

**BEFORE THE BOARD OF INQUIRY**

**IN THE MATTER** of the Resource  
Management Act 1991

**AND**

**IN THE MATTER** of applications for  
resource consent and  
notices of requirement  
by Transpower  
New Zealand Limited  
for the North Island Grid  
Upgrade Project

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**STATEMENT OF EVIDENCE OF DR MICHAEL LAWRENCE STEVEN  
IN REBUTTAL FOR TRANSPOWER NEW ZEALAND LIMITED  
(Landscape / visual effects peer review)**

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## Introduction

1. **MY** name is Dr Michael Lawrence Steven. I wish to present rebuttal evidence to the statements of evidence of:
  - (a) Mr Doug Parker on behalf of Hunua and Paparimu Valley Residents' Association Incorporated;
  - (b) Ms Mary Buckland, on behalf of Waipa District Council (**WDC**);
  - (c) Ms Di Lucas, landscape planner, on behalf of South Waikato District Council (**SWDC**);
  - (d) Ms Sally Peake, on behalf of Auckland Regional Council (**ARC**) and Franklin District Council (**FDC**);
  - (e) Ms Bridget Gilbert, on behalf of Matamata-Piako District Council (**MPDC**);
  - (f) Mr David Mansergh on behalf of WDC; MPDC; and SWDC; and
  - (g) Mr Dennis John Scott on behalf of MCC and others.
  
2. I address the evidence of each submitter below. Any failure to comment on a particular aspect of any of these or the other parties' evidence does not equate to my agreement.

### **Mr Doug Parker ,on behalf of Hunua and Paparimu Valley Residents' Association Incorporated (Submission number 0748)**

3. **AT** paragraph 2 of Appendix 3 to his evidence, Mr Parker, in commenting on my familiarity with the landscapes of the proposed line, makes reference to the number of physical visits I have made to the site. As indicated in my evidence, part of my professional experience was spent as a landscape architect within the Waikato Conservancy of the (then) Department of Lands and Survey. In this capacity, my work involved projects over an area extending from Lake Taupo to South Auckland, and included the development of Lake Karapiro

Domain for the 1978 World Rowing Championships. Over 10 years of my professional career were spent in Hamilton, 5 of which were spent with the Department of Lands and Survey.

4. **AT** his paragraph 3, Mr Parker refers to what he regards as limitations in the use of screen planting for mitigation purposes. Mr Parker suggests that technological solutions such as monopoles and compact designs offer the “best possible mitigation”. Mitigation is a function of many factors, including route selection and tower design. However, monopoles or compact towers also will create effects requiring mitigation. It is my opinion that monopoles would be regarded by many as being only marginally more acceptable than lattice towers. While acknowledging the limitations associated with the use of trees (paragraphs 100—102 of my evidence in chief), it is my opinion that well designed screen planting using suitable long term species can provide a high level of mitigation.
5. **AT** paragraph 4 of Appendix 3, Mr Parker suggests that I have ignored the effects on visitors and locals looking through the proposed line towards the Hunua Ranges Park. The effects on locals and visitors looking towards the park are largely conjectural at this stage. While the line will be more prominent compared with existing lines, I consider the semi-transparent characteristics of a lattice towers will render the towers less obvious when seen against the dark, textured forest of the Hunua Ranges, than monopoles in the same location.
6. **AT** paragraph 5 of Appendix 3, Mr Parker claims similar justification for using monopoles exists through the Hunua Valley as at the Lake Karapiro crossing. My support for the use of monopoles at Lake Karapiro responds to section 6(a) of the RMA, which identifies the natural character of wetlands, and lakes and rivers and their margins as being a matter of national importance. This requirement, together with the WDC's identification of Lake Karapiro as a Special Landscape Character Area (**SLCA**), and the proximity of State Highway 1, combine to create a context within which the unusual combination of factors warrants the use of monopoles. Such factors do not occur within the Hunua Valley.
7. **AT** paragraph 6 of Appendix 3, Mr Parker refers to paragraph 93 of my evidence in chief where I state “...*the landscape benefits of using monopoles should also be proportional to the magnitude of the cost difference between*

*monopoles and lattice towers*". The basis of Mr Parker's criticism appears to be his claim that in making this comment I have strayed into the area of economics – an area outside my professional expertise.

8. I would expect an expert economic analysis to be rather more detailed than my own general comments. The profession of landscape architecture, as with other professions involved in the creation of the built environment such as architecture and engineering, cannot ignore the economic implications of any specific proposal. To do otherwise is professionally irresponsible.
9. **AT** paragraph 7 of Appendix 3, Mr Parker states that I have not reviewed the effects of practical technical solutions that would produce shorter, less bulky tower constructions. Mr Parker appears to be critical of my reliance upon Transpower's information, and my failure to investigate alternative approaches to tower design. While being critical of my apparent trespass into the discipline of economics in the previous paragraph, Mr Parker now appears to be suggesting that I should have assumed the mantle of a structural and electrical engineer for the purpose of considering alternative, shorter tower designs. My assessment (rightly) addresses the landscape impacts of the tower design as proposed.

**Ms Mary Buckland, on behalf of WDC (Submission number 0919/0984)**

10. **AT** paragraph 4.10 of her evidence, Ms Buckland opines that in a previous report on Waipa landscapes she assessed the largest volcanic cones (Maungatautari and Pirongia), Lake Karapiro and the Waikato River as being *"potentially either regionally or nationally significant because of their quality, the fact that they were unique to the area, and because they were seen by thousands of people every day"*. In my opinion, none of these factors constitutes grounds for suggesting that these features are even "potentially" of national significance. Uniqueness, of itself is not a criterion for landscape significance, and neither is the size of the viewing audience.
11. **AT** her paragraph 6.5, Ms Buckland opines that one of the *"great benefits"* of flooding the deeply incised Waikato River valley is that the *"resulting hydro lakes are visible from the surrounding countryside."* I regard this as an extraordinary statement for a landscape architect to make, given the expressed concern for the protection and preservation of what is claimed to be an

outstanding natural landscape. By current standards, the river landscape that existed prior to the construction of hydro dams was probably a genuinely outstanding natural landscape. The notion that we can create outstanding natural landscapes by damming natural watercourses has problematic implications for the sustainable management of natural resources, in my view. It is equally problematic to the protection of landscape values that the greater visibility resulting from such flooding should be regarded as a “great benefit”.

- 12.** **AT** her paragraph 6.1, Ms Buckland states that she has undertaken a study to determine whether the SCLAs in Waipa District affected by the proposed line could be considered outstanding natural features and landscapes in today’s RMA climate. At her paragraph 6.9, Ms Buckland discusses the *expressiveness*, or *legibility* of the Maungatautari and Waikato River landscapes. While expressiveness is commonly applied (as one of the *Pigeon Bay* factors) to the assessment of landscape significance, it is, in my opinion, of lesser utility than natural science and aesthetic factors as a construct for the purpose of determining landscape values or significance. In any event, the proposed line does not diminish such expressiveness value as has been recognised in the Maungatautari and Waikato River landscapes by Ms Buckland.
- 13.** **AT** her paragraph 6.19, Ms Buckland concludes that Lake Karapiro is, in her opinion, an outstanding natural landscape. As previously stated, I consider there are profound philosophical implications for resource management practice, if it is accepted that outstanding natural landscapes can be created by the damming and inundation of natural water courses and adjacent landscapes. While I acknowledge the aesthetic appeal of Lake Karapiro (and many other hydro lakes), it cannot, in my opinion, be deemed to be an outstanding *natural* landscape.
- 14.** **AT** her paragraph 6.19, Ms Buckland concludes that Mt Maungatautari is also an outstanding natural landscape. While I agree with this assessment, I am of the opinion that the values identified for Mt Maungatautari will be unaffected by the proposed transmission line.
- 15.** **AT** her paragraph 8.11, in discussing the visual catchment of the proposed line, Ms Buckland refers to Mr Mansergh’s assessment of the zone of theoretical visibility (or zone of visual influence). Ms Buckland makes the

following statement which I cannot support - *“the visual catchment is the area from which it would be possible to see the proposed transmission line”*.

16. **AS** Mr Mansergh acknowledges in his own evidence, his analysis is based on a terrain model that assumes a barren landscape devoid of vegetation and structures. This is a hypothetical – even impossible – scenario. On this basis, in my opinion, Mr Mansergh’s model provides little or no utility for the assessment of the matters before the Board. To the extent that other witnesses (Ms Buckland, Ms Lucas) rely on the evidence of Mr Mansergh, their views on visibility can have little weight.
17. **AT** her paragraph 8.20, Ms Buckland opines that the size of the proposed pylons will reduce the scale of the lake corridor and would introduce a number of *“inappropriately tall vertical elements into an existing landscape which is horizontal to rolling.”* In my opinion, the perception of scale of the lake corridor landscape (including as it does the substantial form of Mt Maungatautari in the background) will remain largely unaltered by the proposed line. Many vertical elements, including trees and shelterbelts, already exist in the landscape. Further, the addition of vertical elements to a flat to rolling landscape offends no principles of design that I am aware of. It is not a valid criticism in my opinion.
18. **AT** her paragraph 8.21 (and again at paragraph 8.48), Ms Buckland opines that what she refers to as a “large structure” crossing Lake Karapiro will diminish the natural character of the lake. I consider this an unjustifiable conclusion because:
- (a) what crosses the lake are the conductors. While these are of a larger diameter than existing conductors at the same crossing point, I disagree that they can be termed a ‘large structure’;
  - (b) Ms Buckland appears to conclude that the natural character of the lake margins as a whole will be negatively affected by the conductors crossing the lake. I do not regard it as tenable to claim that the impacts of the conductors crossing the lake will impact upon the natural character of the lake as a whole. If Ms Buckland’s view had any merit, then logically the same might be said for the Karapiro Dam, which is clearly a larger structure than the proposed line.

19. **AT** her paragraph 8.46, Ms Buckland opines that in the vicinity of the lower slopes of Mt Maungatautari, the proposed line will “*overpower the landform...and change the landscape character to a more industrial one*”. I regard the suggestion that the landscape will become industrial in character as an unsupportable by any critical analysis. In my opinion, the landscape will remain unequivocally rural in character.
20. **AT** her paragraph 11.12, Ms Buckland claims that the existing ARI-PAK A line (described by her as “already a feature in the landscape”), “*in no way mitigates the adverse visual, landscape and amenity effects*” of the proposed line. This statement is not in my view sustainable, particularly when considered in light of opposition where the proposed line crosses ‘greenfield’ landscapes. The presence of the existing ARI-Pak A line means that the effects of the proposed line will be a proportional increase over pre-existing transmission line effects.
21. **AT** her paragraphs 11.16 and 11.17, Ms Buckland disagrees with Mr Lister regarding the interpretation of the phrase “outstanding natural features and landscapes” in section 6(b) of the RMA. Ms Buckland opines that ‘natural’ does not qualify ‘landscapes’, “*particularly as it applies to hydro lakes*”. Ms Buckland suggests at paragraph 11.17, that the correct interpretation of section 6(b) is ‘outstanding landscapes’, and not ‘outstanding *natural* landscapes’.
22. **MS** Buckland is mistaken and appears unaware of the Environment Court’s comments in *Wakatipu Environment Society Inc. v Queenstown Lakes District Council* [2000] NZRMA 59. In discussing outstanding natural landscapes at paragraph 81 of its decision, the Environment Court held that the words ‘outstanding’ and ‘natural’ both qualify ‘landscapes’, and noted that this is “*...consistent with the way qualifying adjectives are used in the Act*”.
23. **AT** her paragraph 11.20, Ms Buckland states that the whole of the Maungatautari Mountain is identified in the Waipa as an SCLA. Ms Buckland acknowledges that the proposed line passes along the edge of the SCLA. The location of the proposed line at the edge of the SCLA is indeed the case. This edge is within an agricultural landscape (Figure 7 of my evidence in chief) at some distance from the landscapes of highest significance on Maungatautari. I consider the boundary of the SCLA on the eastern lower slopes of

Maungatautari to be quite arbitrary and responds to no recognisable characteristics of the underlying landscape.

**Ms Di Lucas, on behalf of SWDC (Submission number 0799)**

**24.** AT her paragraph 64, Mr Lister's assessment is described by Ms Lucas as:

*"[t]he assessment is that of an outsider – a drive through and desktop. The Arapuni – Te Waotu – Tokapuni landscape is a long lived-in and loved place; a complex cultural and heritage landscape."*

**25.** IF Ms Lucas has a more reliable and objective understanding of the values and meanings associated with the landscape derived from an insider's perspective, her analysis and conclusions are not included in her evidence.

**26.** AT various paragraphs throughout her evidence, in responding to the views of Mr Lister, Ms Lucas refers to her own analysis or assessment of the South Waikato landscape (eg, her paragraphs 65, 100, 112, 114, 118 and 119). However, nowhere in her evidence is Ms Lucas's analysis or assessment of the South Waikato landscape documented. Her opinions, then, are in my view unsubstantiated and unsupported in the evidence she has provided, and consequently of little validity.

**27.** AT her paragraph 80, Ms Lucas, in opposing a greenfields route for the proposed line, refers to the NZCPS principle of seeking to locate compromise where it already exists. While one might assume from this statement that Ms Lucas' opinion lends tacit support for the proposed line wherever it follows the existing ARI-PAK A line. However, her comments illustrate the vexed and complex issues to be resolved in line selection. In areas where the line follows the existing ARI-PAK A line, other landscape experts (e.g. Ms Buckland at her paragraph 8.46 and Ms Peake at her paragraph 60) raise issues of cumulative effects. Ms Buckland actually proposes a greenfields alternative in Waipa District for this reason.

**28.** AT her paragraph 115, Ms Lucas refers to the landscape of Section 14 as being a "cultural heritage landscape". At paragraph 144, Ms Lucas refers to "classic rural landscape character" and "heritage agricultural landscape" –

presumably referring to Section 14 again. I comment as follows:

- (a) No evidence is provided by Ms Lucas to support her contention that these landscapes are either a 'cultural heritage landscape' or a 'heritage agricultural landscape'. The concepts are undefined and no robust criteria are proposed for the assessments of such characteristics, and no assessment is provided. In the absence of valid definitions and assessment criteria, and robust assessments, the use of the terms 'cultural heritage landscape' and 'heritage agricultural landscape' have no standing, in my opinion. To the extent that Ms Lucas has referred to values and meanings held by the community in respect of their landscape, the same could probably be said of any agricultural community anywhere in New Zealand.
- (b) In my opinion, the use of the term "classic rural landscape character" is meaningless. Rural landscape in New Zealand is expressed in a very wide typology of characteristics. Why the dairy landscapes of Section 14 might be considered more 'classic' than other dairy landscapes, or of agricultural landscapes generally, is not explained.

**29.** AT paragraph 92 of her evidence, Ms Lucas draws upon the evidence of Mr Mansergh. As I have stated, I regard the analysis undertaken by Mr Mansergh to be based on a hypothetical and implausible scenario.

**30.** AT her paragraph 94, Ms Lucas is critical of the effects of the proposed line on what she terms the "*village-rural landscape relationship*" at Arapuni township. What the characteristics of this relationship are, and how they will be impacted by the proposed line is not explained. Describing Arapuni as a "*village on the river*" obscures its origins as town built to support the construction of hydro-electric power development on the Waikato River. Transmission lines have been a necessary and unavoidable aspect of the industry that Arapuni traditionally served.

**Ms Sally Peake, on behalf of ARC and FDC (Submission numbers 1065 and 1048)**

**31.** AT paragraph 14 of her evidence, Ms Peake observes that I have not commented on the issue of cumulative effects arising from using existing alignments as compared with the creation of new effects through the selection

of greenfields alignments. Ms Peake refers to Mr Lister's evidence where he states "*there is no simple answer regarding transmission lines to the question of cumulative effects.*" I agree with Mr Lister's position on this matter. However, as a general principle, I suggest that incremental impacts over and above existing impacts often may be more acceptable than the creation of entirely new impacts. Ultimately I consider it to involve a consideration of many complex and often competing factors. There is no simple mechanism for assessing and determining such options.

- 32.** **AT** her paragraph 15, Ms Peake describes as a flaw in the methodology of assessing effects, the failure to consider that landscapes rated relatively low in natural character, may still be highly valued because of the "*general absence of natural landscape at the higher levels*" [of naturalness]. I agree that landscapes exhibiting moderate to low levels of natural character may still be valued highly. However an objective assessment of the degree of naturalness in any landscape must be distinguished from the evaluation of that landscape in terms of its significance.
- 33.** **LANDSCAPE** significance too, must be assessed objectively with reference to a range of criteria. The values and meanings that Ms Peake refers to, are likely those that derive from a sense of place and will be found through the length of the proposed line. The existence of a sense of place with respect to any landscape is not of itself an indicator of wider (District level) landscape significance.
- 34.** **AT** her paragraph 60 (and elsewhere), Ms Peake has been critical of what she asserts is the failure of the assessment to consider cumulative effects. Cumulative effects cannot be considered in isolation but must be considered in comparison to the wholly new effects arising from a greenfields alignment. In this context, the issue becomes a matter of deciding between cumulative (or incremental) effects as against totally new effects.
- 35.** **AS** I have stated above, this is, in my opinion, a complex decision involving competing factors. I am unaware of any valid instrument that would enable the landscape effects associated with either option to be expressed in terms that permit a detailed and useful comparison. I consider the landscape implications of each to be largely self-evident and not requiring of detailed assessment, even assuming this were possible.

**Ms Bridget Gilbert, on behalf of MPDC (Submission number 1113)**

**36.** **AT** her paragraph 5.25, Ms Gilbert attempts a re-calibration of the scale of visual effects proposed by Mr Lister and amended following my peer review. As a result of my review of Mr Lister's scale, I suggested that the category 'potentially very high' be raised to 'potentially extreme'. This change was suggested to bring the scale into line with the findings of empirical research into the visual effects of transmission lines undertaken by Hull & Bishop (1988). (See paragraph 17 and footnote 2 of my evidence in chief). At paragraph 4.4 of her evidence, Ms Gilbert agrees with this change. I comment further as follows:

- (a) Ms Gilbert proposes a complete recalibration of the scale, and proposes two separate scales, depending upon the landscape type being assessed (Western Foothills or Western Ranges).
- (b) I consider the changes in levels of visual effect across the scale that are proposed by Ms Gilbert fail to acknowledge the relationship between effects over distance identified by Hull and Bishop (1988).
- (c) Hull and Bishop reported a dramatic increase in effect within the closest distance zone, which was the basis for my suggestion to elevate the highest order of effects from 'potentially very high' to 'potentially extreme'. This change more closely reflects the relationship identified by Hull and Bishop.
- (d) I consider Mr Lister's scale as modified by my review is a useful 'rule-of-thumb'. Any claims to a more definitive and accurate scale should only be made on the basis of a rigorous, scientifically-based investigation.

**37.** **IN** her section 5, *Landscape and visual effects on Morrinsville*, Ms Gilbert opines, at paragraph 5.6:

*"the increased height and scale of the towers [as seen when approaching Morrinsville from the west] will give rise to a significant*

*change in the role that transmission towers contribute to this landscape experience".*

38. I do not agree with the assertion there will be a significant change in experience. Having driven into and out of Morrinsville at the western entrance, I conclude that the experience of the existing towers and transmission line is fleeting and mediated by the imperative to focus one's attention on the road and traffic. While I concede that the proposed towers will be visible, the view will be a transitory one, as Ms Gilbert concedes, I remain of the opinion that the act of safely negotiating this busy section of State Highway will be the primary focus of drivers' attention.

39. I support the recommendations for avenue planting of large scale trees adjacent to SH26 and I agree that they would create, in Ms Gilbert's words (her paragraph 5.17), a:

*"memorable, distinctive and cohesive streetscape that distracts the viewer from the surrounding landscape thus minimising the adverse visual effects of the proposed line".*

40. **THIS** strategy is consistent with the mitigation proposals discussed by Mr Lister. The cooperation of the local authority, Transit New Zealand, and possibly the adjacent landowners will be required. However assuming this outcome is achievable, then it appears that Ms Gilbert's concerns regarding effects at the western entrance to Morrinsville can be alleviated.

41. **MS** Gilbert's suggested use of monopoles (her paragraph 5.20) might equally apply at many other locations along the proposed line. What is lacking from Ms Gilbert's assessment is the critical application of criteria that may be used to justify monopoles around Morrinsville in particular. I note that Ms Gilbert states that monopoles will still read as "*a large scale utilitarian element of an incongruous scale.*" Expressed in these terms, the use of monopoles at Morrinsville would appear to be of little, if any benefit.

**Mr David Mansergh, on behalf of WDC, MPDC and SWDC (Submission numbers 0919/0984, 1113, 0799)**

42. **AT** his paragraph 1.14, Mr Mansergh states the purpose of his evidence as being an explanation of the approach used to mapping and analysing the zone of theoretical visibility (**ZTV**) for the proposed transmission line.
43. **THE** concessions made by Mr Mansergh regarding the limitations of the method are critical to the usefulness of his evidence, in my opinion. In particular, Mr Mansergh acknowledges that ZTV analysis is based upon a digital terrain model that assumes a landscape completely devoid of all structural and spatial elements such as trees, shelterbelts and buildings. This is, in fact, an impossible (and pointless) scenario to contemplate. In my opinion, this is such a significant limitation in the method that it is of little, if any use.
44. **IN** my view, it is inappropriate to refer to the method as a zone of *theoretical* visibility, as it is a theory of visibility that cannot be either proved or disproved by empirical means – the circumstances in which the model might apply are implausible and probably impossible. A more correct term might be to describe the model as a zone of hypothetical visibility. In my opinion, there is little merit in discussing hypothetical, even fanciful scenarios for which validating data cannot be provided.
45. **MR** Mansergh's model fails to distinguish between visibility and perception. The presence of an element in the landscape is no indication that it will be perceived by a viewer, and still less that the viewer's cognition will extend beyond simply being aware of its presence. In the course of our daily lives, we perceive a vast array of visual elements in our environments (including, for many, transmission lines). Relatively few of these elements have any particular relevance to us, such that they form a salient aspect of our experience of the environment. To some extent, this is acknowledged by Mr Mansergh at paragraph 19 of his evidence.
46. **AT** his paragraph 2.21, Mr Mansergh states that his analysis is based on a series of "parameters". The factors that Mr Mansergh then lists are not in fact parameters, but unproven assumptions on Mr Mansergh's part. While some of his assumptions have validity at an intuitive level, assumptions (a), (b), and (c)

at least, are unproven, as far as I am aware. Certainly Mr Mansergh cites no sources to support his “parameters”.

**Dennis John Scott on behalf of MCC (Submission number 0861) and others.**

- 47.** **AT** his paragraphs 23-28, Mr Scott discusses the scale of the proposed transmission line and opines (at paragraph 24) that the “*sheer extent of the “aerial” space that is compromised by the Transpower upgrade is enormous.*” Mr Scott justifies his assessment of the scale of the proposed line with the claim that the “*structures will occupy a physical area of up to 1920 hectares and approximately 100 million cubic metres*” (paragraph 26), and concludes “*the scale of the proposal, including the effect of the lines, will create a definite physical ‘volumetric’ effect in the landscape*” (paragraph 28).
- 48.** I consider that Mr Scott’s statements regarding the scale of the proposed line overstate the position. His basis for the assessment of the ‘volumetric effect’ is quite incorrect in my opinion. A critical analysis of the effects of the proposed line cannot, in my opinion, conclude that the structure as a whole has any ‘volumetric’ effect whatsoever. With the exception of the towers and the conductors themselves, the line is effectively transparent and presents no barrier to sight nor movement. Reference to the line “dissecting” the landscape (paragraph 26) is not a sustainable proposition.
- 49.** **MR** Scott continues to overstate the position in his paragraph 39 where he refers to the “*devastating landscape, visual and amenity effect*” of the proposed transmission line. High voltage transmission lines currently span the country without any apparent “devastating” effects.
- 50.** **MR** Scott’s comments at his paragraphs 43-47 appear to suggest that “settlement patterning” should be driven by “spatial, biophysical, and landuse capability factors” and not by “infrastructural assets and requirements”. Mr Scott’s dismissal of the fundamental importance of infrastructure to development suggests a lack of balance and understanding of the relationship between infrastructure and settlement.
- 51.** **AT** his paragraph 65, Mr Scott challenges the omission of the “Very High Effect” from the ‘rule-of-thumb’ scale of visual effects proposed by Mr Lister and modified as a consequence of my peer review. At his paragraph 67,

Mr Scott proposes a recalibration of proximity based effects, which he claims is a “*more accurate reflection of the visual effects of the towers*”. Mr Scott’s claims to accuracy do not in my view have an empirical foundation and are a hypothesis built around semantics.

52. **GAUGING** the visual effects of the proposed line in the absence of a relevant precedent for such a structure in this country is a problematic exercise. The matter is further complicated by the lack of any depth of research reported in the literature. The paper by Hull & Bishop (1988), cited elsewhere in my evidence<sup>1</sup>, is one of the few references on the visual effects of transmission lines. The modified scale of visual effects is based upon the findings of these authors.
53. **HULL** and Bishop reported a dramatic increase in effect within the closest distance zone, which was the basis for my suggestion to elevate the highest order of effects from ‘potentially very high’ to ‘potentially extreme’. This change more closely reflects the relationship identified by Hull and Bishop.
54. **IN** the absence of any empirical evidence, I consider any further recalibration of the scale of visual effects to be a somewhat speculative exercise serving no useful purpose at this stage of the project. As stated in paragraph 35(d) of this evidence, any claims to a more definitive and accurate scale should only be made on the basis of a rigorous, scientifically-based investigation.
55. **MR** Scott’s proposal (at his paragraph 71) to use an “interactive *three-dimensional fly-through*” modelling package to allow a “*much more iterative dialogue for all parties in relation to assessing the potential effect...*” appears to reduce the process of route selection and tower configuration to a wholly visual exercise, and indeed to one that would not be from typical viewing positions. Mr Scott appears to have overlooked the complexity of the factors that must be taken into account in determining an alignment for a new line, and the fact that the proposed line is a continuous structure in which localised changes cannot be made in isolation to their impact elsewhere on the line. In my opinion, Mr Scott’s view of the route selection and transmission line design process does not have any sound basis.

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<sup>1</sup> See paragraph 17 and footnote 2 of my evidence-in-chief.

56. **AT** his paragraph 78, Mr Scott claims the “*effect of scale and impact of this proposal...is of a magnitude not yet experienced in this country*”. While the scale of proposed transmission line, particularly the towers, is unprecedented in this country, when considered in the context of infrastructure development generally, I consider that Mr Scott has again overstated this position.

57. **AT** his paragraphs 83 and 84, Mr Scott refers to mitigation planting and suggests:

*“...the use of vegetation as mitigation technique should have considered landuse management and biophysical repair, thus reinforcing planting more congruent with natural landscape patterns.”*

and,

*“This mitigation technique is unlikely to significantly address visual effects but would provide a much broader outcome associated with the biophysical repair of critical landscape elements and patterns that improves overall visual cohesion of the entire landscape form and context.”*

58. **IT** is not at all clear what Mr Scott has in mind in making these statements, particularly when considered in the context of the landscapes that are the primary concern of his clients. I do not consider that they are of assistance to the present circumstances.

59. **AT** his paragraph 95, Mr Scott proposes his own scale for categorising the potential change in view from selected viewpoints. “Very High Visual Change” is defined as causing “more than a significant landscape change”, while “High Visual Change” is defined as causing “significant landscape change”. These are somewhat circular references of an abstract nature and this is not a useful scale, in my opinion.

60. **AT** his paragraph 169, Mr Scott challenges the assumptions proposed by Mr Lister for the assessment of the effects of the proposed transmission line. In particular, Mr Scott challenges the assumption:

*“Transmission lines will generally be regarded as more obtrusive in natural areas and those areas valued for scenic qualities, and less*

*obtrusive in 'working landscapes' such as ordinary farmland, plantation forests and industrial areas". [Mr Lister, evidence-in-chief, paragraph 37]*

61. **THIS** assumption does not imply that rural working landscapes have "low value", which Mr Scott asserts in his paragraph 170. Rather, Mr Lister is making the reasonable observation that as a general principle, a transmission line will be more obtrusive in an unmodified landscape than in a landscape that has already been subject to considerable modification. The widespread opposition that is attracted by infrastructure developments (e.g. wind farms and hydro dams) in highly natural landscapes supports this assumption in my opinion. Mr Lister's assumption refers to visual sensitivity, and not to socio-psychological factors such as sense of place, to which Mr Scott may be referring to.
62. **AT** various paragraphs through his evidence (paragraphs 80, 85, 161-165), Mr Scott proposes the undergrounding of the line as the best approach to avoiding the effects of the proposed transmission line. Mr Scott appears to be advocating the undergrounding of the line from Ardmore Aerodrome to its culmination at Brownhill Rd. As he states in his Conclusion (paragraph 219); *"the best form of landscape mitigation in a project of this nature, is total avoidance"*.
63. **OTHER** than references to "future settlement opportunities" (e.g. paragraph 217), at the present time there is no basis for understanding why the sections of the proposed line with which Mr Scott is concerned are more deserving of undergrounding than any other section of the line. Mr Scott, along with other landscape witnesses representing specific local authority areas, has, perhaps understandably, failed to adopt an holistic 'whole of line' frame of reference for his comments.

**64. ASSUMING** undergrounding was technically feasible for the length of the line (a matter which I am not competent to comment upon), the difficulties associated with the adoption of defensible criteria for determining which sections should be undergrounded, would in my opinion render the process unworkable.

A handwritten signature in black ink, appearing to read 'M. Steven', with a large, stylized initial 'M'.

**Dr Michael Lawrence Steven**

**16 May 2008**