I did provide a copy of the text to Mr Kalafatelis when he requested it. However, the copy of Mr Kalafatelis' primary evidence with which I have been provided did not even contain the questionnaire used, let alone a copy of the introduction. Nor to my knowledge did his rebuttal evidence.
- 38 Therefore, I do not understand why Ms Rose chose to criticise my omission but not to mention Mr Kalafatelis' greater omission.
- 39 Secondly, later in section 7(a) of the Report, when describing shortcomings or gaps in my evidence, Ms Rose states that "*(a) There is an absence of a baseline of data on local and regional populations against which to measure social effects.*" and "*(b) There are a lack of raw survey data as a reference and check.*"

- 40 Concerning baseline data, Section 3.2 of my evidence provides a baseline description of land use in the vicinity of the Turitea proposal. Section 3.3 of my evidence contains baseline and trend data on numbers of occupied dwellings for the City as a whole, as well as discriminating between different parts of the City and particularly the '5km catchments' of each wind farm location. Section 3.5 of my evidence presents baseline information about recreation activities, locations and participation levels.
- 41 Given that visual/landscape effects are amongst the most critical effects in this case, I believe these are relevant aspects of baseline information to focus on.
- 42 Furthermore, I do not recall the applicant or any of the applicant's witnesses (Mr Kalafatelis or Dr Phillips) providing any baseline data at all on local and regional populations, but Ms Rose does not see fit to identify this as a gap in their contribution to the assessment of social effects for this proposal.
- 43 Concerning raw survey data, if by "raw data" she refers to raw counts, then a considerable amount of these data are presented in my statement, for both the Panel Survey and the Ex-Post survey. I note that Mr Kalafatelis presented only the re-weighted data in his evidence, but this does not seem to have elicited the same criticism from Ms Rose. Furthermore, Mr Kalafatelis declined my request for the weighting data he used to adjust his raw survey data, so that I was unable to carry out the checks which Ms Rose refers to.
- 44 Thirdly, as I noted in paragraph 16 above, towards the end of section 7(a) of the Report, Ms Rose asserts the following:

"Short comings in information include the following.

- a. The range of social effects identified in 4.2 have not all been*

systematically assessed"

- 45 However, Ms Rose makes no such criticism of the Mighty River Power evidence even though she acknowledges (at Section 9, first paragraph of the Report) that "*Some social effects assessment was undertaken in planning, consultation, noise, visual and public health discussions in the AEE.*"
- 46 Despite this explicit difference, Ms Rose is prepared to accept all the Mighty River Power evidence on social effects as valid and to concur with their conclusions on social effects and to dismiss my evidence on social effects as flawed and inappropriately interpreted.
- 47 No explanation is provided for these differing responses to different statements of evidence being reviewed.

James Baines

Statistical Work relating to Wind Farm Proposal near Palmerston North (July 14, 2009)

*by Dave Saville, Senior Biometrician,
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My brief from James Baines

At the request of James Baines, I fitted curves (of response versus distance) to survey data for 86 rural respondents as supplied to me by James. The aim of this curve fitting was to describe the trends with distance from the nearest wind turbine in terms of the percentage of respondents who report negative impacts, and the percentage who report moderate/high negative impacts - both for visual and for noise effects.

Methodology

Each of the four **response variables** (listed below) was binomial in distribution, being "yes, no" type of data. For example, if a respondent reported a negative visual impact, this was counted as a "yes" value for the variable. All other responses were taken to be "no" values for the variable - this included both a "no" response to the question, and also the case when the respondent did not answer the question (on the assumption that if the respondent felt negatively about the impact, they would have answered the question). An exception to the latter rule was a property where no turbines could be seen from the property, so the data for the two visual impact variables were declared to be genuinely "missing", and omitted from the statistical analyses for these two variables.

negative visual impacts
moderate/high negative visual impacts
negative noise impacts
moderate/high negative noise impacts

In statistical jargon, for each of the above *response variables*, the **method of curve fitting** was to fit a "generalized linear model" with a binomial error term and a "logit (log odds) link function", with the *explanatory variable* being distance (in metres) between the respondent's home and the nearest wind turbine. And in statistical jargon again, "over-dispersion" was allowed for in the model fit - that is, it was not assumed that the only source of variation "about the model" was pure random binomial noise, for which the variability (or "dispersion") is theoretically unity (1).

Results

For all four variables tested, the *fitted slope was negative and significantly different from zero*. That is, in each case the data were consistent with the idea that the probability of a negative impact reduces with distance from the nearest wind turbine.

In most cases, the statistical significance of the slope estimate (testing if it was zero or not) was 1% or better. To be more precise, the results were:

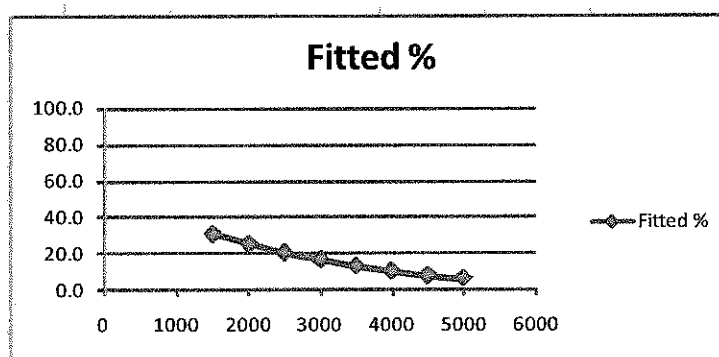
Variable (% who reported the following)	Statistical significance of fitted slope
negative visual impacts	5% sig.
moderate/high negative visual impacts	1% sig.
negative noise impacts	0.1% sig.
moderate/high negative noise impacts	1% sig.

Of special interest to James were the fitted percentages on the curves at 2000, 2500 and 3000m from the nearest wind turbine. For each variable, these fitted percentages are given below (in the box in the table on the left), along with the fitted percentages for a range of other distances (spanning the range for which data were available, 1500 to 5000m). On the right is a graph that shows the fitted curve for the particular variable.

(a) VISUAL

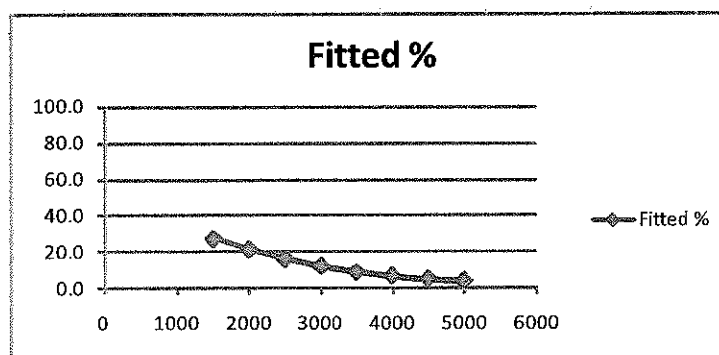
Negative visual impacts

Distance	Fitted %
1500	30.8
2000	25.2
2500	20.3
3000	16.2
3500	12.7
4000	9.9
4500	7.7
5000	5.9



Mod/high negative visual impacts

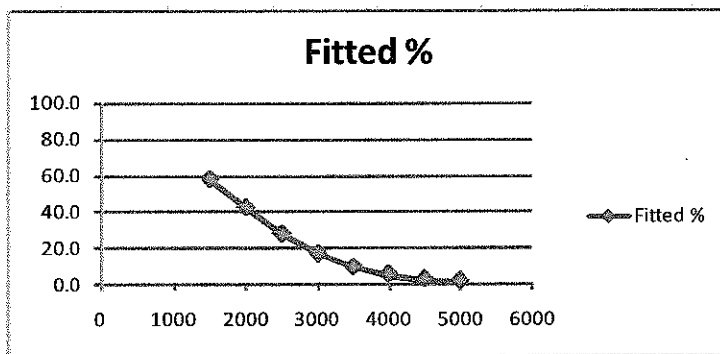
Distance	Fitted %
1500	27.2
2000	21.1
2500	16.0
3000	12.0
3500	8.9
4000	6.5
4500	4.7
5000	3.4



(b) NOISE

Negative noise impacts

Distance	Fitted %
1500	58.1
2000	42.2
2500	27.7
3000	16.8
3500	9.6
4000	5.3
4500	2.9
5000	1.5



Mod/high negative noise impacts

Distance	Fitted %
1500	31.6
2000	23.8
2500	17.4
3000	12.5
3500	8.8
4000	6.1
4500	4.2
5000	2.9

