BEFORE THE ENVIRONMENT COURT

Decision No. 2013 NZEnvC 59

IN THE MATTER of resource consent applications directly referred to the Court under Section 87C(1) of the Resource Management Act 1991

BY MERIDIAN ENERGY LIMITED
(ENV-2011-CHC-000090)
Applicant

Hearing dates: 27, 28 August, 2012;
3 – 7, 10 – 14, 24 – 28 September, 2012;
1 – 5, 15 – 17, 23 October, 2012.
Site visits: 29 August, 19 September (Te Uku), 14 & 24 October, 2012

Court: Judge M Harland
Commissioner MP Oliver
Deputy Commissioner B Gollop

Date: 15 April 2013

INTERIM DECISION

A. The applications for resource consent are granted subject to amended conditions.

B. We record for the avoidance of doubt, that this decision is final in respect of the confirmation of the grant of the resource consents (on amended conditions) but is interim in respect of the precise wording of the conditions, and in particular the details relating to the Community Fund condition(s).

C. We direct the Hurunui District Council and the Canterbury Regional Council to submit to the Court amended conditions of consent giving effect to this decision by 17 May 2013. In preparing the amended conditions the Councils are to consult with the other parties, particularly in relation to the condition(s) relating to the Community Fund.

D. If any party wishes to make submissions in relation to the Community Fund conditions, these are to be filed by 17 May 2013.

E. Costs are reserved.

Hurunui District Council	Respondent
Canterbury Regional Council	Respondent

Appearances:

Mr A Beatson, Ms N Garvan and Ms E Taffs for Meridian Energy Ltd
Mr K Smith and Ms J Silcock for the Hurunui District Council
Ms M Dysart for the Canterbury Regional Council
Mr E Pyle for Wind Energy Association
Mr H Turnbull for himself
Mr M Wallace for Glenmark Community Against Wind Turbines Incorporated
Mr M Archbold for himself
Mr A Baxter
Mr J Carr for Tipapa Limited
Mr G Higginson for himself
Mrs K Fitzimmons for herself
Mrs A Marr for herself
Mrs K McLauchlan for herself
Mr G and Mrs M McLean for themselves
Ms B Meares for herself
Mr D Meares for himself and Mrs V Meares
Mrs E Messervy for herself
Mr M Messervy for himself
Mrs H Pankhurst for herself
Mrs J Symonds for herself
Mr G Thomas for himself
Ms P Vincent for herself

Contents

THE SEAL OF THE ENVIRONMENT COURT NEW ZEALAND

INTRODUCTION

[1] Centre Hill and its surrounding ridgelines in the Hurunui District in North Canterbury are landmarks of some significance to those who live locally, particularly at Glenmark, Greta Valley, Omihi and Scargill. They also attract a world-class wind resource, which makes the area attractive for wind energy generation, a form of electricity generation favoured by national policy because it is renewable. Recognising this, and after a number of years of investigation, Meridian Energy Limited ("**Meridian**") has applied to construct, operate and maintain a 33 turbine wind farm in the area near to the recently consented (but not yet constructed) Mt Cass wind farm, but to do so, it requires a number of resource consents from the Hurunui District Council ("**the HDC**") and the Canterbury Regional Council ("**the CRC**"). Meridian successfully applied to directly refer the applications for resource consent to the Environment Court for hearing.[1] Accordingly there were no first instance hearings before the HDC and CRC. As a result, there was a high level of direct local community and resident involvement at this hearing. Many of the parties were self-represented, and many issues were raised.

[2] The local opposition to Meridian's proposal was largely coordinated through the Glenmark Community Against Wind Turbines Incorporated ("**the Society**"). A number of the members of the Society, however, also appeared as individual submitters during the hearing to advance matters specific to their individual interests. The other main opposition came from Tipapa Limited ("**Tipapa**"), represented by Mr John Carr, its director and shareholder. As well as owning land which is grazed, Tipapa's renovated homestead, gardens and woolshed at Greta Valley operate as a high-end tourist destination and functions centre, and it is increasingly popular as a wedding venue. All of those in opposition asked the Court to decline Meridian's applications for resource consent.

[3] It was common ground that Meridian's proposal should be assessed as a discretionary activity under s104 of the Resource Management Act 1991 ("**the RMA**"). Broadly speaking, we are required to consider any actual and potential effects on the environment of allowing the activity and any relevant provisions of a number of listed statutory planning documents. Overall we must assess whether the proposal will meet the purpose of the Act, which is to promote the sustainable management of natural and physical resources.

[1] pursuant to s87C (1)of the Resource Management Act 1991

THE SEAL OF THE ENVIRONMENT COURT NEW ZEALAND

[4] Those opposed to the wind farm referred to it as an industrial activity that did not fit within the local rural environment, which they described as tranquil, peaceful and quiet. They were concerned that their amenity values would be adversely affected and their property values diminished should the wind farm proceed. Specifically, they were concerned that the wind farm would generate adverse effects relating to landscape and visual amenity, noise, health, traffic and ecological values. Tipapa was concerned that its business activities would be adversely affected and others were concerned that recreation and tourism activities nearby would also be adversely affected. The cumulative effect of having two wind farms (Hurunui and Mt Cass) nearby was a particular focus for some. It was contended that these potentially adverse effects would all be unable to be avoided, remedied or properly mitigated.

[5] Meridian highlighted the positive benefits to the local, regional and national economies arising from the proposal, including the fact that the energy sought to be generated is from a renewable source. Whilst acknowledging there might be some adverse effects, Meridian contended they could all be satisfactorily avoided, remedied or mitigated. The Councils agreed.

[6] We heard and read a large volume of submissions and evidence. Many of the witnesses were cross-examined at some length. A list of the submitters who did not appear is included as Appendix 1. Because of the large volume of material, it is just not possible to refer to all that was said and presented. We have taken all of the evidence and submissions into account in coming to our decision.

[7] We signal at the outset that, for the reasons outlined in this decision, we have decided to grant the applications for resource consent subject to conditions.

[8] The structure of this decision will be to first outline the proposal and then the statutory and regulatory framework that applies to it. We will then evaluate the actual and potential effects on the environment that will or could arise from the proposal.

THE PROPOSAL

What is proposed?

[9] Meridian is New Zealand's single largest generator of renewable energy, with assets predominantly in New Zealand, but also Antarctica and South Australia. Its asset

THE SEAL OF THE ENVIRONMENT COURT NEW ZEALAND

base includes hydro[2] and wind generation facilities. It operates a number of wind-generation facilities[3] with one under construction[4] and holds resource consent for two North Island projects.[5] Since 2004 Meridian has committed to only developing new generation from renewable resources.[6] Meridian's position is that wind and hydro generation are an ideal combination which, when run in tandem, can ensure reliable electricity supply.

[10] The proposal, referred to by Meridian as "*Project Hurunui Wind*", is to construct, operate and maintain up to 33 wind turbines and associated facilities. The potential combined generation capacity for the project is 75.9MW. The principal components of the wind farm proposal include:

- Up to 33 wind turbine generators configured around a turbine envelope that is designed for a rotor diameter of up to 101 metres and a rotor hub height up to 80 metres. This means that the maximum height from the ground to the top of the rotor arc would be no greater than 130.5 metres. Each turbine is to be located within a 100 metre radius of the positions indicated on the construction plans. The average annual production from the wind farm (approximately 270 GWh per year) will supply the annual electricity requirements of around 34,000 average homes.
- Individual transformers at the base of each wind turbine.
- An internal road network of approximately 22 kilometres in length.
- Electrical works including a transmission and internal network (either 22kV or 33kV) of underground cables; a site substation; and overhead 66kV transmission line connecting the substation to an existing MainPower transmission line located alongside the site.
- An operations and maintenance building.

---

2 The Waitaki power scheme except Tekapo A and B (upper Waitaki catchment); the Manapouri power scheme (Fiordland)

3 The Brooklyn wind turbine (Wellington), the Te Apiti wind farm (Manawatu), the White Hill wind farm (northern Southland), three turbines on Ross Island (Antarctica), project West Wind (Wellington), the Te Uku wind farm in partnership with WEL Networks Limited (Raglan), Mt Millar (South Australia)

4 Project Mill Creek (Wellington)

5 Central Wind and Hawkes Bay Wind farm

6 Mr Muldoon, evidence-in-chief, paragraph [12]

THE SEAL OF THE ENVIRONMENT COURT NEW ZEALAND

- Two permanent wind meteorological monitoring towers up to 80 metres high.

[11] Access to the site is to be from Motunau Beach Road, a local road situated approximately 3.2km from the SH1 ("**SH1**") and Motunau Beach Road intersection.

[12] The construction timeframe is estimated at between 18 and 24 months.

[13] A consent lapse period of 10 years is sought for all consents.

[14] Proposed conditions of consent were presented and as is usual in these cases several iterations of the conditions occurred during the hearing. By the end of the hearing Meridian and the two Councils had reached agreement on all of the proposed conditions, with the Society, Tipapa and others submitting conditions which they thought acceptable should the Court decide to grant consent.

Where is the wind farm to be situated?

The site and its surrounding environment

[15] The wind farm site comprises parts of properties owned by six landowners used primarily to graze sheep and cattle. Collectively these six landowners manage 3,400 hectares, but the turbine development footprint will use up to 63.3 hectares. The site is on one of a series of hills aligned approximately northeast-southwest in North Canterbury and is centred on an existing 80 metre high wind monitoring mast located close to the site's highest point known as Centre Hill.

[16] The properties immediately surrounding the site are also used for pastoral farming, mainly sheep, cattle and deer, and are relatively sparsely populated with farm/lifestyle dwellings.

[17] The site is located southeast of, and roughly parallel to, SH1, approximately 66km north of Christchurch between the Waipara and Hurunui Rivers. It is within the Hurunui District, between the local Greta Valley and Omihi settlements, which are located close to the SH1. Both of these settlements include primary schools and a number of small businesses and tourist and recreation activities including Tipapa at Greta

THE SEAL OF THE ENVIRONMENT COURT NEW ZEALAND

Valley. Motunau Beach Road provides access to the coastal settlement and holiday area of Motunau Beach.

[18] The Waipara winegrowing area is to the south, with vineyards now occupying much of the valley floor and lower slopes either side of SH1. Waipara is the southernmost tip of the Alpine Pacific Triangle Touring Route Map,[7] which includes the tourist destinations of Kaikoura to the north and Hanmer Springs to the west.

The Mt Cass consent – to what extent should we take it into account?

[19] The proposed Mt Cass wind farm site is just over 4km to the southwest. The substantive decision approving the Mt Cass wind farm was issued on 12 December 2011,[8] with the final decision following on 7 February 2012.[9] Consent was approved authorising one of three different turbine layouts as follows:

Layout	Maximum height from ground level (m)	Maximum number of turbines	Maximum installed capacity (MW)
R33	55	67	34
R60	95	26	78
R90	120	26	78

[20] The Hurunui turbine layout proposed is similar to the R90 layout option contained in the Mt Cass decision. A number of the submitters were concerned about the cumulative effect of two wind farms in such close proximity. As a matter of law, we are able to take into account the effects of any unimplemented consents provided that they are likely to be implemented.[10] We did not receive any evidence about what is to happen with the Mt Cass consent, but Meridian did not contend that it is unlikely to be implemented. Accordingly we have decided to take it into account in our assessment where relevant.

---

[7] An official New Zealand Transport Agency approved touring route with road signage throughout the route. Mr Pearson, evidence-in-chief, paragraph [9]

[8] ***Mainpower NZ Limited v Hurunui District Council*** [2011] NZEnvC 384

[9] [2012] NZEnvC 021

[10] ***Queenstown-Lakes District Council v Hawthorne Estates Limited,*** [2006] NZRMA 424

THE SEAL OF THE ENVIRONMENT COURT NEW ZEALAND

What is the extent of opposition to the proposal?

[21] Meridian undertook a large amount of public consultation prior to the proposal being publicly notified. In response, Project Hurunui was amended to that first consulted on. In particular, in response to the comprehensive consultation with Mr Carr, two turbines (A12 and D15) were removed, and turbines A10 and A11 were shifted. [11] Mr Rough advised that another turbine (A13) was also deleted as it was considered too dominant.[12]

[22] The applications were publicly notified on 9 April 2011, with submissions closing 30 days later on 24 May 2011. Of the 132 submissions received, 78 opposed the proposal, 50 were in support and 4 were neither in support nor opposition.

[23] We were told that there was considerable opposition to Meridian's proposal from "*the community*". Who exactly "*the community*" is and who was authorised to speak for it became an issue.

Who is the community?

[24] Although "*the community*" was spoken about very generically at the outset, we accept that the local community comprises Greta Valley, Omihi, Glenmark, Scargill and to a lesser extent Motunau Beach and Waipara. The regional community comprises the rest of the Hurunui District and the wider Canterbury Region. The opposition to the proposal was almost without exception from those within the local community.

Who is authorised to speak for the community?

[25] The Society, as its name suggests, was specifically formed to oppose Meridian's proposal. It comprises a number of members and addressed matters of collective concern. There were also members of the Society who in their personal capacities addressed matters of individual concern, but Mr Carr for Tipapa also took it upon himself to speak for "*the community*" from time to time.

---

11 See evidence-in-chief of Mr McKinney
12 Mr Rough, evidence-in-chief, paragraph [364]

THE SEAL OF THE ENVIRONMENT COURT NEW ZEALAND

[26] Mr Carr has chosen to live in New Zealand, having emigrated here several years ago. He bought Tipapa about eight years ago and has extensively renovated and rejuvenated it. His interest in the history of Tipapa and the surrounding area is extensive and it was very clear that this is the place where his heart resides. He spoke of Tipapa as representing his "*mauri ora*"; it is his place of peace and rest. He has spent money on Tipapa and his business there is emerging. Mr Carr is passionately fierce about protecting what he has worked to achieve. He is convinced that Meridian's proposal will destroy his home, his business and his future.

[27] Mr Carr is also a very articulate, engaging and charismatic man. He has embraced the Greta Valley community, employs local people at Tipapa, and has been generous in providing Tipapa's premises as a venue for meetings about Meridian's proposal. However, at times the way Mr Carr has spoken about Meridian, the HDC, and their consultants, his tenacious approach and his colourful use of superlatives has been less than helpful. He has been inclined to rush into action, when a more measured and considered approach was advisable. This has helped contribute to a polarisation of views within the community, which in the calm of the hearing had the opportunity to become more measured, reasoned and reasonable.

[28] We acknowledge that Mr Carr has had many important things to say and issues to raise, so that where appropriate we have separated these from the manner in which they were presented, but we note that when Mr Carr had the opportunity to reflect on some of his past approaches and benefit from hindsight, he did not resile from any position he had taken.[13]

[29] We do not agree that Mr Carr speaks for the community. Mr Carr speaks for Tipapa and himself. The Society represents its members' collective concerns relating to landscape, amenity, noise, health, traffic and avifauna, and those individuals who presented speak for themselves on the various issues of specific interest to them.

Community opposition

[30] Mr Carr's actions are, however, important because they create a backdrop to the community opposition. This is because Mr Carr was instrumental early on in providing the local community with information about wind farms and their purportedly adverse

[13] Transcript cross-examination of Mr Carr by Mr Beatson commencing at p2645

THE SEAL OF THE ENVIRONMENT COURT NEW ZEALAND

effects. There are three examples which we have decided to mention; the meeting held at Tipapa woolshed on 17 June 2010, Mr Carr's survey of those purportedly against the proposal, and the letters he sent to hosting landowners.

[31] Initially Mr Carr was neutral about the proposal, but as he researched matters on the internet, and saw photo montages of how some of the proposed turbines might appear from Tipapa, he became concerned. Mr Carr's considerable energy became devoted to opposing the proposal.

[32] Tipapa hosted a public meeting[14] on 17 June 2010 ("**the woolshed meeting**") at which Professor Dickinson and Mr Rapley spoke. Both are opponents of wind farm developments and neither gave evidence in this case. The meeting was attended by about 125 members of the local community.[15] There was a suggestion that Meridian representatives were invited but told not to comment.[16]

[33] At this point, Mr Carr's opposition to the proposal was entrenched. He decided to survey the local community about their views. Two survey forms were sent out under cover of two separate letters dated 1 and 8 July 2010 respectively by Mr Carr.[17] Both letters contained emotive language and referred negatively to Meridian's proposal, at times in an exaggerated and incorrect way. The first letter named the hosting landowners.

[34] The results of the survey indicated a large amount of opposition to the proposal.[18] Early on in the hearing Mr Carr presented a pin map[19] he had prepared showing the results of the survey, and he contended that this showed that the whole community, not just a group of malcontents, significantly opposed the proposal.[20]

[35] Mr Carr sent a number of letters to the six hosting landowners.[21] Most were sent after the survey was undertaken. These letters when viewed as a whole can be said

---

[14] Meridian Exhibit 16
[15] Transcript p2652 lines 21-24, Mr Carr
[16] Transcript p2652 lines 21-24- p2653 lines 1-10, Mr Carr
[17] Meridian Exhibit 17(a) and (b)
[18] Meridian Exhibit 17 (c)
[19] Tipapa Exhibit 4
[20] Mr Carr Opening Statement
[21] Meridian Ex 18 (a)-(d)

THE SEAL OF THE ENVIRONMENT COURT NEW ZEALAND

to be unpleasant and at times contained threatening overtones. Mr Turnbull, one of the recipients of these letters, regarded the letter of 9 July 2010 as "*almost... blackmail.*"[22]

[36] Hosting landowners received anonymous, abusive notes in their letterboxes, and some similar emails.[23] The tyres of a Meridian vehicle were anonymously slashed at an open day.[24] At one open day those present were vocally hostile to Meridian staff and their consultants.[25] It is, however, not difficult to see how, in this climate, those in support or neutral about the proposal might be tentative about making their views known to others in the community.

[37] We give the survey little weight, but in the end that matters little. The best that can be said is that a number of local people oppose the proposal. Most, but not all, of these people have formed a Society to present their views to this Court. The Society represents its members' views. Individuals who oppose (including Mr Carr for Tipapa) have appeared to represent their views. There are other views and not all are in opposition.

[22] Transcript, p 2316, lines 9-14
[23] Transcript p2314, lines 1-6
[24] Transcript p2314, lines 18-19
[25] Transcript p2500, lines 21-25

THE SEAL OF THE ENVIRONMENT COURT NEW ZEALAND

LEGAL FRAMEWORK

Consents sought

[38] The proposal requires the following consents under the relevant regional and district documents:

A. Canterbury Regional Council – the Transitional Regional Plan ("**the TRP**"); the operative Canterbury Natural Resources Regional Plan ("**the CNRRP**") and the recently notified (11 August 2012) proposed Canterbury Land and Water Regional Plan ("**the PCLWRP**"). At the regional level there are four consents[26] sought relating to discharges to air associated with concrete batching, discharges to land (stormwater/contaminants), and the storage of diesel. Earthworks are a component of these applications.

B. Hurunui District Council – the operative District Plan ("**the District Plan**"). At the district level, land use consent is required in relation to the height, scale and visibility of the proposed turbines, transmission and monitoring mast structures, construction duration, earthworks, building scale and location, signage, screening of buildings, and vehicle numbers (during construction).

[39] The consents sought under the District Plan, the TRP and the CNRRP are either restricted discretionary or discretionary activities. Under the new PCLWRP the applicable rule relating to the discharge of stormwater (Rule 5.72) has a non-complying activity status. Section 88A of the Act provides that an application continues to be processed and decided as an application for the type of activity that it was at the time it was lodged, even if a proposed plan is subsequently notified and alters the type of activity that would apply.

[26] The Regional Council referenced the applications as: CRC111342 - to discharge contaminants to air from a concrete batching plant; CRC111343 – to discharge stormwater onto land where it may enter a river, lake or artificial watercourse (This includes stormwater from roads and turbine platforms; and sediment laden water from the construction phase of the development); CRC111344 – to use land to store a hazardous substance in an above ground storage tank; and CRC111354 – to discharge contaminants onto land from a concrete batching plant

THE SEAL OF THE ENVIRONMENT COURT NEW ZEALAND

[40] It was agreed that the overall status of the proposal remains as a discretionary activity.

The RMA and relevant statutory instruments

[41] The relevant statutory considerations for a discretionary activity are set out in section 104 of the RMA, with section 104B providing for the exercise of overall discretion to grant or refuse the application. Further specific matters relating to discharges are set out under sections 105 and 107. Where consent is to be granted, then conditions may be imposed under sections 107 and 108. Of particular relevance is section 104(1) which states:

> **s104 Consideration of applications**
> (1) When considering an application for a resource consent and any submissions received, the consent authority must, subject to Part 2, have regard to–
>
> (a) any actual and potential effects on the environment of allowing the activity; and
>
> (b) any relevant provisions of—
>
> (i) a national environmental standard:
>
> (ii) other regulations:
>
> (iii) a national policy statement:
>
> (iv) a New Zealand coastal policy statement:
>
> (v) a regional policy statement or proposed regional policy statement:
>
> (vi) a plan or proposed plan; and
>
> (c) any other matter the consent authority considers relevant and reasonably necessary to determine the application.

[42] The RMA has a single purpose (section 5) which is as follows:

> **5 Purpose**
> (1) The purpose of this Act is to promote the sustainable management of natural and physical resources.
>
> (2) In this Act, *sustainable management* means managing the use, development, and protection of natural and physical resources in a way, or at a rate, which enables people and communities to provide for their social, economic, and cultural well-being and for their health and safety while—
>
> (a) sustaining the potential of natural and physical resources (excluding minerals) to meet the reasonably foreseeable needs of future generations; and

THE SEAL OF THE ENVIRONMENT COURT NEW ZEALAND

(b) safeguarding the life-supporting capacity of air, water, soil, and ecosystems; and

(c) avoiding, remedying, or mitigating any adverse effects of activities on the environment.

[43] Under section 5 we are required to make a broad overall judgment as to whether or not a proposal promotes the sustainable management of natural and physical resources. In making that judgement we are to be informed and assisted by the other sections in Part 2: being sections 6 - 8. In this case the relevant provisions are: s7(b) - the efficient use and development of natural and physical resources; s7(c) - maintenance and enhancement of amenity values; s7(f) - maintenance and enhancement of the quality of the environment; and s7(j) - the benefits to be derived from the use and development of renewable energy. Under the RMA these are all matters to which we are required to have particular regard.

[44] There are also a number of relevant statutory planning instruments to which we must have regard under s104(1)(b) of the RMA. They include the National Policy Statement for Renewable Electricity Generation 2011 ("**the NPS – Renewable Electricity**"), the National Policy Statement – Electricity Transmission 2008 and the National Policy Statement – Freshwater Management 2011[27], the operative Natural Resources Regional Plan ("**the NRRP**") and the proposed Land and Water Regional Plan ("**the proposed LWRP**"), the operative and proposed Regional Policy Statements ("**the RPS**") and the Hurunui District Plan ("**the District Plan**").

[45] It is necessary at the outset of this decision to provide an overview of the regional and district planning instruments to provide a context to the factual issues we need to consider.

Canterbury Regional Documents

Regional Policy Statements

[46] The **operative RPS** (June 1998), as to be expected of such a high level document, provides a regional overview of resource management issues. Relevant provisions:

[27] The National Environmental Standard for Sources of Human Drinking Water and the National Environmental Standard for Assessing and Managing Contaminated Soil for the Protection of Human Health are also relevant

THE SEAL OF THE ENVIRONMENT COURT NEW ZEALAND

- Provide for the relationship of Tangata Whenua with resources (Chapter 6);
- Safeguard the life-supporting capacity of soils, seek to prevent induced soil erosion and minimise the irreversible effects of land use activities on land comprising versatile soils (Chapter 7);
- Protect or enhance: natural features and landscapes that contribute to Canterbury's distinctive character and sense of identity; indigenous biodiversity (including the survival of threatened species, communities or habitats, and those unusual in, or characteristic of ,Canterbury) (Chapter 8);
- Enable the benefits from the use of water and water bodies (quality and quantity) whilst safeguarding the values and life-supporting capacity of the water (Chapter 9);
- Enable provision of network utilities while avoiding, remedying or mitigating adverse effects on the environment (Chapter 12);
- Avoid, remedy or mitigate the adverse effects of discharges of contaminants into the air (Chapter 13);
- Seek to reduce Canterbury's dependence on non-sustainable energy sources (Chapter 14);
- Enable a safe, efficient and cost-effective transport system and avoid, remedy or mitigate the adverse effects on the environment of transport (Chapter 15);
- Prevent or mitigate the adverse effects of hazardous substances (Chapter 17).

[47] The decisions on the **proposed RPS** were notified on 21 July 2012. Those decisions take effect from that date; however, in accordance with section 66 of the Environment Canterbury (Temporary Commissioners and Improved Water Management) Act 2010, appeals could be made to the High Court on points of law up until 10 August 2012. Four appeals were lodged. On the last day of this hearing Ms Dysart for the CRC advised the Court that all of the appeals had been settled and settlement documents had been filed with the High Court.

[48] A number of the objectives and policies of the PRPS broadly seek the same outcomes as the corresponding provisions in the operative document. In the proposed

THE SEAL OF THE ENVIRONMENT COURT NEW ZEALAND

RPS there are more specific provisions relating to natural character values of waterways and the management of freshwater generally. There is also more direction given to identifying and protecting significant natural areas, providing for ecological enhancement and restoration, and managing biodiversity offsets. There are specific provisions seeking the identification and protection of outstanding natural features and landscapes. There are new provisions relating to the identification and management of other important landscapes (other than outstanding natural landscapes), having regard to natural character, amenity, historic and cultural heritage.[28] Chapter 16 relates to the resource management issues associated with energy. Policy 16.3.5 enables new electricity generation with a particular emphasis on renewable energy, however this is to be done while avoiding adverse effects on significant natural and physical resources, or where that is not practical, mitigated.

The operative Natural Resources Regional Plan and the proposed Land and Water Regional Plan

[49] The NRRP covers all regional planning provisions. Key objectives and policies applicable to this proposal are contained in Chapter 3 "Air Quality", Chapter 4 "Water Quality" and Chapter 5 "Water Quantity".

[50] As the proposed LWRP period for submissions closed on 5 October 2012, limited weight can given to it at this early stage. The objectives and policies are focussed on the management of water quality and quantity and seek to protect water resources. The provisions of the proposed LWRP are similar to those contained in the operative NRRP, with most of the rules setting the same environmental standards, and the objectives and policy framework seeks the same or similar outcomes for protecting the environment.

The District Plan

[51] The District Plan was initially made operative in August 2003 and was last amended in June 2012. The site is within the General Rural Management Area. There are no other planning notations affecting the site. In this regard it is relevant that the site is not identified in the District Plan as an Outstanding Landscape, nor are there any identified Significant or Potentially Significant Natural Areas within the site. The site is

[28] Proposed RPS Objective 12. 2. 2 and associated policies.

THE SEAL OF THE ENVIRONMENT COURT NEW ZEALAND

outside the identified Coastal Environment Management Area. No notable trees, heritage features or archaeological sites are identified on land that is subject to the applications. SH1 and the main trunk rail line are both designated alongside the site. SH1 is classified as a Strategic Arterial Road and Motunau Beach Road is classified as a Collector Road.

[52] Relevant provisions in the District Plan include general provisions (under Objectives 1, 2 and 3) relating to safeguarding soils, ecosystems, natural resources and the quality of the environment. Provisions under Objective 4 relate to protecting and enhancing freshwater resources, including managing the adverse effects of land use activities on water quality and quantity (Policy 4.1). Of particular relevance to this proposed wind farm are the provisions relating to Important Landscapes under Objective 7, and Environmental Amenity under Objective 10.

[53] Provisions under Objectives 11, 12 and 15 relate to Energy Production and Use, Infrastructure, and Hazardous Substances. These sections are consistent with the corresponding provisions in the regional documents. They seek to promote opportunities for the use of renewable energy resources, and the efficient production and use of energy, whilst also managing the adverse effects. Policy 12.10 seeks to promote the safe and efficient use and development of the transportation network. The management of hazardous substances is recognised as a shared-agency responsibility.

[54] Only the district wide rules in Section A of the District Plan apply to this proposal.

[55] We will refer in detail to the relevant statutory and planning provisions as they arise during our decision in the context of the issue to which they relate.

Other relevant legal principles

Burden and standard of proof

[56] Traditionally the Environment Court adopts a civil burden of proof, but in a slightly different way than might be applied in the civil courts. It has been said that there is no burden on any party, but an evidentiary burden rests on a party who makes an allegation to present evidence tending to support that allegation.[29] We agree that how the

[29] ***McIntyre & Bellsouth v Christchurch City Council*** **(1996) 2 ELRNZ 84**

THE SEAL OF THE ENVIRONMENT COURT NEW ZEALAND

Environment Court should approach the burden and standard of proof was best expressed by Judge Jackson in ***Shirley Primary School v Christchurch City Council***,[30] where he said at paragraph [136]:

> To summarise on the issues of onus and burden of proof under the Act:
>
> (1) In all applications for a resource consent there is necessarily a legal persuasive burden of proof on the applicant. The weight of the burden depends on what aspects of Part 2 of the Act apply.
>
> (2) There is a swinging evidential burden on each issue that needs to be determined by the Court as a matter of evaluation.
>
> (3) There is no one standard of proof: if that phrase is of any use under the Act. The Court can simply evaluate all the matters to be taken into account under section 104 on the evidence before it in a rational way, based on the evidence and its experience; and give its reasons for exercising its judgment the way it does.
>
> (4) The ultimate issue under section 105(1) is a question of evaluation, to which the concept of a standard of proof does not apply[31].

What about the precautionary principle?

[57] There was some discussion during the hearing by submitters about the approach that the Court should take when predicting future environmental risk, particularly in relation to the topics of noise, health[32], avifauna[33] and tourism.[34] "*The precautionary principle*" was referred to, but within the context of the RMA, we prefer to describe it as "*a precautionary approach*". Certainly in ***Shirley Primary School v Christchurch City Council*** the RMA itself was described by Judge Jackson as "*preventive, precautionary and proactive,*"[35] a statement with which we agree.

[58] The definition of "*effect*" in s3 of the RMA supports this view:

> In this Act, unless the context otherwise requires, the term *effect* includes—
> (a) any positive or adverse effect; and

---

[30] [1999] NZRMA 66

[31] s105 was substituted on 1 August 2003 by s44 RMA. The relevant section now is s104B RMA

[32] Ms Meares, Final submission, 15 October 2012, paragraphs [12]-[15]; Glenmark, Transcript, page 1319, lines 23-28; Mrs McLachlan, Transcript, page 1352, lines 2-4; and Mrs Messervy, Transcript, page 159, line 5

[33] Ms Meares, Transcript, page 1848, lines 1-15

[34] Mr Pearson, Transcript, page 2140, lines 18-23

[35] [1999] NZRMA 66, page 51, paragraph [114]

THE SEAL OF THE ENVIRONMENT COURT NEW ZEALAND

(b) any temporary or permanent effect; and
(c) any past, present, or future effect; and
(d) any cumulative effect which arises over time or in combination with other effects—

regardless of the scale, intensity, duration, or frequency of the effect, and also includes—

(e) any potential effect of high probability; and
(f) any potential effect of low probability which has a high potential impact.

[59] The assessment we are required to undertake under the RMA requires us to consider:

(a) how likely it is that there will be an effect (positive or adverse); and

(b) if an effect is likely, what the nature and impact of that effect will be.

In the overall analysis, the weight that will be given to the evidence will depend in part on the nature and impact of the effect.

What weight should be afforded to expert and lay witnesses?

[60] Under s276 of the RMA, the Environment Court may receive any evidence it considers appropriate, but that does not mean that "anything goes". A considerable amount of latitude was permitted to the submitters representing themselves to admit otherwise inadmissible evidence on the basis that the Court would be able to effectively sift the wheat from the chaff and determine what weight should be given to the evidence in contention on a particular topic.

[61] In this case, as is typical of many cases in this field, there was a significant amount of expert evidence. There was also a considerable amount of lay evidence. Bearing in mind that a large number of those who read this decision will be lay people, it is important to set out briefly the well-known principle now enshrined in the Evidence Act 2006 that a statement of opinion is not admissible in a proceeding unless it comes within the exceptions provided for in ss24 and 25 of the Evidence Act.[36] Section s25 is most relevant to this case and provides[37] that an opinion by an expert that is part of expert evidence offered in a proceeding is admissible if the fact-finder is likely to obtain

[36] s23 Evidence Act 2006
[37] s25(1) Evidence Act 2006

THE SEAL OF THE ENVIRONMENT COURT NEW ZEALAND

substantial help from the opinion in understanding other evidence in the proceeding, or ascertaining any fact that is of consequence to the determination of the proceedings.[38]

[62] In the Evidence Act, an "*expert*" is defined as a person who has specialist knowledge or skill based on training or experience in a particular field of endeavour or study, and "*expert evidence*" means the evidence of an expert based on the specialised knowledge or skill of that expert and includes evidence given in the form of an opinion. An "*opinion*" in relation to a statement offered in evidence, means a statement of opinion that tends to prove or disprove a fact.[39]

[63] We accept that s276 in the RMA allows wider scope than the Evidence Act for the admission of evidence. However, we see no reason why the provisions regarding expert evidence, and in particular the definition we have referred to, should not apply

[64] Some of the parties (not represented by the Society) sought to minimise aspects of the opinions of the experts on the basis that they were theoretical, and not practical or experiential. As already outlined, many of the matters with which the Environment Court must grapple (and this case is no exception), are those that are helped by expert opinion evidence. Over the years a great number of rules have developed to ensure that the opinions expressed have a factual basis, and are not speculative, but are reasoned and sound, and can therefore be relied upon even though they are expressions of opinion.

[65] Some of these submitters also sought to present to the Court their own opinions or the opinions of others expressed in articles they had obtained off the internet, on the contested topics. There seemed to be a view that providing these articles were sourced and a copy provided, that constituted "*evidence*". The weight that should be attached to these documents is, however, a question for the Court. Many of them were arguably inadmissible in a strict sense, because they were simply expressions of a particular perspective (e.g. newspaper articles), the factual source of which was certainly able to be challenged.

[66] In ***Rangitaiki Gardens Society Ltd v Manawatu-Wanganui Regional Council,***[40] Judge Dwyer said the following in the context of that case:

---

[38] s25(1) Evidence Act 2006
[39] s4(1) Evidence Act 2006
[40] 2010 NZEnvC 14 at paragraph [11]

THE SEAL OF THE ENVIRONMENT COURT NEW ZEALAND

> The evidence of lay witnesses identifying those aspects of the environment which are appreciated by them, the reasons for that appreciation, and expressing their views as to how their appreciation might be reduced by a particular proposal, are legitimate subjects of lay evidence. We have had due regard to such evidence. That consideration does not extend to information sourced from the internet that went into areas such as technical noise issues and health effects.

[67] We will deal specifically with the more significant articles that were relied on by some of the witnesses under the technical topics to which they refer, but generally we agree with and adopt Judge Dwyer's approach. This is not to say, however, that the end decision is determined solely by expert evidence. Where there is a need for risk assessments to be made about future effects on the environment, both expert and lay evidence can often assist the Court to predict how likely it is that these effects might eventuate, and if they are likely, what the nature and impact of them is likely to be, but the weight to be given to expert and lay evidence depends on the issue in contention.

THE ACTUAL AND POTENTIAL EFFECTS OF THE PROPOSAL ON THE ENVIRONMENT

[68] Section 104(1)(a) requires us to have regard to any actual and potential effects on the environment of allowing the activity. We have already outlined how the RMA defines "*effect*". "*Environment*" is defined in s2 of the Act as:

> In this Act, unless the context otherwise requires,—
>
> *environment* includes—
>
> (a) ecosystems and their constituent parts, including people and communities; and
>
> (b) all natural and physical resources; and
>
> (c) amenity values; and
>
> (d) the social, economic, aesthetic, and cultural conditions which affect the matters stated in paragraphs (a) to (c) or which are affected by those matters

[69] We have outlined in the Introduction the positive and potentially adverse effects on the environment arising from this proposal that were raised by the parties. We will deal with each in turn.

THE SEAL OF THE ENVIRONMENT COURT NEW ZEALAND

What are the potentially positive effects on the environment?

[70] Meridian contended that a number of benefits would accrue from the development of the proposal at local, regional and national levels. In general terms, these included:

- the national benefit of meeting predicted electricity demand from a reliable renewable energy source.
- economic benefits to the local and regional economies,

Some submitters challenged the predicted economic benefits to the local and regional economies, the demand predictions presented to the Court by Meridian, and the reliability of wind generation.

Renewable energy

[71] Meridian submitted that the legislative framework favours renewable energy projects, and the fact this is one, is a positive effect. This is correct in the sense that s7(j) of the RMA requires us to have particular regard to the "*benefits to be derived from the use and development of renewable energy.*"[41]

The NPS – Renewable Electricity Generation 2011

[72] The importance of renewable energy has been highlighted in *The NPS – Renewable Electricity* which came into effect in May 2011 and which, as we have outlined, is a statutory planning instrument under s104(1)(b) to which we must have regard. It recognises renewable electricity generation activities, and the benefits of renewable electricity generation, as matters of national importance under the RMA.[42]

[73] The Preamble to the NPS - Renewable Electricity states the central government has reaffirmed the strategic target that 90 percent of electricity generated in New Zealand should be derived from renewable energy sources by 2025. It also states that in some instances the benefits of renewable electricity generation can compete with matters of

[41] s7(j) was inserted into the RMA as from 2 March 2004, by s 5(2) Reserve Management (Energy and Climate Change) Amendment Act 2004 (2004 No. 2)
[42] The NPS - Renewable Electricity, p. 4 and Explanatory Note p. 8.

THE SEAL OF THE ENVIRONMENT COURT NEW ZEALAND

national importance as set out in section 6 of the RMA, and with matters to which decision-makers are required to have particular regard to under section 7. Further, it states that development that increases renewable electricity generation capacity can have environmental effects that span local, regional and national scales, often with adverse effects manifesting locally and positive effects manifesting nationally.

[74] The NPS - Renewable Electricity has a sole objective, being:

> To recognise the national significance of renewable electricity generation activities by providing for the development, operation, maintenance and upgrading of new and existing renewable electricity generation activities, such that the proportion of New Zealand's electricity generated from renewable energy sources increases to a level that meets or exceeds the New Zealand Government's target for renewable electricity generation.

[75] The NPS – Renewable Electricity objective and policies, where relevant, are required to be considered by decision-makers in determining resource consent applications.

[76] The NPS - Renewable Electricity policies relevant to this proposal include:

> **A. Recognising the benefits of renewable electricity generation activities**
>
> POLICY A
>
> Decision-makers shall recognise and provide for the national significance of renewable electricity generation activities, including the national, regional and local benefits relevant to renewable electricity generation activities. These benefits include, but are not limited to:
>
> a) Maintaining or increasing electricity generation capacity while avoiding, reducing or displacing greenhouse gas emissions;
> b) Maintaining or increasing security of supply at local, regional and national levels by diversifying the type and/or location of electricity generation;
> c) Using renewable natural resources rather than finite resources;
> d) The reversibility of the adverse effects on the environment of some renewable electricity generation technologies;
> e) Avoiding reliance on imported fuels for the purposes of generating electricity.
>
> **B. Acknowledging the practical implications of achieving New Zealand's target for electricity generation from renewable sources.**
>
> POLICY B
>
> Decision-makers shall have particular regard to the following matters:

THE SEAL OF THE ENVIRONMENT COURT NEW ZEALAND

...

c) meeting or exceeding the New Zealand Government's national target for the generation of electricity from renewable sources will require the significant development of renewable electricity generation activities.

C. Acknowledging the practical constraints associated with the development, operation, maintenance and upgrading of new and existing renewable electricity generation activities.

POLICY C1

Decision-makers shall have particular regard to the following:

a) The need to locate the renewable electricity generation activity where the renewable energy resource is available;

b) Logistical or technical practicalities associated with developing, upgrading, operating or maintaining the renewable electricity generation activity;

c) The location of existing structures and infrastructure including but not limited to, roads, navigation and telecommunication structures and facilities, the distribution network and the national grid in relation to the renewable electricity generation activity, and the need to connect renewable electricity generation activity to the national grid;

d) Designing measures which allow operational requirements to complement and provide for mitigation opportunities; and

e) Adaptive management measures.

POLICY C2

When considering any residual environmental effects of renewable electricity generation activities that cannot be avoided, remedied or mitigated, decision-makers shall have regard to offsetting measures or environmental compensation including measures or compensation which benefit the local environment or community affected.

The New Zealand Energy Strategy 2011-2021

[77] We were referred to the ***New Zealand Energy Strategy 2011-2021: Developing our energy potential, New Zealand Government, August 2011*** (**"the Strategy"**). This is not a statutory document, but because it refers to renewable energy targets and because Policy B(c) of the NPS – Renewable Electricity requires us to have regard to the Government's national target for renewable electricity generation, it is a relevant document to which we should have regard under s104(1)(c). No party contended otherwise.

[78] The Strategy identifies energy security and response to climate change as two significant global energy challenges which have ramifications for New Zealand's energy

THE SEAL OF THE ENVIRONMENT COURT NEW ZEALAND

future. In relation to response to climate change, two of the government's four priorities identified in the Strategy are to diversify resource development, and to be environmentally responsible. We will discuss energy security shortly.

The evidence

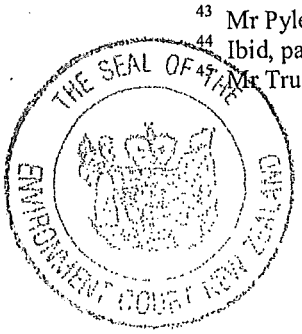
[79] Mr Pyle, the chief executive of the New Zealand Wind Energy Association ("**NZWEA**") gave evidence on this topic. NZWEA is a membership-based industry association. Its activities are funded by its members and it is a non-profit organisation. It does not have any financial involvement in the proposal or any other wind farm development but Meridian is a member of NZWEA, as are all of the major electricity generator-retailers, independent electricity generators, Transpower and several lines companies, a number of major international and domestic wind turbine manufacturers, and a range of other companies with interests ranging from site evaluation through to operations and maintenance of wind farms.

[80] Even though NZWEA is an industry-based organisation, Mr Pyle's evidence was helpful to assist our understanding of, among other things, renewable energy and the demand for electricity and the need for security of supply. Mr Pyle told us that the energy sector has been identified as a key action area for reducing New Zealand's greenhouse gas emissions.[43] Developing renewable energy resources and reducing energy-related greenhouse gas emissions are two specific areas of focus.[44]

[81] We were told that the wind farm would not emit greenhouse gases, and with very low variable operating costs, and a requirement to offer generation electricity into the electricity market at $0.01/MWh, would operate ahead of thermal power stations. Mr Truesdale also told us that renewable options for electricity generation are more commercially attractive because, under the Emissions Trading Scheme, thermal generators face increased operating costs because they pay for carbon emissions.

[82] The evidence also established that in order to meet the government's target of 90% renewable generation and to meet future demand growth, a substantial amount of new renewable generation needs to be developed.[45] We were told that under central

[43] Mr Pyle, evidence-in-chief, paragraphs [6.2] and [6.11]
[44] Ibid, page 5
[45] Mr Truesdale, evidence-in-chief, paragraph [11]



demand forecasts prepared by the Ministry of Economic Development ("**MED**") and the Electricity Commission (now the Electricity Authority), new renewable generation capable of contributing around 18,400 and 21,000 GWh to annual supply requirements would need to be developed to attain this target by 2030.[46]

[83] NZWEA has estimated the requirement for renewable electricity by 2025 at around 13,000GWh, or an average of around 900GWh per year. Mr Pyle told us that this represents an increase in total renewable generation of around 40% in just 14 years.[47] He noted that over the past 15-20 years New Zealand's total renewable generation has only increased by around 3,000-4,000GWh in total (or around 15%), demonstrating the challenge of the target and the importance of all the projects that will contribute towards it.[48] Mr Pyle referred to Meridian's calculation that this proposed wind farm could generate up to 260GWh per year, which he noted represents just less than 30% of one year's estimated annual new renewable generation requirement.[49]

[84] Given the evidence we heard, and the lack of any substantive challenge to it, we are satisfied that a positive effect arising from this proposal is that this it involves electricity generation from a renewable source.

The demand for electricity and the need for security of supply

[85] We were told that developing additional generation opportunities in the upper South Island will reduce the amount of supply that would otherwise need to be imported through the national grid. We were told (and it was not substantively challenged) that the demand for electricity in the upper South Island exceeds generation by a substantial margin, with electricity having to be imported at all times through the grid from the Waitaki area, with corresponding transmission losses. The argument was that developing generation locally would reduce transmission losses (in effect generation from elsewhere that is otherwise wasted during transmission),[50] the cost of which is reflected in the spot market electricity prices. Meridian contended that if local generation is increased, the gap between regional spot market prices and prices in other regions is likely to reduce.[51]

---

[46] Mr Truesdale, evidence-in-chief, paragraph [11]
[47] Mr Pyle, evidence-in-chief, paragraph [6.19]
[48] Mr Pyle, evidence-in-chief, paragraph [6.19]
[49] Mr Pyle, evidence-in-chief, paragraphs [6.18] and [6.22]
[50] Mr Truesdale, evidence-in-chief, paragraph [17]
[51] Section 6.3 of the Concept Report

THE SEAL OF THE ENVIRONMENT COURT NEW ZEALAND

[86] Mr Truesdale, a consultant to Meridian with engineering qualifications and extensive experience in the electricity industry, oversaw the preparation of the report "*Hurunui Wind Farm Project – Electricity-related Benefits*" dated February 2011 which formed a part of Meridian's Assessment of Environmental Effects.

[87] Mr Truesdale's analysis, which was not substantively challenged, suggested that by reducing the flow of electricity into the upper South Island, the proposed wind farm could on average reduce the cost of purchasing electricity from the spot market in 2020 at the Waipara and Culverden grid connection points compared to Benmore by around 0.8%.[52] Assuming an average Benmore spot price of around $100 in 2020, this analysis indicated the reduction in the combined costs of purchasing electricity from the market at the Waipara and Culverden grid connection point compared to Benmore of around $120,000 per annum. The impact of this across all grid connection points in the Canterbury region would be around $3.5m per annum.[53]

[88] At the outset of the hearing there was some publicity about the Tiwai Point aluminium smelter, and whether the plant would be closed if a solution to the pricing of electricity supply to it could not be resolved. Some submitters contended that if this occurred, it would obviate the need for further generation opportunities for Meridian, as demand would reduce. Mr Muldoon told us that should this occur it would have no bearing on demand in the upper South Island, given that the electricity supplied to Tiwai Point does not connect to this part of the grid.

[89] Mr Pyle referred to the MED forecast that electricity demand will continue to grow at an average rate of approximately 1.5% per year (compounding) through to 2030, despite the expectation of significant energy efficiency gains.[54]

[90] Mr Pyle also addressed the topic of security of electricity supply. As part of the establishment of the Electricity Authority, the Electricity Industry Participation Code 2010 came into force on 1 November 2010. Under the Code, Transpower is responsible for forecasting and publishing information on the level of security and supply, and for

---

[52] Mr Truesdale, evidence-in-chief, paragraph [19]
[53] Mr Truesdale, evidence-in-chief, paragraph [20]
[54] Mr Pyle, evidence-in-chief, paragraph [6.18] Mr Pyle acknowledged that Transpower uses a slightly lower growth estimate. NZWEA has estimated the requirement for new renewable energy electricity by 2025 at around 13,000GWh, or an average of around 900GWh per year.

THE SEAL OF THE ENVIRONMENT COURT NEW ZEALAND

managing supply emergencies. The Code specifies a winter energy margin of 17% for the overall New Zealand system.[55]

[91] Dry year events can create risks to the security of electricity supply. We were told that dry years have occurred in 2001, 2003 and 2008, and frequently in previous decades. Because of this, Mr Pyle identified a need for investment in new electricity generation projects and for diversification away from the current reliance on hydro-generation.[56]

[92] Several submitters were concerned about the reliability of wind generation and used this as a basis to challenge Meridian's predictions about the electricity that would be able to be generated from it. At its most simplistic, the argument was that if the wind is not blowing, electricity is not being generated, and furthermore it cannot, unlike hydro, be stored.

[93] We heard a reasonable amount of evidence about the superior quality of the wind resource on the proposed site. This evidence established that the turbines would be able to generate 87% of the time.[57] Whilst accepting that wind generation is intermittent, the significant point highlighted by Meridian's evidence was that, given New Zealand's high proportion of hydro capacity, it is better placed than many countries to integrate intermittent wind generation.[58]

[94] Mr Pyle also noted that wind energy is a reliable source of generation because it varies little on a long-term basis. He noted that the available energy from the wind typically only varies by around 5-10% annually, compared to around 20% for hydro-generation. Accordingly, wind energy, by displacing sources of generation that can store their fuel (e.g. gas, coal, hydro), and by having a relatively low annual output variation, makes an important contribution to ensuring that the energy margin component of security of supply can always be achieved.[59]

[95] We are satisfied that the reliability of the resource is not really a serious issue in this case.

---

[55] Mr Pyle, evidence-in-chief, paragraphs [9.3] – [9.4]
[56] Mr Pyle, evidence-in-chief, paragraph [9.8]
[57] Mr McKinney, evidence-in-chief, paragraph [8]
[58] Mr Truesdale, evidence-in-chief, paragraph [27]
[59] Mr Pyle, evidence-in-chief, paragraph [9.5]

THE SEAL OF THE ENVIRONMENT COURT NEW ZEALAND

[96] Mr Pyle also focussed his evidence on what he described as an "*even more pressing need for new generation in Canterbury*".[60] He referred to Transpower's Annual Planning Report, which identifies that maximum demand in Canterbury is currently 843 MW (estimated to increase to 981 MW by 2020); yet local generation is only 77.1 MW. We were told that this shortfall must be imported into the region via the transmission network, leaving the region vulnerable to faults or constraints in that network, and increasing total generation demand due to the losses that occur as the electricity is transported into the region.

[97] Mr Pyle's evidence was that if the proposal was granted, it would improve the security of supply to the region and would enable water used for hydro generation to be stored for future use, a factor that is particularly important in dry years.

[98] We are satisfied that the evidence establishes that there is significant demand for additional electricity generation in this area, and that there is also a need to improve the security of supply to this region and elsewhere.

Economic benefits

[99] There was no challenge to the fact that economic benefits will flow from the proposal; the question was to whom. [61]

[100] Mr Muldoon, an engineer who is Meridian's Wind Development Manager, told us that the anticipated economic benefits include:

(a) local economy expenditure, both during the construction and operation stages as follows:

(i) an estimated NZ$54 million (25% of the total budget for the project) to be spent directly within the North Canterbury region;[62]

(ii) during the 18-24 month construction period, employment is anticipated to peak at approximately 100-150 people with

[60] Mr Pyle, evidence-in-chief, paragraph [9.9]
[61] Mr & Mrs McLean, evidence-in-chief, paragraph [6.4]; Ms Barnes, evidence-in-chief, paragraph [23]; Ms Meares, evidence-in-chief, paragraph p [34]
[62] Mr Muldoon, evidence-in-chief, paragraph [58]

THE SEAL OF THE ENVIRONMENT COURT NEW ZEALAND

approximately 600 people inducted onto the site during the course of construction,[63] and

(iii) after construction, 4 full-time staff members will be employed. We were told that Meridian's experience of other wind farms located in rural environments is that a number of these staff base themselves close to the site;[64]

(b) farmers who are hosting wind turbines will receive income;[65] and

(c) a community fund is proposed to be established to provide direct benefits to the local community once the wind farm is operational.

[101] Some submitters were sceptical that the local and regional community would benefit much at all, particularly given that the construction industry within the region is stretched by the Christchurch rebuild. Whilst this may be the case, there is no requirement that any benefits should directly accrue to the local or even regional community. The proposal if granted will still generate employment and cash into the economy.

[102] The community fund was to directly benefit the local community. Whilst we will say more about this later in this decision, the offer by Meridian is to contribute $100,000 towards the fund over a three year period from when construction commences, but thereafter any annual contribution would be at Meridian's discretion. We were asked to infer that the fund is likely to be ongoing, given that Meridian has reviewed community funding arrangements for its other wind farms and has extended their operation, sometimes by contributing higher amounts than that which was originally offered.[66]

[103] We agree that should the wind farm be consented there will be economic benefits flowing from it.

---

[63] Mr Muldoon, evidence-in-chief, paragraph [58]
[64] Mr Muldoon, evidence-in-chief, paragraph [59]
[65] Mr Muldoon, evidence-in-chief, paragraph [72]
[66] Transcript, page 91, lines 10-13

THE SEAL OF THE ENVIRONMENT COURT NEW ZEALAND

Conservation initiatives and other technologies

[104] Some submitters contended that demand could be affected by conservation initiatives and/or that other technology such as solar generation could also impact on it. We are satisfied from the evidence we heard that, even if conservation and efficiency gains are made, there is still a shortfall of generation capability to meet the predicted increased demand.

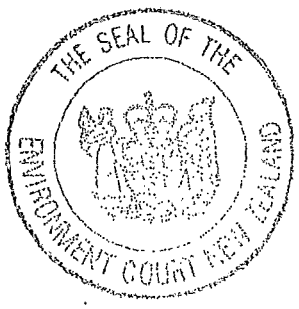
[105] As to alternative technology, Meridian is not required to assess or include alternatives of this kind as part of its proposal. Furthermore, we did not hear any evidence that enabled us to rely on with confidence that other generation technologies were available to meet the predicted demand within the estimated time frame it is required.

What are the potentially adverse effects on the environment?

[106] As signalled in our introduction, most of the contested evidence focussed on potentially adverse effects arising from the wind farm. These effects related to:

- landscape and visual amenity;
- noise;
- health;
- traffic and construction;
- ecology including avifauna;
- recreation and tourism; and
- property values.

[107] We heard the evidence about these matters as "topics", meaning that the evidence from each of the parties about the particular potentially adverse effect was heard consecutively, with the witnesses being cross-examined as required. This had the benefit of all information (both submissions and evidence) on a particular topic being able to be presented and challenged in a cohesive way, and the issues under each topic were able to be more clearly focussed and defined.



[108] We will deal with each of these topics in turn, and where appropriate the conditions proposed by Meridian (and HDC and CRC) to mitigate any adverse effects will also be analysed.

[109] The primary position for those opposed to the wind farm was that adverse effects could not be appropriately mitigated, but as a backstop position the Society and Mr Carr proposed alternative conditions on some topics.

Landscape and visual amenity

Overview

[110] Under ss7(c) and (f) of the RMA we are required to have particular regard to "*the maintenance and enhancement of amenity values ... and the quality of the environment*" when considering whether or not to approve the proposal. A key issue in this case was whether the introduction of wind turbines to the landscape would change it to such an extent that there would be an adverse effect on "*the maintenance and enhancement of amenity values ... and the quality of the environment*". The cumulative effect of the Mt Cass wind farm on visual amenity was also an issue for some.

[111] "*Amenity values*" are defined in s2 of the RMA as:

> ...those natural or physical qualities and characteristics of an area that contribute to people's appreciation of its pleasantness, aesthetic coherence, and cultural and recreational attributes.

The definition of "*environment*" in s 2 also includes amenity values. In this section we will refer to the potential impact on "*visual amenity*", understanding that "*amenity*" incorporates other factors as well.

[112] When dealing with landscape and visual amenity issues several basic legal principles need to be remembered. The first is that there is no right to a view.[67] Even though we must have particular regard to the maintenance and enhancement of amenity values, this is not the same thing as saying there is a right to a view.[68] The second is that a landowner is permitted to use their land as they see fit, providing that the use of it does

[67] ***Anderson v East Coast Bays City Council*** (1981) 8 NZTPA 35, page 37 (HC)
[68] W73/98, 2 September 1998, Kenderdine EJ, paragraph [104]

not breach any legal requirement.[69] It follows that the use of land by a neighbour in some circumstances can lawfully change an existing view.

[113] The significance of a particular landscape to people who live near it and are thereby affected by any change to it (and the interrelated effect on visual amenity) require us to carefully consider both local and expert views. An analysis of the District Plan provisions relating to landscape and visual amenity is also important because this is the framework against which local expectations about amenity must be measured.

[114] We heard a considerable amount of evidence about this topic from those who live locally and from the expert witnesses. The expert landscape witnesses were Mr Rough for Meridian, Mr Craig for HDC and Ms Steven for the Society. [70] Visual simulations showing how the turbines will most likely appear in the landscape were prepared by Truescape (for Meridian) and BuildMedia (for the Society). These simulations were separated into private and public viewpoints.

[115] We also undertook four site visits during the hearing:

(a) The first was undertaken shortly after opening addresses. From this we gained an overview of the area said to be affected by the proposal, and we considered the public viewpoints potentially affected by the proposal.

(b) We then requested and undertook a site visit to Meridian's Te Uku wind farm near Raglan, to gain an understanding of the size of the turbines, given that the turbine proposed in this case is similar to that used at Te Uku.

(c) We then undertook two separate site visits to a number of private addresses in order to understand better the submitters' concerns about the impact on their visual amenity.

[116] We will first outline the relevant provisions in the District Plan before evaluating the change to the landscape that will occur if the proposal is granted, with specific reference to the identified public and private viewpoints. The evaluation will

[69] Meridian, legal submissions on landscape and visual amenity effects, paragraph [45]
[70] The landscape experts participated in expert conferencing before the hearing, and their joint witness caucusing statement outlined the relevant issues, including those agreed, and those which were not.

THE SEAL OF THE ENVIRONMENT COURT NEW ZEALAND

also consider whether or not any cumulative visual amenity effects arise as a result of this proposal and the Mt Cass wind farm.

How does the District Plan address landscape and visual amenity?

[117] As we have already outlined, the provisions in the District Plan relating to *Important Landscapes* under Objective 7 and *Environmental Amenity* under Objective 10 are relevant.

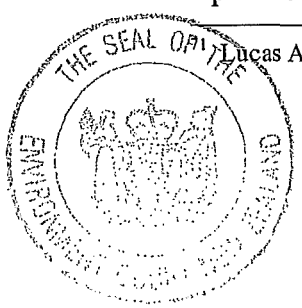
[118] The District Plan states that the starting point for defining the landscape resource is a 1995 report ("**the Lucas report**"),[71] and that further work will be ongoing. The Plan acknowledges that landscape as a resource is not static, and that a large proportion of the Hurunui landscape is a working landscape used for a range of legitimate pastoral, horticultural and forestry activities. The District Plan recognises distinctions between "*outstanding*" landscape areas and the remainder of the district. Relevant provisions include:

> **Objective 7**
>
> To protect and enhance the natural features and landscapes of the Hurunui District which are valued by the community by managing change in the landscape in a manner that has particular regard to natural processes, features, elements, and the heritage values, which contribute to this resource's overall character and amenity.
>
> **Policy 7. 2**
>
> To encourage subdivision, use and development activities to be undertaken in such a way that the natural features and landscapes which contribute to the amenities of the District are protected and enhanced.
>
> **Policy 7. 3**
>
> To control subdivision, use and development where there would be an adverse effect on outstanding natural features or landscapes and to avoid or mitigate the effects on areas which have a high degree of naturalness, visibility, aesthetic value or expressiveness.
>
> **Policy 7. 4**
>
> To promote the restoration and enhancement of important natural features and landscapes.

[119] Although these provisions refer to natural features and landscapes that might be valued by the community and those classified as "*outstanding*" or "*important*", the rules in Section A2 specifically apply only to "*outstanding landscape areas*" that are shown on a plan at Appendix A2 and the Planning Maps.

---

[71] Lucas Associates, February 1995, "Landscapes of the Hurunui District".



[120] The provisions relating to *Environmental Amenity* centre on Objective 10, but there is some overlap between this section and others in the District Plan, particularly those relating to landscapes. Objective 10 states:

> **Objective 10**
>
> A healthy and safe environment within the District and maintenance and/or enhancement of amenity values which the community wishes to protect.

[121] The various policies listed under this objective relate to avoiding, remedying or mitigating adverse effects of activities on amenity values (refer to Policies 10.1, 10.3, 10.5, 10.5a, and 10.9). Of particular relevance to this topic are the following two policies:

> **Policy 10.5**
>
> To avoid, remedy or mitigate the adverse effects of activities on amenity values.
>
> **Policy 10.5a**
>
> To avoid, remedy or mitigate the adverse visual effects of buildings and structures sited on prominent ridges or immediately adjacent to strategic arterial, district arterial and collector roads or to Lake Sumner Road

[122] The main methods to implement these provisions are the standards or development controls set out in the district-wide rules (particularly Section A1 – Environmental Amenity), which seek to support a healthy and safe living environment. These include setbacks and separation distances, minimum areas, height limits (eg maximum height 10 metres), noise standards, screening, controls on signs and earthworks, and vehicle movements.

What are the values that attach to this landscape and the changes that will result from the proposal?

[123] We will first outline the landscape values relative to the site and whether or not this landscape is an important or amenity landscape. We will then analyse the evidence about the change the proposal will bring to the landscape; first dealing with the experts' opinions on this topic, and then outlining the locals' perspectives.

THE SEAL OF THE ENVIRONMENT COURT NEW ZEALAND

[124] The landscape experts first described the landscape values relative to the site, and agreed[72] that:

- the site is typical of a working pastoral farm landscape, with very few built elements on it and no particular natural or cultural features of note;
- the ecology of the site is highly modified, but the current degree of visual modification to the landscape is moderate;
- the site has moderate visual quality and general amenity value and significance as a backdrop and visual focus;
- the site has value as being recognisable and creating a sense of place;
- in New Zealand, electricity generation is an expected element in rural areas.

Landscape classification - Is the landscape an important or amenity landscape?

[125] Ms Steven contended that the landscape of Centre Hill is an important landscape, akin to a "*visual amenity landscape*" as that term is understood in relation to the Queenstown-Lakes District Plan. Mr Rough disagreed, contending that if Centre Hill is important, it is more akin to an "*other landscape*" as defined in the Queenstown-Lakes District Plan, that being a category of less importance in terms of protection and enhancement than a "*visual amenity landscape*".

[126] With respect to the experts, this debate somewhat misses the point. The concepts "*visual amenity landscape*" and "*other landscape*" categories in the Queenstown-Lakes District Plan are classifications adopted by it, and cannot simply be transported to other district plans where such categorisations do not occur. The Hurunui District Plan does not provide either for "*visual amenity landscapes*" or "*other landscapes*," but it does contain Objectives 7 and 10, and supporting provisions dealing with the topic.

[127] In the context of this debate we were referred to the Lucas report,[73] which, whilst we acknowledge is somewhat dated, identified "*important*" landscapes in the

[72] Joint Caucusing Statement - Landscape, 1 June 2012,
[73] Mr Rough, Rebuttal evidence, paragraph [14]

THE SEAL OF THE ENVIRONMENT COURT NEW ZEALAND

Hurunui District. A map[74] in the Lucas report categorised the important landscape units in a legend as either "*outstanding*" or "*significant*" and these were shown on the map as coloured red and orange respectively. Other landscape units that were not categorised as important were left white or uncoloured on the map. Centre Hill and its immediate surrounds are uncoloured and therefore were not classified as "*important*", being neither "*outstanding*" nor "*significant*".

[128] Whilst the Court on occasion has been prepared to determine that certain landscapes are outstanding, or that they are outstanding natural features (a classification the Court was prepared to make in the ***Mt Cass*** decision), in our view this is not something that should be undertaken lightly. There is force in the submission made by Mr Beatson for Meridian, and supported by Mr Smith for HDC, that a district-wide study would need to be undertaken in order to properly conclude, by way of comparison, what landscapes afford special planning recognition. Importantly in this case, the expert witnesses were agreed that the landscape is not an outstanding natural feature or landscape in terms of s6(b) of the RMA. We agree.

[129] We find that Centre Hill and its surrounds are neither "*visual amenity landscapes*" nor "*other landscapes*" as contended by the experts and as those terms are used in other plans. We find that Centre Hill and the site do not attract enhanced landscape recognition and protection within the provisions of the District Plan, as they do not qualify to be described as "*important*", "*outstanding*" or "*significant*". We agree with the experts that this area is of general amenity value.

Change to the landscape – the experts' opinions

[130] The experts agreed[75] that, should the wind farm proceed, the changes to the landscape will be caused by the presence of turbines and roads and:

- the turbines will have the most significant effect, followed by the roads to a considerably less degree, with the other elements of the wind farm either having localised or relatively minor effects;

[74] A copy was included in Mr Rough's Rebuttal evidence, Appendix 1.
[75] Joint Caucusing Statement - Landscape, 1 June 2012

THE SEAL OF THE ENVIRONMENT COURT NEW ZEALAND

- the turbines would be very significant structures in the landscape, potentially striking a strong visual focus, but the use of one turbine model would give better visual unity than using a variety of models
- from many views the proposed roads would not be seen.

[131] The experts also agreed[76] that:

- although turbines have an industrial character, the resulting landscape character would not change to be industrial;
- the generic rural character of the landscape will be maintained;
- the following aspects will be maintained on the site:
    - the presence of distinctive natural features;
    - the ability to enjoy panoramic framed views, albeit the subject of the view would be affected;
    - the effect of changing light, weather and atmosphere;
    - the ability to appreciate the detail of landform and vegetation generally.
- the landscape character will change, although it would remain generically rural (as opposed to urban or industrial);
- it is difficult to mitigate the effects of the turbines on the landscape.

[132] The experts did not agree about the nature of the change to the landscape. Ms Steven's opinion was that the landscape would change to an "*energy production landscape*," rather than a "*rural landscape*", but Mr Rough and Mr Craig did not agree. Their opinion was that pastoral farming would still remain the dominant land use, with the character of the landscape reflecting this.[77]

---

76 Joint Caucusing Statement - Landscape, 1 June 2012

77 Mr Craig, supplementary evidence, paragraphs [2. 11] and [2. 14]

THE SEAL OF THE ENVIRONMENT COURT NEW ZEALAND

[133] Mr Craig's opinion was that the better landscape outcome would be the status quo to remain, but he recognised that electricity generation is necessary and inevitably comes at a cost to the landscape. His overall opinion was that this landscape is not an inappropriate one to accommodate a wind farm.[78]

Change to the landscape – the locals' perspectives

[134] Not surprisingly, the submitters who live near to Centre Hill and the site view the landscape as significant and important to them. Mr Wallace for the Society submitted that, in particular, Centre Hill is significant for:

- a more natural character in contrast to the more intensely farmed valley floors;
- its long open natural skyline;
- a constant significant backdrop to six landscape settings arrayed around it;
- it is a widely visible hill;
- it has a typical pastoral farm landscape character with many appealing elements;
- it is a large part of the SH1 and railway visual corridor;
- it is part of the enclosing backdrop to the wider Waipara wine growing area.[79]

[135] Many of those local people who gave evidence referred in very strong terms to what they felt would be the effect of the proposed wind turbines, describing them in some cases as not only industrial in character, but contending that the landscape character would change to an industrial landscape.

[136] We were referred to some research which shows that there is a diversity of views about how people find wind turbines. It was clear to us that most of the submitters did not find wind turbines attractive or elegant (as contended by Mr Rough),[80] but dominant and overbearing. But we also note that not all local people were necessarily of

[78] Mr Craig, evidence-in-chief, paragraph [7. 7]
[79] The Society, Opening Submissions on Landscape, paragraph [4. 5]
[80] Mr Rough, evidence-in-chief, paragraph [102] and rebuttal, paragraphs [31] and [32]

THE SEAL OF THE ENVIRONMENT COURT NEW ZEALAND

this view. We heard from Mr Turnbull (a hosting landowner) who clearly did not feel the same way.

[137] We agree that there will be changes to the landscape as a result of the proposal, but we do not agree that the landscape will become an energy production or industrial landscape. We also agree that changes to the landscape *can*, but not necessarily *will* affect visual amenity.

The assessment of visual amenity effects

How should visual amenity be assessed?

[138] Meridian accepted that the real question is whether the degree of change to amenity is so intrusive that it requires turbines to be removed from the project. Whilst the evidence of Mr Rough and Mr Craig was that this threshold has not been reached, and that the proposal is acceptable from a landscape and visual amenity perspective, Ms Steven presented a different view.

[139] At the hearing Mr Rough amended his evidence to describe the consequence of the change to the landscape as contributing to the effect on visual amenity from specific viewpoints.[81] In his amended assessments he described the degree of landscape and visual change from specific viewpoints on a scale ranging from "*negligible*" to "*very substantial*", and he described the visual amenity consequence using a scale of terms: "*negligible – slight – moderate – significant*".

[140] We agree with Mr Rough that identifying the change to the landscape is a useful basis for a visual amenity assessment. But Mr Rough also contended that an assessment that there was a substantial change to the landscape did not necessarily equate to substantial adverse effect on visual amenity values.[82] We were referred to ***Meridian Energy Limited v Wellington City Council***,[83] a case in which Mr Rough was also involved where the Court seemed to adopt this submission, but do not agree that in so doing the idea has evolved into a principle of law. In our view the degree of change to a landscape is a factor to be taken into account when assessing the effect on visual amenity.

---

[81] Mr Rough, second statement of supplementary evidence
[82] Mr Rough, evidence-in-chief, paragraph [179]
[83] [2011] NZEnvC 232, paragraph [354]

THE SEAL OF THE ENVIRONMENT COURT NEW ZEALAND

The degree to which that change has occurred (a matter for the Court to assess), may or may not result in a finding that the effect is adverse, depending on the facts of the case.

[141] Ms Steven contended that a visual amenity assessment must begin with an understanding of what visual amenity values are important to those affected by the proposed change to the landscape. Consequently, Ms Steven surveyed members of the Society, asking them what they valued or like most about the landscape.[84] Ms Steven identified eleven key characteristics and/or attributes from which the local community derives its visual amenity. These values include tranquillity, clean natural skylines and open uncluttered landscape.[85] Because of the methodology Ms Steven employed to obtain these views, Meridian challenged her conclusions about these characteristics. Meridian submitted that by only interviewing the members of the Society, the responses obtained were not independent or representative enough of the community, because the community also includes people who are not members of the Society. We were asked to bear in mind that the Society was formed for the sole purpose of opposing the proposal, a factor which inferentially could have distorted the independence of the results.

[142] There is some force in Meridian's argument. As we have already outlined, there are members of the local community who are neutral, or indeed supportive of the proposal. As we have already identified, given the behaviour of some at the public meetings held to impart information about the proposal, it is reasonable to infer that members of the community not necessarily opposed to the wind farm would be tentative about expressing their views. There was no opportunity for these parties to contribute to the questionnaire prepared by Ms Steven.

[143] We agree that the evidence provided by Ms Steven is evidence of how those members of the Society who completed the questionnaire identify the characteristics and/or attributes that they believe contribute to their sense of visual amenity. We take this into account, but do not reach the conclusion that these are the only opinions that members of the local community have about what contributes to their sense of visual amenity.

[84] Ms Steven, evidence-in-chief, paragraph [12.30] and Appendix E
[85] Ms Steven, evidence-in-chief, paragraph [19.3]

THE SEAL OF THE ENVIRONMENT COURT NEW ZEALAND

[144] In addition, the provisions of the District Plan dealing with amenity and landscape are important, as they provide the framework against which expectations about visual amenity must be considered.

The visual simulations

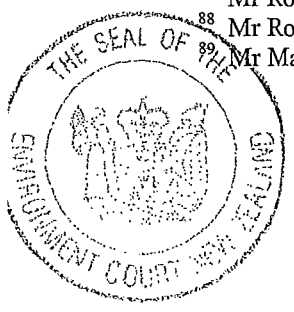
[145] The public and private viewpoints Mr Rough identified as representative were selected using a combination of desktop studies, investigations of the area, and computer modelling. All of the landscape experts agreed with this approach, with Ms Steven for the Society considering that all but one of the private viewpoints showed a fair representation of the nature of the view from the selected properties.[86] We note that several submitters raised issues about the accuracy of the visual simulations depicting their properties, but after hearing all of the evidence and attending the site visits we are satisfied that have an accurate picture of what is proposed and where.

[146] Photo simulations, digital terrain model ("**DTM**") simulations and animated time-lapse simulations were prepared by Truescape as aids to conveying the wind farm's varying level of visibility and assessing landscape and visual effects.[87] For the Society, BuildMedia were instructed to prepare a series of DTM simulations. The BuildMedia DTM images provided a greater selection of private viewpoints than those which had been selected by Mr Rough and incorporated into the Truescape material, but they only presented what is colloquially know as the "*scorched earth*" view, because the context of the image is lacking, with vegetation not consistently shown and structures in existing views omitted.[88]

[147] Mr Beatson submitted that, as the DTM simulations are generated entirely from contour data, they do not represent the primary field of view, but did accept that they provided guidance in very general terms to assist the viewer to understand the location and visibility of the proposed wind farm.[89]

[148] Part of the BuildMedia brief was to include visual simulations that incorporate the consented Mt Cass wind farm. Mr Rough challenged the BuildMedia modelling because the Mt Cass decision enables a choice of three turbine envelope options of

[86] Ms Steven, paragraph [16.4] in relation to the viewpoint 41
[87] Mr Rough, evidence-in-chief, paragraph [11(k)]
[88] Mr Rough, rebuttal, paragraph [65]
[89] Mr Maunder, evidence-in-chief, paragraph [2.7]



varying heights, and the BuildMedia model used the largest of the envelope options. In other words, the BuildMedia images are the worst case scenario in terms of the size of the turbines. Whilst this point was an important one to draw to our attention, we think it sensible that the BuildMedia images did present a worst case scenario, and we understand that the two smaller envelope options were not included for cost reasons. We do not think that for this reason the BuildMedia images should be disregarded.

[149] A more significant problem with the BuildMedia images was their presentation to the Court. It did not become evident until this part of the evidence was sought to be presented by Mr Meares, who was assisting with this part of the presentation of the Society's case. Mr Meares sought to enlarge the BuildMedia images by the use of "*five clicks*" of the computer mouse. This was done to enable the Court to purportedly see the proper scale of the proposed turbines. We accept that Mr Meares was probably unaware of Court protocols in this regard, but we were left with considerable unease about the proper scale that should apply to the Build Media images.

[150] The Truescape material included TruView™ photo simulations prepared in A3 format. The evidence establishes that these photo simulations provide a geometrically accurate representation of scale when viewed at 0.8m from the image. A reference photograph showing the full primary human field of view, that is 124° horizontal and 55° vertical at each viewpoint location, was provided with each simulation.

[151] The time-lapse simulation depicts how the proposed wind farm will be experienced during the course of an entire day, and reflects accurately the exact sunlight and climatic conditions experienced at the time of the photography.[90]

[152] The Truescape images were particularly helpful to us, but the BuildMedia ones were as well. We accept that there are more limitations to the BuildMedia images, but nothing much turns on this.

[153] As we have already outlined, on our site visits we were able to view the exact points from which the simulations had been prepared, and we were therefore able to gain a sense of the scale of what is proposed.

---

[90] Mr Maunder, evidence-in-chief, paragraph [3.5.1]

THE SEAL OF THE ENVIRONMENT COURT NEW ZEALAND

Visual amenity effects from public places

[154] Mr Rough chose 19 land-based public viewpoints.[91] He accepted that from five of the viewpoints the proposed turbines would appear to be highly prominent. These are:

(a) Greta cafe and bar carpark (Viewpoint 04)

(b) SH1 lay-by near Glenmore (Viewpoint 06)

(c) Motunau Beach Road near Greta Valley School (Viewpoint 09)

(d) Motunau Beach Road 4km from SH1 (Viewpoint 11)

(e) Reeces Road, opposite Serrat Downs (Viewpoint 15)

[155] Mr Rough accepted that there will be a substantial change to the landscape from these five viewpoints,[92] but he considered that it would result in a moderate visual amenity consequence. In his opinion the turbines would not adversely affect visual amenity values to the degree that would necessitate the removal of specific turbines.[93]

[156] At Ms Steven's request, BuildMedia prepared a number of DTMs from public viewpoints which she then assessed. Ms Steven also prepared a photo book ("***Photobook – public places***"). Ms Steven prepared a number of additional public viewpoints. She challenged Mr Rough's assessment on the basis that it appeared to analyse visual effects from particular viewpoints rather than taking a more holistic overview. Ms Steven concluded[94] that "*there are very few public places where it was said the two wind farms together, or even Project Hurunui Wind on its own would not be visually prominent and distinctive.*"

[157] Overall, Ms Steven's view was that the "*character of the valley would change from a typical pleasant pastoral landscape to an energy production landscape where moving wind turbines are a prevalent feature.*"[95] As well, her opinion was that adverse cumulative effects would arise, with the Mt Cass wind farm and this proposal being

[91] Mr Rough, evidence-in-chief, Graphic Attachment, 23 January 2012
[92] Mr Rough, evidence-in-chief, paragraph [11(y)] and second supplementary, Appendix 1, sheet 1
[93] Mr Rough, evidence-in-chief, paragraph [217] and second supplementary, paragraph [13]
[94] Ms Steven, evidence-in-chief, paragraph [22.50]
[95] Ms Steven, evidence-in-chief, paragraph [22.63]

THE SEAL OF THE ENVIRONMENT COURT NEW ZEALAND

collectively so prominent and dominating that the existing rural character of the landscape will no longer prevail.[96] Mr Craig did not agree with Ms Steven that cumulative visual effects will be significant in every location; rather, his view was that they would vary from location to location.[97] Meridian submitted that dominance may be mitigated by alternative views (views constrained by topography); vegetation (complex or otherwise); complex foreground; and house design and use.[98]

[158] Our site visits were instructive. We agree with Mr Rough that there will be a substantial change to the landscape by the introduction of the turbines to the five public viewpoints identified. We also agree that in the overall context of each of these views no significant adverse visual amenity effects will arise. This is because these viewpoints will be visible in passing. The exception to this is viewpoint 9 (outside the Greta Valley School), but as the school is not completely oriented towards that viewpoint for significant parts of the day, and as there are few turbines visible, we agree that the effect on visual amenity can be described as moderate.

Visual amenity effects from private places

[159] Mr Rough assessed a number of viewpoints from private properties.[99] He assessed the degree of landscape and visual change and the visual amenity consequence.

[160] Mr Rough considered that only one of the private viewpoints resulted in a very substantial change to the landscape and a significant consequential effect on visual amenity.[100] He identified the following properties to the north of the wind farm as experiencing significant visual amenity consequences, and as needing careful consideration. These were:

(a) the Barrington property at 1689 Omihi Road,

(b) the Sloss new dwelling at 1837 Omihi Road,

(c) the Marr property at 2000 Omihi Road,

---

[96] Joint Caucusing Statement – Landscape, 1 June 2012, paragraph [59]
[97] Mr Craig, supplementary evidence, paragraph [2.15]
[98] ***Meridian Energy Limited v Wellington City Council***, W031/07, 14 May 2007, Judges Kenderdine & Thompson, paragraph [517]
[99] Mr Rough, evidence-in-chief, paragraphs [201] and [202] and second supplementary
[100] Sloss property Viewpoint 34

THE SEAL OF THE ENVIRONMENT COURT NEW ZEALAND

(d) the Heslop property at 1661 Omihi Road.

[161] For Tipapa, Mr Rough assessed seven viewpoints. He considered that for two of those viewpoints (One Tree Hill walkway and One Tree Hill) there would be a substantial degree of change to the landscape but that the consequence to visual amenity would be moderate. For the other five Tipapa viewpoints he considered the effect on visual amenity to be slight or negligible.

[162] For the balance of the private viewpoints Mr Rough considered the effect on visual amenity to be moderate, slight or negligible. There were various reasons advanced depending on the property, but in some vegetation screening the visible turbines was a factor, with Mr Rough overall assessing the visibility of the turbines on the basis of dominance. Mr Rough's reliance on the concept of dominance was supported by reference to the ***Mill Creek*** decision.[101]

[163] We were referred to ***Moturimu Wind farm Limited v Palmerston North City Council***[102] where the Court accepted that vegetative screening was a matter to be taken into account when assessing the effects of a wind farm on visual amenity, but it was accepted by Meridian that this is something that cannot necessarily be relied upon. This idea met with some resistance from some submitters, including Mr Meares and Mr Carr.

[164] Ms Steven assessed 36 properties. Her opinion was that the visual amenity of 31 out of 36 private properties she assessed would be significantly adversely affected by the proposal. Ms Steven challenged (as did Mr Craig) Mr Rough's view that the test for determining whether or not there is a significant adverse effect is whether the turbines can be said to be dominating.[103] Ms Steven described turbines as being "*a dominating landscape element wherever they are sufficiently large and/or numerous enough to be a significant feature which would constantly draw visual attention, ie be visually dominant in the view.*"[104]

[165] Mr Craig conducted a peer review of Mr Rough's evidence for the HDC. He did not break down his evidence into a specific analysis of private and public viewpoints, as Mr Rough and Ms Steven did. He agreed in the main with Mr Rough, but in his view

[101] ***Meridian Energy Limited v Wellington City Council***, [2011] NZEnvC 232, paragraph [356]
[102] W067/08, 26 September 2008, paragraph [229]
[103] Ms Steven, evidence-in-chief, paragraph [17.3] and Mr Rough, evidence-in-chief, paragraph [367]
[104] Ms Steven, evidence-in-chief, paragraph [17.6]

there would still be some viewpoints where there were significant adverse effects arising, and these more or less corresponded with the degree of physical change to the landscape, notwithstanding the presence of circumstantial factors such as screening vegetation.[105] His opinion was that these adverse landscape and visual effects are very difficult to mitigate due to the fact that turbines are large and require elevated locations.

[166] Despite this, Mr Craig's overall opinion was that the site was suitable for a wind farm because:[106]

- It is a working rural one that is modified, mainly with regard to its land cover
- It has not attracted RMA s6(b) status and is therefore not regarded by the District and Region to be an outstanding natural landscape and does not contain any outstanding natural features such as prominent rock outcrops, water bodies or significant indigenous vegetation
- It has no coastal association, and nor with any other significant natural feature such as a major river or lake
- It does not display character that is particularly rare or distinguished and so as a finite resource it is not unduly threatened
- As a consequence of avoidance and following remediation and mitigation the application site is able to absorb associated effects arising from earthworks and such like
- The landform will remain fundamentally intact, as will the underlying land cover.

[167] We have carefully considered the large amount of material that was presented on this topic by both the experts and the submitters.

[168] Many of the submitters' properties were included in the list of private viewpoints. From the evidence presented by the submitters it was clear that many of them have lived in the locality for a considerable period of time and/or have family associations with the

[105] Mr Craig, evidence-in-chief, paragraph [6.13]
[106] Mr Craig, evidence-in-chief, paragraph [7.5]

THE SEAL OF THE ENVIRONMENT COURT NEW ZEALAND

locality over several generations. The submitters opposing the wind farm made it clear that they preferred the existing landscape.

[169] Because of the polarised positions of the experts, principally Mr Rough and Ms Steven, our site inspections were useful in assisting us to evaluate the evidence and submissions.

[170] We have identified two groups of adversely affected properties: those which are affected by a few turbines that are in close proximity; and those which are further away from the wind farm and have a larger number of turbines in their panoramic views.

[171] Examples of the former include the properties of Sloss, Barrington, and Marr. These properties are adversely affected by the dominant, overbearing proximity of Turbines F1 and G1 in particular. These two turbines are located on two high points to the north of one of the main ridgeline rows of turbines and closer to SH1. We find that the adverse effect of these two turbines on visual amenity of some properties is very significant.

[172] Other properties at the eastern end of the wind farm, on Motunau Beach Road, are affected principally by the proximity of Turbine A11. Examples of these properties include Symonds and Archbold. However we find that the turbine is not as dominant and overbearing, and there are other mitigating factors including vegetation screening, and orientation of the dwellings such that the wind farm is not the sole or principal outlook from the main living areas. At Tipapa, we consider that the principal visitor attractions, being the house, woolshed and garden areas, will not be adversely affected and the turbines will not be nearly as visible as from other properties.

[173] For the second group of properties, the Truescape simulations show more than 20 turbines from the viewpoints, and examples of these properties include those of McLean, Baxter, Lynnette and Belinda Meares, and David and Vivienne Meares. The effect on this group of properties is somewhat similar to the public viewpoints although it is acknowledged that for residents the impact is more permanent depending on the orientation of the dwelling and the main living areas. We find that there would be a significant adverse effect which is due to the large number of turbines on the skyline across the panorama of these viewpoints. Because they are further away from the viewer

THE SEAL OF THE ENVIRONMENT COURT NEW ZEALAND

it is the combined effect of all of the visible turbines rather than individual turbines that create the significant adverse effect.

Conclusion – landscape and visual amenity

[174] In this case we are not dealing with outstanding natural features or landscapes in terms of s6(b) of the RMA or any of the planning documents. Rather, the evaluation is primarily against the District Plan and particularly some of the provisions under Objectives 7 and 10 as they relate to amenity. These provisions are consistent with the broader regional planning framework but are more relevant as they better reflect the local circumstances.

[175] The District Plan provisions refer to protecting and/or enhancing landscapes and amenity values valued by the community, but these Objectives are then to be given effect to through subsequent provisions in the Plan. In other words, areas or values that are "*valued by the community*" or "*which the community wishes to protect*" should be identified publicly in the Plan. Centre Hill and its surrounds have not been so identified in the Plan.

[176] The District Plan recognises that the Hurunui landscape is a working landscape used for a range of legitimate pastoral, horticultural and forestry activities, and also that the landscape will not be static. It follows that changes to the landscape resulting from these activities are generally considered to be acceptable and to be expected. This includes forestry plantations and the often significant changes that result from harvesting. Similarly, the conversion of pastoral land, including hillsides, to vineyards with their associated structures, and also the increased use of large scale irrigation structures. Against this background it is acknowledged that wind farms have a wider visual catchment because of the height of the turbines and the need for an elevated location to best use the wind resource.

[177] In this case we have found that for some of the properties in the local community the proposed wind farm will have a significant adverse effect on visual amenity. We have found that removing Turbines F1 and G1 will go some way towards reducing the very significant adverse effect on properties close to those proposed turbines. To the extent that the whole wind farm, rather than individual turbines, will

THE SEAL OF THE ENVIRONMENT COURT NEW ZEALAND

have a significant adverse effect on local visual amenity, we find the proposal to be inconsistent with Policies 10.5 and 10.5(a) of the District Plan.

Noise

Overview

[178] In this section of our decision, we examine the effects of noise arising from the operation[107] of the wind farm. This is important because noise or "unwanted sound" at unreasonable levels can adversely impact on people's health and amenity.

[179] The topic was of considerable importance to many submitters, including members of the Society who were concerned that noise from the wind farm would impact on their ability to enjoy the quiet and tranquil ambience they perceived they currently experienced, and some were concerned that their sleep would be disturbed. There was debate about how any potentially adverse noise effects could be mitigated, with some submitters contending that this could only be met by the imposition of a 2 km setback, with provision for more should there be residents who could be described as vulnerable and more particularly affected by noise.

[180] Mr Carr from Tipapa, was particularly passionate about his ability to "unwind" at his property and his ability to "hear the silence" in tranquil surroundings. He contended that noise from the turbines would have a devastating effect on Tipapa's business, which is specifically marketed to reflect the peace and tranquillity he believes his property enjoys. Mr Carr described noise as an effluent, no different from trade waste, and toxic, as it has the ability to affect health.[108]

[181] Meridian's case was that the predicted sound levels for all operational sources from the wind farm will comply with NZS6808:2010 Acoustics-Wind farm Noise ("**NZS 6808:2010**") which it argued has been set to protect health and reasonable amenity and contains specific guidelines for the prediction, measurement and assessment of sound from wind farms. It contended and the HDC agreed that the predicted sound levels will be below 40dB at all noise sensitive receivers and under 35dB for all apart from three

[107] The effects of construction noise will be dealt with later on in this decision with other construction effects.
[108] Mr Carr - Opening: Noise Topic

THE SEAL OF THE ENVIRONMENT COURT NEW ZEALAND

"noise sensitive receivers".[109] Meridian was confident that the proposed suite of conditions agreed between it and the HDC would satisfactorily address any noise effects, but the Society and a number of the submitters including Mr Carr for Tipapa disagreed.

[182] We heard from three noise/acoustic experts; Dr Chiles for Meridian[110], Mr Camp for the HDC and Mr Huson for the Society. All of these witnesses were extensively cross-examined. Prior to the hearing, Dr Chiles, Mr Camp and Mr Huson attended two expert witness conferencing sessions.[111] Some matters were agreed and the areas of disagreement were outlined. There was some overlap between the matters covered by these witnesses and those experts called by the parties concerning health effects. In this section we deal with the issues dealing with the acoustics of the sound predicted to be emitted from the wind turbines, rather than the effects of it on sleep and/or health. These issues will be covered in the next section of this decision.

[183] Mr Carr's written evidence appended material from Professor Dickinson,[112] various articles and a report dated November 2011 from Dr Thorne. Dr Thorne has a professional background in the measurement of low background sound levels and his report is entitled "*Hurunui Wind Farm Noise Assessment for Mr J Carr – A Review.*" At the beginning of the review Dr Thorne noted that he has read the evidence-in-chief prepared by Dr Chiles and Mr Camp. He also made it clear that he agreed for the review to be tendered by Mr Carr to the Court, on the specific understanding that he was not available to attend the hearing. [113] Dr Thorne expressed the opinion that there is potential for audible noise and low frequency noise and infrasound at Tipapa. He then outlined the issues he believes lead to uncertainty in the noise contours from the noise prediction models. He stated his opinion that there is a significant risk of adverse health effects for those "*people out to at least 2000m away from an industrial wind turbine installation*". The potential health issues with which he is concerned have been reviewed by the World Health Organisation ("**WHO**") and are discussed elsewhere in our decision.

[184] As Dr Thorne and Professor Dickinson were not made available for cross-examination, their opinions were unable to be properly tested and for this reason can be

---

[109] Properties at 1689, 1949 & 2000 Omihi Road. Dr Chiles, evidence-in-chief, Appendix A, Acoustics Assessment, Table 4-7, page 17.

[110] Dr Chiles was also the chairperson of the committee of the Standards Council established under the Standards Act 1988 that supervised the preparation of NZS 6808:2010.

[111] Mr Carr attended the first session, but not the second.

[112] Professor Dickinson and Mr Rapley spoke at the woolshed meeting held at Tipapa on 17 June 2010

[113] Hurunui Wind Farm Noise Assessment from Mr J Carr – A Review, November 2011, page 5

THE SEAL OF THE ENVIRONMENT COURT NEW ZEALAND

given little weight.[114] Nonetheless, Dr Chiles and Mr Camp were cross-examined by Mr Carr and others about the opposing views expressed by Professor Dickinson and Dr Thorne.

[185] The broad issues we need to determine under this section are:

(a) What are the predicted noise levels and how accurate /reliable are they?

(b) How should operational noise be measured and monitored?

(c) Should certain properties be treated as high amenity areas?

We will deal with each of the above issues in turn.

What are the predicted noise levels and how accurate /reliable are they?

Overview

[186] Whilst Dr Chiles, Mr Camp and Mr Huson agreed that a specific methodology is required for wind farm noise, they did not agree on the methodology that should apply.[115] Mr Huson was concerned that NZS 6808:2010 does not provide the level of predictive certainty that Dr Chiles and Mr Camp contend it does. Specifically the experts disagreed about the place at which the sound source was modelled (at blade tip or hub height), the ground attenuation factor used in the model and whether or not an increase in noise levels would be created by turbulence created by upwind turbines. There was also an issue about low frequency noise and infrasound as well as how special audible characteristics ("**SAC's**") should be dealt with.

[187] Mr Carr argued that we should not use NZS6808:2010 as an assessment or measurement tool at all. He submitted that the standard was "*corrupted,*" and that because of their involvement in the promulgation of the standard the experts for Meridian (particularly Dr Chiles and Mr Botha) "*are so conflicted that their evidence must be given little credibility*". He also asked the Court to disregard Mr Camp's evidence contending that he was biased, because he was the President of the New Zealand Acoustical Society for part of the time when it was also involved on the committee tasked to prepare the

[114] This matter was specifically raised in a pre-trial Minute dated 19 July 2012.
[115] Joint Witness Caucusing Statement –Noise, paragraphs [3] and [4]

THE SEAL OF THE ENVIRONMENT COURT NEW ZEALAND

standard, and also because five years ago Dr Chiles had worked for Marshall Day Acoustics, a firm in which Mr Camp is a principal. We do not accept that there is any substance to Mr Carr's submission that Mr Camp's evidence is biased because of these matters.[116]

[188] We will first consider the existing noise environment and then outline the nature of the predicted noise arising from the wind turbines, as that is the operational noise source of most concern. We will then analyse the specific issues to do with the model used to predict the noise contours relied on by Meridian, low frequency noise and infrasound, as well as SAC's.

The existing noise environment

[189] Whilst many of the submitters talked about the quiet, tranquil environment they experience, these expressions of belief must be seen in context of the particular environment and what is perceived by the listener as pleasant and/or acceptable sound. As Dr Black one of the health experts for Meridian noted (and we agree), rural environments are far from quiet in the sense of there being no sound. The sounds in a rural environment can be "natural" in the sense of "arising from nature" (e.g. birdsong, the sound of animals), but they can also be "unnatural" in the sense of "being manmade" (e.g. the sound of tractors and farm machinery). Whilst Mr Carr talked about "*hearing the silence*" at his property, there are times when the functions at his property, even if they are within his resource consent provisions, may produce sound which could be viewed by some as unwanted and unnatural in this environment. All this goes to show is that a person's reaction to sound and whether they view it as noise and unreasonable, depends on the person who is hearing it.

[190] It is important to note that changes to noise levels in the existing environment are permitted as long as they are not unreasonable. Accordingly just as there is no legal right to a view, there is no legal right for an existing quiet and tranquil environment to remain so. Whether or not a sound can be heard is not the issue. The issue is whether or not the sound is unreasonable. The RMA recognises this in s16 by requiring every occupier of land to adopt the best practicable option to ensure that the emission of noise from that land does not exceed a reasonable level.

[116] Mr Carr – Opening: Noise Topic, and cross-examination of Mr Camp, Transcript, pages 1155-1156

THE SEAL OF THE ENVIRONMENT COURT NEW ZEALAND

[191] What level of noise can be reasonably expected in an environment is typically outlined in District Plan provisions. In this case, the relevant part of Rule A1.2.9 of the District Plan sets out the noise levels permitted in the rural area as being:

> All activities shall be designed and conducted so as to ensure that the following noise limits are not exceeded, at or outside the boundary of the site:
>
> | | |
> |---|---|
> | 55 dBA L_{10} | 7am – 7pm daily |
> | 45 dBA L_{10} | 7pm – 7am daily |
> | 75dBA L_{max} | All days between 10pm and 7am |
>
> In the case of residential dwellings and/or zones, noise is to be measured at any point at or within the boundary of any residential zone, or the notional boundary of any habitable residential building in any other zone.
>
> The notional boundary is defined as a line 20 metres from the façade of any rural dwelling or the legal boundary where this is closer to the dwelling.

[192] This rule is a key method implementing Policy 10.9 which states:

> **Policy 10.9**
>
> To control noise emissions at levels acceptable to the community and where they exceed those levels, generally maintain a separation distance between those noise-emitting activities and sensitive receivers.

The nature of the predicted noise from the turbines

[193] Adverse noise effects can potentially be created by a single turbine or turbines in combination. Turbines are known to emit noise, which various witnesses described as a "*low hum*" or like "*surf rolling in on a beach*", but could also include "*- whoomp, whoomp as sails pass, a sea noise – rhythmic ... a jet engine taking off but never takes off.*"[117]. It was said that such sounds can be heard from "*3, 4, 5 km away.*" [118]

[194] Wind turbine noise can be problematic for those who live near to them and some people find the noise emitted from them annoying. The characteristics of wind turbine noise are complex, and the circumstances when it arises (day and night) can make

[117] Mr Carr – Opening: Noise Topic
[118] Mr Carr – Opening: Noise Topic

THE SEAL OF THE ENVIRONMENT COURT OF NEW ZEALAND

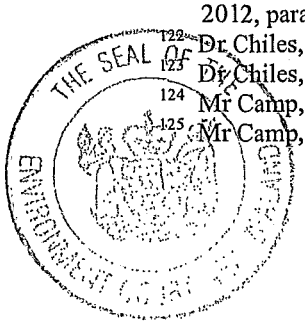
it difficult to avoid, remedy or mitigate in a timely way if problems arise and it becomes unreasonable to the person experiencing it.

[195] In this case, particular mention was made of complaints about noise from residents near to wind farms at Makara (also known as "West Wind") and Te Uku, both operated by Meridian. Meridian did not accept that unreasonable noise is generated by these wind farms, citing that they complied with their conditions of consent, but it did accept that difficulties arose at Makara with one turbine that did not comply with its factory specifications and agreed that the problem took some time to resolve. To avoid a similar problem arising in this case, Meridian has proposed a condition to require pre-commissioning testing of each turbine. When cross-examined about noise complaints arising from these wind farms, Mr Botha accepted that in the case of Makara, in August and September 2010 there were a large number of complaints (between 100-180), but in the few months preceding this hearing there were only 4 or 5.[119] In relation to Te Uku, Mr Botha said there were two complaints in two years.[120] We note also that both these wind farms were consented before NZS6808:2010 was promulgated.

[196] NZS6808:2010 sets a standard noise limit of 40dB L_A90 or the background sound level + 5dB (whichever is higher). Dr Chiles and Mr Camp agree that this will provide reasonable noise levels for residents.[121] The modelling, undertaken by Dr Chiles and peer-reviewed by Mr Camp, shows that of the 73 "*noise sensitive receivers*" only three will receive noise levels above 35dBA.[122] The modelling of the expected wind farm noise also complies with the District Plan noise limits to the extent that they are applicable to wind farm noise.[123] Mr Camp described a level of 35dBA from wind turbines as being "*very quiet, and as a level which will ensure that any adverse noise effects are minor*,"[124] provided that there are appropriate conditions to ensure that unusual noise issues such as tonality and amplitude modulation do not exist.[125]

---

[119] Transcript, pages 1051-1052
[120] Transcript page 1106
[121] Mr Camp, evidence-in-chief, paragraph [3.4], Joint Caucusing Statement – Noise, 15 June 2012, paragraph [4]
[122] Dr Chiles, evidence-in-chief, paragraph [2.3]
[123] Dr Chiles, evidence-in-chief, paragraph [7]
[124] Mr Camp, evidence-in-chief, paragraph [2.3]
[125] Mr Camp, evidence-in-chief, paragraph [4.2]



NZS6808:2010

[197] New Zealand standards are not statutory documents under the RMA which *require* a consent authority to have regard to them; nonetheless a consent authority *may* decide to do exactly that. Reference to a standard is often considered to be best practice when dealing with technical matters and often conditions of consent will include reference to relevant standards.

[198] Meridian and the HDC contended that NZS 6808:2010 provides the best, most workable noise assessment and compliance framework for wind farms. It follows on from its precursor NZS6808-1998 and has been refined to reflect experience in the field since then. The document was developed by a committee of experts, representing a wide range of organisations brought together by Standards New Zealand. The committee was chaired by Dr Chiles who gave evidence that the committee followed the usual process of developing a draft, distributing it for comment, then agreed on a final draft that was approved by the Council of Standards New Zealand.

[199] The Forward to NZS6808:2010 provides:

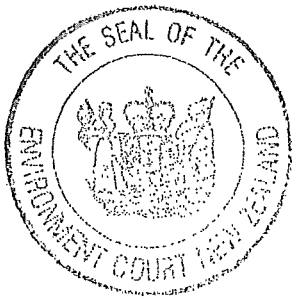
> "...Guidance is provided on noise limits that are considered reasonable for protecting sleep and amenity from wind farm sound received at noise sensitive locations" and ..."The consensus view of the committee, including numerous experienced acoustic experts, is that the Standard provides a reasonable way of protecting health and amenity at nearby noise sensitive locations without unreasonably restricting the development of wind farms. "

[200] The Outcome Statement provides:

> This Standard provides suitable methods for the prediction, measurement and assessment of sound from wind turbines. In the context of the Resource Management Act, application of this Standard will provide reasonable protection of health and amenity at noise sensitive locations.

Under the scope section these comments are however tempered by the statement that:

> The noise limits recommended in this Standard provide a reasonable rather than an absolute level of protection of health and amenity.



Was the process associated with the promulgation of NZ68080-2010 so flawed that we should disregard it?

[201] As outlined above, Mr Carr contended that the review process was flawed, extending his submission to include an allegation that the process was corrupted.

[202] It was clear that Mr Carr had extensively researched the background to the committee's deliberations, including obtaining copies of the minutes of meetings and he cross-examined Dr Chiles about these. He asserted that the committee[126] did not engage a health expert to have input to the standard and that it was inappropriate for Dr Chiles to write an initial draft of the standard for consideration by the committee stating:

> We have a standard here whereby the fox was asked to put the padlock on the hencoop, the fox was given the key, and then allowed into the hen coop to eat the chickens in accordance with the way he wished to do so.[127]

[203] We agree with Meridian that Mr Carr's allegations that the review process was flawed and corrupted are unfounded. Even bearing in mind Mr Carr's tendency to use colourful language, an allegation that a process is corrupted is a serious allegation to make and requires the party asserting it to assume an evidential burden close to the higher sliding civil standard of proof. Mr Carr's assertions do not come anywhere near that requirement and were at times inaccurate. For example, Mr Carr contended that no health expert had input into the standard, but Mr Goodwin, a public health expert, represented the Ministry of Health[128] on the committee. The standard, as the preface to it indicates, was the result of a committee collaboration, the members of whom were from a number of different representative bodies.

[204] The Court does not have the power to judicially review the process that was undertaken to reach the standard; its consideration is limited to whether or not the standard should be applied. In this case these two matters were confused and conflated by Mr Carr. Because of this, but mindful that we cannot judicially review the

---

[126] The representatives on the committee are listed at the beginning of the standard and include Energy Efficiency And Conservation Authority, Executive of Community Boards, Local Government NZ, Massey University, Ministry for the Environment, Ministry of Health, NZ Acoustical Society, NZ Institute of Environmental Health Inc, NZ Wind Energy Association, Resource Management Law Association, University of Auckland. We were also advised that Ms Paul, a party in opposition to the West Wind wind farm was the local government representative (see Transcript page 797, lines 22-25)

[127] Transcript, page 1083, lines 19-23

[128] Transcript, p879, line 1

THE SEAL OF THE ENVIRONMENT COURT NEW ZEALAND

committee's processes, we have covered the topic in more detail than it warrants from a legal perspective.

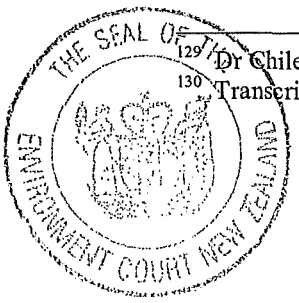
[205] We conclude that we *can* use the standard as a basis for the assessment, but whether we *should* rely on it depends on the accuracy of its predictions. We now turn to analyse this topic.

Can we rely on NZS6808:2010 to accurately predict the sound emitted from wind turbines?

[206] Dr Chiles outlined the general approach to predicting the noise emitted and received at various locations from a wind farm and the considerable experience that he and Meridian have in using an international computer model to predict noise contours for wind farms constructed in New Zealand. Inputs to the computer model are the sound power emitted from each turbine, the number and location of each turbine together with topographical ground factors a few hundred meters adjacent to each turbine and also adjacent to each receiving residence or location.

[207] Meridian witnesses including Dr Chiles and Dr Black, emphasised that, in their view, there is significant built-in conservatism to the prediction of the noise contours. The model assumes that all turbines are facing and delivering full sound power to any given location for a given wind velocity – a physical impossibility as the turbines are spread over a significant physical distance and for a given wind direction they cannot all be facing and delivering sound to any given receiving location. The conservatism built into the model was said to be appropriate when compared to measured sound levels at actual wind farms.[129]

[208] Mr Huson was critical of some aspects of the standard, although he admitted that he had no previous experience of how it is applied in New Zealand or what the practical success of it has been[130]. He challenged some of the assumptions used in the model, namely the use of the blade tip height for the sound source, the ground attenuation factor used, and the lack of allowance for an increase in noise level to occur due to turbulence created by upwind turbines.



129 Dr Chiles, rebuttal evidence , paragraph17
130 Transcript p817 line 26- p818 line 6

Sound source height measurement

[209] Mr Huson contended that rather than using blade tip height for the sound source, hub height should be used. In evidence Dr Chiles explained that he has run the model with the sound source at both the tip and hub heights and that there was no significant difference in outputs, with data changing by decimal places of decibels.[131] Dr Chiles' evidence was that blade tip height was used in the final model because it was more conservative, effectively reducing the screening effect of land cover and topography.[132]

[210] Dr Chile's findings were not significantly challenged by cross-examination. We are satisfied that it was appropriate to use blade tip height for the sound source, but in any event there is no major difference between the measurements being taken from the sound source at blade tip or hub height.

Ground attenuation

[211] Mr Huson's opinion was that the ground attenuation factor of 0.5 used by Dr Chiles is too high, and that a value of 0.0 (representing a highly reflective surface) should have been chosen.[133] Dr Chiles explained that any value over 0.5 has been shown through experience to be too high for the purposes of wind farm noise.[134] Dr Chiles' opinion was that NZS6808:2010 is conservative specifying 0.5 as the default value for soft ground,[135] because in his view it is more likely that more sound would be absorbed in this situation.[136]

[212] Mr Huson referred to a paper by Tickell, which shows an increase of 4dB in predicted sound levels where G = 0.0 was used as an input to the model rather than G = 0.5. Dr Chiles agreed that this could occur, but identified that the Tickell study was based in Australia, where wind farms are generally located on flat terrain. In Dr Chile's opinion more hilly terrain would result in a greater scatter of sound.[137] Dr Chiles' opinion was, further, that although the ground might be frozen at some periods, he would

[131] Transcript, pages 748-749
[132] Transcript, page 749, lines 14-15
[133] Mr Huson, evidence-in-chief, paragraph [16]
[134] Transcript, page 752, lines 1-9
[135] Transcript, page 752, lines 2-3
[136] Dr Chiles, evidence-in-chief, paragraph [27]
[137] Transcript, page 763, lines 14-19

THE SEAL OF THE ENVIRONMENT COURT NEW ZEALAND

not use G = 0 in a prediction model, unless this were the case over a significant portion of the year,[138] because the approach taken for all noise modelling (not only that undertaken for wind farms), is to choose a representative scenario, rather than a worst case scenario.[139] In this case the site for the proposed wind farm would not be frozen for a significant portion of the year. Dr Chiles also explained that colder conditions do not necessarily mean that the ground surface is more reflective, as vegetative land cover, undulating terrain, and the absorption properties of fresh melting snow would require in his opinion a higher ground attenuation factor than 0.0.[140]

[213] We accept that Dr Chiles has satisfactorily explained and justified the G=0.5 input into the model. Accordingly we are satisfied that the ground attenuation factor used in the model is conservative and appropriate.

Noise levels due to turbulence created by upwind turbines

[214] Mr Huson referred to this as being a matter that should be considered. Dr Chiles' opinion was that turbulence per se does not generate noise,[141] and disagreed that there was evidence to support the hypothesis that turbulence from upwind turbines would enhance the propagation of sound. Mr Botha told us that upwind turbulence has the potential to decrease the power output of downstream turbines and for this reason the wind turbines are relatively widely spaced in the wind farm layout.

[215] We are not satisfied that turbulence from upwind turbines will increase noise levels and we are satisfied that the layout of the turbines is such that even if it was an issue, it is very unlikely to arise in this case.

Conclusion

[216] The above matters were properly raised by Mr Huson and have resulted in us being provided with more information about the modelling undertaken by Dr Chiles. As a result of this additional scrutiny and based on monitoring from other wind farms, we are satisfied that the assessment process outlined in NZS6808:2010 followed by Dr Chiles is

[138] Transcript, page 760, line 31 – page 761, line 2
[139] Transcript, pages 760 - 763
[140] Transcript, page 762
[141] Transcript, page 957, line 2

THE SEAL OF ENVIRONMENT COURT NEW ZEALAND

conservative to a sufficient degree for us to be satisfied that it is very likely to be accurate and therefore reliable. [142]

[217] The result is that we accept Dr Chiles evidence (supported by Mr Camp), that the predicted sound levels from the wind turbines will be below 40dB at all noise receivers and specifically, will be below 35dB for all but three locations. Robust compliance monitoring will however, be required to validate these predictions. Whilst Meridian contended that sufficient monitoring had been done at other wind farms to validate the model, our view is that more needs to be done. We will return to that topic shortly.

Special audible characteristics

[218] A further aspect of noise from wind farms is the potential to emit special audible characteristics ("**SACs**") that include tonality, impulsiveness and amplitude modulation which is produced by the wind turbine blades passing in front of a support tower. In amplitude modulation there is a greater than normal degree of fluctuation as a function of the blade passing frequency (typically about once per second for larger turbines).

[219] In their caucus statement the noise experts agreed the assessment of special audible characteristics should be in accordance with Appendix B of NZS 6808:2010. We agree.

[220] The tests for SACs and the penalties to be applied are contained within NZS6808:2010.[143] Meridian and the HDC's proposed condition 18 requires that all measurement of wind farm sound must include an assessment of SACs.[144]

Low frequency noise and infrasound

[221] Mr Huson considered that low frequency noise should be accounted for in noise modelling, and monitoring of G-weighted noise levels as well as A-weighted levels

---

[142] Transcript, page 700-701, 1013, lines 1-3, lines 1017, Dr Chiles, evidence-in-chief, paragraphs [29] and [85], Mr Botha, rebuttal evidence, paragraph [39]

[143] Paragraph 4.2

[144] Exhibit HGR1, version 4

THE SEAL OF THE ENVIRONMENT COURT NEW ZEALAND

should be required.[145] To support this argument, Mr Huson referred to a graph from a report produced by Hayes MacKenzie Partnership, which purportedly shows that wind turbines produce high levels of infrasound. Mr Botha disputed that this conclusion was able to be drawn from the figure provided. Mr Huson conceded during cross-examination that the Hayes MacKenzie Partnership report itself concludes that there is no issue with low frequency noise or infrasound at the levels emitted from wind turbines.[146]

[222] The HDC submitted that the monitoring of G-weighted noise is notoriously difficult, and would add considerable complexity to any monitoring process with no demonstrable benefit.[147] Meridian favoured A-weighted sound level limits. It and Dr Black contended that compliance with those levels would also result in a restriction of the low frequency wind farm noise.[148]

[223] We prefer the approach of Meridian and the HDC. We are satisfied that the conclusions in the paper relied upon by Mr Huson, given that they are different from his assertion of what the graph in the paper contends, are sufficient to persuade us that G-weighted noise levels is not required.

How should operational noise be measured and monitored?

[224] Prior to and during the hearing, Meridian and the HDC worked on a proposed suite of conditions. For operational turbine noise the conditions:

(a) supported the use of NZS6808:2010 for measurement and assessment (Condition 16); and

(b) required the consent holder must ensure that wind farm operational sound levels do not exceed a noise limit of 40dB $L_{A90(10\ min)}$ except that when the background sound level is greater than 35dB $L_{A90(10\ min)}$ the noise limit must be the background sound level $L_{A90(10\ min)}$ plus 5dB (Condition 17).

[225] Conditions 17-25 covered further detail including submitting an updated noise production report to the consent authority and confirming the predictions by measuring

---

[145] Joint Witness Caucusing Statement – Noise, paragraphs [26] – [28]
[146] Transcript, pages 822-823
[147] Mr Camp, supplementary evidence, paragraph [7.4]
[148] Dr Chiles, Rebuttal, paragraph [24]

THE SEAL OF THE ENVIRONMENT COURT

noise in at least one location chosen by the consent holder in consultation with the consent authority provided that the site is no more than 1,000 m from the turbines which are being tested (Condition 19).

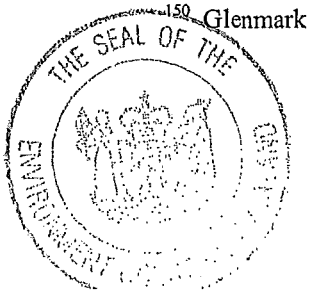
[226] Validating the noise predictions was an issue very much alive during the hearing. Earlier versions of the proposed conditions (submitted by Meridian and the HDC) involved one specified location at 2000 Omihi Road. Early in the hearing the single measurement location at 2000 Omihi Road was shifted on to a neighbouring property in order to avoid the probable interference by a plantation of trees that would present difficulties in obtaining an accurate noise measurement.

[227] Using one location to confirm the computer modelling is permissible under NZS6808:2010, but was opposed by the Society, Tipapa and other submitters. Mr Huson considered that 8 locations (representing the cardinal points) would be appropriate. Dr McBride (a health expert for HDC) thought as many as possible would be desirable. Mr Wallace, counsel for the Society, pushed for measurement at any residence where the house owner requested such measurements, but by the end of the hearing, the Society submitted a set of draft conditions[149] that proposed compliance measurements at all dwellings identified in the noise prediction report to be exposed to 35dB L_{Aeq} outside and in at least 8 locations. [150]

[228] Further cross-examination of Dr Chiles indicated that, although the computer model is a sophisticated one, it is not able to accurately model the effects of valleys and the reflections from the sides of the valleys. Mr Carr was particularly concerned about this issue in his proposed draft conditions, and he wished to have two noise measuring locations fixed at Tipapa. The final version of proposed Condition 23 requires monitoring of the completed wind farm to be undertaken at three (3) locations.

[229] We see utility in using the standard, but with a minor adjustment to require some additional monitoring locations to validate the noise prediction modelling. Although we accept that Meridian's modelling has proved to be accurate in relation to other wind farms, each wind farm site has its own unique topographical features and in our view a more site specific approach is required. It is hard to see how any significant detriment arises from this approach, although we accept that it will involve additional, but

[149] Glenmark Exhibit 10
[150] Glenmark Ex 10, Condition 18



not major, cost for a period of time. Balancing this against the importance of the accuracy of the prediction model to amenity, we think that actual noise measurements need to be carried out at a minimum of four (4) locations to validate the model and confirm compliance. The HDC is well placed to determine these locations. We are also mindful that our earlier direction to delete turbines F1 and G1 will alter the noise predictions and this revision should be taken into account in selecting the four (4) monitoring locations.

[230] We direct the HDC to determine the location of a minimum of four (4) suitable post construction noise testing locations, after taking into account the following factors:

- wind turbine layout;
- wind direction and strength;
- topography;
- number and location of residences and noise sensitive locations; and
- noise predictions.

[231] Currently proposed condition 23 provides for monitoring of the completed wind farm. It would also be appropriate to provide for monitoring in case the proposal is staged or completion is delayed. We note that NZS6808:2010 Section 8.4.1 provides for staging, but we consider it appropriate to signal it overtly in the conditions and provide for the HDC to require monitoring once any turbine has begun generating electricity.

What monitoring if any should there be at Tipapa?

[232] Mr Carr presented his proposed conditions to the Court on 23 October 2012.[151] These proposals were not based on a firm technical basis and did not adequately address the issues to the Court's satisfaction. The general flavour of the proposed conditions is captured by the opening sentence of proposed condition 11:

> In the event that the perceived wind farm noise at any time is causing the owner of the Tipapa property, or any overnight guests, visitors for events, or tourists visiting Tipapa to complain about annoyance, stress or sleep deprivation, the Consent holder cannot claim compliance with the noise standard...

[151] Tipapa Exhibit 27

[233] The proposed conditions lack balance and would not allow ongoing operation of the wind farm. We do not agree that such a condition would be sufficiently certain or enforceable and in any event does not accord with our findings.

[234] The predicted noise levels at Tipapa are not within the group of properties described as the most sensitive receivers. In fact the predicted noise level is 31dB, well within the District Plan provisions either for day or night noise.

[235] Although Tipapa is included as a noise monitoring location in the latest version of the Meridian/HDC conditions we do not expect it to be one of the four (4) sites we have required unless it is justified given the factors listed. We have no concerns if it is included as an additional site for other reasons.

Should certain properties be considered high amenity areas within the NZS6808:2010 definition?

[236] A number of residents, including Mr Carr for Tipapa, maintained that if the Court accepted the modelled sound predictions by Meridian based on NZS6808:2010, their properties should be treated as high amenity areas within the definition appearing in that standard. This would justify the use of a lower noise limit.

[237] NZS6808:2010 provides that in special circumstances at some noise sensitive locations, a more stringent noise limit may be justified to afford a greater degree of protection of amenity during evening and night time.[152] The standard provides:

> A higher amenity noise limit should be considered where a plan promotes a higher degree of protection of amenity related to the sound environment of a particular area, for example where evening and nighttime noise limits in the plan for general sound sources are more stringent than 40dB $L_{Aeq\ (15min)}$ or 40dBA L_{10}. A high amenity noise limit should not be applied in any location where background sound levels, assessed in accordance with section 7, are already affected by other specific sources, such as road traffic sound.

[238] In a high amenity area the level set by the standard is 35dB $L_{A90(10min)}$ or background + 5dB, whichever is the greater.

[152] Paragraph 5.3.1, NZS6808:2010

THE SEAL OF THE ENVIRONMENT COURT NEW ZEALAND

[239] Ms Belinda Meares contended that the area around her home is an exceptional location, and would justify being treated as a high amenity area.[153] Mrs Marr and Tipapa also asked for their properties to be treated as high amenity areas.

[240] The District Plan enables noise in this zone of up to 45dB L_{10} at night. The area around the proposed site is not identified through particular noise standards in the Plan or otherwise, and accordingly the first limb of the description in the standard is not met.

[241] Meridian submitted that all of the houses that are in the prevailing winds and near SH1 in particular (ie all the houses where predictions are over 35dB but under 40dB) do not have an existing noise environment that could justify additional protection.

[242] Ms Meares' property is well outside the 35dB contour and we agree that there is nothing to justify this property being treated as a high amenity area.. In relation to Mrs Marr's property, background sound levels at 2000 Omihi Road show that sound levels during the night do not drop below approx 23dB, and could be as much as 43dB in certain wind conditions.[154] We have already outlined that the predicted sound levels at Tipapa are 31dB.

[243] For the reasons expressed above, we are not satisfied that Tipapa, Ms Meares' or Mrs Marr's properties, or any other property should be treated as high amenity noise limit areas.

Conclusion - noise

[244] We are satisfied that NZS6808:2010 provides the most workable noise assessment framework for this proposed wind farm. It was developed as a result of the input from a number of experts and representatives from different backgrounds, who considered in much more detail than we were able to, the literature, experience and scientific evidence available relating to wind farm noise.

[245] We are satisfied that the inputs to the model used by Dr Chiles are such that the predicted sound levels at the modelled locations are likely to be conservative. As a result, the noise from the wind turbines is predicted to be well within acceptable levels. We have

[153] Ms Meares, final submission, 15 October 2012, paragraph [14]
[154] Dr Chiles, evidence-in-chief, Appendix A, Figure A-11

THE SEAL OF THE ENVIRONMENT COURT NEW ZEALAND

determined that turbines F1 and G1 should be removed for reasons relating to visual amenity and this decision will mean that the noise contour modelling will need to be redone for some properties (including the Marr property which was suggested by Meridian and the HDC to be the most appropriate place to undertake monitoring).

[246] We are not satisfied than any property should be treated as a high amenity area for the purposes of NZS6808:2010.

[247] The conditions proposed by Meridian and HDC concerning SAC's are appropriate and the proposed monitoring of A-weighted noise levels are also appropriate to meet any concerns about low frequency noise or infrasound. We have determined that monitoring for the purposes of validating the model and general compliance with the noise conditions should include a minimum of four monitoring sites.

[248] With the amendments we have suggested, we are satisfied that these conditions will adequately mitigate any potentially adverse noise effects and will ensure that amenity values as they relate to noise, are maintained.

Health

Overview

[249] The main concern expressed under this topic by the Society, Tipapa and local residents was the impact wind turbine noise would have on human health.[155] The key issue was whether or not adverse health effects from the wind farm (particularly sleep disturbance) can reasonably be anticipated, but the debate encompassed how wind turbine noise might affect the health of vulnerable groups such as the young and the elderly and those with special needs, whether secondary or indirect health effects were able to be considered, and whether annoyance over a period of time and community anxiety could be considered a health effect, or affect wellbeing. These concerns were premised on the assumption that there would be adverse noise effects, even if the noise from wind turbines was within the limits set out in NZS6808:2010, and were informed by material that had been obtained off the internet, information that had been provided at the

[155] Although some nearby farmers were concemed about the effect of noise and infrasound (i.e. low frequency sound below the threshold of human hearing) on their farm animals and the potential for the lambing percentage to be reduced as a result, these concerns did not have any evidential basis and were not significantly advanced at the hearing.

woolshed meeting by Professor Dickinson and Mr Rapley, and information gained from some people who lived near to wind farms, particularly at Te Uku and Makara, and do not like them. Most of those opposed to the wind farm submitted that, to avoid any adverse noise and therefore health effects, there should be at least a 2 km setback between any residence and any wind turbine.

[250] Meridian and HDC disagreed, contending that if NZS6808:2010 is used there will be no adverse noise effects. Meridian and HDC also supported the use of NZS6808:2010 to provide the framework for compliance monitoring and disagreed that a 2km setback was necessary or appropriate.

[251] We heard from several expert witnesses on this topic; for Meridian - Dr Black (a specialist medical practitioner and public health expert), Professor Petrie (a professor of health psychology) and Ms Breen (a psychologist specialising in the treatment of people with autistic spectrum disorder), for HDC - Dr McBride (an occupational physician), and for the Society - Dr Shepherd (an academic with a doctorate in psychoacoustics and a masters degree in experimental psychology). The experts had undertaken expert witness caucusing which helpfully outlined the areas of agreement and disagreement between them.

[252] We will address the following issues:

(a) Will there be direct, secondary or indirect health effects caused by the operation of the wind farm?

(b) Is a 2km setback required to mitigate adverse effects?

(c) How should hypersensitive individuals (including those with autism spectrum disorder) and those with atypical noise sensitivity be dealt with?

[253] We will first consider how the RMA deals with health and wellbeing generally, before turning to consider each of the above issues.

Health, wellbeing and the RMA

[254] The question arises as to whether or not there is a difference between health and wellbeing, and if so whether in the context of this case it makes any difference. Mr

THE SEAL OF THE ENVIRONMENT COURT OF NEW ZEALAND

Wallace for the Society submitted that amenity is something different from health and wellbeing, and that wellbeing is not necessarily part of amenity. To support this argument, Mr Wallace referred to the definitions in section 2 of "*amenity values*" and "*environment*", and correctly identified that the definition of "*environment*" includes amenity values, but does not specifically mention wellbeing.

[255] Whilst adverse noise effects might affect amenity and can therefore be considered under s7(c) and potentially s7(f) of the RMA, how health effects can be considered under the RMA was less clear. Section 5(2) identifies social wellbeing as a separate matter from health, but both are referred to as part of what needs to be put into the balance when considering managing the use, development and protection of natural and physical resources in a way or at a rate that enables people and communities to provide for them while (relevantly here) avoiding, remedying or mitigating any adverse effect on the environment.

[256] Mr Smith's submission for HDC was that the distinction between health and wellbeing in s 5(2) is conceptually fraught. Mr Smith submitted that for the purpose of the Court's inquiry in respect of this application, whether health and wellbeing are seen as distinct or one and the same is largely irrelevant because if the Court is of the view that the proposal will have adverse effects on either health or wellbeing, those effects will need to be addressed by way of appropriate consent conditions, or by declining the application.

[257] Our view is that there is a distinction, and that whilst health might be part of wellbeing, the concept is wider than that. But we agree with Mr Smith that the legal effect of that distinction is not important to our overall conclusion in the context of the facts of this case. For this reason it is not necessary for us to develop the distinction between the concepts any further at this time.

Will there be direct, secondary or indirect health effects arising from the operation of the wind farm?

[258] Dr Black concluded that the level of wind farm noise allowed by NZS6808:2010 is not sufficient to cause changes in health status, although he accepted it may affect amenity,[156] and Professor Petrie concluded that enough quality research has

[156] Transcript, page 1301, lines 1-6

THE SEAL OF THE ENVIRONMENT COURT NEW ZEALAND

been done to show that there are no *direct* health effects caused by wind turbines.[157] Whether or not *indirect* health effects might arise was a topic of much debate. Indirect health effects said to be relevant were sleep disturbance caused by wind turbine noise, and annoyance caused by noise or the very presence of a wind farm.

The research

[259] The experts referred to a number of overseas reviews that examined the connection between alleged adverse health effects and wind farms. Dr Shepherd also referred to a study he and Professor McBride had undertaken at Makara.

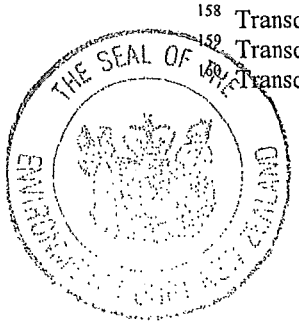
The reviews

[260] Professor Petrie referred to 17 reviews that had been undertaken, which conclude that there is no causal connection between adverse health effects and wind turbines.[158] Professor Petrie's evidence focussed in part on negative expectations leading to mis-attribution of symptoms. Professor Petrie was careful not to characterise those who complain about turbines as unstable or dishonest, but rather that such mis-attribution can be put down to how humans interpret symptoms. Professor Petrie noted that this is a concept which holds true generally in medicine, and is by no means confined to wind farms. To illustrate this point, Professor Petrie referred to medical students' disease, where students, after learning of the symptoms of various diseases, will consider that they may suffer from them.[159]

[261] Ms Meares submitted that the studies which state there are no health effects caused by turbines are "*not exactly a good place to start.*"[160] She submitted that more studies should be undertaken first, particularly given the experience of residents who have lived close to other wind farms.

[262] Dr Shepherd contended that health effects can arise from wind turbine noise. Meridian submitted that Dr Shepherd's opinions are out of step with the other scientific opinion on the topic, and that the evidence of Dr Black and Professor Petrie should be preferred. Meridian submitted that we should give weight to the fact that Dr Shepherd's

[157] Transcript page 1594, lines 30-33, page 1595, lines 5-7
[158] Transcript page 1594, lines 30-33
[159] Transcript, page 1555, lines 17-32
[160] Transcript page 1595, lines 8-10



opinion has not been followed in other wind farm cases, but we disagree that this is a significantly relevant factor we should take into account in this case. This Court is a Court of first instance and is entitled to make its own assessment of the weight it should give to any particular piece of evidence, particularly where there are highly qualified and experienced experts who disagree with the conclusions of each other. In this field there are often differences of expert opinion and the Court should be cautious to completely dismiss opinions that do not accord with the mainstream view just because of that fact.

[263] Dr Shepherd referred to papers by Pierpont and Harry to support his theory that health effects can arise from turbine noise, but Mr Beatson submitted that some of Dr Pierpont's work in this area has been criticised and should not be considered reliable. Overall Meridian submitted that we should not accept Dr Shepherd's evidence as either reliable or persuasive, with Mr Beatson going so far as to submit that Dr Shepherd has been selective, biased, misleading and evasive.[161] In the main the challenges to Dr Shepherd's evidence by Meridian centred on his failure to reference or to give context to papers,[162] or inaccurately asserting facts[163] he relied upon and relying on hearsay.[164] In addition, Meridian submitted that Dr Shepherd's evidence should be given little weight because it failed to mention the studies that conclude that there are no adverse health effects arising from wind turbine noise. Specifically Mr Beatson referred to the Knopper and Ollson 2011 paper[165] and the Massachusetts review[166] that Dr Shepherd was aware of, but did not refer to in his evidence. Dr Shepherd dismissed the other reviews as being "*all just reviews commissioned by wind turbine companies or particular authorities*".[167] Mr Beatson submitted that this statement was "*blatantly incorrect*",[168] as many of the reviews are papers that are published in academic journals and entirely regardless of authorship are part of the scientific literature.

[264] We do not agree that this amounts to bias or that Dr Shepherd's evidence was misleading, but we agree that Dr Shepherd's approach to the above matters was too loose, and not entirely in accordance with the provisions of the Court's Practice Note. We will

---

[161] Meridian closing submissions paragraph [183].
[162] Pedersen 2007 paper, van den Berg's 2005 dissertation
[163] Overestimating how many wind turbines in Europe are offshore
[164] Berglund discussion, Pedersen discussion
[165] Meridian, Exhibit 9,
[166] Meridian exhibit 10
[167] Transcript, page 1434, lines 17-19
[168] Mr Beatson, Closing submission, Paragraph [183](b)

THE SEAL OF THE ENVIRONMENT COURT NEW ZEALAND

return to the significance of this shortly when we evaluate the weight that should be given to the competing expert opinions.

The Makara study

[265] Whilst accepting that a lay person is not always the best judge of their state of health,[169] Dr Shepherd relied on a survey of Makara residents he and Professor McBride (and others) undertook in 2010, which Dr Shepherd contended supported his views. The Makara study was a health survey, which Dr Shepherd told us did not specifically purport to be about wind turbines or wind farm noise. He explained that it was a study to investigate the correlation between wind turbine noise and health.[170]

[266] Meridian challenged the conclusions Dr Shepherd drew from the Makara survey. It contended that he was selective about the parts of the study that he reported on in his evidence, and contended that the survey in fact showed no difference in self-rated health or illness, social or psychological wellbeing. Meridian also contended that the Makara study was flawed for the following reasons:

(a) If the purpose of the study was to establish a correlation between noise from wind turbines and health, to have any real benefit such a study should have been done before and after a wind farm is operating.

(b) Whilst the survey was described as a health survey, Meridian submitted that it was almost inevitable that the study participants would have suspected that it was aimed at wind farm noise.[171]

(c) The cover sheet sent out to participants had Dr Shepherd's name and contact details on it, and he took at least one phone call from a survey participant which was specifically about wind turbine noise. Dr Shepherd cannot recall whether he identified himself to the caller or not, but Meridian submitted he is well known in anti-wind farm circles, and he is a scientific advisor for the Society for Wind Vigilance, and has been involved in setting up the New Zealand branch of the Noise Abatement Society.

[169] Transcript, page 1495, lines 26-33
[170] Transcript, page 1495, lines 17-20
[171] Transcript, page 1489, lines 25-28

THE SEAL OF THE ENVIRONMENT COURT NEW ZEALAND

[267] We agree that the problems associated with the Makara study mean that we should not place significant weight on it and the conclusion suggesting that noise from wind turbines can negatively impact facets of health-related quality of life.[172]

Weight to be given to competing expert opinions

[268] We accept that there have been a number of reviews undertaken, and those opposing Dr Shepherd's view should have been referred to by him in his evidence,[173] but this does not necessarily mean that the reviews should be regarded as determinative of what is clearly a complex issue with subjective elements involved in the assessment of it. What was abundantly clear to us is that there is a current debate in the scientific community about wind farm noise, how it should be predicted and measured, and how the noise from turbines affects people, be it within consent conditions or not. Wind farm technology has only been introduced to New Zealand in relatively recent times, and whilst Meridian contended otherwise, in our view there is room for more independent research to be conducted about this very topic. It is important that alternative expert views are able to be robustly discussed and debated, because this will encourage additional studies that eventually will provide more certainty for everyone.

[269] We are, however, required to deal with the state of the scientific research as it appeared before us, and determine whether or not it establishes that adverse health effects are likely. We have concluded that, of the reviews done, the current weight of scientific opinion indicates that there is no link between wind turbine noise and adverse health effects. Dr Shepherd challenges this, but we are not satisfied that Dr Shepherd's critique of the reviews (as presented to us) is sufficiently robust to outweigh their conclusions. Neither are we are satisfied that the Makara study is sufficiently robust in its methodology for us to give it the kind of weight that would be required to counterbalance the weight of the other scientific opinion expressed in the reviews.

[270] Overall we are satisfied that the research establishes that adverse health effects are not likely to arise from the operation of the wind farm.

[271] We now turn to evaluate whether noise from the wind turbines will cause sleep disturbance.

---

[172] Dr Shepherd, evidence-in-chief, Appendix A

[173] Environment Court Practice Note – Expert Witnesses, Code of Conduct, paragraph [5.3.1(f)]

THE SEAL OF THE ENVIRONMENT COURT NEW ZEALAND

Sleep disturbance

[272] The experts agreed that wind farm noise can disturb sleep, with the result that it is important to ensure that it does not.[174] We heard from Dr Black and Professor Petrie that sleep disturbance and difficulties in getting to sleep are normal in the general population.[175] We also heard that there is no strong evidence to suggest that normal sleep disturbance is associated with adverse health outcomes,[176] however if sleep problems become chronic (to the extent that they are better termed insomnia), then this can lead to adverse health effects.[177]

[273] We have already determined that the methodology outlined in NZS6808:2010 is appropriate to use to predict the level of sound that will be generated from the wind turbines. We have found that, provided conditions in accordance with that standard are imposed, there should be no adverse noise effects. This is significant because, at the levels predicted, wind turbine noise is likely to be at a very low level and sleep disturbance is not expected.[178]

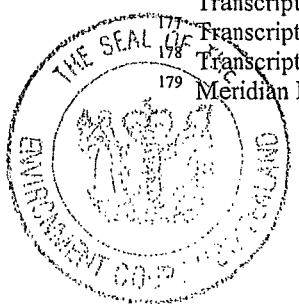
[274] Meridian referred to two World Health Organisation ("**WHO**") Guidelines on noise and health, namely the Guidelines for Community Noise (WHO April 1999) and the Night Noise Guidelines for Europe (WHO 2009). We found the WHO publications to be particularly useful and relevant to this case. The WHO publications were formulated by an international committee of experts and then endorsed by the WHO.

Guidelines for Community Noise (WHO April 1999)[179]

[275] To avoid negative effects on sleep this guideline recommends, for continuous noise, that the equivalent sound pressure level should not exceed 30dB(A). It recommends an indoor guideline for bedrooms of 30dB L_{Aeq} for continuous noise, and 45dB L_{Amax} for single sound events. The recommendation assumes that the bedroom windows are open and the noise reduction from outside to inside is 15dB.

---

[174] Joint Witness Caucusing Statement – Health, paragraph [76]
[175] Transcript, page 1539, lines 13-15
[176] Transcript, page 1539, lines 32-34
[177] Transcript, page 1539, line 9
[178] Transcript page 1548, lines 3-5
[179] Meridian Exhibit 3



Night Noise Guidelines for Europe (WHO 2009)[180]

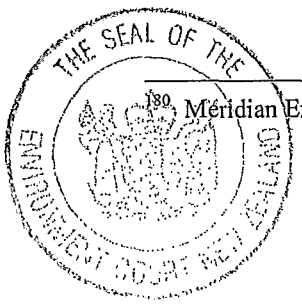
[276] This guideline updated the WHO 1999 Guidelines, and was produced by a working group of experts who carried out an extensive review of the scientific evidence on the health effects of night noise, and derived health–based guideline values. The guideline makes it clear that it is sleep disturbance that gives rise to potential health effects e.g. hypertension, cardiovascular disease, and not noise per se. It concluded that an L night outside of 40dB should be the target of the night noise guideline ("**NNG**") to protect the public, including the most vulnerable groups such as children, the chronically ill and the elderly. An outside value of 55dB was recommended as an interim target for the countries where the NNG could not be achieved in the short term for various reasons and where policy-makers chose to adopt a stepwise approach.

[277] The extensive review reiterated that to avoid negative effects on sleep the equivalent sound pressure level should not exceed 30dBA indoors for continuous effects. A notable feature in this Hurunui case was that all health and noise experts agreed that 30dB(L_{Aeq}) inside a bedroom was the target to prevent sleep disturbance and thereby prevent health effects.

[278] The Meridian and HDC experts supported the WHO assumption of 15dB attenuation from outside to inside, but the experts for the Society believed there would be a lower attenuation. We now turn to evaluate this issue.

Noise attenuation of buildings from outside to inside

[279] The experts during caucusing agreed that 30dB L_{Aeq} was generally appropriate to provide protection from sleep disturbance for an average person inside a bedroom. They disagreed about the allowance that should be made for attenuation from outside to inside a dwelling.



[180] Meridian Exhibit 7

[280] Mr Camp (HDC) and Dr Chiles (Meridian) agreed that 40dB $L_{A90(10_{min})}$ was an appropriate level for outside a residence, and acknowledged that NZS 6808:2010 assumes a 15dB reduction from outside to inside when windows are partially open. Mr Huson thought 15dB was an overestimate and that the attenuation could be as low as 6dB.[181]

[281] In Dr Chiles's rebuttal evidence he appended a report from Mr George Bellhouse entitled "*Testing of the sound insulation of the external envelope of six houses*". The investigation was commissioned by the Building Industry Authority, Wellington and was conducted in March/April 2000. Six houses were tested; two were near the Auckland International Airport while the other four were 10-15 metres away from a busy highway. All houses were tested with windows partially open by100mm. The study concluded that the A weighted level of attenuation obtained was between 14 and 17dB for road traffic noise and between 15 and 18dB for air traffic noise.

[282] We acknowledge that attenuation will show variation depending on the width of window opening and type of construction materials, but on the basis of the WHO Guidelines and the Bellhouse study we are satisfied that 15dB is a reasonable assumption for attenuation of noise between outside and inside. We are satisfied that it is not practical or necessary to undertake noise level testing inside bedrooms. It is therefore reasonable and appropriate in our view to measure noise levels (outside residences) in accordance with NZS6808:2010.

Conclusion – sleep disturbance

[283] The WHO is a specialised agency of the United Nations and has gone through an extensive and robust process to arrive at recommended community levels of night noise to protect public health. The design of the wind farm and the proposed conditions are in line with the WHO guidelines. We are satisfied that the design of the wind farm and the conditions of consent agreed between Meridian and HDC (with the amendments we have required) are appropriate and will protect the health of the public in the general

[181] Professor Dickinson's paper "*Nonsense on Stilts*," published in Acoustic 2009, raised a number of technical issues and difficulties in accurately measuring noise from wind farms and questions the assumption of a 15dB reduction (attenuation) from outside a house to inside a bedroom with the window partially open. He proposed that "*no wind farm shall be situated less than say 10 kilometres away from any residence unless the occupant agrees in writing for this condition to be waived*".

sense and avoid sleep disturbance, provided, as Dr Black and Professor McBride emphasised, there is strict compliance with the conditions of consent.

Is annoyance a health effect?

[284] Dr Shepherd contended that annoyance caused by a noise source should be the basis for determining effects on health and that a 2 km setback between a wind turbine and a noise-sensitive receiver is therefore required as a starting point.

[285] Meridian acknowledged the potential for people to be annoyed by wind farms, but it submitted that annoyance is not necessarily related to a noise level and should not be considered a health effect or outcome in and of itself, although it was accepted that it could lead to adverse health outcomes if not appropriately managed by the person experiencing it. Meridian submitted that to the extent that it can and should be considered, it is really an amenity issue, "*something to be assessed in the frame of what values a person or a community draws from the local environment*".[182] Dr Shepherd appeared to agree with this approach.[183]

[286] This issue was partially considered in the context of airport noise in ***Cammack v Kapiti Coast District Council.***[184] It was contended that annoyance experienced by some people when exposed to airport noise may lead to chronic impairment of wellbeing. In that case the Court preferred the evidence of Dr Black, who considered as he does here that annoyance refers to effects on amenity and does not necessarily equate to effects on public health.[185]

[287] Ultimately, whilst it might be conceptually important for annoyance to be analysed as a health or amenity effect, a more fundamental issue is whether annoyance should be considered as a separate effect at all. In this case it is likely to arise as a *consequence* of an unwanted noise or visual effect and therefore could arguably be double counted (either as a noise, visual or amenity effect) if it is treated as a separate effect. On a more practical level there are real difficulties in measuring annoyance with any degree of certainty given the subjective nature of it and the fact that it is unable to be objectively assessed or measured and is unpredictable. Dr Shepherd accepted this, and

---

[182] Meridian, Closing, paragraph [135]
[183] Transcript, page 1462, lines 29-33
[184] W069/09, 3 September 2009, Dwyer EJ, paragraph [98]
[185] Ibid at paragraph [133]

THE SEAL OF THE ENVIRONMENT COURT NEW ZEALAND

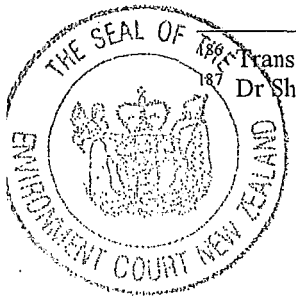
also accepted that annoyance has to be measured by self-reporting.[186] We also agree with Meridian that compliance with NZS6808:2010 would not necessarily avoid annoyance, and even if a setback were to be imposed those outside a setback could also remain annoyed by the presence of a wind farm. It is difficult to see what measures outside declining consent outright could guarantee that annoyance is able to be avoided, remedied or mitigated.

[288] In conclusion, we are not satisfied that annoyance can and should be taken into account by us as a separate effect. But if we are wrong on this issue, our determination on the facts of this case is that there is insufficient evidence to establish that annoyance could lead to an adverse health or amenity effect.

Is a 2km setback required to mitigate adverse effects?

[289] The Society and local residents sought to prohibit any turbines being located within 2km of a dwelling, primarily for noise reasons but also as a way of reducing community anxiety. This was reflected in the amended proposed conditions of consent submitted by the Society and Tipapa. In support of the 2km setback or separation distance, reference was made to several overseas documents and planning guidelines, including ones from Australia and the United Kingdom.

[290] Dr Shepherd recommended a 2km setback, or buffer zone, rather than using NZ6808:2010. In his opinion the noise standard failed to correctly conceptualise the relationship between noise and health. He considered that a better and simpler regime was for turbines more than 2km from a dwelling to be approved, and where turbines were less than 2km from a dwelling then the owner's consent would be required. He said that at around 2km the audibility of the noise should not affect health or amenity.[187] His recommendations were based on his personal experience of staying at a house in the Manawatu at 2.2km from a turbine, as well as his survey work at Makara, near Wellington. Dr McBride was also involved in carrying out the survey at Makara, and that formed the basis of his support for a 2km setback, although he recognised that it was not effects-based.



186 Transcript, page 1462, line 1
187 Dr Shepherd, evidence-in-chief, paragraph [9.11] and Transcript pages 1514 & 1515.

[291] We do not accept that the Makara survey is relevant to evaluating the significance of a 2km setback, as it included only houses closer than 2km to a turbine. There was no information from houses at Makara more than 2km from a turbine from which to make any comparisons. In response to questions from the Court, Dr McBride acknowledged that the Makara survey did not provide a basis for selecting the 2km distance in preference to any other distance.

[292] Dr Shepherd also referred to research by Nissenbaum and included figures[188] of dose response curves relating a health variable such as annoyance or disturbed sleep, and distance. He said that these figures "*clearly demonstrate(s) that adverse effects are substantially greater below two kilometres*". In response to questions from the Court, Dr Shepherd agreed that in these figures there were data clusters at around 1.5km and 3.5km. We fail to see how this evidence supports a cut-off distance of 2km. Indeed Dr Shepherd also referred to other research which he said proposed various setbacks of 1.5km, 2km and 2.4km.

[293] Overall we did not find Dr Shepherd's and Dr McBride's evidence helpful on this matter and it certainly did not support 2km as a relevant setback distance.

[294] Both Mr Camp and Dr Black were critical of the concept of a 2km setback. They said it was not effects-based and in essence considered it to be a blunt and primitive approach. Dr Black made it clear on a number of occasions that exposure and dose were the key variables to consider, not simply separation distance.

[295] For some of the local residents their initial support for a 2km set-back seemed to change during the hearing. Ms Meares' own house is 2.8km from the nearest turbine and she expressed a personal preference for a 3km setback.[189] For Mr Archbold 2km was not enough as he sought the removal of turbines A9, A10 and A11 (the latter turbine being the closest to his dwelling at 2.16km).[190] For Tipapa, Mr Carr, although advocating for a 2km setback, sought removal of turbine A9 which he acknowledged was 2.35 km away, but he said the extra distance was so minimal the effects from it would be the same as if it was within 2km.[191]

---

[188] Dr Shepherd, evidence-in-chief, Figures 8A, 8B and 12.
[189] Ms B Meares, Submissions dated 15 October 2012, para 14.
[190] Mr Archbold, evidence-in-chief, paragraph [4] and Transcript page 2619.
[191] Mr Carr, Submissions, Tipapa Exhibit 25.

THE SEAL OF THE ENVIRONMENT COURT NEW ZEALAND

[296] With reference to the overseas documents that were cited as supporting a 2km setback, we start by noting that care needs to be taken when transferring overseas examples into New Zealand as different countries usually have different legislation and planning frameworks. Having read some of these overseas documents we note that in most cases where they use a separation distance, such as 2km, it is as a trigger to then require a case specific evaluation process to be carried out and/or require the consent of affected householders. They do not prohibit turbines within 2km of dwellings *per se*, but rather use a separation distance as a "process trigger". We do not see any benefit in adopting such an arbitrary approach here when under the RMA we are required to carry out an effects-based evaluation of the whole project, regardless of the distance between turbines and existing dwellings.

[297] For the reasons expressed above, we do not agree that a 2km setback is appropriate or required to mitigate any adverse noise effects given the predicted levels of noise and the existing District Plan provisions relating to the levels of noise that are permitted in this rural area both during the day and at night.

How should hypersensitive individuals, including those with autistic spectrum disorder be dealt with?

[298] In public health terms, a population of individuals will have individual noise sensitivity that falls on a normal distribution (Gaussian bell curve). It would be a reasonable expectation that the population that falls within the curve defined by plus or minus 2 standard deviations of the mean would be protected. This represents 95% of the population, but 5% of the population remains and these people *may* be particularly sensitive to an environmental stressor.

[299] In ***Motorimu Wind Farm Ltd v Palmerston North City Council***[192] the Court accepted, in dealing with annoyance that might give rise to sleep deprivation, anxiety and possible consequential health effects, which "*ultimately, consideration of noise effects must be based on normal physiological responses, and cannot seek to protect those whose sensitivities might be at the higher end of the scale*"[193]. We agree with this approach, because the RMA is not a "*no effects*" statute. The 5% of the population who are either hyper or hyposensitive to noise may attract an individual assessment and

192 W067/08 26 September 2008
193 Ibid, paragraph [327]

THE SEAL OF THE ENVIRONMENT COURT NEW ZEALAND

arrangements to avoid a potential health effect, but any arrangements reached will need to be by agreement outside the requirements of the RMA

Autism Spectrum Disorder

[300] In this case it came to the notice of Meridian that there are three children (from different families) who are diagnosed as having Autism Spectrum Disorder ("**ASD**").

[301] We heard from Ms Tanya Breen, a consultant clinical psychologist who has been retained by Meridian to develop and implement a programme to ameliorate any adverse effects of the wind farm on neighbouring children. Neither Ms Breen nor Dr Black could say with certainty that there would be an effect on the ASD children, but were of the opinion that there was a potential health effect in that, although there are no peer-reviewed papers published on the specific subject of potential effects of wind farms on people with autism, there is literature suggesting people with autism often exhibit unusual responses to sensory inputs such as noise, touch, smell and visual stimuli. The lack of research that had been done in this area was highlighted during the questioning of Ms Breen.

[302] Meridian has offered assistance to the three known ASD children. It is to be commended for its approach, which will involve the assessment of the individual children before, during and after construction of the wind farm and will result in an individually tailored and supported response depending on the needs of the child.

[303] It was submitted that Meridian's assistance should be widened to cover any adults or children in the community who subsequently are diagnosed with ASD or have such a diagnosis and move into the area. We do not agree that this approach accords with the RMA for the reasons expressed above.

[304] The conditions proposed by Meridian and HDC contain the offer made by Meridian. We consider that these conditions need to be amended to increase their certainty so that they can be understood and implemented in the future as it may be some years before this wind farm is constructed. For example, we consider that the conditions need to be more precise about when the process is to commence and how the three individuals should be identified as they may not reside near to the wind farm in the future.

THE SEAL OF THE ENVIRONMENT COURT NEW ZEALAND

[305] At the request of the families concerned and without opposition an order was made at the hearing suppressing the names and addresses of the individuals diagnosed with ASD who were referred to in the hearing. We now make that order final and extend it to incorporate a prohibition on publishing any information that might lead to the identity of these individuals being revealed.

Community anxiety

[306] Dr Black accepted that community anxiety about potential health effects caused by wind turbine noise was a valid health concern, but one that would only be experienced by a very small percentage of the population.[194] The evidence in this case did not establish whether there would be any such people in this community. We can reasonably infer that if the numbers are small they are likely to be within the 5% of people not within the bell curve to which we have already referred.

[307] As to the general community concerns expressed, Dr Black contended that actual monitoring assists in providing a level of comfort to a community, to those who are sceptical of modelling, and particularly if the actual monitoring confirms the model's predictions. Dr Black expressed his confidence in NZS6808:2010 as being more than adequate to protect public health, and further intimated that in his experience, predicted effects are often proved subsequently to have been over-estimated. In the context of discussing a setback (which he did not favour), Dr Black expressed the view that he did not think it would deal with community anxiety. He said that in his experience, what does help is to make commitments about compliance (with standards) and then demonstrate that they are met.[195]

[308] We accept Dr Black's opinion. We do not accept that general community anxiety should be treated as a health effect.

Conclusion - health

[309] In summary, we do not consider that a 2 km setback is required, or is appropriate. We find that if the conditions, proposed by Meridian and the HDC relating to noise and as amended in this decision, are imposed and complied with, there will be no

194 Transcript, page 1335, line 12
195 Transcript, page 1,294, lines 31-34

THE SEAL OF THE ENVIRONMENT COURT NEW ZEALAND

direct or indirect adverse health effects for all but a very small percentage of the population. In relation to hypersensitive people, an individual approach is required as the RMA would not necessarily provide the level of protection that might be desirable. In this case Meridian has responsibly acknowledged that special assistance on an individual basis needs to be provided to those with ASD. We have no evidence to suggest that anyone in this community is likely to suffer from the kind of anxiety response that Dr Black indicated might occur in a very small percentage of the population.

Traffic and access

Overview

[310] The proposal is for a single access point to the wind farm site to be used during construction and then retained for ongoing use during the operational stage. An indicative construction period of 18-24 months has been estimated, and this period will include most of the increased traffic volume and the heavy and over-dimensioned vehicles. The period of greatest activity is between months 3 to 6, when some 310 vehicle movements per day are anticipated. This period coincides with the transportation of material for internal roading. For the remainder of the construction period, vehicle generation is expected to range between 80 - 190 movements per day. Once the project is operational then a much reduced traffic volume of mainly service vehicles will be required. Meridian considered the relative merits of nine alternative access options before committing to the option included in the application, which proposes an access point off Motunau Beach Road, 3.2km south of State Highway 1 (Northern Access Option 4).

[311] Expert evidence on this topic was presented by Mr Andrew Carr for Meridian and Mr R A Chesterman, for the HDC. For the submitters, Mr John Carr, Mr Messervy and Mr Archbold presented statements. Mr Messervy appeared also for the Society and Tipapa. In addition there were three Joint Witness Statements. Mr John Carr attended only the first conference. Messrs Andrew Carr, Chesterman, and Messervy attended all three conferences.

[312] The weight to be given to the evidence, particularly that of and for the submitters, was raised as a matter to be considered. At this stage we record in summary the experience of those appearing before us.

THE SEAL OF THE ENVIRONMENT COURT NEW ZEALAND

- Mr Andrew Carr has a Masters in Transport Engineering and 22 years experience as a traffic engineer;

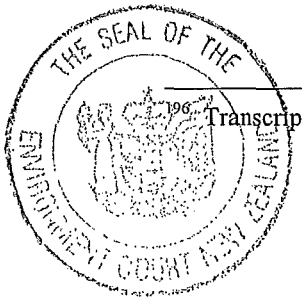
- Mr Chesterman has a Masters of Engineering and Transportation and 12 years experience in traffic engineering;

- Mr John Carr has no academic qualifications of relevance to transport and traffic related matters. His experience comes from using his own property on Motunau Road, where he has lived for eight years;

- Mr Messervy is a Certified Automotive Engineer, NZQA Certified for emergency vehicle driving, a certified automotive vehicle inspector, and has done some study in civil engineering. He has 40 years experience in the repair and maintenance of vehicles and owned the Greta Valley garage business for 32 years.[196] He was an AA contractor (vehicle recovery (tow truck) operator) for 36 years, an Emergency Services Driver for the Rural Fire Brigade for 20 years, and a school bus driver in 1975 and 1976 and currently since 2002. He lives at Tipapa Place in the Greta Valley village;

- Mr Archbold lives at 368 Motunau Beach Road. He has been a member of the Scargill Fire Brigade for 16 years (currently the Rural Fire Chief), and the rural mail contractor for 12 years for the Amberley RD3.

[313] A wide range of traffic-related matters was canvassed in the submissions and statements and during the hearing. The two expert traffic witnesses (Mr Andrew Carr and Mr Chesterman) were agreed on all matters and considered that the proposed access route was appropriate, subject to conditions including management plans for controlling traffic safety and management generally. The main issues of contention related to the safety and suitability of the proposed access route (Northern Access Option 4). The submitters considered the proposed route to be unsafe and unsuitable and nominated an alternative route further to the south using Reeces Road (Southern Access Option 1 via Reeces Road (Stevenson Property)).



[196] Transcript p. 1803

[314] The other remaining areas of concern to the submitters which we will consider here are:

(a) the sight lines for vehicles turning right from SH1 into Motunau Beach Road;

(b) the safety of SH1, particularly at the Omihi Saddle;

(c) the assessment of alternative access routes to the site; and

(d) proposed conditions of consent.

Sight lines – SH1 and Motunau Beach Road

[315] At the T-junction with Motunau Beach Road, the north-bound side of SH1 has been widened to provide a through-traffic lane and a dedicated right turn/stopping lane for vehicles turning right into Motunau Beach Road. The two lanes are marked out on the road surface. Past Motunau Beach Road (to the north) SH1 veers to the left around a bend. The area has a 100km per hour speed limit with a speed advisory limit of 75km per hour. The District Plan Map G (Greta Valley) shows a New Zealand Transit Agency ("**NZTA**") designation (D-42 Proposed Road Widening) on the inside curve of the State Highway at this location but the land has not been taken. We note that NZTA was not a party to the hearing. The debate centred around the safety of the intersection geometry, particularly the adequacy of the sight distance for right-turning vehicles to on-coming vehicles travelling south on SH1.

[316] Mr Andrew Carr and Mr Chesterman stated that the industry-wide accepted guideline for assessing such intersections is "Austroads: Guide to Road Design, Part 4A – Unsignalised and Signalised Intersections" ("**Austroads**"). Austroads defines the stopping sight distance as "*the distance travelled by a vehicle between the time when a driver receives a stimulus signifying a need to stop, and the time the vehicle comes to a rest*". Mr Chesterman's evidence was that the Austroads Guide suggested that the required stopping distance for a vehicle travelling 100km per hour is 179 metres. This assumes that the driver of the on-coming vehicle has a reaction time of 2.5 seconds and that the vehicle has an operating speed of 100km per hour. He considered that vehicle speed at this intersection was likely to be lower because of the advisory 75km per hour speed limit posted for the area.

THE SEAL OF THE ENVIRONMENT COURT NEW ZEALAND

[317] Mr Andrew Carr initially estimated the sight distance at SH1/Motunau Beach Road at 250 metres and then subsequently measured it on site. Mr Andrew Carr and Mr Chesterman were agreed that a revised distance of 225 metres was in accordance with the Austroads guide. Mr Messervy did not consider that the Austroads Guide provided an appropriate location from which to measure. He did not consider it to be a credible position at which an oncoming vehicle first becomes visible. Mr Messervy maintained that based on common sense the forward sight distance was 180 metres. Mr Andrew Carr and Mr Chesterman did not agree that Mr Messervy's location was the appropriate point from which to measure in accordance with the Austroads Guide.[197]

[318] All of the witnesses agreed that vegetation on the inside of the SH1 curve restricted the forward sight distance. This vegetation included a substantial "pine tree" hedge which overhangs the boundary fence, and a wilding pine growing on the grass of the SH reserve. We were advised that the overhanging hedge is cut back to the boundary line every two years or so. During the hearing the offending wilding pine was removed, and Mr Messervy confirmed that the sight distance had increased: using his measurement methodology he stated that the amended distance was 215 metres, which he still maintained was inadequate.[198]

[319] Mr Andrew Carr and Mr Chesterman both analysed the reported accident records for the intersection for the past five years (2007 to 2011). Three accidents were recorded, all involving a single vehicle only, where the driver had lost control when negotiating the curve in the road. None involved vehicles turning to or from Motunau Beach Road. We consider that it is relevant to note that during this period there were traffic-generating attractions along Motunau Beach Road such as the school, Tipapa and the Motunau Beach residential area and boating facilities. Mr Messervy's and other local residents' concerns about the safety of the intersection do not appear to be supported by events and accident records to date.

[320] Mr Andrew Carr used the equations set out in the NZTA Economic Evaluation Manual to calculate the number of injury accidents that could normally be expected at this location. His calculations showed that 0.8 injury accidents would normally be expected over a five-year period arising from turning movements, whereas none had been

---

197 Second Joint Statement by Transportation Planning Witnesses, 1 June 2012, paragraphs [5] and [6], A Carr Rebuttal paragraphs [26] and [46], and Transcript page 1821.

198 Mr Messervy, Personal Submission dated 5 October 2012, para 34(c).

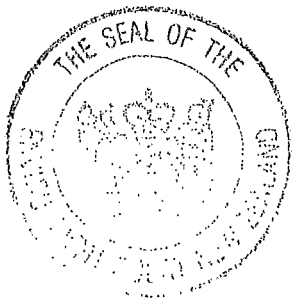
THE SEAL OF THE ENVIRONMENT COURT NEW ZEALAND

reported. He also calculated the change in the number of injury accidents that the presence of construction vehicles associated with the wind farm could cause. This showed that an additional 0.08 injury accidents may occur for each year of construction. In his view, the accident records do not indicate a particular issue at this location despite the limited sight distance, and that the increase in accident risk associated with the wind farm construction is not significant.

Conclusion – sight lines

[321] We accept that the Austroads Guide is the accepted standard for analysing sight distances at intersections such as this. The existing sight distance is acceptable in terms of the guidance provided by Austroads. The accident records and predictions confirm that the intersection operates within acceptable standards. Having said that we recognise that the existing intersection has some limitations, and this is no doubt the reason for the posted reduced advisory speed limit of 75km per hour. The regular maintenance and removal of road side vegetation on the inside of the SH1 curve is an obvious and reasonably simple measure that will assist to maximise the available sight distance, regardless of the proposed wind farm. We also accept that Mr Messervy has considerable personal experience from living in the area and using the SH1/Motunau Beach Road intersection. His local knowledge confirms that some caution on the part of motorists is advisable at this intersection, and again this is consistent with the reduced advisory speed limit.

[322] We are satisfied that the intersection does not pose an adverse safety risk such that consent to the proposed wind farm should be refused. The main period of concern with the proposed wind farm is during the estimated 18 month construction period, when traffic volumes will be highest and there will be an increase in heavy and over-sized vehicles. A Construction Traffic Management Plan ("**CTMP**") is proposed as part of the conditions of consent. It is to be a comprehensive document and we are satisfied that this can be used to appropriately manage the changed volume and mix of traffic and promote road safety.



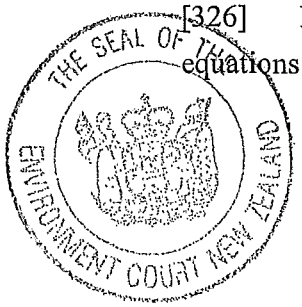
State Highway 1 - safety

[323] Mr Messervy was concerned about the safety of the last eight kilometres of the access route from just south of the Omihi saddle on SH1 through to the entrance to the wind farm site. Mr Messervy relied on Mr Archbold's analysis of fire brigade call outs (January 2006 to May 2012) to motor vehicle accidents on SH1 from Reeces Road to the Hurunui Bridge to support his view that there is a significant increase in the number of accidents on the lengths of road before and after crossing the railway line to the south of the Omihi saddle. The Omihi saddle is identified by an increase in gradient, and includes a 300 metre length of additional "slow vehicle" lane. Mr Messervy had described this as an accident blackspot *"including deaths"*. In Mr Messervy's opinion, any increased risk of crash potential should be avoided, hence he promoted the use of Reeces Road as the access route, being to the south of the Omihi Saddle. Similar views relating to general road safety issues on SH1 were expressed by other submitters, including Mr and Mrs McLean and Mrs V Meares. Mr John Carr promoted a "zero tolerance" to any and all risks over the route from Omihi Saddle to the site.

[324] Both Mr Andrew Carr and Mr Chesterman analysed the NZTA Crash Analysis System between 2002 to 2011 for SH1 from Motunau Beach Road to the Omihi railway crossing. They identified two fatal accidents on this section of highway, and in their view neither were attributable to a deficiency in the road environment. In the context of the construction traffic effects of the wind farm, they considered it was relevant to note that both accidents involved just a single vehicle, and both occurred at times of day when traffic flows were low.

[325] While acknowledging that Mr Archbold's calculations were numerically correct, Mr Andrew Carr was critical of Mr Archbold's approach, in that the baseline for the comparison was solely the accident rate on the straight section of highway to the immediate east of (before) the Omihi railway crossing. Mr Andrew Carr considered this to be an arbitrary point of reference, and that it was not valid to conclude that another section of highway was "hazardous" by comparison. He considered that it was more appropriate to use the accident prediction equations published by NZTA.

[326] Mr Andrew Carr's application of the NZTA Economic Evaluation Manual equations to the section of SH1 between the Omihi railway crossing and Motunau Beach



Road shows that over a five-year period, 5.6 accidents could be expected, and the records show that 6 injury accidents were recorded. On this basis, he concluded that this slightly higher rate was well within expected parameters and could not be described as a "blackspot". Similarly, Mr Chesterman concluded that the Omihi saddle is not significantly more hazardous than the flatter and straighter section of road that precedes it.

[327] In response to Mr Messervy's concerns that long and over-dimensioned vehicles would result in overtaking vehicles being pushed across the centreline at the top of the saddle, near where the "slow vehicle lane" ends, Mr Andrew Carr clarified that the movement of such vehicles is subject to a permit system including the use of pilot vehicles to control the extent and location of overtaking vehicles. These are all matters included in the CTMP, and if necessary specific mention could be made of the potential hazard.

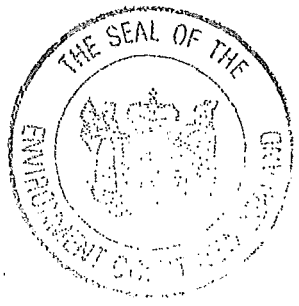
Conclusions - safety

[328] We agree with Mr Andrew Carr that it is neither practical nor reasonable to expect that there be no increase at all in the level of risk of vehicle accidents from the present situation. We agree that this portion of SH1 does not have a poor accident record, and that the likely change in road safety risk due to the proposed wind farm is negligible. The State Highway network is designed, and is expected, to be the main vehicle transport route in the country.

[329] The main traffic concerns relate to the increased volume and change to the vehicle mix, with more heavy and over-dimensioned vehicles in the construction-related traffic. The combination of the proposed CTMP and the standard requirement for permits for over-dimensioned loads and vehicles provides adequate means to control and manage any adverse traffic safety effects.

Assessment of alternative access routes

[330] As outlined above, the case for many of the submitters was that an alternative access route using Reeces Road, further to the south, should be required.



[331] Meridian's position was that the focus of the present proceedings should be on whether or not the access that is proposed, and is the subject of the application, causes unacceptable adverse effects, rather than whether some other access that does not form part of the application is better. Meridian also submitted that the RMA only requires an assessment of alternatives where adverse effects are significant. To the extent that an assessment of alternative access is relevant, it was submitted that the issue to be resolved is whether or not Meridian has given sufficient consideration to these matters. We were reminded that it is not the role of the Court to select the "best" access option. For Meridian it was submitted that the question for the Court is essentially whether the effects of using the proposed access route, including SH1 and Motunau Beach Road, are so significant that it is unacceptable for the applicant to look to use this access option.

[332] We agree with Meridian's submissions. In the circumstances we have found that the likely adverse traffic effects of the proposed wind farm are primarily limited to the construction-related traffic estimated to occur over an 18 month period and that these effects, as managed through the proposed conditions of consent, will not be significant. We are satisfied that Meridian has given sufficient consideration to any possible alternatives, and this was set out in the application documents and the evidence of Mr Wiles, including the Construction Effects and Management Report ("**CER**").

[333] We find the proposed access route including SH1 and Motunau Beach Road to be appropriate and acceptable.

Proposed conditions of consent - traffic

[334] Both the Society and Tipapa filed proposed amendments to the traffic-related conditions of consent with their closing submissions. In response, Meridian presented, with its closing submissions, a final revised draft dated 23 October 2012 (Version 4).[199] Counsel for Meridian submitted that a great deal of what had been sought by the Society for traffic management was either unworkable, or unnecessary as it was already required to be part of the CTMP.

[335] Both the Society and Tipapa sought to reduce the maximum speeds on portions of SH1 and Motunau Beach Road to 70km/hr for construction traffic. Mr Andrew Carr considered that this could create a hazard for other road users, who might not expect the

[199] Exhibit HGR1, Revised Draft 23 October 2012, Draft Conditions of Consent Version 4.

THE SEAL OF THE ENVIRONMENT COURT NEW ZEALAND

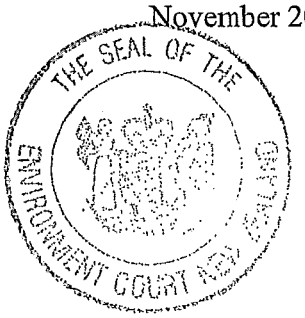
reduction in speed. We note that NZTA and the HDC control the speed restrictions on these roads. In the circumstances, we do not consider that mandatory speed reductions are appropriate or necessary as consent conditions. We find that the provisions in the CTMP are sufficiently broad to allow for discussions between all parties on speed restrictions, should they be considered appropriate for some limited and defined circumstances. We do not find it appropriate to predetermine such matters and include them as specific conditions of consent. Similarly, in relation to the Society's suggested prohibition at all times against exhaust brakes, we agree with the submissions for Meridian that it is not appropriate to specify any further measures in the CTMP, or other conditions of consent.

[336] The Society also sought a large number of detailed changes to the CTMP conditions identifying local noise sensitive activities and including involvement of the Community Liaison Group. In response, Meridian's final Version 4 proposed conditions included many of these matters. Some of them were included in a more generic manner than the specific wording proposed by the Society. Given that the CTMP may not be prepared for some years, we are satisfied that the Meridian/HDC Version 4 conditions appropriately identify and "flag" matters that should be considered in the CTMP, and they also provide sufficient flexibility for the parties to recognise the local environment closer to the time of construction.

[337] For Tipapa, Mr John Carr also sought that there be "*no construction activity whatsoever on Centre Hill and no construction traffic along Motunau Beach Road*" during the following times: weekdays from 6pm to 7am; weekends from 12 noon Saturday until 7am Monday; and on public holidays. These restrictions were sought to avoid any possible noise disruption to the weddings and social functions held at Tipapa.

Resource Consent – extending the Tipapa function venue

[338] During the hearing we were advised that Mr John Carr had lodged a resource consent application to increase the capacity of the Tipapa function venue from 50 persons to 150 persons at any one time, and to provide for a single event in any 12 month period of up to 230 persons, and to operate a tourist retail shop. The Council considered that application on a non-notified basis and granted consent, subject to conditions, on 14 November 2012, after the close of the wind farm hearing.



[339] Mr Carr forwarded the consent to the Court. The parties were asked to advise the Court whether or not it should have regard to the consent as the hearing of evidence had finished. In response, the s274 parties supported the Court having regard to the consent. The CRC had no issue with the consent being taken account of, provided it did not lead to the hearing being reopened, and the HDC advised it would abide the decision of the Court.

[340] Meridian advised that it was neutral on the issue, provided that it did not lead to reopening the hearing, but it requested that if the Court decided to have regard to the consent then it should also have regard to the relevant planner's report, and accordingly enclosed a copy. Meridian repeated its offer to include a condition in the CTMP including protocols for liaising with the operator of Tipapa in order to avoid construction traffic movements at times when wedding ceremony vows are to be exchanged, and offered to extend this to also cover the additional single large event per annum authorised by the resource consent.

[341] Mr Carr responded, rejecting Meridian's offered condition, and described the offer to limit construction traffic during the taking of vows as "*disingenuous* (sic) *and absurd*". He maintained that his conditions, as presented to the Court hearing, seeking wider limits to construction activity, were essential and fundamental to being able to operate his business at Tipapa.

[342] We have read the Council decision and the planning report relating to the extended operations at Tipapa. We note that a traffic assessment in support of the application estimated 60 vehicle trips per day as being realistic, but that a maximum of 120 vehicle trips per day could be generated if the venue was operating at capacity. The traffic assessment concluded that even 120 vehicle trips per day could be easily accommodated on Motunau Beach Road without affecting its safety and efficiency. The traffic assessment noted that the visibility at the Motunau Beach Road/SH1 intersection meets relevant guidelines. The planning report states that NZTA had confirmed that they had no concerns in relation to the proposal.

[343] The documentation in support of Tipapa's application, and the Council's decision, are consistent with the experts' evidence presented to this Court. In the circumstances we have no reason to change our finding that the proposed access route,

including SH1 and Motunau Beach Road, is appropriate and acceptable. The route can accommodate additional traffic without resulting in any significant adverse effects.

[344] In relation to the CTMP, Version 4 of the proposed conditions includes in condition 71 as some of the objectives of the CTMP to:

> (e) minimise disruption to the surrounding community, school, farming operations and rural services; and
>
> (g) encourage the participation of the surrounding community in maximising safety and minimising disruption, including liaison with the Community Liaison Group.

[345] These objectives are to be given effect to through subsequent conditions, including condition 73 which lists out matters which the CTMP must include, but is not limited to. There follows a list of 15 matters, including:

> (m) protocols for liaising with the operator of Tipapa to avoid construction traffic movements at times when wedding ceremony vows are to be exchanged.

We understand that Meridian has offered to extend this condition to also include the single event in any 12 month period when the number of people at Tipapa is allowed to exceed 150 but be limited to a maximum of 230 people (excluding staff).

[346] The Meridian/HDC Version 4 proposed conditions contain a table of noise limits for construction activities. These follow the standard format of Table 2 of NZS6803:1991 – Acoustics – Construction Noise for works of 'long term' duration. Additionally, as we have outlined above, there are provisions in the CTMP which recognise certain sensitive activities in the local community and provide an opportunity for the parties to consider any specific measures.

[347] We consider Mr John Carr's proposed prohibitions on construction activities and construction traffic using Motunau Beach Road to be excessive and unwarranted. The proposed conditions require the CTMP to limit heavy vehicles associated with construction work during public holidays, before 6am or after 8pm Monday to Friday inclusive, or before 7am and after 5pm Saturday and Sunday, with exemptions for staff carrying out sediment control works, vehicles and staff associated with pouring of cement and emergency works. We consider these provisions to be an appropriate balance

between the desire for efficient construction timetabling and the protection of the amenity of the local area.

[348] Mr Carr's rejection of the offer to also include the annual large event at Tipapa in the CTMP would seem to be rather hasty. In our view it is reasonable to include this annual event in the "agenda" for discussions between the relevant parties as part of the CTMP procedure. It may well be that someone other than Mr Carr is operating Tipapa in the future when the wind farm is being constructed, and we are fairly certain that any future operator would appreciate the opportunity to liaise in relation to limiting any adverse effects of construction traffic on the event.

[349] We direct that the Meridian/HDC Version 4 proposed condition 73(m) is to be amended to include the annual large event allowed at Tipapa. We do not find it appropriate to make any other amendments to the conditions relating to construction noise (Version 4, conditions 12 & 13) or traffic management (Version 4, conditions 71 to 79).

Construction, Erosion, Sediment Control and Groundwater, and Fire

[350] Expert witnesses presenting evidence on this topic were called by Meridian and CRC.

[351] The submitters concerns related to the potential for additional erosion from the construction of the roads and turbine platforms, the discharge of sediment and the effectiveness of sediment control measures, the potential for oil spills, and the potential to impact on the Tipapa Stream. For the submitters, Mrs Messervy and Mr John Carr questioned the experts during the hearing.

[352] It was accepted that the proposed wind farm will involve considerable volumes of earthworks, and consequently erosion and sediment control will be a major part of the project's construction programme. Construction effects will result in some large cuttings, soil disturbance and vegetation clearance, as well as associated discharges to land and water. Also, there can be potential nuisance effects such as dust and noise. Other activities during the construction phase, such as concrete batching and the storage of hazardous substances, may also give rise to adverse effects. Accordingly, many of the potential effects associated with the wind farm relate to the construction period.

THE SEAL OF THE ENVIRONMENT COURT NEW ZEALAND

[353] The applicant proposed the adoption of best practice measures to avoid erosion and sediment generation, as well as best practice methods to treat run-off that contains sediment. For Meridian it was submitted that all avoidance and treatment measures accord with Environment Canterbury's Erosion and Sediment Control Guidelines 2007. The applicant proposed, as conditions of consent, the use of management and monitoring plans. These included an overarching Environmental Management Plan ("**EMP**"), Supplementary Environmental Management plans ("**SEMP**") and a Flocculation Management Plan ("**FMP**"). The Regional Council agreed with this approach and these plans. Mr Breese for Meridian explained that this type of framework and suite of consent conditions has evolved through a number of wind farm projects, including Te Apiti, White Hill, West Wind, Tararua 3 and Mill Creek.[200]

[354] Mr B Handyside, for the Regional Council, had raised a number of concerns relating to erosion and sediment control. At caucusing, the experts considered these matters further and reached agreement on including additional provisions in the proposed conditions of consent. They then agreed that the potential adverse effects arising from the construction activities could be adequately avoided or mitigated if the proposed wind farm was undertaken in accordance with the proposed EMP and SEMP method and the proposed conditions of consent. At the commencement of the hearing there was one outstanding issue as to whether or not the Flocculation Management Plan should require all high risk sediment works, including the main access road to Turbine A11, to be treated with chemical flocculation. The experts for CRC and Meridian subsequently reached agreement, and a proposed method and condition of consent was presented.

[355] In relation to groundwater and the storage of hazardous substances, a condition of consent was proposed requiring that the bulk fuel facility not be located in an area where the groundwater is shallower than 30 metres below natural ground level. An additional condition controlling ponding also provides groundwater protection by preventing the discharge from the concrete batching plant from resulting in pools of liquid containing contaminants on the ground surface.

[356] The final proposed conditions of consent, as agreed between CRC and Meridian, were presented for the four consents sought from the CRC (referenced as CRC 111342, 111343, 111344 and 111354, and including Schedule 1 General Conditions applicable to all four consents).

[200] Transcript pages 291 and 292.

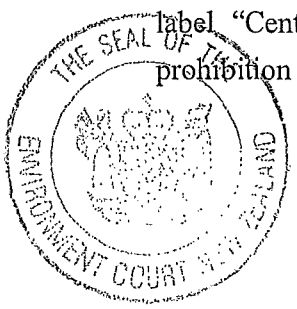
THE SEAL OF THE ENVIRONMENT COURT NEW ZEALAND

[357] The Meridian/HDC proposed conditions also contain conditions, under a heading "Environmental Management Plans," which require an EMP for construction works. These proposed EMP conditions are similar to, but not the same as, the CRC's conditions. We believe that in reality one EMP document will be prepared to meet the requirements of both Councils. We certainly do not consider it necessary for two documents dealing with construction activities. This could result in unnecessary confusion for all parties, including other operators and contractors undertaking works. We consider that a common or duplicate set of conditions should be prepared relating to the EMP and construction activities, where the requirements of the two Councils overlap. We accept that it will be appropriate for CRC's consents to contain additional conditions, as the primary responsibility for controlling and managing the construction activities arise under the regional consents.

[358] The Society's revised draft conditions only addressed the Meridian/HDC set of proposed conditions relating to the EMP. Several of the Society's amendments were accepted by the HDC and Meridian. Meridian did not accept the Society's request that the EMP be reviewed annually by the consent holder. We agree with submissions made for Meridian that, as the projected construction period is for around 18 months, it is unnecessary for there to be annual reviews. We consider that the proposed conditions adequately address the need for implementation and compliance with the EMP, and other subsidiary management plans, and there are provisions to amend the EMP. Taken together these conditions allow sufficient flexibility to respond to events and or changes.

[359] We note that the Meridian/HDC EMP conditions were amended to provide for the Society's request that the EMP be publicly available at two of the local public libraries and electronically via the web. We consider it is important that the full sets of consent conditions be also available in order to provide the necessary context to the EMP.

[360] For Tipapa, Mr John Carr requested a number of conditions relating to construction. We have commented already on the traffic-related ones. Consistent with his requirement that there be no construction traffic along Motunau Beach Road on all weekday evenings, on Saturday afternoons and Sundays of all weekends, and on all public holidays, Mr Carr also sought for the same prohibitions to apply to all construction activity on "Centre Hill". Even aside from the uncertainty about the area affected by his label "Centre Hill", we find that this request is unreasonable. The reason for the prohibition relates to noise, and there are other conditions which limit the noise levels



through standard conditions usually applied to construction activities. There is also a balance to be struck in the interests of the wider community, with construction being completed in a timely manner so that the period for potential for nuisance effects is not prolonged.

[361] Mr Carr also sought to define the exact location of the concrete batching plant, primarily so that it was not near the Tipapa boundary. Mr Wiles, for Meridian, explained that the location of the concrete batching plant was worked out later when the detailed construction strategy had been finalised, usually done in conjunction with the contractors. Mr Wiles was satisfied that any adverse effects relating to the concrete batching plant were controlled by the proposed conditions of consent, regardless of the precise location. We accept that to be the case. In addition to the Meridian/HDCVersion 4 construction noise conditions, there are a number of conditions in the Regional Council conditions relating to the concrete batching plant. We find that the proposed conditions allow the consent holder flexibility to select an efficient location for the concrete batching plant whilst at the same time set controls for managing any adverse effects.

Fire

[362] Two submitters, Mrs Messervy for the Society and Mr Higginson (an adjacent landowner to the wind farm), in particular, were concerned that the turbines would increase the risk of fire hazard. Mr Higginson asked who would be liable for loss or damage incurred as a result of fire. Evidence from Mr Breese, and submissions for Meridian, were that the actual risk of fire was very low, and the fire safety measures and equipment were outlined. The submissions also addressed the provisions and agencies outside of the RMA which are relevant where property is damaged by fire.[201]

[363] In answer to questions from Mrs Messervy, Mr Breese confirmed that it was usual practice to prepare a fire management plan in conjunction with the local fire brigade.

[364] We are satisfied that the risk of fire is appropriately recognised in the proposed conditions of consent: it is identified as a matter to be included in the EMPs in both the Meridian/HDC Version 4 and CRC's suite of proposed conditions.

[201] Closing submissions for Meridian, paragraph [291].

THE SEAL OF THE ENVIRONMENT COURT

Conclusion - construction

[365] To summarise in relation to the construction topic, we find that the proposed conditions, being Meridian/HDC Version 4 and the CRC suite (as amended in this decision), will appropriately address the potential effects of the construction-related activities through construction noise conditions, and the use of management plans and monitoring plans. Implementation of, and compliance with, these plans is also addressed through measures including inspections, maintenance, audits, reporting, monitoring and resourcing.

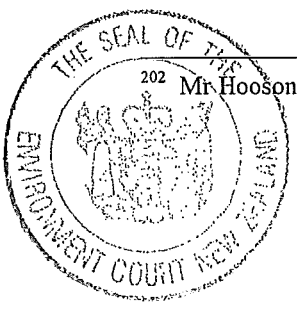
Ecology

Overview

[366] The potential adverse effects to ecological values on the site were identified as those relating to terrestrial ecology (with a focus on indigenous vegetation and habitats for indigenous fauna); aquatic ecology; herpetofauna (lizards and geckos), and avifauna (birdlife). Two ecological reports formed part of Meridian's Assessment of Environmental Effects; the "Ecological Values and Assessment of Effects Report" ("**the Ecology Report**"), prepared by Mr Hooson and Dr Keesing, and the "Assessment of Effects on Avifauna Report" ("**the Avifauna Report**") prepared by Mr Hooson.[202] In relation to avifauna, Meridian also obtained additional assistance from Dr Barea, an expert on the NZ falcon.

[367] Other ecologists with specific areas of expertise were engaged by both the HDC and CRC to peer review the work done by the experts retained by Meridian. The Society called evidence from Mr Onley, an experienced ornithologist and illustrator to present evidence on avifauna.

[368] All of the experts participated in expert conferencing before the hearing and a large number of matters were resolved and others further refined during the hearing itself. Overall the approach of all the experts under this topic was constructive, and where issues were unable to be resolved there were genuine differences of opinion about what might be required.



[202] Mr Hooson, evidence-in-chief, paragraph [12] and Appendices A and B

[369] Whilst various submitters raised issues concerning the effect of the proposal on other ecological values, the main focus in the hearing was on avifauna and in particular, the potential for birds to collide with the turbines and the effect this would have on specific species.

[370] We will first outline the ecological context relevant to the site and then consider each of the ecological values likely to be impacted by the proposal in turn.

Ecological context

[371] The site is contained within the Motunau Ecological District, which from an ecological perspective has been highly modified by pastoral farming. Only 1% of this Ecological District is protected either within public conservation land or by QEII covenants. We were told that pre-European settlement, the vegetation of much of the Ecological District would have been short tussock lands, cabbage tree tree land and mixed shrublands on the drier hills and ridges. Extensive areas of coastal mixed podocarp/hardwood forest are also thought to have been present along with kanuka forest, mixed hardwood forest and areas of riparian black beech forests. Little of the podocarp forests remain, but remnant broad leaf hardwood forests are still present, and shrublands are still extensive, though often confined to slopes and gullies.[203]

[372] There are three named waterways and a number of unnamed tributaries near the site. The streams draining the site flow into the Motunau River (to the east and south), into the Omihi Stream (to the south-west), and into the Tipapa Stream (to the north), and Cave Creek (to the north-east).[204] The Ecology Report noted that all of the aquatic systems that were surveyed have been modified by surrounding farming practices, removal of riparian vegetation, higher than natural nutrient status and sedimentation. It was noted that most of the streams are incised, turbid, have highly embedded substrates, marginal to sub-optimal aquatic habitat diversity and abundance, and poor to marginal riparian condition. Some of the streams on the south-eastern side of the site have more intact riparian cover, but despite this the ecologists observed these streams to be in similarly poor condition.[205]

---

[203] Mr Hooson, evidence-in-chief, paragraphs [45] – [47]
[204] Mr Hooson, Appendix B, paragraph [3.2]
[205] Mr Hooson, Appendix B, paragraph [3.2]

THE SEAL OF THE ENVIRONMENT COURT NEW ZEALAND

[373] Our observations during our various site visits confirmed the ecologists' view. We observed as we drove around the area that, unlike some other farming communities in other parts of the country, there appeared to be little fencing of waterways and the waterways were in some parts choked with willows. We observe that, whilst some of the submitters might contend that the waterways are pristine, that is unlikely to be the case where stock has access to them.

[374] In the main, those submitters who wished to be heard on this topic did not appear to fully appreciate that the natural environment in this area is highly modified from an ecological perspective. We do however acknowledge the efforts of Mr and Mrs Symonds, Mr Leslie and Mr & Mrs D & V Meares to improve the ecological values on their properties.

Terrestrial ecology

[375] Mr Hooson (for Meridian) and Dr Lloyd (for the Councils) gave evidence on this topic. Both experts attended expert conferencing, and agreed on certain mitigation measures which were finally resolved during the hearing. These measures are represented in proposed conditions 68 – 70.[206]

[376] Due to various refinements in the placement of turbines and road, almost all but 4.17ha of indigenous vegetation and habitat for indigenous fauna on the site will be avoided.[207] The 4.17ha comprises three indigenous vegetation habitat types being: silver tussock grassland; rock outcrop habitats; and indigenous shrubland containing small numbers of "At Risk" plants (namely *Aciphylla subflabellata* and *Einadia allanii*).[208]

[377] Meridian has agreed to the following conditions:

(a) To register a legally binding covenant which provides legal protection in perpetuity of at least the three areas of rock outcrop habitat labelled as 0.7, 0.9 and 0.3 ha on the map attached to the proposed conditions (proposed condition 68);

[206] Exhibit HGR1, 23 October 2012
[207] Mr Hooson, evidence-in-chief, paragraph [130]
[208] Joint statement of Dr Lloyd and Mr Hooson relating to Terrestrial Ecology, May 2012, paragraph [1]; Mr Hooson, evidence-in-chief, paragraph [130]

THE SEAL OF THE ENVIRONMENT COURT NEW ZEALAND

(b) Where the consent holder has to disturb or remove any of the "At Risk" plants as a result of the wind farm development, to establish and maintain an equivalent quantity of these plants on the site using direct vegetative transfer, planting or other appropriate methods (proposed conditions 69 and 70).

[378] No other party challenged these proposed conditions.

[379] We are satisfied that the proposed conditions will satisfactorily mitigate any potential adverse effects on the remaining 4.17ha of indigenous vegetation and habitat for indigenous fauna on the site that is unable to be avoided by the proposal. However, we direct the HDC to amend the conditions to provide for appropriate monitoring and reporting. Accordingly, we are satisfied that all potentially adverse effects on terrestrial ecology can either be avoided or mitigated.

Aquatic ecology

[380] Dr Lloyd (for the Councils) and Dr Keesing (for Meridian) agreed at expert conferencing that the potential for adverse aquatic effects arising from the proposal were generally negligible and required no mitigation, other than water discharges which might occur during construction. For this reason, Mr Wiles and Mr Breese (both of whom are involved for Meridian in the construction aspect of the proposal) also attended expert conferencing on this topic.

[381] Despite the above, the experts agreed that the catchments of the Tipapa Stream and upper catchments of the Motunau River have comparably higher aquatic ecological values than their neighbouring catchments. They agreed that it would be preferable to use spoil fill areas outside these catchments, but where that was not possible a process was agreed whereby discharges into those areas could be minimised. Conditions were proposed and agreed upon to meet any potentially adverse effects on these two catchments.

[382] The experts also agreed that the monitoring framework for aquatic values should incorporate a number of elements.[209] These provisions have also been

[209] Joint Witness Caucusing Statement (Mr Wiles, Mr Breese, Mr Keesing and Dr Lloyd) – Construction, Erosion & Sediment and Aquatic Ecology, 15 June 2012, paragraph [3]

THE SEAL OF THE ENVIRONMENT COURT NEW ZEALAND

incorporated in proposed conditions. We have already discussed some of these matters in the earlier section on construction.

[383] Mrs Symonds was concerned about the potential for discharged sediment or silt to fill up local pools, including an in-line pond in Cave Creek.[210] Meridian offered to measure the volume and amount of sediment accumulated in the pond on the Symonds' property before commencing earthworks and then again at the conclusion of the earthworks. Meridian also agreed to remove any deposited material which is an issue, nonetheless contending that the pond is expected to receive minimal additional suspended sediment.[211] We are satisfied that these measures would resolve any potential adverse effects of concern to Mrs Symonds, however we are not certain that Meridian's offer is reflected in the proposed conditions. We direct the CRC to amend the conditions, if necessary, to include this matter.

[384] Mrs Messervy was concerned that the construction of the wind farm would result in degradation of streams due to runoff from the roading associated with the project.[212] She was also concerned that fragile stream beds would be damaged. Mr Breese's evidence for Meridian, which was not significantly challenged in cross-examination, was that there is no risk of this occurring given the erosion and sediment controls proposed. This is particularly so given that the discharge of water from the existing farm track network will be improved by the replacement roading, and because there are no stream crossings associated with the proposal and therefore no work required directly in streams.[213] We accept this evidence. We are satisfied that these measures resolve any potential adverse effects of concern to Mrs Messervy.

[385] Mr Carr for Tipapa was concerned about the Tipapa Stream, which runs through his property. He described this stream as pristine. We do not doubt that Mr Carr genuinely believes the stream to be pristine, but we noted during our site visit to Tipapa that the part of the stream which we could see was unfenced, therefore enabling stock direct access to it. Mr Carr wished to secure a separate monitoring site in the Tipapa Stream near to where the stream enters his property. Dr Keesing was not averse to this suggestion. We deduce that this is provided for in the CRC's Schedule 1 General

[210] Dr Keesing, rebuttal evidence, paragraph [31]
[211] Dr Keesing, rebuttal evidence, paragraph [47] and Meridian submissions on ecological effects, paragraph 44.
[212] Mr Breese, rebuttal evidence, paragraph [32]
[213] Mr Breese, rebuttal evidence, paragraph [32] and Mr Wiles, rebuttal evidence, paragraph [61]

THE SEAL OF ENVIRONMENT COURT NEW ZEALAND

Conditions (condition 19(a)) but we direct the CRC to amend the conditions, if necessary, to provide for this matter.

[386] We conclude that the proposed conditions (as amended in this decision) satisfactorily mitigate the risk of adverse effects on aquatic ecology.

Herpetofauna (lizards and geckos)

[387] In his initial ecological survey of the site, Mr Hooson undertook a visual search for lizards at eleven different places[214] considered to be suitable habitat areas for herpetofauna. Early on in the survey, it became clear that Canterbury gecko were abundant in the greywacke outcrops on the plateau tops at the site.[215] The Canterbury gecko is described as a species "At Risk", being in gradual decline, and is a winsome animal, hiding in deep crevices in rock outcrops during the day and coming to life at night. Mr Hooson recommended that potential areas of habitat for the Canterbury gecko should be avoided, and if not possible, mitigated by implementing a trap and transfer programme in conjunction with the construction of long-term artificial habitat. The common skink was also recorded at the site, but it is not threatened.

[388] Dr Tocher (for HDC) reviewed Mr Hooson's evidence. She identified the main potentially adverse effects on herpetofauna as habitat disruption,[216] habitat fragmentation,[217] and ongoing disturbance through use of machinery on the roads and during construction.[218]

[389] Dr Tocher and Mr Hooson participated in expert conferencing and continued their dialogue during the hearing. Proposed conditions 62-67[219] now record the agreement between the experts about how any adverse effects on herpetofauna will be managed. Proposed condition 62 provides that the consent holder will, where possible, avoid adverse effects on rocky habitat by seeking advice from a suitably qualified and experienced herpetologist during the detailed design phase. Proposed condition 64(c) provides that there must be a survey prior to construction to identify appropriate

[214] Mr Hooson, evidence-in-chief appendix B, paragraph [2.7]
[215] Mr Hooson, evidence-in-chief, paragraph [60]
[216] Dr Tocher, evidence-in-chief, paragraph [4.11]
[217] Dr Tocher, evidence-in-chief, paragraphs [4.12]-[4.17]
[218] Dr Tocher, evidence-in-chief, paragraphs [4.18]-[4.23]
[219] Exhibit HGR1 23 October 2012

THE SEAL OF THE ENVIRONMENT COURT NEW ZEALAND

translocation sites for the Canterbury gecko and the Herpetofauna Management Plan must include both methods for the provision of alternative Canterbury gecko habitat at the relocation site, and relocation success criteria (proposed conditions 64(d) and (e)).

[390] We are satisfied that the proposed conditions satisfactorily mitigate any adverse effects on the Canterbury gecko and other herpetofauna.

Avifauna

Overview

[391] The potential risks for avifauna are:

(a) the loss of habitat, and

(b) the risk of death[220] from collision with wind turbines (known as "collision mortality").

The real issue was the risk of collision mortality rather than loss of habitat and the evidence focussed on this.

[392] To assess the extent of collision mortality risk, Mr Hooson for Meridian completed two studies (referred to in his evidence as the "Level 1 study" and the "Level 2 study") which included surveying the species of birds present at the site. These studies showed that most of the birds frequenting the site are introduced species. Of the native bird species observed to be present, Mr Hooson's opinion was that only a small proportion of them are active at heights that put them at risk of collision mortality and with the exception of the black-fronted tern, NZ pipit and NZ falcon, are not threatened species, but are widespread and abundant.

[393] Given the presence of a breeding pair of NZ falcon at the site, Dr Barea, an expert on this species was retained by Meridian to advise it on how best to protect this species. It has been assessed as being "*Nationally Vulnerable.*"

THE SEAL OF THE ENVIRONMENT COURT NEW ZEALAND

[220] Injury is less likely but included under this heading as well

[394] Dr McClellan (for the HDC) reviewed Meridian's evidence on the effects on avifauna. Her evidence focussed particularly on the potential risks to the NZ falcon and the black-fronted tern. Her view was that generally speaking the mitigation proposed for the NZ falcon was suitable, but she did not think that sufficient information had been provided by Meridian on the black-fronted tern. She recommended further survey work be undertaken.

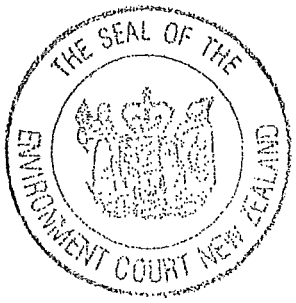
[395] Mr Onley, an ornithologist, and illustrator gave evidence for the Society. Mr Onley disagreed with methodology used for the risk assessment (specifically the use and application of avifauna survey methods and the timing of the surveys), the conclusions that could be reached from it given the amount of data obtained (he thought more surveys including nocturnal surveys needed to be done), and the extent of post-construction monitoring proposed.

[396] Several individual submitters were also concerned about the effects of the proposal on avifauna. Mr Meares and Mr Messervy asked selected questions of the expert witnesses. Mr Carr expressed concern about the impact on the birdlife he has observed to be present at Tipapa, including the paradise duck (which we were told mates for life), the Australian harrier, the NZ falcon and the pied-oystercatcher.

[397] The experts participated in expert conferencing and with the exception of Mr Onley had, by the end of the hearing, agreed on proposed conditions that in their view would avoid and mitigate any potentially adverse effects on avifauna. Essentially the proposed conditions require an Avifauna Panel to be convened of not less than three suitably qualified and experienced independent avifauna experts (proposed conditions 41 and 42) to make assessments and recommendations to the consent holder about:

(a) whether the adverse effect on any bird species listed as "*Threatened*" (*nationally critical, nationally endangered or nationally vulnerable*) or "*At Risk*" (*declining, recovering, relict or naturally uncommon*) is more than minor, and if so any remediation or mitigation measures to reduce that effect so that it is no more than minor; and

(b) the adequacy of the bird monitoring required by conditions 49-60.



[398] The consent holder will be required to implement any recommendations of the Avifauna Panel (proposed condition 46), and if it fails to do so then the HDC may review any or all avifauna-related conditions (proposed condition 47).

[399] There was an issue about what was meant by "*more than minor*". Meridian referred us to ***Foodstuffs (South Island) Limited v Queenstown Lakes District Council***[221] where the Court held that:

> ...whether adverse effects are "minor" or "more than minor" depends on the circumstances and context. ... any adverse effect which changes the quantity or quality of a resource by under 20% may, depending on context, be seen as minor.

[400] The Court recognised that:

> ... where a significant habitat of a threatened indigenous species is at risk in a region where the species' population has already reduced to 20% of its former population, even a small (say 1%) reduction in its habitat or population may be more than minor. It depends on the species, the factors on which its population viability depend and the margins of error in the analysis.[222]

[401] In answer to questions, however, it was accepted that this case concerned an application for a non-complying activity where one of the threshold tests under s104D is whether the adverse effects of the activity on the environment will be minor. This case does not require an assessment under s104D as the activity we are considering is not non-complying. We agree that the question of measuring an adverse effect depends on the quantity or quality of the resource, but we do not necessarily accept the percentage referred to in ***Foodstuffs*** as being definitive across the board in all situations. Each case will depend on the facts that are presented.

[402] There was an issue about whether or not the Avifauna Panel might be required to determine matters that offended against the principle of non-delegation of judicial powers.[223] We accept that the case law confirms that the Court may confer upon some other person the function of settling matters of detail in a condition imposed, where the matter is to be settled according to that person's own standards based on that person's own skill and experience as a certifier. We agree that the proposed conditions require the Avifauna Panel to exercise a judgment rather than to resolve a dispute, and for this reason

---

221 [2012] NZEnvC 135, paragraphs [72] and [74]
222 Ibid, paragraph [72]
223 ***Olsen v Auckland City Council*** [1998] NZRMA 66 (HC) page 10

THE SEAL OF ENVIRONMENT COURT NEW ZEALAND

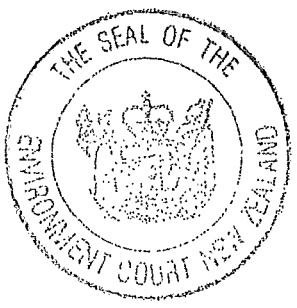
the proposal does not in our view offend the principle of non-delegation of judicial powers. We also agree that as the effect on each species will be different depending on a number of factors relevant to that species, it would be unwise to seek to define "*more than minor*" in the conditions. We are satisfied that the Avifauna Panel is well placed to exercise this judgment.

[403] We deal next with the general issue relating to the sufficiency of pre-construction data, before moving on to consider the specific risk assessments for the NZ falcon, NZ pipit, black-fronted terns and shorebirds. We will then consider the adequacy of the proposed post-construction monitoring conditions.

Has sufficient pre-construction data been obtained?

[404] There is a risk of collision mortality to the bird species frequenting the site. As Mr Onley pointed out, the post- monitoring data obtained from the West Wind site shows a collision mortality rate of 5-6 birds per turbine per year. No doubt some people will find any loss of birdlife in this manner to be unacceptable but the RMA is not a "no effects" statute. The question for us is whether or not in the end analysis the effect of collision mortality from wind turbines on a particular bird population can be said to be adverse.

[405] The key question for us is whether we can rely on the bird surveys and monitoring undertaken so far, and the further monitoring proposed, to provide adequate data to support the predictions about collision mortality. Mr Onley made a number of very good points about the paucity of general bird census information in New Zealand. He was well placed to do so, because before coming to New Zealand in the 1970s, he lived in England where he studied geography at Cambridge University before working for the British Trust for Ornithology, and then at the Edward Grey Institute for Field Ornithology at Oxford. We acknowledge Mr Onley's evidence that, compared to Britain, in New Zealand there are fewer volunteers participating in bird surveys. As well, until recently the official (as opposed to volunteer) data collection for avifauna has typically been undertaken by the Department of Conservation or those studying at universities. It is not surprising, therefore, that the data collected has focussed on indigenous species and more particularly on those that may be at risk.



[406] The bird survey methodology used by Mr Hooson was set out in detail in the Avifauna Report. Mr Onley thought that more frequent point counts should have been used and a more robust bird census to establish the birds frequenting the site both during the day and at night. Essentially Mr Onley's point was that not enough data has been collected to enable reliable predictions about effects on bird species to be made. He also considered that the risk assessment should take into account the proportion of the population of each species that are present at the site,[224] cautioning that widespread and common species should not be dismissed as being beyond risk.[225] He was wary of averaging out the predicted mortality rates and interpreting the significance of them to national rather than local populations.[226]

[407] Mr Hooson argued that the methodologies upon which the avifauna surveys were based are specifically designed for assessing the impacts of wind farms on birds, and are well-developed both in New Zealand and overseas.[227] During the Level 2 study fixed period counts were used and Mr Hooson told us that these are a standard bird utilisation method used at wind farm sites.[228] He told us that these methods are based on guidelines developed in Australia and Canada, and are the most common method employed for generating quantitative data on bird use at a potential wind farm site.[229]

[408] Whilst Mr Hooson disagreed that the methodology used was insufficient,[230] proposed conditions 49-50 now provide for an additional year of pre-construction monitoring and include the bird breeding season of August, September and October. Further pre-construction monitoring can be required by the Avifauna Panel if this monitoring shows that local or national populations are likely to be adversely impacted in sufficient numbers by mortality from collisions.

[409] In relation to the common species observed at this site, the effect cannot be described as adverse, but we accept this depends on the accuracy of the predicted mortality rate. We are satisfied that the proposed conditions establishing the Avifauna

---

224 Mr Onley, evidence-in-chief, paragraph [31]
225 Mr Onley, evidence-in-chief, paragraph [28]
226 Mr Onley, evidence-in-chief, paragraphs [29].
227 Mr Hooson, rebuttal evidence, paragraph [70]
228 Mr Hooson, rebuttal evidence, paragraph [74]
229 Mr Hooson, rebuttal evidence, paragraph [74]
230 Mr Hooson, rebuttal evidence (Dr McClellan), paragraphs [53]-[68];Joint statement of avifauna experts, 13 June 2012, paragraph [9]

THE SEAL OF THE ENVIRONMENT COURT NEW ZEALAND

Panel means that any bird species that is found to be represented in the collision statistics is able to be addressed by them.

[410] We agree that in an ideal world there would be more data available about bird populations in particular parts of New Zealand, but we observe that the responsibility for improving this is a collective responsibility. We do not agree that this should be the task of Meridian to the extent proposed by Ms Meares, Mr Onley or Mr Carr, but it is certainly open to those in the community to do something about the lack of data should they choose to do so. Overall, we are satisfied that the data collated by Mr Hooson is adequate for us to reach an informed view about the risk of collision, and we are also satisfied that the proposed conditions are nimble enough to respond should there be unanticipated adverse effects on any non- threatened population species.

[411] The more particular focus should however be on indigenous species and it is appropriate that those threatened or at risk populations receive closer scrutiny and attention than those that are not. Mr Messervy referred to morepork and the shining cuckoo at Greta Valley, but neither species are threatened or at risk. Mr Onley suggested nocturnal surveys, but Dr McClellan and Mr Hooson did not think these were required. Dr McClellan's view was that a well-designed and thorough collision mortality monitoring programme is the preferred manner for detecting the mortality of all bird species that use the site.[231] We agree with Dr McClellan. We are persuaded that nocturnal surveys are not required at this point.

NZ falcon

[412] The initial assessment by Mr Hooson identified a resident breeding pair of falcons on the site. Because they are a threatened species, Dr Barea a falcon expert was retained to advise Meridian on this topic.

[413] Dr McClellan brought her expertise to bear on the topic for the HDC and Mr Onley also did so for the Society. The experts attended expert conferencing before the hearing, and by the end of it Drs Barea and McClellan had reached agreement that any adverse effects arising from the proposal on the NZ falcon could be successfully mitigated by conditions. The proposed conditions contain specific provisions relating to the NZ falcon.

[231] Dr McClellan, supplementary evidence, paragraph [13 (c)]

THE SEAL OF THE ENVIRONMENT COURT NEW ZEALAND

[414] Mr Onley described the data obtained for the breeding pair on the site as a step up from that which had been done for other wind farm sites, but he was not convinced that enough data had been collected for other non-resident falcons using the site. He referred to information from the Ornithological Society which suggested that falcons move around a lot in the autumn and his understanding that a breeding pair of falcons at the White Wind site have continued to nest on the site, despite one of their nests having been removed.

[415] In relation to the NZ falcon we will deal first with whether there has been enough data collected to predict the risk of collision mortality and then with our assessment of the adequacy or otherwise of the proposed mitigation.

Has enough data been collected to predict the risk of collision mortality for the NZ falcon?

[416] The initial assessment by Mr Hooson, later aided by Dr Barea, identified the resident pair of NZ falcons had successfully nested within the proposed site for the 2009/2010 and 2010/2011 breeding seasons. The pair was monitored over both years to assess their breeding success, and they were radio-tracked over the 2010 winter and subsequent breeding season to assess their use of habitat and home range within the context of the site. Based on this data and his knowledge of falcons, Dr Barea described the potential for loss of habitat for the falcons to be inconsequential. The real risk related to the potential for the falcons or their offspring to collide with the turbines. The data collected about the movement patterns of this pair was used in a collision-risk model, to estimate the probability of this risk eventuating.[232]

[417] The collision risk modelling undertaken by Dr Barea estimated that, on average, the time between potential collisions for the resident adult falcons would be approximately 4-5 years, and every 50 years for juveniles during a 3-month pre-dispersal period, after which they are expected to disperse from the site. If there was a collision, Dr Barea's opinion was that it would constitute a local adverse effect, but not a significant effect at an overall population level.[233] Drs Barea and McClellan agreed that the risk of collision is likely to be low, with Dr Barea considering it to be very low based

[232] Dr Barea, evidence-in-chief, paragraph [1]
[233] Dr Barea, evidence-in-chief, paragraph [5]

THE SEAL OF THE ENVIRONMENT COURT NEW ZEALAND

on the available literature on falcon home-range size, and frequency of long distance movements.[234]

[418] Mr Onley did not think that the assessment went far enough to address the use of the site by non-resident falcons particularly breeding pairs,[235] but Dr Barea did not support Mr Onley's view, that a wider survey area was required. Dr Barea thought that such a survey beyond the hill country into the wider landscape would be ineffective, as in his view, the wider landscape is unlikely to contain suitable falcon nesting habitat due to the conversion of indigenous vegetation to pasture, and the absence of landscape features such as hill country gullies that falcons usually select for nesting.[236] Dr McClellan noted that the use of the site by non-resident falcon remains unknown.[237]

[419] Whilst not wishing to derogate from Mr Onley's considerable expertise as an ornithologist of many years, and despite Dr McClellan's view, we are satisfied that we can rely on Dr Barea's opinion on this issue, given his specialised expertise in relation to falcons. We accept, however, that the predictions made by the modelling would need to be closely assessed against the actual experience of the monitored site when the wind farm is operational.

Is the proposed mitigation sufficient?

[420] Dr Barea proposed, and Meridian has accepted, that a specific Construction Falcon Management Plan is required (proposed condition 52(b)).[238] This requires a report to be prepared by a suitably qualified independent ecologist familiar with falcon reproductive behaviour that:

(a) details the monitoring of the falcons in the season that construction will occur to determine whether they are nesting or not;

(b) outlines a process for transferring falcon eggs or nestlings to an appropriate facility, and the subsequent release of fledglings within the Motunau

234 Joint Statement of Avifauna Experts, 13 June 2012, paragraph [7]
235 Mr Onley, evidence-in-chief, paragraph [38]
236 Dr Barea, rebuttal evidence, paragraph [14]
237 Dr McClellan, supplementary evidence, paragraph[8]
238 Exhibit HGR1, 23 October 2012

THE SEAL OF THE ENVIRONMENT COURT NEW ZEALAND

Ecological District if falcons are found to be nesting within 500m direct line-of-sight of any locations where construction activity is visible; and

(c) outlines the process for restricting construction to distances 200m beyond any nest while active, where it is less than 500m from construction activities but not within direct line-of-sight.

[421] The proposed conditions also require a Falcon Release Management Plan (proposed condition 52(c)) again to be prepared by a suitably qualified independent ecologist familiar with falcon reproductive biology and falcon release programmes which details the release programme, and makes provisions for eight juvenile falcons to be released by the hack method in the Motunau Ecological District every ten years from the date any wind turbine first generates electricity.

[422] Drs Barea and McClellan agreed that the release programme is sufficient to offset any mortality caused by the turbines,[239] thereby providing a conservation gain rather than simply a no-net-loss approach.

[423] Mr Onley disagreed with Drs Barea and McClellan that the Construction Falcon Management Plan provisions provided a suitable avoidance option.[240] His main concern was that the release of juvenile falcons would place them at risk from turbine strike.[241] Whilst we accept it was legitimate to raise this as an issue, the intent of the Construction Falcon Management Plan is to release the fledglings in a suitable location away from the site, but in the Motunau Ecological District, and we are mindful of Dr McClellan's evidence that the captive rearing and release of falcon is a proven technique for establishing or augmenting populations. We refer to Dr McClellan's opinion that the birds released away from the wind farm site will be at lower risk of collision.[242] We are mindful of what Mr Onley told us about a breeding pair at White Wind, but we were not provided with any context to this statement that means we are able to give it much weight.

---

239 Joint Statement of evidence Avifauna Experts, 13 June 2012, paragraph [8].
240 Mr Onley, evidence-in-chief, paragraph [40]
241 Mr Onley, evidence-in-chief, paragraph [40]
242 Dr McClellan, supplementary evidence, paragraph [9]

THE SEAL OF THE ENVIRONMENT COURT NEW ZEALAND

[424] Meridian submitted that it has adopted a very conservative approach, by assuming that loss will actually occur, but it of course may not.[243] We accept that the establishment of a pair in the absence of loss would represent an enhancement to the falcon population.[244] The evidence from Dr Barea establishes that even if, during any 10 year period, the resident falcons are lost from the site, the outcome is expected at a minimum to be one of "*no net loss*".[245] If this proves to be incorrect, then the proposed conditions permit the Avifauna Panel to make recommendations to ensure any effects are "*not more than minor*". We agree that this addresses Mr Onley's concern about the accurateness of the risk assessment for non-resident falcon that occasionally use the site, although we also agree with Dr McClellan that this situation needs to be carefully monitored.

[425] Overall, we are persuaded by the evidence of Drs Barea and McClellan that the proposed mitigation measures deal responsibly and appropriately with any potential adverse effects of the proposal on the NZ falcon and in particular the breeding pair resident on the site. We are satisfied that the intent of the proposed conditions is at the least to provide a "*no net loss*" to this species, but there is a strong possibility, in our view, that it will in fact result in a conservation gain for the species.

[426] We are satisfied that any adverse effects on the NZ falcon can be mitigated by the proposed conditions, subject to amendments to provide further clarity in relation to the implementation, monitoring and reporting of the management plan. As we read the proposed conditions: condition 53 requires the consent holder to implement the "construction and post-construction avifauna monitoring and management plan" (of which the falcon management plans are a part); and conditions 54 and 55 require monitoring and reporting of bird strike; but we do not understand there to be a condition requiring monitoring and reporting of the falcon management plans. We direct the HDC to amend the proposed conditions, if necessary, to provide for monitoring and reporting in relation to all parts of the avifauna plan required under condition 52. We also consider that it would be helpful if the bird collision matters listed in condition 52(a) were linked (or cross referenced) to the bird strike requirements under conditions 54 and 55.

---

[243] Dr Barea, rebuttal evidence, paragraph [9]
[244] Dr Barea, rebuttal evidence, paragraphs [9] and [30]
[245] Dr Barea, rebuttal evidence, paragraph [9]

THE SEAL OF THE ENVIRONMENT COURT NEW ZEALAND

[427] At this point we record that in general there needs to be some rationalisation of the avifauna conditions in particular, and some more consistency in the conditions overall. For example, monitoring and reporting is required of the herpetofauna management plan under conditions 66 and 67, and similar provisions should apply to other management plans. There is also some confusing overlap/duplication between the numerous avifauna conditions: for example amongst the groups of conditions (49, 50, 51) and (52, 54, 55) and (56 – 60). Accordingly, we direct the HDC to review all of the conditions (and in particular those relating to avifauna) and to amend them to rationalise them and to provide consistently for monitoring and reporting.

NZ pipit

[428] The NZ pipit is a species that has been assessed as *At Risk (Declining)*. During Mr Hooson's surveys this species were recorded as being present over the turbine footprint at turbine blade height for 21% of the observations. [246] Mr Hooson's opinion was that this represents a moderate collision risk for this species at the site, which may have an impact at the local population level. His overall view was that this is unlikely to result in adverse effects for the overall New Zealand population.[247]

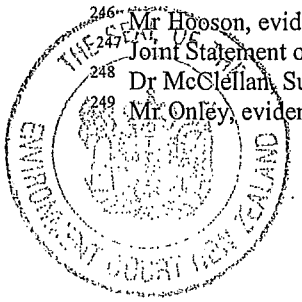
[429] Dr McClellan in her supplementary evidence specifically dealt with the NZ pipit.[248] Whilst accepting that the local population level might be impacted by collision with turbines, in her view there is unlikely to be any population effect. This is because, while birds resident or moving through the site are fairly at risk of collision, the species is widespread throughout much of New Zealand and is relatively common.

[430] Mr Onley was not convinced. He was concerned that the approach by the other experts was an example of the danger of assuming that the numbers of a species recorded in a survey is necessarily a good indication of the total population using the site.[249]

[431] We accept the evidence of Mr Hooson and Dr McClellan that there are unlikely to be adverse effects on the national NZ pipit population should some species mortality occur as a result of turbine collisions, but we cannot ignore that there could be a local population impact and that the status of this species is *At Risk (Declining)*. In our view, it

---

246 Mr Hooson, evidence-in-chief, paragraph [94]
247 Joint Statement of Avifauna Experts, 13 June 2012, paragraph [18]
248 Dr McClellan, Supplementary evidence, paragraph [13b]
249 Mr Onley, evidence-in-chief, paragraph [29]-[31]



is unclear whether or not the NZ pipit at a local level is potentially at risk of being adversely impacted by the proposal. Nonetheless we think that careful monitoring of this species by the Avifauna Panel will be sufficient to mitigate any adverse effects on this species. The current proposed conditions (conditions (49, 50 and 51) coupled with proposed conditions 43 and 44) enable the Panel to require further pre-construction monitoring and/or make recommendations should the additional monitoring in proposed condition 49 reveal a risk that sufficient number of NZ pipit might be impacted by collision mortality. Given the evidence we have heard we consider it is necessary to identify the NZ pipit by specifically listing it as a species to be addressed in the conditions included under the heading "Avifauna Management". We direct the HDC to so amend the conditions.

The black-fronted tern

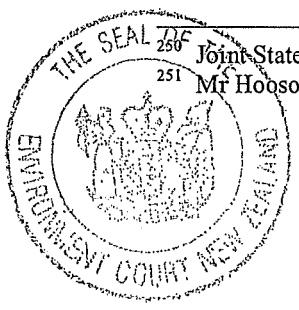
[432] The black-fronted tern has been assessed as *Threatened (nationally endangered)*. At expert conferencing Mr Onley and Dr McClellan expressed the view that insufficient data had been provided about the presence of this species at the site to determine the potential impact of the proposal on it.[250] Since then, an interim Pre-Construction Avifauna Monitoring Report has been prepared which presents the findings of all the survey data collected between November 2009 to January 2010, and November 2010 to July 2011, and this includes detailed information on the use of the site by black-fronted tern.[251]

[433] Based on the information currently available, Mr Hooson considers that the risk to the black-fronted tern population is likely to be low because:

(a) black-fronted terns are not resident at the site, but appear to be infrequent seasonal visitors;

(b) black-fronted terns were not recorded during 179 hours of formal point count surveys;

(c) no birds were observed during the six-month period of surveys between February and July;



250 Joint Statement of Avifauna Experts, 13 June 2012, paragraph [19]
251 Mr Hooson, Rebuttal evidence, paragraph [55]

(d) the majority of the observations during the roaming counts were away from proposed turbine locations;

(e) black-fronted terns generally have excellent flight manoeuvrability;

(f) internationally, terns have suffered low rates of mortality at wind farms, with the exception of three sites in Belgium;[252] and

(g) in a recent review of the potential impacts of New Zealand wind farms on New Zealand birds, the Department of Conservation concluded that it is likely that the black-fronted tern population would be compromised if wind turbines were erected within or adjacent to nesting colonies or where terns congregate to forage.[253]

[434] We are satisfied given this additional information that the risk to the black-fronted tern population is likely to be low. However as an additional safety measure in our view it should be specifically addressed and listed, in the same way as we have directed for the NZ pipit, in the further monitoring and management required in the conditions under the heading "Avifauna Management".

Migrant shorebirds

[435] Proposed conditions 56-60 now provide specifically for additional monitoring of migrant shorebirds prior to construction. Essentially, the proposed conditions require the following:

(a) the monitoring programme for migrant shorebirds must have its methodology approved by the Avifauna Panel, and the programme must be supplied to it;

(b) monitoring must be undertaken during one northward (summer) migration (January-February) and one southward (winter) migration (July-August);

(c) monitoring must be undertaken from a sufficient number of locations to ensure adequate average of the site (as determined by a suitably qualified and experienced avian ecologist) to record the flight paths of birds moving across the site;

---

252 It was noted that one of these sites turbines were sited close to gull and tern nesting colonies.

253 Mr Hooson, Rebuttal evidence, paragraph [56]

THE SEAL OF THE ENVIRONMENT COURT NEW ZEALAND

(d) if migrant shorebirds are recorded crossing the proposed wind farm site in sufficient numbers to indicate that mortality from collisions could impact regional or national populations, as determined by the Avifauna Panel, then a further monitoring programme must be undertaken prior to construction activities commencing, to identify any potential adverse effects on migrant shorebirds and how to appropriately avoid, remedy or mitigate them;

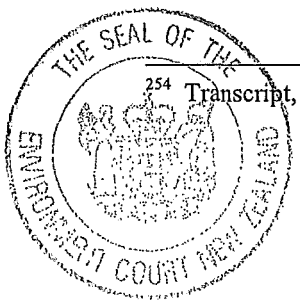
(e) the consent holder must supply the consent authority and the Avifauna Panel with a report prepared by a suitably qualified and experienced avian ecologist on the monitoring undertaken pursuant to conditions 56-69, and the report must be submitted within 3 months of completion of the monitoring.

[436] As a result, Dr McClellan agreed that her concerns about migrant shorebirds had been addressed. Mr Onley, whilst pleased to see the improvements to the proposed conditions, did not think sufficient detail had been provided to deal with different migrant shorebirds patterns such as the North/South migrations in August/September and the coastal/inland migration that might involve nesting inland from July- September.[254] In his view the type of monitoring needed to be more detailed. He recommended sound recording which in his view was quite cost effective.

[437] We are satisfied that the proposed conditions for migrant shorebirds are a step in the right direction. Whilst we tend to agree that more work needs to be done about the detail of the monitoring required, in our view the Panel will be in a good position to review the proposed monitoring programme and make recommendations about what might be required. The proposed conditions provide for such a process.

Is the monitoring proposed post-construction adequate?

[438] All of the experts agreed that bird strike monitoring needs to done regularly and thoroughly. The disagreement was about the frequency of the checks. Proposed condition 52(a) requires monitoring protocols for bird collision to be included in the avifauna management plan, and condition 54 specifies in further detail that the consent holder must monitor the instances of bird strike at the wind farm as follows:



[254] Transcript, 1 October 2012, page 1919.

(a) within the first two years of operation (commencing from the date all wind turbines are generating electricity, or within six months of any wind turbine first generating electricity, whichever is earlier), retrieving any bird carcases or other signs of bird strike, including feather spots or partial carcases, on a fortnightly basis;

(b) recording the retrieval of any sign of bird-strike, including feather spots and partial or whole carcases at the site, including the date and location on a New Zealand map grid coordinate;

(c) recording the identification of and if possible the age class (ie juvenile or adult) of any injured bird, including the date and its location on a New Zealand map grid coordinate; and

(d) recording of any injured bird or carcases of the bird species listed as "*Threatened*" or "*At Risk*" and assuring that, if it is on such a list, it is assessed by a suitably qualified and experienced independent veterinarian to, where possible, record each specimen's species, age class (ie. juvenile or adult) and probable cause of injury or death.

[439] A detailed annual report on the bird strike monitoring under condition 54 must also be provided to the consent authority and the Avifauna panel under condition 55.

[440] Ms Meares, in her cross-examination of Mr Hooson, challenged how effective fortnightly monitoring would be, given that it does not necessarily take into account the removal of bird carcasses by predators. Mr Hoosen thought that the fortnightly monitoring was adequate and more frequent than that which was undertaken at most wind farm sites. We agree with Ms Meares that absence of evidence is not evidence of absence. Nonetheless, a balance must be achieved. The conditions provide for the monitoring protocols and reporting to be prepared by an avifauna expert and for it to be reviewed by the Avifauna Panel. Again we consider that this Panel will be well placed to recommend any changes that may be considered appropriate.

[441] Mr Onley suggested that the monitoring results should be made more public, so as to provide more of a data base on the overall effect of wind farms on avifauna. Whilst a laudable idea, we are not certain whether or not Meridian had concerns about making detailed information publicly available, particularly if other consent holders may not be

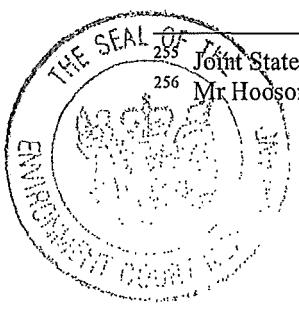
THE SEAL OF THE ENVIRONMENT COURT NEW ZEALAND

so required. It is unclear whether or not this is already provided for in the proposed conditions. It seems to us that the combination of the reporting to the Avifauna Panel and to the consent authority, along with the operation of the Community Liaison Group may already provide for this, at least during early years. We direct the HDC to consult with Meridian and to clarify the conditions relating to making reports and information publicly available.

Other proposed avifauna conditions

[442] Mr Onley's opinion was that Meridian's resource consent conditions should specify blade strike mortality thresholds for species of concern.[255] Dr McClellan and Mr Hooson disagreed that this requirement is needed until it is known what actual effects there are (if any).[256] We agree. Proposed condition 46 requires the consent holder to implement any recommendation by the Avifauna Panel so as to ensure the effects of the wind farm on any bird species listed as "*Threatened*" or "*At Risk*" are not more than minor. We are satisfied that these proposed conditions are a better way to deal with any effects as they are revealed.

[443] We must note that proposed condition 48 provides that the Avifauna Panel will be disbanded if, after five consecutive years (starting on the date any wind farm turbine first generates electricity) the monitoring of any conditions 49-60 demonstrates that there are not more than minor effects on bird species listed as "*Threatened*" or "*At Risk.*" The exception to this is if proposed condition 61 applies. Proposed condition 61 enables reduced monitoring to occur in certain circumstances. It provides that if two years of monitoring, in accordance with conditions 49-60 shows that the operation of the wind farm in the opinion of the Avifauna Panel is having no or a minimal effect on "*Threatened*" or "*At Risk*" species, monitoring may be reduced in frequency to the level as advised by the Panel, or discontinued following agreement with the consent authority. We agree that it is appropriate to provide for such conditions in the event that the effects do not warrant continued monitoring. However it would be more helpful if these two conditions were scheduled together in the suite of conditions. This is a matter that the HDC is to consider as a part of the overall rationalisation of the conditions that we have directed them to undertake.



255 Joint Statement of Avifauna Experts, 13 June 2012, paragraph [23]
256 Mr Hodson, Rebuttal evidence, paragraph [99]

Conclusion - avifauna

[444] Overall, we are satisfied that the proposed conditions with the amendments we have directed will appropriately avoid, remedy or mitigate any potentially adverse effects on avifauna.

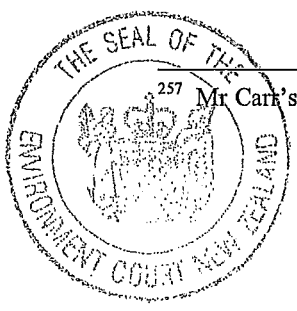
Recreation and Tourism

Overview

[445] Some submitters, in particular the Society, Mr Thomas and Ms Vincent (vineyard owners from Waipara) and Mr Carr for Tipapa, argued that the wind farm would have an adverse effect on recreation values and tourism activities near the site. This opposition was based on the premise that the visual and/or noise effects arising from the proposal would impact to such a degree on the amenity of the area that potential tourists and users of recreation facilities nearby would be deterred from participating in what the area has to offer. Mr Thomas contended that the combined effect of the Mt Cass wind farm and this proposal would impede Waipara's ability to develop fine wine tourism. Mr Carr contended that the impact on his business at Tipapa would be "so *great and so disastrous that it will damage the entirety of my business and my investment*".[257] Meridian and the HDC disagreed.

[446] The evidence on this topic was given by: Mr Greenaway, a consultant leisure and open space planner (for Meridian); Mr Burns, an independent tourism sector director and advisor with a commerce background (for HDC); Mr Pearson, a tourism manager with a resource management and tourism background (for the Society); Mr Carr for Tipapa; and Mr Thomas.

[447] We will first outline what tourism and recreation activities are available near the site, before analysing the potential effects of the proposal on these activities, with specific reference to the Waipara area and Tipapa.



[257] Mr Carr's mini-opening on Tourism

What are the current recreation and tourism activities near the site?

[448] The proposed site is within the Alpine Pacific Triangle, a marketing area designed to delineate the main centres of tourist activity within the Hurunui District. The main tourist destination is Hanmer Springs, with the northern-most tip of the triangle offering tourism activities at Kaikoura and the southern-most tip of the triangle comprising the Waipara region. Of the three, the Waipara region is nearest to the site and the least developed as a tourist destination.

[449] The Waipara region is promoted for its vineyards, wineries and other local produce.[258] It is also associated with the Weka Pass Railway, walking tracks and a nature reserve.[259]

[450] Nearer to the site, the recreational activities included Motunau Beach (popular for camping, fishing, surfing and diving activities),[260] the Scargill Golf Course and Domain, and the Omihi Reserve (a social and sporting facility that hosts the Glenmark Rugby Club). In Greta Valley there is the Cafe and Bar and several accommodation options including the Greta Valley Camping Ground and bed and breakfast-style services.

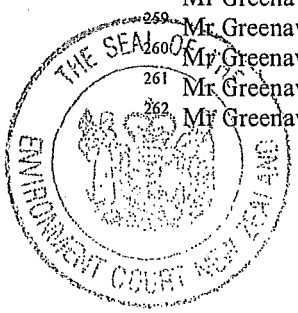
[451] There is also Tipapa, which offers the activities previously described on a seasonal basis from October to April.[261]

What does the research say about the relationship between tourism and wind farms?

[452] As part of his evidence, Mr Greenaway reviewed the available international research on the effects of wind farms on tourism and recreation activities. He was the only expert to do so. This literature review indicated that there is a mix of reactions to wind farms from a tourism perspective, but the trend was generally neutral, and is often positive.[262] In his opinion this was because wind farms are rarely built in areas with high tourism profiles. Of the international studies, Mr Greenaway referred to a number of surveys, mostly undertaken in England, Wales and Scotland, with one study being undertaken in Australia.

---

[258] Mr Greenaway, evidence-in-chief, paragraphs [44]-[45]
[259] Mr Greenaway, evidence-in-chief, paragraph [45]
[260] Mr Greenaway, evidence-in-chief, paragraph [42]
[261] Mr Greenaway, evidence-in-chief, paragraph [43]
[262] Mr Greenaway, evidence-in-chief, paragraph [60]



[453] He also referred to a UMR research study (UMR 2007) completed for Meridian Energy in 2007 based on a telephone survey of 500 Otago residents, and information from Destination Manawatu about visitors in one weekend in 2004 at the Te Apiti wind farm visitors' area.

[454] In relation to recreational settings Mr Greenaway referred to the Stevenson and Ioannou 2010 study, which indicated that more than 81% of New Zealanders were supportive or very supportive of wind energy, and a similar proportion (80%) support wind farms in New Zealand.[263] Mr Greenaway was careful not to infer from this that there was a correlation with a positive or negative effect on recreation and tourism satisfaction or uptake, but in his view it shows that amongst the domestic market there is a high level of support for wind farms as elements of the national landscape, and they should not be considered purely as a negative addition to a recreational setting.[264]

[455] In summary, Mr Greenaway's conclusion from the research was that while there is a segment of the tourism and recreation population who may consider wind farms have an adverse effect on their experience, there is no evidence to suggest that a wind farm will have negative effects on tourism and recreational activity generally. Mr Greenaway was, however, careful to note that his assessment was partly dependent on the intentional findings being transferable to this setting.

What are the potential effects on recreation values and tourism activities?

[456] Mr Greenaway accepted that the visibility and audibility of the turbines had the potential to adversely affect amenity and thereby recreation and tourism activities.[265]

[457] Mr Greenaway's opinion relied in part on the evidence of Dr Chiles and Mr Rough about noise and visual effects. But an important factor also, in Mr Greenaway's assessment, was his view that there is little tourism or recreation activity in the area which defines itself by the landscape setting of Centre Hill. Compared to Kaikoura and Hanmer Springs, which are attractive destinations because of the landscape, Mr Greenaway's opinion was that the landscape in this area was an addition to the visitor

263 Mr Greenaway, evidence-in-chief, paragraph [61] and Appendix A
264 Mr Greenaway, evidence-in-chief, paragraph [61]
265 Mr Greenaway, evidence-in-chief, paragraph [80]

THE SEAL OF THE ENVIRONMENT COURT OF NEW ZEALAND

experience, rather than the purpose of it.[266] Mr Greenaway did, however, accept that Tipapa treated its setting as a destination in itself.

[458] Mr Burns' evidence focussed primarily on the tourism sector, that being his particular area of expertise. He agreed with Mr Greenaway that there will be no adverse effects in the overall perception of Hurunui District as an attractive destination to visit for domestic and international tourists. He did not think there would be any impact on visitors previously unaware of the wind farm travelling past it; proffering the opinion that it is likely to be neutral from a tourism perspective.[267] Neither did Mr Burns believe there would be a cumulative effect arising from the Mt Cass wind farm, and this proposal. He did accept that there is likely to be minor impact on quiet recreation and enjoyment for some Greta Valley and Centre Hill residents, but not to the extent it would impact on tourism.[268]

[459] Mr Burns did not consider Centre Hill and Greta Valley as visitor destinations for Hurunui District, referring to the Hurunui Tourism Strategy 2015 completed in June 2011. He noted that there are no attractions or accommodation in these areas that feature in the official 2011 Visitor Guide for Hurunui District.

[460] Mr Pearson (for the Society) was previously the Hurunui Tourism Manager (Alpine Pacific Tourism) from May 2004 to July 2009. He considered that the wind farm would have adverse effects on the recreation values and tourism activities in the Hurunui District.

[461] Given the different characteristics of the Waipara region and Tipapa, we will focus on the evidence in relation to each of these separately.

The Waipara region

[462] The two issues for the Waipara winegrowing area were expressed as the visual impact from turbines from this proposal, and the cumulative effect of this when considered in conjunction with the turbines recently consented for Mt Cass. Mr Burns' opinion was that the Mt Cass wind farm would have more of an impact on visitors to

[266] Mr Greenaway, evidence-in-chief, paragraph [80]
[267] Mr Burns, evidence-in-chief, paragraph [9]
[268] Mr Burns, evidence-in-chief, paragraph [12]

THE SEAL OF THE ENVIRONMENT COURT NEW ZEALAND

Waipara than this proposal because of the wider range of views of it heading north or south on SH 1, on SH 7 and within the Waipara Valley.[269]

[463] Mr Burns acknowledged that the Waipara Valley is considered a growing visitor destination that would be compromised by a much larger cumulative wind farm footprint. He acknowledged, as was a theme in Mr Thomas' evidence that wine tourism experiences are as influenced by the distinctive dedicated landscape the vineyards often occupy, as by the food and the wine tasting elements.[270] Nonetheless, in cross-examination he somewhat mediated the view that appeared in his written evidence by expressing the opinion that those interested in a fine wine experience will be more influenced by the quality of the wine than other factors, although still maintaining that these would have some influence.[271] Mr Burns also said that an established wine industry does not mean that wine tourism will establish in a region. He saw other barriers preventing this from occurring in Hurunui District, not the least of which was infrastructure and human capital restrictions.

[464] Mr Thomas and Ms Vincent were particularly passionate about the importance of terroir on the fine wine experience. Their vineyard has recently been planted and is not yet in production. We visited it, and it is situated on the slopes of the hills below the Mt Cass ridgeline off SH1. Mr Thomas explained that the fine wine value was to be obtained from cellar door sales and, whilst not saying as much, it seemed to us that this was the direction in which he and Ms Vincent were planning to head, but that will be some years away.

[465] Whilst not doubting Mr Thomas' passion, or indeed his experience, knowledge and ability as a winemaker, it is too early in the life of the vineyard for us to draw any real conclusions about whether Mr Thomas and Ms Vincent are likely to find themselves in the market to which they aspire. What we did observe was some fairly established vineyards in the Waipara region and we were told, and accept, that some of the wine from this region is indeed fine wine. We did not hear from any other vineyard owners or operators.

---

269 Mr Burns, evidence-in-chief, paragraph [26]
270 Mr Burns, evidence-in-chief, paragraph [26]
271 Transcript, pages 2169-2170

THE SEAL OF THE ENVIRONMENT COURT NEW ZEALAND

[466] To put a balance on the visual impact of wind turbines, however, we must bear in mind the consented Mt Cass wind farm and, to a limited degree, the existence of other structures in the landscape including the use by some vineyards of frost fans. We accept that the frost fans are used intermittently, but we observed a number of them as permanent fixtures in the landscape as we were driving along SH1. Ms Rigg (the planner for HDC) told us that there were approximately 100 frost fans in the Waipara region. She told us that Rule A1.2.9(i) now controls new frost fans, and that this rule became operative on 13 July 2011. She explained that there have been three consents issued for three frost fans, but 97 are not controlled. Up to 12 metres, frost fans are exempt. Whilst we do not place a great deal of weight on the presence of frost fans, and accept that they are nowhere near the size of the proposed turbines, they do have some impact on visual amenity.

[467] Mr Pearson (for the Society) told us that the Waipara Valley has over 75 vineyards and 26 wineries, of which 8 have commercial cellar doors and the remainder by appointment.[272] The valley is a producer of high quality wines and is especially well known for its award-winning Rieslings and Pinot Noirs. The region now produces more than 250,000 cases of wine each year. We were also told that there are excellent opportunities for walking, cycling, restaurants, cafes (the Weka Railway) and a variety of accommodation available. There is also, Mr Pearson stressed, cycle trails that could eventuate, and referred us to the Hurunui Walking and Cycling Strategy 2009 and the Hurunui District Tourism Strategy of 2015.[273] The thrust of Mr Pearson's evidence was that the proposed turbines would impact on tourism and recreation experiences because they would not enhance the visitor experience.

[468] Mr Pearson's real concern was that Messrs Greenaway and Burns had based their assessment on current effects, heavily weighted towards present day use, but did not give enough consideration to the growth and development potential of the Waipara wine region, wine tourism and other visitor activities and events in the region.[274]

[469] Whilst there is clearly great potential and existing success for wine growing in Waipara there is insufficient independent evidence for us to accept that Mr Thomas'

---

272 Mr Pearson, evidence-in-chief, paragraph [15]
273 Mr Pearson, evidence-in-chief, paragraph [15]
274 Mr Pearson, evidence-in-chief, paragraph [28]

view, or indeed Mr Pearson's view of where the Waipara Valley might head is correct. Where HDC will head with its marketing and tourism strategies in this regard is up to it.

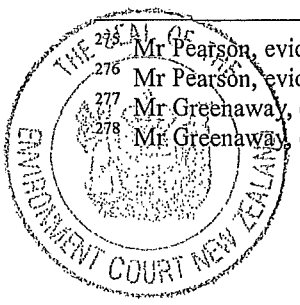
Greta Valley and Motunau Beach

[470] Mr Pearson identified the Greta Valley Restaurant and Bar as a focal point for residents and a stopping point for travellers. Whilst acknowledging that the effects on the present experience at the cafe would not be as substantial as those at Tipapa, Mr Pearson's opinion was that the introduction of the wind turbines would result in "*a dramatic change to the Greta Valley environment, particularly when outdoors*".[275] Whilst this is one of the five publicly accessible viewpoints that Mr Rough assessed as being substantially affected, we do not agree that this will deter potential customers.

[471] So far as Motunau Beach is concerned, Mr Pearson agreed with Mr Burns that the most obvious disturbance to the visual values of the Motunau Beach area will be on the return trip from Motunau Beach to SH1. We do not agree with Mr Pearson's conclusion that the rural character of this area will be dramatically altered.[276] This view was at odds with the expert landscape witnesses, and is not an opinion that is within Mr Pearson's expertise. We do not think there will be any direct adverse effects on tourism or recreation activities undertaken at Motunau Beach from the wind farm.

Tipapa

[472] Mr Greenaway acknowledged that Tipapa's commercial activities could be adversely affected in a minor way during the construction of the wind farm and he also noted that upon completion, some viewpoints on the property will change. He did not necessarily think that this would translate into a reduction in the number of people who chose to undertake the farm walk or stay at the property.[277] Overall, Mr Greenaway accepted that there could be some minor adverse effect, considering Tipapa is promoted as being based in a setting with historic values.[278] He also acknowledged that the soundscape at Tipapa is an important value for luxury accommodation, but relying on Dr Chile's assessment he did not think this was likely to be a problem.



[275] Mr Pearson, evidence-in-chief, paragraph [50]
[276] Mr Pearson, evidence-in-chief, paragraph [51]
[277] Mr Greenaway, evidence-in-chief, paragraph [23]
[278] Mr Greenaway, evidence-in-chief, paragraph [84]

[473] Mr Carr emphasised that Tipapa is exceptional and unique in the district. His opinion is that its business relies exclusively on the visual beauty around it, and the sounds experienced at it. He also highlighted that Tipapa is marketed for international visitors and he talked about the discerning visitor. He contended that the wind farm would not enhance tourism, but that the turbines would obliterate the skyline. He described the wind farm as:

> ... visual and noise desecration of this property... the antithesis of everything Tipapa is – a majestic beautiful place.

[474] He referred to the turbines as "*monstrous*", and the landscape at the top of One Tree Hill as "*outstanding*". He said the experts "*haven't a clue what they are talking about*". He described the impact on Tipapa as being so great and so disastrous that it would damage the entirety of his business and his investment. He highlighted, from his visitor's book, comments of those who remarked on the beauty and silence of its surroundings.

[475] Whilst accepting that the view from One Tree Hill was very pretty, Mr Greenaway did not accept Mr Carr's proposition that it was majestic. He described the view as having very little natural character, and being modified farmland. Mr Greenaway accepted that, were the wind farm to be constructed, Tipapa would need to change its marketing expectations and promotional material. He did not accept that this would result in Mr Carr having to close down his business. He did not agree that there would be a big shift in the experience of Tipapa in its wider context, and in his view, if any noise effects from the turbines were barely audible it would not cause any concern to the soundscape from the tourism or recreation perspective. He did accept that if there were discernible noises during, for example, a wedding ceremony, this would be an effect, but he referred to the District Plan noise limits.

[476] Mr Carr repeated on a number of occasions his concern that noise from the proposed wind farm would interfere with his ability to offer a peaceful and tranquil wedding venue. The homestead gardens are near to Motunau Beach Road. Our visits to Tipapa was instructive (we visited it on two occasions). We were able to hear traffic travelling down the road on what was a quiet peaceful sunny day. From a common sense perspective, visitors to events at the woolshed are less likely to be quiet. Apart from weddings, and particularly the garden weddings at times when vows are exchanged, the only other real activity at Tipapa that we need to consider is overnight visitor

THE ENVIRONMENT COURT NEW ZEALAND

accommodation. Based on our findings in relation to noise we do not accept that these will be impacted. We accept that during the construction period noise could potentially cause some limited concern, but we are satisfied that this can be managed appropriately by conditions. We have discussed this already in the construction section.

[477] Mr Burns' opinion, based on his business experience, was that Tipapa currently was diverse to the extent that this, in itself, was likely to be problematic. Mr Burns' view was that the business would be better managed if it concentrated on fewer activities, and he highlighted wedding events as being one that might be a better option than others. Mr Burns' view was that, should the wind farm be constructed, Tipapa might need to manage its response more appropriately in marketing material, commenting that all business owners need to be responsive to reasonable change.

[478] We do not agree with Mr Carr that his business will be ruined if the wind farm is consented and constructed. We accept that there may well need to be some modification to his marketing material, but not to a significant degree. We accept Mr Burns' evidence that such a response is reasonable, given that all business owners need to be responsive to change.

Conclusion – recreation and tourism

[479] Overall we are satisfied that the wind farm would cause few, if any, adverse effects on tourism and recreational opportunities in the area.

Property values

Overview

[480] A number of the residents (including Mr Carr for Tipapa) [279] were concerned that their property values would reduce if the wind farm is approved,[280] and some who are already in the market to sell contended that prospective buyers aware of the proposed

[279] Mr John Carr, evidence-in-chief, undated

[280] Mr Archbold, evidence-in-chief, paragraph [8]; Mr Earl, evidence-in-chief, paragraph [8]; Mr Higginson, evidence-in-chief, paragraph [8]; Mrs McLean, evidence-in-chief, paragraph [5]; Mr & Mrs McLean, joint evidence, evidence-in-chief, paragraph [5]; Mr Meares, evidence-in-chief, paragraph [6. 3]; Mrs Symonds, evidence-in-chief, paragraph [70]; Mrs Messervy, evidence-in-chief, paragraph [5]; Mrs Forrester, evidence-in-chief, paragraph [5]

THE SEAL OF THE ENVIRONMENT COURT NEW ZEALAND

wind farm had already been deterred because of it.[281] The contention that property values would reduce was predicated on the assumption that there would be adverse noise and visual effects to such an extent that the properties of the complainants would become less desirable, leading to a drop in value.

[481] We heard evidence and submissions from the residents about their concerns, which for most of them, particularly those nearing retirement, were keenly felt and a source of worry. We heard from two experts, Mr Manning (a registered valuer) for Tipapa and Mr Crighton (a registered valuer and chartered accountant) for Meridian. At the hearing, the expert evidence focussed on whether or not there would be a loss to the value of Tipapa, but Mr Crighton's evidence contained material of general relevance to the other residents.

[482] The issues we need to consider are:

(a) Is there a correlation between wind farms and property values?

(b) If the wind farm is approved will there be a reduction in the value of Tipapa?

Before we evaluate each of these issues, we will outline how the RMA and other cases deal with this issue.

Property values and the RMA

[483] Section 104(1)(a) requires us to have regard to any actual and potential effects of a proposed activity on the environment. There are difficulties associated with treating a potential reduction in property value as a separate effect under s104(1)(a). If property values are reduced as a result of activities on another property, the argument is that the loss in value is the *result* of the effect of that activity on the environment, not an effect itself. The objection is to the prospect of effects being double-counted.

[484] As well, establishing that an activity is likely to cause a diminution in property values is problematic. How does one factor in the vagaries of the property market and the various other factors that can contribute to a potential loss in property value? Coupled with this, the Environment Court is almost invariably dealing with activities that are

[281] Ms Barrington, evidence-in-chief, paragraph [4]; Ms Copeland, evidence-in-chief, paragraph [13]

proposed to occur in the future (sometimes some distance away in the future, as may be the case here), and therefore there is a significant predictive element to the Court's assessment. How certain and therefore reliable can future predictions about the property market be in this context?

[485] The question of adverse effects on property values has been addressed by the Court on several occasions. Some of the case law articulates the idea that if it occurs at all, the diminution in property value is simply another measure of adverse effects on amenity values.[282] In one case, [283] the Court noted that a potential purchaser takes the situation as it exists at the time of purchase and may not be influenced by matters which may be of great moment to a present owner and occupier. There are inherent difficulties in trying to assess whether or not a proposed activity under the RMA is likely to result in a drop in property values.

Is there a correlation between wind farms and property values?

[486] Mr Crighton's evidence contained some helpful references to studies done both in New Zealand and internationally on the relationship between wind farms and property values. These studies show that there is no statistically significant or measurable effect on house sale prices caused by the view of, or the distance to, wind farm developments.[284] Mr Crighton also visited Te Uku and West Wind wind farms and spoke to some residents there.

The McCarthy study

[487] Mr Crighton referred to the McCarthy Study,[285] the purpose of which was to investigate the impact of a developed wind farm on property values in the Manawatu and Tararua regions. Wind farm construction along the Tararua and Ruahine ranges began in 1998, and by 2011 three wind farms[286] comprising a total of 286 turbines had been established there.[287] Mr Crighton told us that the region in which the study was

---

[282] ***Foot v Wellington City Council***, W73/98, 2 September 1998, paragraph [256]
[283] ***Hudson v New Plymouth District Council*** W138/95, 9 November 1995, page 6
[284] Mr Crighton, rebuttal evidence, paragraph [39]
[285] The study adopt an Hedonic pricing approach, ie certain characteristics often influence market prices, so in real estate the use of a hedonic regression equation treats these characteristics (or attributes) separately. This can be used to construct a price index or a more statistically robust form of the sales comparison approach
[286] Tararua, Te Apiti and Te Rere Hau
[287] Mr Crighton, rebuttal evidence, paragraph [43]

THE SEAL OF THE ENVIRONMENT COURT NEW ZEALAND

undertaken was one where there was ample data to enable the study to evaluate sales transactions that occurred within an 8-kilometre view shed of the wind turbines, and provide suitable comparable localities which were used for control purposes.

[488] The study was undertaken over a three year timeframe, commencing before any wind farm was constructed and finishing one and a half years after the completion of the wind farms. The results from the study show that trends in property sale prices over this time increased in a similar way to those within the control group. In other words, there were no obvious impacts on average sale price immediately prior to, during the construction phase, or on completion of any of the wind farms.[288]

[489] Mr Carr challenged the findings of the study on the basis that it had been commissioned by Mainpower, the owner of the resource consent for the Mt Cass wind farm. Mr Carr made no other substantive challenge to the research undertaken either to its methodology or conclusions, apart from seeking to distinguish the applicability of the conclusions to his property on the basis that the value of the properties studied were significantly less than his.

[490] There is no rational or evidential basis to suggest that because the study was commissioned by Mainpower that the results of it are biased or distorted somehow by that fact. We have found the study to be of use to us in a general way, although its findings are not determinative. We will return to the applicability of the study to Mr Carr's property shortly.

Other studies

[491] Mr Crighton also referred to a number of other studies noting that "*extensive international research has been undertaken into the potential for wind farm developments to affect property values*".[289] He summarised this research as concluding that there is no statistically significant or measurable effect on home sale prices caused by the view of, or distance to wind farm developments.[290] This evidence was not significantly challenged and we found it helpful by way of background.

---

[288] Mr Crighton, rebuttal evidence, paragraphs [44] and [45]
[289] Mr Crighton, rebuttal evidence, paragraph [38]
[290] Mr Crighton, rebuttal evidence, paragraph [39]

THE SEAL OF THE ENVIRONMENT COURT NEW ZEALAND

Ms Meares' material

[492] Ms Meares' supplementary appendices included two articles with photographs that were appended to the internet versions of the articles. Mr Crighton commented on the two articles, one which had appeared in the *Daily Mail UK* on 22 July 2012 and another dated 21 July 2012 depicting various photographs from Scotland of scenery and landmarks that were said in the article to be "*blighted forever by turbines*". The first article reported that a government agency had finally admitted that thousands of dollars could be wiped off the value of homes as a result of nearby wind turbines. Mr Crighton's supplementary evidence contended that these examples were not useful to us because there was no way to validate their content or determine what level of effect the turbines in the examples had on houses in terms of their distance from houses, visual dominance and noise levels.[291] We agree with Mr Crighton on this point. Mr Crighton relied on surveys based on market transactions and expert opinions on noise and visual issues and these should be preferred to newspaper articles.

Conclusion –valuation general

[493] We accept that limited research has been done on the topic in New Zealand, but there are a number of international studies that conclude that property prices do not necessarily reduce solely as a result of a nearby wind farm development. Based on the evidence we have heard it cannot be assumed that there will be a drop in property values if the proposal is consented and proceeds, but accept that this will depend largely on their being no adverse noise and visual effects. We have already determined that with appropriate mitigation there will be no adverse noise effects, but we have found that from some viewpoints there will be adverse visual effects that are unable to be mitigated. We are not however persuaded that this will result in a drop in property values. Many of the properties affected are farm properties, the value of which is affected by their productive value rather than just their residential value.

[494] Mr Crighton initially accepted that there *could* be a *limited* impact on *some* property values during the consent lapse period, particularly if it was to be 10 years, but after some reflection he said that *overall* he did not think that a consent lapse period of 10 years would be a problem.[292] This is because for some people the prospect of a nearby

[291] Mr Crighton, supplementary evidence, paragraph [4]
[292] Transcript, page 2,261, line 29 – page 2,262

THE SEAL OF THE ENVIRONMENT COURT NEW ZEALAND

wind farm would not be a detraction. Mr Crighton referred to a local resident whose property had been placed on the market and had received 20 expressions of interest only one of which was deterred by this proposal. In these circumstances Mr Crighton considered there was a significant enough pool of prospective buyers to establish a realistic market value of the property. Mr Crichton's opinion was not significantly challenged through cross-examination.

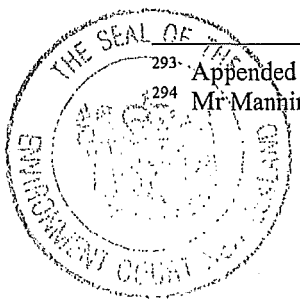
[495] We accept that the research done so far does not establish that there is a link between a consented wind farm and a drop in property values. We accept that this will depend largely on the property in issue, whether or not any potentially adverse noise effects are able to be mitigated and the extent of the visibility of wind turbines from a particular property. The visual effect of wind turbines is problematic, because the research establishes that there are those who like wind farms and those who do not, but it cannot be assumed that all prospective purchasers will regard wind turbines, if visible, as a negative factor. As a result, there can be no safe conclusion drawn that this proposal will result in a diminution of property values.

If the wind farm is approved, will there be a reduction in the value of Tipapa?

[496] Mr Carr contended that Tipapa was in a unique situation given the value of it and the niche market in which it operates. He further submitted that the general findings of the research should not be applied to Tipapa because they did not include any property quite like it either in terms of quality, use and/or value. Mr Carr was understandably concerned about his investment in the property and he described feeling as if he was fighting for his life's work.

[497] Initially Meridian agreed that Tipapa required a more tailored-made approach and it arranged (with Mr Carr's agreement) for Mr Crighton to prepare a valuation report for Tipapa. The report (dated 21 January 2011)[293] found that there would not be a loss of value. It was not accepted by Mr Carr. Mr Carr then briefed Mr Manning to provide a report for him, which concluded that there will be a loss in the value of Tipapa if the proposal proceeds.[294]

[498] Both valuers attended caucusing and agreed that:



[293] Appended to Mr Carr's evidence
[294] Mr Manning's valuation, page 5, attached to Mr John Carr's evidence-in-chief

(a) there has been extra investment in facilities at Tipapa over and above that which could be expected at a normal farm property;[295]

(b) the character, heritage factors and improvements form the basis of their valuation rather than the farm itself; and

(c) cost does not necessarily equal value.[296]

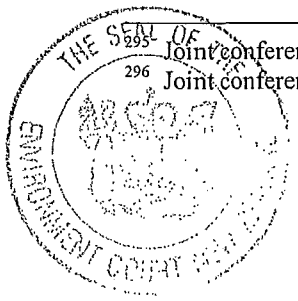
[499] This latter point is important because it is evident that Mr Carr has spent a significant amount of money on Tipapa. Both valuers were reasonably agreed about the value of the improvements, with Mr Crighton identifying them at $1.4 million and Mr Manning identifying them at $1.45 million. We agree that this fact does not mean that this expenditure has increased the value of Tipapa by an equivalent amount.

[500] Tipapa did not call any evidence to establish the value of the goodwill in its business. The valuation evidence centred solely on the value of the buildings and land and how that might be diminished (if at all) should consent be granted.

Areas of expert disagreement

[501] There was disagreement about the highest and best use of the property. Mr Crighton's view was that its highest and best use was as a rural lifestyle property, whereas Mr Manning's view was that because Tipapa is part of North Canterbury's rural history, the assets that have been developed (a high end lodge, separate visitor centre, events centre based on the heritage facilities) mean that the property comprises four income streams: a farm which is leased, events, lodge income, and casual visitors for six months of the year. Mr Manning also emphasised the benefits of living in the homestead which are enjoyed by Mr Carr.

[502] The business operation of Tipapa is currently as Mr Manning described. However there was some evidence from Mr Burns that this was not a sensible business model. Because of this, Mr Crighton's market assessment regarding the highest and best use of the property may well be right. In the event, nothing significant turns on this distinction.



295 Joint conferencing statement - valuation
296 Joint conferencing statement - valuation, paragraphs [4] and [5]

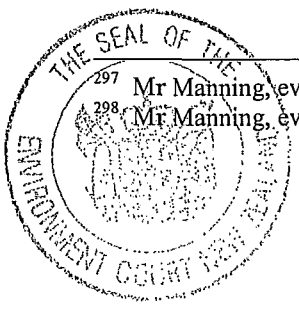
[503] The experts disagreed about whether or not Tipapa would suffer "*injurious affection*" if the wind farm proceeded. Whilst both valuers undertook this evaluative exercise, there is no statutory requirement, nor indeed imperative, for us to consider matters relating to injurious affection. Whilst we received no submissions from anyone on this point, it seems to us that the experts have simply transported concepts relevant to the Public Works Act and the Electricity Act, which have no legislative basis in this case. This is beyond the scope of our functions under the RMA.

Mr Manning's valuation

[504] In an extremely brief report, Mr Manning assessed the added value of the improvements in existing use were $630,000. In estimating the effect on value he said this:[297]

> It is my opinion that the cumulative effect of the proposed wind farm with current knowledge to date and subject to the actual outcome effects is as follows:
>
> | | | |
> |---|---|---|
> | 80% of $630,000 (added value of existing use) | $504,000 | |
> | 5% on rural farm value of $2,170,000 | $108,500 | |
> | Loss and potential for potential lifestyle subdivision development on rural farm value 2% on land value | $ 27,000 | |
> | Cumulative effect | | $639,500 |
>
> This equates to approximately 22.83% of the value in existing use

[505] Mr Manning accepted that it is extremely difficult to place an estimate of loss or value on the Tipapa property, largely due to the fact that "*it is equally difficult to predict what the actual effects of the proposed wind farm, both during the construction phase, and the operational phase will be*".[298]



[297] Mr Manning, evidence-in-chief, paragraph [14]
[298] Mr Manning, evidence-in-chief, paragraph [15]

Mr Crighton's opinion

[506] Mr Crighton did not accept Mr Manning's methodology. In fact he described Mr Manning's valuation and report as falling "*woefully short of our profession's reporting and valuation standards*".[299] In his opinion, Mr Manning had failed to provide his methodology and did not cite references to support his conclusions. In particular, Mr Manning did not set out why he had assessed 80 per cent of added value as being an appropriate figure. When cross-examined, Mr Manning was unable to substantiate this figure apart from stating that it was a matter for his opinion.

[507] Mr Crighton disagreed with there being any deduction for the loss of potential for lifestyle subdivision development. The evidence established that Mr Carr currently has two small lifestyle blocks on the market. Mr Crighton noted that there were a number of smaller blocks and houses on the market in this location, and that at the time of writing his evidence the current market was described as being very slow. Mr Crighton also noted that this location is "*in the middle of nowhere*" for small lifestyle blocks.[300]

[508] There was some argument mounted that Tipapa is a "*special value*" property. Mr Crighton disagreed because its location is in his view not unique, and other rural blocks in the area have the same degree of tranquillity.[301] We agree that Tipapa is likely to be a special value property, but for reasons we express below we do not think this has a bearing on our conclusion.

Conclusions - Tipapa

[509] We agree that Mr Manning's methodology was not particularly sound, and his report did not provide any real analysis of the rationale for the effect on value that he outlined in paragraph [14] of his evidence and report. We found Mr Crighton's evidence to be more thorough and methodologically sound. In fairness to Mr Manning, we have had considerably more evidence than that which would have been made available to him about potentially adverse noise and visual effects. We prefer and accept the evidence of Mr Crighton that there will not be a loss of value to Tipapa.

---

299 Mr Crighton, rebuttal, paragraph [73]
300 Mr Crighton, Rebuttal, evidence, paragraph [56]
301 Mr Crighton, Rebuttal evidence, paragraph [24]

THE SEAL OF THE ENVIRONMENT COURT NEW ZEALAND

PROPOSED CONDITIONS OF CONSENT

[510] At the close of the hearing we had four sets of proposed conditions.[302]

[511] We have already recorded that the proposed conditions changed throughout the hearing, as is usually the case with large and complex applications. The Court explained to the parties, particularly the submitters who were less familiar with these processes, that the proposed conditions are an integral part of any application.

[512] The proposed conditions from Tipapa and the Society principally addressed an earlier version of the Meridian/HDC agreed conditions. They did not specifically address the CRC's conditions relating to the regional consents. The final version of the Meridian/HDC conditions included modifications accepting several of the Society's requests. Meridian submitted that many of the other details proposed by the Society are not necessary; such as to operate within site boundaries. We agree.

[513] In relation to the Tipapa conditions, we agree with Meridian's submissions that many are either vague, unworkable or unreasonable. Many of the proposed conditions reflected the positions put forward by Mr Carr and would have effectively prevented the wind farm from operating.

[514] We have already addressed many of the proposed conditions of consent in the sections of this decision dealing with the main issues. In some cases we have directed changes to be made.

[515] We now turn to consider some of the other conditions. Before doing so we record that in general we find the sets of conditions proposed by Meridian/HDC and the CRC to be appropriate. For that reason we do not address every alternative detail proposed by the Society and Tipapa as we have found some of those to be inappropriate alternatives. To assist the parties to amend the conditions we have compiled our directions in Appendix 2 to this decision. In this appendix we have provided cross references to relevant paragraphs of this decision. We have also included some additional

[302] Meridian/HDC – Exhibit HGR1 Version 4, 23 October 2012; CRC – CRC Exhibit 1 Version 2, 26 September 2012 and including CRC Attachment 3, 4 October 2012; Tipapa – Tipapa Exhibit 27, 23 October 2012; and the Society – Glenmark Exhibit 10, 12 October 2012.

THE SEAL OF THE ENVIRONMENT COURT NEW ZEALAND

detailed minor amendments to improve workability and which we consider do not require further explanation in the main text of the decision.

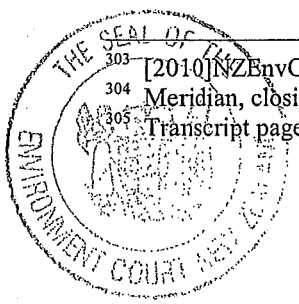
Consent lapse period

[516] Meridian seeks a 10 year lapse period for all consents and 35 year duration term for the discharge consents. The 10 year lapse period was contested by the Society and local residents who were concerned about the effects of an extended period of uncertainty. They sought the default period of 5 years. However we are certain that Mrs Marr and Ms Meares reflected the sentiments of the other submitters and local residents (and probably Meridian too) when they said that they would not like to have to go through a re-run of this consent and hearing process again in five or six years time.

[517] In submissions for the Society, Mr Wallace referred to the decision in ***Contact Energy Limited v Manawatu-Wanganui Regional Council***[303] where a wind farm was granted consent with a five year lapse period. For Meridian it was submitted that since that decision, various divisions of the Environment Court and Boards of Inquiry had held that a 10 year lapse period was appropriate for a number of wind farms, including Turitea, Hauauru ma Raki and Te Waka. Further, other wind farms (Mill Creek, Mt Cass and Makara) had been consented with lapse periods longer than five years.[304] In the case of Mt Cass the applicant sought and was granted an 8 year lapse period.

[518] Mr Muldoon, for Meridian, explained that the 10 year lapse period was sought to provide the necessary flexibility to respond to market uncertainties, including the exchange rate, commodity pricing and electricity demand.[305] It was submitted for Meridian that the 10 year lapse period was wholly appropriate given the scale and national importance of the project. They also contended that there was no evidence to suggest that the existing environment of the site would change to such an extent over the next five years to warrant a reconsideration of the effects of the proposal at that time.

[519] Both Councils agreed to the 10 year lapse period and this was reflected in the sets of agreed proposed conditions.



303 [2010]NZEnvC406
304 Meridian, closing submissions, para 293
305 Transcript page 16, lines 15-23.

[520] We are of a clear view that five years is too short for a project of this nature and scale. The alternative sought by the applicant was ten years. We note that a 10 year lapse period does not mean that a consent holder can do nothing for ten years if they wish to keep a consent "alive". Section 125 provides that before the lapse date, a consent is to be given effect to, or an application be made to extend the period. This means that some actions have to be taken before, and often well-before, the 10-year date.

[521] After taking into account the submitters' desire not to be engaged in a re-run of these resource consent procedures in the near future we have concluded that a 10-year lapse is appropriate and recognises the requests of all of the parties.

Community Liaison Group and Complaints

[522] The Community Liaison Group (GLG) is a mechanism designed to provide for communication between the consent holder and the local community, particularly if there are problems. In the final set of proposed conditions (23 October) Meridian had accepted most of the changes proposed by the Society in respect of the CLG, except the suggestions that it be established within 3 months of the granting of consent, and that it should be maintained for the life of the wind farm. Meridian proposed that the CLG be initiated no less than three months prior to construction commencing and that the first meeting be no less than two months prior to construction commencing. They also proposed that it could be discontinued if a 75% majority of the CLG voted that it is no longer necessary. Related conditions require the consent holder to maintain a complaints register which is to be available to the consent authority and the CLG upon request.

[523] In general we consider that the CLG-related conditions, as set out in Exhibit HGR1 23 October 2012, are appropriate although we require that they be modified to provide for both of the consent authorities (HDC and CRC) to be involved as appropriate to their responsibilities. We also consider that conditions 88(a) and (b) need to be more certain by identifying the management plans and reports that are to be provided to the CLG.

[524] One area where we are not satisfied that the proposed conditions are appropriate relates to the community fund.

Community Fund

[525] Meridian proposed the establishment of a fund to support projects in the local community. Mr Muldoon outlined Meridian's proposal and also described similar funds operating at some other existing wind farms. In the final set of proposed conditions (23 October) Meridian proposed to contribute $100,000 over a three-year period from when construction commences; thereafter any annual contribution was to be at the consent holder's discretion. It was also proposed that the CLG determine where, how and when the fund be spent.

[526] For Meridian it was initially submitted that the fund was offered on an *Augier* basis and that funding over a 3-year period was all that was technically offered, although to date Meridian had in practice extended such funding at other wind farm sites. We note that the final proposed conditions, as agreed to by Meridian, include a consent condition in relation to a community fund (condition 89).

[527] There was considerable discussion about the fund during the hearing and we were assisted by Mr Baxter, a local resident and Chairman of the Kate Valley Landfill Community Liaison Group for the past 7 years. We were also supplied with a copy of the procedure for meetings of that group.[306] It appears that this document is not a condition of consent but from experience we have with similar groups it is to be highly recommended as a way of clarifying the details of such a group's day-to-day operations.

[528] In the Society's conditions (12 October) they proposed that a separate Community Trust be set up to administer the fund rather than the CLG. They also proposed that the contributions be increased to an initial amount of $150,000 at the commencement of works, and thereafter an annual contribution of $50,000 for the life of the wind farm. The payments were to be indexed to the CPI from the date at which the consent is granted. For Tipapa, Mr Carr, sought similar conditions. However no basis for these amounts was provided.

[529] The Joint Statement of Planning Experts records that whether or not the fund needs to be a condition of consent was an unresolved issue. Ms Rigg, for the HDC, supported a condition and sought to link the fund to electricity generation.[307] Mr

THE SEAL OF THE ENVIRONMENT COURT NEW ZEALAND

[306] Glenmark, Exhibit 9.
[307] Ms Rigg evidence-in-chief, paragraphs [4.27] & [4.28], and Transcript page 2801.

Gimblett, for Meridian, said that in his opinion it depended on whether or not it is required to provide mitigation of effects or is in some way an essential element of the application. He agreed with Ms Rigg that if, in making an overall decision on the proposal, a fund of that type is to be relied upon in providing some benefit and/or generic mitigation, then it merits a condition and the certainty that provides.[308]

[530] In determining whether or not a fund is to be part of the consent conditions we note the provisions in the statutory document the NPS – Renewable Electricity Generation, 2011. Section C, headed "*Acknowledging the practical constraints associated with the development, operation, maintenance and upgrading of new and existing renewable electricity generation activities*" contains two policies. The first, Policy C1, addresses locational, logistical and technical practicalities, mitigation opportunities and adaptive management measures. Policy C2 then goes on to state:

> When considering any residual environmental effects of renewable electricity generation activities that cannot be avoided, remedied or mitigated, decision-makers shall have regard to offsetting measures or environmental compensation including measures or compensation which benefits the local environment and community affected.

[531] We have already found that many of the adverse effects relate to the construction phase of the wind farm; predicted to be 18 – 24 months duration. These effects are localised and include traffic effects (with the period of greatest activity between 3 – 6 months after commencement), and effects associated with the considerable volumes of earthworks. We have also found that there are some on-going adverse effects once the wind farm is operational that cannot be avoided, remedied or mitigated. Most particularly this relates to the adverse effects on visual amenity for some of the nearby properties. Therefore we find that it is appropriate that a fund to benefit the local environment and community be required as a condition of consent. We consider that such a condition is consistent with Policy C2 of the NPS – Renewable Electricity.

[532] We did not receive any submission from any party about Policy C2 and how it might relate to such a condition. We set out below our thoughts about how much the fund should comprise, the period over which payments are to be made and the way in which it is to be administered, but we have decided that the parties should have the ability to make further submissions about the breakdown of the payments over the first three years and

[308] Mr Gimblett, Rebuttal, paragraphs [24] & [25]

THE SEAL OF THE ENVIRONMENT COURT NEW ZEALAND

the period over which payment should extend before we reach a final view on the matter. To be clear, we are not inviting further submissions on the total amount to be paid over the three year period.

[533] Turning then to some of the details of such a condition, we agree with the Society that the fund should be administered by a Community Trust, or similar entity, that is separate from the CLG. We were influenced in reaching this position by the information and experience from the nearby Kate Valley Landfill.

[534] We also consider that the payments should be staged to recognise the likely timing of the adverse effects: those occurring during construction; and those on-going for the life of the wind farm due to its existence and operation. For these reasons we consider that it would be appropriate for some of the contribution to be paid prior to, or at the date of, construction commencing, and thereafter annually for the life of the wind farm as follows:

- Prior to or at the date of construction commencing = $50,000;
- Second year = $35,000;
- Third year = $15,000.
- For all subsequent years of operation, a contribution of $15,000 per year be payable.

However we do acknowledge that there have been cases when Meridian has agreed to alter the timing of payments and extended funding, sometimes with higher amounts.[309] Therefore we consider that it would be appropriate for the Trust and the consent holder to have the flexibility to agree on alternative payment schedules. Also it may be that the consent holder would decide to contribute more, so the amounts could be the minimum.

[535] We agree with the Society that the amounts should be indexed against the CPI as at the date on which these consents are granted.

[536] Given the HDC's experience with the Kate Valley Landfill fund we consider them to be well placed to prepare alternative conditions and we direct them to do so, but

[309] Mr Muldoon, Transcript page 667, lines 2-17

THE SEAL OF THE ENVIRONMENT COURT NEW ZEALAND

also invite further submissions on the breakdown of the $100,000 payment and the additional $15,000 annual payment.

Decommissioning, performance bond and covenant

[537] The proposed consent conditions include provisions for turbines to be decommissioned and dismantled if they cease to operate for a continuous period of 18 months. A management plan is to be prepared and to include removal of above ground structures and site rehabilitation and revegetation.

[538] The Society proposed an additional comprehensive suite of conditions requiring a performance bond in favour of the HDC for securing compliance with the conditions of consent and securing the completion of decommissioning and rehabilitation. The Society also sought a condition (covenant) to preclude the consent holder extending the wind farm at any time in the future.

[539] In submissions Meridian rejected the Society's proposed conditions relating to a performance bond for three reasons: that remediation of a wind farm does not give rise to significant environmental effects or health and safety concerns such as may occur with mining activities or sanitary landfills; that the residual value in copper and steel is generally commensurate with the cost of its removal so that there is a commercial incentive to remove turbines; and that Mt Cass is the only wind farm with such conditions, possibly as a result of similar provisions applying to the Kate Valley Landfill. In the alternative, Meridian proposed that the consent be made personal to Meridian, or if the Court disagreed with that suggestion then any bond should be limited to the difference between the intrinsic value of the turbines and other components (scrap) and the cost of removal. A monetary value for the latter was not provided.

[540] As for Meridian's suggestion that the consent be made specific to Meridian, we do not consider that to be appropriate, and no real justification was provided. We consider that the usual practice of, for example, land use consents running with the land should apply.

[541] In our view there are some significant differences between the Mt Cass proposal and this Hurunui wind farm proposal, including the landscape classification of Mt Cass and the establishment and management of the "Mt Cass Conservation Management

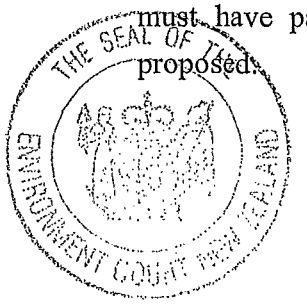
Area". We are satisfied that it is not necessary to require a performance bond as proposed by the Society. There are adequate powers under the Act to enforce the conditions of consent. However, we do require the wording of the decommissioning conditions to be amended so that it is clear that the consent holder has responsibility for carrying out any decommissioning and that the consent holder can be required to prepare and execute a Decommissioning Management Plan. The current proposed wording leaves it to the consent holder to advise the consent authority of its intention to decommission the site. We require the conditions to provide for the implementation of the Decommissioning Management Plan.

[542] We also comment that although we understand that the Society's suite of proposed conditions relating to a performance bond reflect those in the Mt Cass proposal, we consider that they are not written with an appropriate degree of certainty, particularly in relation to the amount (quantum) and its review.

[543] On the Society's proposed condition seeking a covenant to preclude any extension of the wind farm in the future: we do not consider that to be appropriate and it was not justified by the Society.

PART 2 MATTERS – EXERCISE OF DISCRETION

[544] In making our overall judgement, as we outlined at the beginning of this decision, we are required to consider whether or not granting consent achieves the purpose of the Act under section 5, namely the promotion of the sustainable management of natural and physical resources. We have concluded that all potentially adverse effects, apart from those relating to the visual amenity from certain private viewpoints, can be effectively mitigated by the conditions proposed by Meridian/HDC and CRC and as modified by this decision. So far as visual amenity is concerned, we are satisfied that the removal of turbines F1 and G1 will avoid *very significant* adverse visual amenity effects for certain properties, including for example the Sloss, Barrington and Marr properties, and we have determined that this should occur. This leaves our finding that there remain *significant* adverse visual amenity effects that are unable to be mitigated from certain properties. Accordingly the provisions of sections 7(c) and (f) of the RMA, to which we must have particular regard, are unable to be completely provided for by what is proposed.



[545] Against this, we must balance the positive effects we have found will arise from the proposal. There are economic benefits, particularly during the construction period; benefits associated with meeting the local and regional demand for electricity (for which there is a shortfall) and the need for security of supply. There is also the overwhelming benefit that the proposal is one which involves electricity generation from a renewable source. This is a matter to which we must have particular regard under s7(j) of the Act. In its explanatory note, the NPS – Renewable Electricity outlines that the matters contained within it are matters of national significance, however within the Part 2 hierarchy renewable energy does not appear under s6 but is a matter to which we must have particular regard under s7. The efficient use and development of the wind resource occurring in this area is also relevant in terms of s7(b). Accordingly, in this case there are competing s7 matters which we must weigh in the balance.

[546] Inevitably, as has been noted in a number of wind farm cases, and as is signalled in the NPS- Renewable Electricity, decisions often come down to weighing up the national level benefits and the adverse effects at a local level. In this case we are persuaded that the regional and national benefits associated with the proposal outweigh the remaining significant adverse visual amenity effects that are unable to be mitigated from certain nearby properties. Accordingly we are persuaded to approve the proposal with amended conditions.

[547] We have earlier in this decision stated that we found the conditions proposed by the two Councils to be generally appropriate, subject to amendments outlined in this decision. We expect those suites of conditions to be used as the basis for finalising the amended conditions.

RESULT

[548] The applications for resource consent are granted subject to amended conditions.

[549] We record for the avoidance of doubt, that this decision is final in respect of the confirmation of the grant of the resource consents (on amended conditions) but is interim in respect of the precise wording of the conditions, and in particular the details relating to the Community Fund condition(s).

[550] We direct the Hurunui District Council and the Canterbury Regional Council to submit to the Court amended conditions of consent giving effect to this decision by **17 May 2013**. In preparing the amended conditions the Councils are to consult with the other parties, particularly in relation to the condition(s) relating to the Community Fund.

[551] If any party wishes to make submissions in relation to the Community Fund conditions, these are to be filed by **17 May 2013**.

[552] Costs are reserved.

DATED this 15th day of April 2013

For the Court

M Harland
Environment Judge

THE SEAL OF THE ENVIRONMENT COURT NEW ZEALAND

Appendix 1

Submitters who did not appear:[310]

D Baxter
RD Liddell
BA Christensen
T McBree
SC Batchelor
SA Bonnafoux
DJ Bears
F Loe
PI Croft
PH Rogal
EJM Wezenburg
JM Cottle
A Black
AJ Goodship
SJ Swarbrick
A Fox
EAC Batchelor
REH Nicholls
S Pearson
CS Batchelor
HM & RS Sharpe
CJ & TW Adler
J & J Megaw
S Hughes-Games
N Stanley
CF MacKenzie
C Herbert
DW King
DC Heslop
W Hughes-Games
AJ & LJ Lowry
M Fitzsimmons
H and M Vanstone
ACA Askin
JAA Ryan
AM Taggart
DB and MM Collett
DG Stanley
LF Meares
D & P Rennie
G and J Higginson

AJ Hamilton
MP Foster
PO & NM Greenwood
HJ Kent
JE & PC Blatchford
T Burnside
MA & RJ Lowry
JN Petrie
DG Maxwell
RT Abbott
JM McLachlan
N Ross
DC Curtis
REF Sloss
KP Stills
PFW Boag
W Gardener
J Gardener
BJ Sowden
K Sowden
HS McLachlan
HS & YR Turnbull
SM & RB Copeland
FA Reid
SR & SJ Barnes
L Love
JM & JA McKone

MM Eaton
EM Eaton
L Atkinson
DB Rich
H Savill
C Savill
P & E Schofield
A Humphrey
BM & NJ Burgham
LC Burton
SW Bennett
M Jones
G Rowe

R & J Forrester
T Holden
KS Dunford
BRG Yates
G McWhinnie
L Lormans
JW Fisher
JC Gardner
M Ashton
PG Lormans
G Bianchet
R O'Brien
P & Y Devine
T McLean
A & W Harris
F Clark
AJ Sloss
BA McLachland
P & P Macfarlane
A Wilson
RM Anderson
GP Gillman
MJ Steel
NC Schultz
RA Hunt
F & C Hicks
BC Griffiths
L Batchelor
LT Platt
S Hamilton
D & M Fotherington & Owen
K Hamilton
T Donaldson
N McKellow

[310] Section 87F Report, Helena Gerarda Rigg, Appendix 1.

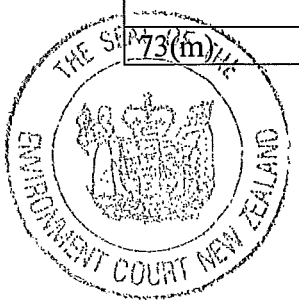
THE SEAL OF THE ENVIRONMENT COURT NEW ZEALAND

Appendix 2

Environment Court Interim Decision No: 2013 NZEnvC
Project Hurunui Wind Farm - Schedule of Conditions of Consent to be amended.

Table 1

Exhibit HGR1, Version 4, 23 October 2012 Condition Number	Summary – Directions/ Comments	Decision paragraph reference, where applicable
2	Delete	540
6	Amend to provide for no more than 31 turbines and the deletion of turbines labelled F01 and G01	177, 245
19 (text after 19(c)) 20	Should the paragraph of text after condition 19(c) be part of condition 20? It all seems to relate to turbine testing.	515
23	Provide for a minimum of 4 monitoring locations and for staged wind farm monitoring.	229, 230, 231, 235, 247
26	Clarify when this process is to commence. Identify the individuals and/or addresses, or a mechanism to do so in case these people do not live in the locality in the future.	304, 305
28 - 40	Ensure that these EMP related conditions are the same as, or compatible with, the CRC's conditions. Provide for any appropriate monitoring and reporting of the EMP. Rationalise the two references to weed management in 28(g) & (i).	356, 357, 359
41 - 61	Review and rationalise conditions relating to avifauna. Link 52(a) with 54 & 55. Use consistent wording if appropriate, eg avifauna expert (55) and avian ecologist (60). Provide for appropriate monitoring and reporting (eg. similar to condition 66).	426, 431, 434, 441
45	Amend to include reference to condition 44 as well as condition 43	515
48 & 61	List these two conditions together	443
69 & 70	Provide for any appropriate monitoring and reporting.	379
73(m)	Provide for annual large event at Tipapa	349



87(c)	Provide for all "consent authorities". For example, there may be provision for separate representatives or a combined representative for HDC and CRC.	523
88(a) & (b)	Clarify and list the management plans and reports that are to be provided to the CLG.	523
89	Relocate this condition to be before the heading "Review Conditions". Provide a new heading: "Community Fund". Amend the condition.	531-536
100	Provide for implementation eg. amend to read: "The consent holder must implement the Decommissioning Management Plan and must provide written notice ..."	541
All conditions	Review and in particular provide for monitoring and reporting. Any consequential amendments.	427

Table 2

CRC Exhibit 1 Version 2, 26 September 2012 and CRC Attachment 3, 4 October 2012.	Summary Directions/Comments	Decision paragraph reference, where applicable
	Clarify Meridian's offer to clear in-line pond in Cave Creek.	383
Schedule 1 General Condition 19(a)	Confirm if monitoring in Tipapa Stream provided for.	385
All conditions	Any consequential amendments	

Table 3

Exhibit HGR1 Version 4, 23 October 2012 and **CRC Exhibit 1 Version 2, 26 September 2012 and CRC Attachment 3, 4 October 2012.**	Check for consistency where conditions relate to the same or similar topics. Provide one document of consent conditions for the proposal. Where appropriate this can be divided into separate and/or common sections to relate to separate consents and/or separate consent authority responsibilities.	356, 357, 359, 515, 547