

BEFORE THE ENVIRONMENT COURT

Decision No. C103/2009

ORIGINAL

IN THE MATTER of the Resource Management Act 1991

AND

IN THE MATTER of appeals under section 120 of the Act

BETWEEN MANIOTOTO ENVIRONMENTAL  
SOCIETY INCORPORATED

(ENV-2007-CHC-300)

UPLAND LANDSCAPE PROTECTION  
SOCIETY INCORPORATED

(ENV-2007-CHC-297)

J, S & A DOUGLAS

(ENV-2007-CHC-299)

E AND C LAURENSEN & THE ERIC AND  
CATE LAURENSEN FAMILY TRUST

(ENV-2007-CHC-301)

I AND S MANSON AND RIVERVIEW  
SETTLEMENT TRUST

(ENV-2007-CHC-302)

GAELE SOGUEL DIT-PIQUARD

(ENV-2007-CHC-303)

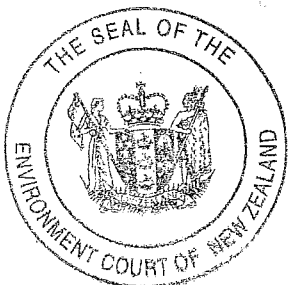
E R CARR

(ENV-2007-CHC-304)

R P SULLIVAN

(ENV-2007-CHC-307)

Appellants



MERIDIAN ENERGY LIMITED

(ENV-2007-CHC-295)

Applicant (and Appellant)

AND

CENTRAL OTAGO DISTRICT COUNCIL  
AND OTAGO REGIONAL COUNCIL

Respondents

Hearing: at Cromwell on 19, 21, 22, 23, 26, 27 and 28 May 2008, 28 to 31 July, 1 and 5 to 8 August 2008; and at Queenstown on 19 to 23, 26 to 30 January, and 9 to 12, 16 and 17 February 2009

Site inspections: 27 and 28 March, 29 May 2008 and 18 and 19 February, 16 and 17 March 2009

Court: Environment Judge J R Jackson  
Environment Commissioner H A McConachy  
Environment Commissioner A J Sutherland  
Deputy Environment Commissioner K D F Fletcher

Appearances: Mr H Rennie QC, Mr A J L Beatson and Mr H J Tapper for Meridian Energy Ltd  
Mr A J Logan for the Otago Regional Council  
Mr G M Todd and Ms J E Macdonald for Central Otago District Council  
Mr M Holm, Mr I M Gordon and Mr M J Slyfield for Maniototo Environmental Society Incorporated and Central Otago Environmental Society (section 274 party)  
Mr E R Carr for himself, G S Dit-Piquard, Danseys Pass Coach Inn Limited and Brookside Properties Limited and for the Upland Landscape Protection Society Incorporated  
Mr J Douglas for J, S & A Douglas  
Mr N S Marquet for E & C Laurenson and The Eric and Cate Laurenson Family Trust and for I and S Manson and Riverview Settlement Trust  
Ms S J Ritchie for the Crown (as a section 274 party)  
Dr M J Floate for Otago Goldfields Heritage Trust – section 274 party  
Ms J Kelly for Central Otago Recreational Users Forum – section 274 party

Date of decision: 28 October 2009

Date of Issue: 6 November 2009



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**DECISION**

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- A: Under section 290 of the Resource Management Act 1991 the appeals ENV-2007-CHC-300, ENV-2007-CHC-297, ENV-2007-CHC-299, ENV-2007-CHC-301, ENV-2007-CHC-302, ENV-2007-CHC-303, ENV-2007-CHC-304 and ENV-2007-CHC-307 are allowed.
- B: As a consequence of A, no order is made in respect of appeal ENV-2007-CHC-295 by Meridian Energy Limited.
- C: The decisions of the Central Otago District Council and Otago Regional Council to grant resource consents to Meridian Energy Limited for a wind farm on the Lammermoor are cancelled.
- D: Costs are reserved.
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**REASONS**

*Table of Contents*

*Para*

1.0	Introduction: a wind farm on the Lammermoor?	[1]
1.1	The issue and the parties	[1]
1.2	The proposal	[8]
	1.2.1 A 630 megawatt wind farm	[8]
	1.2.2 Turbines – size and location	[9]
	1.2.3 Substations and grid connection	[12]
	1.2.4 Earthworks and roading design	[13]
1.3	The resource consents sought and their status	[15]
	1.3.1 Land use consents from the CODC	[15]
	1.3.2 Regional consents	[17]
	1.3.3 Resource consents from the Dunedin City Council	[22]
1.4	The matters to be considered	[23]



<b>2.0</b>	<b>The facts</b>	[25]
2.1	The Meridian site	[25]
2.2	The wind resource	[26]
	The wind data	[28]
	Seasonality of the wind resource	[36]
	Conclusions on the wind resource	[38]
2.3	The surrounding area	[39]
2.4	The history of the area	[48]
2.5	The uses of the area (farming, water reservoir, energy transmission)	[60]
	Schemes for conserving water quantity and quality	[61]
	Transmission infrastructure (and constraints)	[63]
2.6	Other uses of the area (recreation, tourism, heritage protection)	[68]
2.6.1	Introduction	[68]
	(1) The Rock and Pillar Range	[69]
	(2) The Logan Burn Reservoir	[69]
	(3) The Old Dunstan Road	[69]
	(4) Great Moss Swamp Wetlands, Shepherds Hut and Stony Creek Wildlife Management Reserves	[69]
	(5) Te Papanui Conservation Area	[69]
	(6) Rocklands Station	[69]
	(7) The Upper Taieri River	[69]
	(8) The Styx Jail and Hotel	[69]
	(9) Other heritage sites	[69]
2.6.2	Commercial tourism	[70]
2.6.3	Fishing	[71]
2.6.4	Tramping, walking and skiing	[74]
2.6.5	Mountain biking	[76]
2.6.6	Driving and sightseeing	[77]
2.6.7	Horse trekking	[79]
2.6.8	Hunting	[80]
2.6.9	Photography, botanising, art and filming	[81]
2.6.10	Recreational significance of the study area	[82]
2.7	The vegetation of the Lammermoor	[85]
2.7.1	Introduction	[85]
2.7.2	Tussock grassland	[87]
2.7.3	Shrubland	[91]
2.7.4	Gully floors, bog wetlands	[94]
2.7.5	Existing pest plant species	[97]
2.7.6	Conclusions	[98]
2.8	Fauna	[102]
2.8.1	Birds	[102]
2.8.2	Invertebrates	[104]
2.8.3	Lizards	[109]
2.8.4	Fish	[119]
2.9	Other aspects of the existing environment	[127]
	The Mahinerangi wind farm	[128]
	The Teviot wind farm	[130]
	The Kaiwera Downs wind farm	[131]
2.10	Climate change	[132]
<b>3.0</b>	<b>The law</b>	[142]
3.1	The matters to be considered	[142]
3.2	Actual and potential effects on the environment (section 104(1)(a) of the Act)	[143]

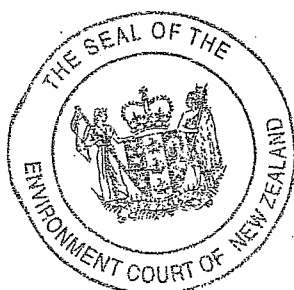




	Accumulative effects	[151]
3.3	The Central Otago District Plan (s 104(1)(b)(iv) of the Act)	[153]
	3.3.1 The scheme of the district plan	[153]
	3.3.2 The resources and issues	[154]
	3.3.3 The Rural Resource Area	[155]
	3.3.4 District-wide rules (section 12 of the district plan)	[158]
	3.3.5 Infrastructure, energy and utilities (section 13 of the district plan)	[159]
	The rules	[167]
	3.3.6 Heritage	[173]
	3.3.7 Financial contributions (section 15 of the district plan)	[174]
3.4	Plan Change 5 to the district plan (s 104(1)(b)(iv) of the Act)	[177]
3.5	The regional instruments (s 104(1)(b)(iii) of the Act)	[185]
3.6	Other matters to be had regard to (s 104(1)(c) of the Act)	[196]
	3.6.1 Other relevant matters raised in the evidence	[196]
	3.6.2 The National Energy Strategy	[197]
	3.6.3 International treaties	[198]
3.7	Part 2 of the RMA	[199]
	3.7.1 The strong directions in sections 6 and 8	[199]
	3.7.2 Section 6 matters	[200]
	Outstanding natural landscapes	[201]
	Historic heritage	[207]
	3.7.3 Section 7 of the Act (generally)	[209]
	The ethic of stewardship (section 7(aa))	[210]
	Energy (section (ba) and (j))	[214]
	Maintenance and enhancement of amenity values and quality of the environment (section 7(c) and (f))	[216]
	Intrinsic values of ecosystems (section 7(d))	[217]
	Any finite characteristics of natural and physical resources (section 7(g))	[219]
	The protection of the habitat of trout and salmon (section 7(h))	[220]
	The effects of climate change (section 7(i))	[221]
3.8	Efficient use of resources (section 7(b) of the Act)	[223]
	3.8.1 Efficiency of using the wind	[223]
	3.8.2 How is efficiency determined?	[227]
	3.8.3 Are alternative locations relevant?	[234]
	3.8.4 Conclusions on alternatives	[242]
4.0	<b>The landscape</b>	[243]
	4.1 Describing the landscape	[243]
	4.2 Natural science characteristics and elements	[245]
	4.2.1 Geomorphology	[245]
	4.2.2 Vegetation and ground cover	[249]
	4.2.3 Structures	[251]
	4.2.4 Fauna	[252]
	4.2.5 Summary	[253]
	4.3 Identifying the relevant landscape	[254]
	4.3.1 The wider landscape	[254]
	Mountain Ranges	[257]
	Category 1A	[257]
	Category 1B	[257]
	Foothills and Ridges	[257]
	Category 2A	[257]
	Category 2B	[257]



	Category 2C	[257]
	Categories 2D to 2I	[257]
	Alluvial Terraces and Basins	[257]
	Categories 3A and 3B	[257]
	Category 3C	[257]
4.3.2	The evidence of the landscape architects as to the landscape's boundaries	[259]
	Mr P Rough's evidence	[260]
	Mr S Brown's evidence	[265]
	Ms E A Steven's evidence	[271]
	Mr B Espie's evidence	[275]
	Mr P Baxter's evidence	[282]
	Dr M C G Mabin's evidence	[283]
4.3.3	Findings	[285]
4.4	Assessing the naturalness of the landscape	[292]
4.5	Is the landscape outstanding?	[301]
4.5.1	The Central Otago District Plan on the landscape	[301]
4.5.2	Plan Change 5 to the district plan	[302]
4.5.3	Evidence on the values of the Eastern Central Otago Upland Landscape	[305]
	Legibility of the landscape	[305]
	Transient values	[306]
	Shared and recognised values	[307]
	Tangata whenua values	[311]
	Aesthetic values	[312]
	Historic values	[314]
4.5.4	Direct evidence on whether the landscape is outstanding	[315]
	The evidence for Meridian	[315]
	Evidence for other parties	[318]
4.5.5	The views of the local authority's commissioners	[321]
4.5.6	Having regard to the Otago RPS	[328]
4.5.7	Conclusions	[329]
<b>5.0</b>	<b>The possible effects : qualitative analysis</b>	<b>[331]</b>
5.1	Introduction	[331]
5.2	Positive effects	[334]
5.2.1	Meeting the demand for more electricity	[334]
5.2.2	Placing downward pressure on electricity prices	[335]
5.2.3	Reducing carbon emissions	[337]
5.2.4	Complementarity of wind to hydro	[339]
5.2.5	Employment	[345]
5.2.6	Tourism attraction	[346]
5.3	Predictions about the effects of climate change	[351]
5.4	Earthworks, erosion and sedimentation	[356]
5.4.1	Overview	[356]
5.4.2	Earthworks remediation	[357]
5.4.3	The proposed management plans	[362]
	Review of the proposed management plans	[363]
	Erosion and sediment control guidelines	[367]
	Basecourse material	[368]
	Disposal sites	[370]
	Extreme events	[375]
	Snow and ice	[378]
5.4.4	Sedimentation in rivers	[379]



5.4.5	The agreed statement of facts, recommended modifications and our conclusions	[382]
5.5	Ecological effects – flora – damage and restoration	[386]
5.5.1	The earthworks	[386]
5.5.2	Remedial work	[387]
5.5.3	Conclusions on revegetation	[394]
5.6	Ecological effects – fauna	[397]
5.6.1	Birds	[397]
5.6.2	Invertebrates	[405]
5.6.3	Lizards	[411]
5.6.4	Fish	[413]
	Sediment loads, unusual/infrequent loads	[414]
	Vehicle contamination	[416]
	Pest species introduction	[418]
	Loss of habitat including spawning grounds	[420]
	Water take	[422]
	Summary in relation to fish	[423]
5.7	Landscape and visual effects	[424]
5.7.1	Introduction	[424]
5.7.2	Effects on the physical components of the landscape	[425]
5.7.3	Effects on perceptions of the wind farm : methods	[428]
	Selection of viewpoints	[428]
	Photo-simulations of the proposed wind farm	[430]
	Scales for assessing visual effects	[439]
5.7.4	Assessment of effects on the landscape from the viewpoints	[441]
	Distant views	[441]
	Clarks Junction area	[442]
	Eastern side of Lammermoor (within Dunedin City)	[444]
	• Old Dunstan Road – eastern side of Logan Burn Reservoir	[445]
	• Near Logan Burn Reservoir	[447]
	• Rock outcrop by Old Dunstan Road	[448]
	Old Dunstan Road within Central Otago district	[449]
	• Old Dunstan Road, near McPhees Creek	[449]
	• Old Dunstan Road, near Turbine V3Z3	[450]
	• Old Dunstan Road, 2.97 kilometres uphill from Paerau	[452]
	Styx-Patearoa Road and its continuation, Upper Taieri Paerau Road	[453]
	• Near Styx Creek	[453]
	• Upper Taieri Paerau Road	[454]
	Serpentine Flat	[455]
	• Junction of Linnburn Runs Road and Deep Creek Road	[456]
	• Middle of Serpentine Flat	[459]
	Old Dunstan Road (Rough Ridge)	[460]
	Serpentine Scenic Reserve	[463]
	Southern end of the Meridian site	[464]
	• Pylon Road	[464]
	• Taieri Rapids Scenic Reserve	[465]
	Te Papanui Conservation Park	[466]
	Rock and Pillar Range	[467]
	• McPhees Rock (1310 masl)	[468]



5.7.5	Mitigation of effects on the landscape	[469]
	Turbine design	[470]
	Other infrastructure	[473]
	Revegetation	[478]
5.7.6	Accumulative effects	[482]
5.7.7	Conclusions as to the values of the landscape	[491]
	Mr Espie's evidence	[491]
	Mr Rough	[492]
	Ms Steven	[493]
5.7.8	Visual Absorption Capacity of the Meridian site	[494]
5.8	Effects on amenities	[501]
5.9	Effects on historic heritage	[509]
	5.9.1 Archaeological heritage	[509]
	5.9.2 The Old Dunstan Road	[517]
	Changes to the fabric of the Old Dunstan Road	[518]
	Surroundings of the Old Dunstan Road	[526]
<b>6.0</b>	<b>Efficient use of resources – attempting to quantify the costs and benefits</b>	[534]
6.1	Introduction	[534]
6.2	Benefits	[536]
	6.2.1 Summary of benefits	[536]
	6.2.2 Benefits of electricity produced or contribution to Gross Domestic Product	[539]
	The intermediate consumption	[540]
	Is \$80/MWh a fair estimate of price?	[544]
	6.2.3 Reduced upward pressure on prices	[548]
	6.2.4 Avoiding transmission losses on import of electricity into Otago-Southland	[554]
	6.2.5 Improved security of supply	[555]
	6.2.6 Complementarity of wind to hydro	[557]
	6.2.7 Benefits to the economy from the construction of the wind farm	[559]
	6.2.8 Development Impact Levy	[571]
	6.2.9 Economic benefit of operation	[573]
	6.2.10 Reduced CO <sub>2</sub> emissions	[574]
	6.2.11 Other benefits	[581]
6.3	The costs	[584]
	6.3.1 Listing the possible costs	[584]
	6.3.2 Cost of electricity from wind	[586]
	6.3.3 Additional electricity system costs – frequency keeping and reserve capacity	[589]
	6.3.4 Back-up generation	[592]
	6.3.5 Frequency keeping and operating reserves	[605]
	6.3.6 Additional costs in upgrading the national grid	[608]
	6.3.7 Additional transmission losses	[617]
	6.3.8 Impacts on recreation and tourism	[623]
	Cost of alternative recreational venues	[630]
	Tourism in the wider region	[636]
	Other environmental and ecological costs	[639]
6.4	Summary of cost benefit analysis	[641]
	6.4.1 Tables of benefits and costs	[641]
	6.4.2 Probabilities	[643]
	One-off benefits and costs	[644]
	On-going benefits and costs	[647]



6.4.3	Conclusions	[649]
7.0	<b>Should the power generation facility be approved under the operative district plan?</b>	[651]
7.1	Introduction: achieving sustainable management of the Lammermoor's resources	[651]
7.2	Are the operative objectives and policies met?	[652]
7.2.1	Applying the code in section 13 of the operative district plan	[652]
7.2.2	Does the proposal achieve the policies?	[653]
	Positive effects of developing a wind farm	[655]
7.2.3	Other rules	[659]
7.3	Having regard to the Otago Regional Policy Statement	[660]
7.4	Having regard to the local authorities' decision (section 279A of the Act)	[669]
7.5	Other matters (section 104(1)(c) of the RMA)	[673]
7.5.1	The existing environment and the permitted baseline	[673]
7.5.2	Crown policies	[676]
7.5.3	Crown support for Meridian's proposal	[680]
7.5.4	Conduct of the appellants and supporters	[684]
7.5.5	Reversibility	[689]
7.5.6	All or nothing?	[691]
7.6	'Subject to Part 2 ...'	[693]
7.6.1	Summary to this point	[693]
7.6.2	Should we consider the application under Part 2 of the Act?	[694]
7.7	Is the proposal an efficient use of resources?	[697]
7.7.1	Do the quantified benefits exceed the costs?	[697]
	Summary of the benefits and costs	[698]
7.7.2	Alternatives: could the same output be achieved at lesser cost by using different resources?	[702]
	Should alternatives be considered?	[702]
	Do alternatives exist?	[705]
7.8	Other section 7 matters	[711]
	Stewardship (section 7(aa))	[712]
	Maintenance and enhancement of amenity values (section 7(c))	[714]
	Intrinsic values of ecosystems (section 7(a))	[719]
	Maintenance and enhancement of the quality of the environment (section 7(f))	[720]
	Any finite characteristics of natural and physical resources (section 7(g))	[721]
	The effects of climate change and the benefits of renewable energy (section 7(i) and (j))	[722]
7.9	Weighing all relevant matters	[723]
7.9.1	Appropriateness under sections 5 and 6	[723]
7.9.2	The actual and potential effects	[725]
7.9.3	The provisions of the operative district plan	[727]
7.9.4	The provisions of the provisional district plan (PC5)	[728]
7.9.5	The provisions of the Otago Regional Policy Statement	[729]
7.9.6	The Hearing Commissioners' decision	[730]
7.9.7	Achieving sustainable management of the site's resources	[732]
	Effects on the landscape	[734]
	Effects on historic heritage	[740]
	Conclusions	[745]



8.0	<b>Overall evaluation and outcome</b>	[751]
8.1	Consent under Plan Change 5?	[751]
8.2	Outcome	[757]
8.2.1	Summary on the application for a power generation facility (land use)	[757]
8.2.2	Otago Regional Council land use consents	[759]
8.2.3	Costs	[760]
	<b>Dissenting Judgment of Commissioner Sutherland</b>	[761]

## JUDGMENT OF THE MAJORITY

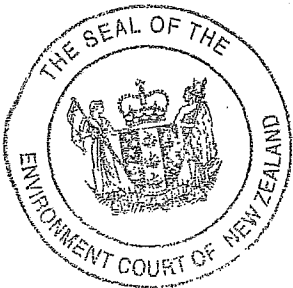
### 1.0 Introduction: a wind farm on the Lammermoor?

#### 1.1 The issue and the parties

[1] Meridian Energy Limited applied to the Central Otago District Council ("CODC") on 12 July 2006 and the Otago Regional Council ("ORC") on 1 November 2006 for resource consents to establish and operate a wind farm using up to 176 wind turbines each capable of generating up to 3.6 megawatts ("MW") of power on the Lammermoor Range in Central Otago. The two consent authorities granted consents on conditions, and the appellants lodged appeals in the Environment Court. Meridian's appeal was about conditions only. The ultimate issue for the Court in this decision is whether we should confirm or cancel or modify the consents granted by the two consent authorities.

[2] The proposed wind farm site is located on a high plateau generally more than 900 metres above sea level which is (approximately in each case) 70 kilometres to the north-west of Dunedin City, 40 kilometres to the south of Ranfurly and 15 kilometres west of Middlemarch. The site covers an area of 92 km<sup>2</sup> as shown on the attached plan of the proposed wind farm marked "A". The site covers the uplands part of five high country stations. From south to north they and the proposed numbers of turbines on them are:

- Rocklands 35 turbines
- Lammermoor 66 turbines
- Glen Ayre 19 turbines
- Logan Burn 9 turbines
- Loganbrae 46 turbines



The owners of those properties, apart from Logan Burn which is now owned by Meridian have licence agreements with Meridian to allow the construction and operation of a wind farm on their land. The total area (“the site envelope”) is about 135 km<sup>2</sup> and includes both the various parts of the site and the intervening land (including the Logan Burn Gorge and the valley of Spillers Creek) and roads leading to it.

[3] Meridian is a State owned enterprise and a major New Zealand energy company. The Government appeared<sup>1</sup> through counsel for the Minister for the Environment to support Meridian’s application and the local authorities’ decisions as a section 274 party. Mr Parker explained that the Minister had presented what was described as an “All of Government Submission”<sup>2</sup> to the Commissioners’ hearing on the proceedings for the two councils and that the authority for the filing of that submission came from Cabinet. That is, apparently, the first ‘whole of Government’ submission in support of an electricity project under the Resource Management Act 1991 (“the RMA” or “the Act”) as a project of national significance.

[4] The Regional Council and the CODC support the proposal and their decisions to grant it.

[5] All the appellants except Meridian (which appealed some land use conditions) oppose the land use consent completely. Several other section 274 parties appeared to support the appellants:

- the Central Otago Environmental Society in support of the Maniototo Environmental Society Incorporated (“MESI”);
- Otago Goldfields Heritage Trust; and
- Central Otago Recreational Users Forum in support of MESI and Messrs Carr and Douglas.

[6] The only exception to the “All of Government” support for Meridian’s application was from the Director-General of Conservation who lodged through the Otago



<sup>1</sup> Submissions of Mr M T Parker 6 August 2008 [Environment Court document 36].  
<sup>2</sup> Mr P F Gurnsey, evidence-in-chief Exhibit ‘PFG-1’ [Environment Court document 39].

Conservancy, acting under delegated authority, a separate submission<sup>3</sup> to the consent authorities. The Otago Conservancy's concerns were met by agreement with Meridian (it appears a potential payment is proposed, which is quite legitimate, if not transparent) and so the Director-General's position was neither to support nor oppose the applications<sup>4</sup>. In contrast the Otago Conservation Board, a quango, appeared through two witnesses – Mr Sutherland and Dr Nixon – to oppose the application.

[7] The Executive called four witnesses:

Mr D E Boyle, Planning and Development Manager at Transpower;  
 Mr J C Gleadow, Director Transmission of the Electricity Commission;  
 Mr P F Gurnsey, Manager, Climate Change Policy for the Ministry for the Environment; and  
 Mr S D Calman, Acting Deputy Secretary, Energy and Communications Branch of the Ministry of Economic Development.

The Court is grateful to all four of these witnesses for taking the time to give evidence to the Court, and especially to Mr Boyle and Mr Gleadow whose employers are not parties to the proceeding. Mr Gleadow was kind enough to return to the hearing in 2009 to answer further questions from the Court.

## 1.2 The proposal

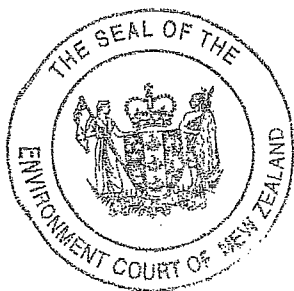
### 1.2.1 A 630 megawatt wind farm

[8] Meridian's wind farm<sup>5</sup> will be capable of generating power of up to 630 megawatts depending on the final turbine type selected. However, Meridian is interested in energy (measured in megawatt hours, or gigawatt hours) rather than in power. Because the wind does not blow all the time or, when it does, at the optimum strength, a wind farm only generates a proportion of its theoretical maximum capacity. If a 3.6 MW turbine is selected and is assumed, over a year, to generate 40% of its theoretical

<sup>3</sup> Mr P F Gurnsey, evidence-in-chief Exhibit 'PFG-2' [Environment Court document 39].

<sup>4</sup> Mr M T Parker, submissions for the Crown para 18 [Environment Court document 36].

<sup>5</sup> Meridian called its proposal "Project Hayes" in honour of an engineer who worked in the area. However, that has caused a good deal of confusion to outsiders such as journalists, some of whom have understood the proposal to be in the Lake Hayes area near Queenstown.





maximum then the 176 turbines of the Meridian proposal would generate sufficient electricity to supply power for 278,000 average homes.

### 1.2.2 Turbines – size and location

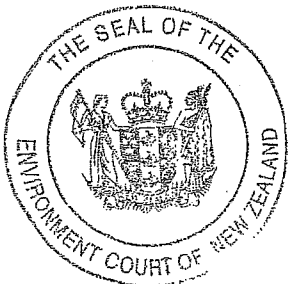
[9] A wind turbine is made up of:

- (a) blades, typically three in the ‘Danish design’ although a New Zealand home-grown model has two;
- (b) a hub (the hub and blades make the rotor);
- (c) a nacelle, which contains the drive train gearbox, generator and controller (and to which the rotor and tower are attached); and
- (d) a tower, which supports the nacelle and the electrical cables.

[10] In this case each of the turbines will have a maximum height of 160 metres to the tip of the rotor. Although consent is sought for turbines of up to that maximum size, Meridian offered a condition that all turbines would be of the same size (regardless of which model is finally selected) to ensure uniformity of appearance. The turbines proposed for Project Hayes are three-bladed turbines and similar (but larger) to those in other Meridian projects at White Hill (Central Southland), Makara (near Wellington) and Te Apiti (Manawatu), all of which we have inspected, with the parties’ agreement, after the formal part of the hearing concluded.

[11] In addition, Meridian has sought a limited degree of flexibility in the final siting of turbines, in that each turbine would be sited within a 150 metre radius of a defined point<sup>6</sup>. That flexibility is sought because the final access, layout and position of turbines is intended by Meridian to be subject to survey, detailed design, ecological and geotechnical considerations as encountered at each turbine site during construction. At the beginning of the hearing Meridian acknowledged that it would be appropriate to relocate one turbine (F9M3) away from the Taieri Rapids Scenic Reserve at the southern end of the site.

<sup>6</sup> Mr A J Coulman, evidence-in-chief para 3.8 [Environment Court document 30].



### 1.2.3 Substations and grid connection

[12] Five 220kV substations will be required to connect the wind turbines to the transmission grid. Four of these will feed to the Sluicings Substation at the southern end of the Meridian site via an internal 33 kV line. Electricity produced by the wind farm will then be fed via the Sluicings substation into the Roxburgh-Three Mile Hill (Dunedin) transmission line that runs across the southern end of the site. Internal cabling between turbines, substations and the Roxburgh-Three Mile Hill line will be required. Where practicable, this will be located underground to minimise visual effects. Where the use of overhead lines cannot practically be avoided (in particular, between substations and to the link to the 220 kV network), Meridian proposes that they will be either hidden from public view points or located within an identified corridor that has been designed to reduce visual effects while maintaining a safe distance from turbines.

### 1.2.4 Earthworks and roading design

[13] Earthworks are required on the site for a number of purposes including to construct internal access roads, turbine platforms and foundations. An internal road network of approximately 150 kilometres will be constructed. Nearly 100 kilometres of these access roads will involve upgrading (sometimes major) of existing tracks. Wherever possible roads have been designed to follow existing farm tracks and tops of ridges. Meridian claimed that will reduce the potential visual effects from external viewpoints by minimising the amount of excavation required.

[14] Work will also be needed on the Old Dunstan Road east of the site to change grades, widen the road, strengthen its surface, enlarge corners and bridge streams.

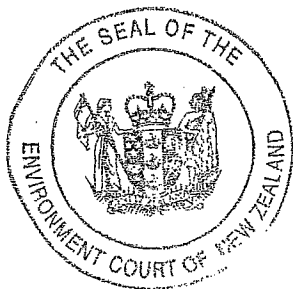
## 1.3 **The resource consents sought and their status**

### 1.3.1 Land use consents from the CODC

[15] The resource consent sought from the CODC was simply to construct and commission a wind farm of up to 176 turbines on the Meridian site with each turbine having a 'nameplate' capacity of 3.6 MW. The reason for the simple description of the proposed activity is that rule 13.7.4 of the CODC's district plan states (relevantly) <sup>7</sup>:

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<sup>7</sup> District Plan, pp. 13:16-17.



### 13.7.4 Power Generation Facilities

...

#### (iii) Discretionary Activities – Development of New Power Generation Facilities

Except as provided for by (iv) below, any activity that:

(a) Involves or is associated with the construction and commissioning of a power generation facility,

OR

(b) Results in an increase in the height of a dam ...  
is a discretionary activity.

For the purposes of this rule “construction and commissioning” activities includes those activities directly involved with the building and operation of a new energy production facility. This includes site preparation, earthworks, quarrying, concrete batching, plant construction, road construction and widening, traffic generation, reservoir formation, clearance or inundation of vegetation, but specifically excludes investigative activities such as geological sampling and surveys.

In other words construction and working on new power stations includes all ancillary operations identified. A further sentence makes it clear that any need to reroute remote network facilities is also included in such an application.

[16] The parties agree that the land use applications are to be considered as an unrestricted discretionary activity under the operative district plan. They did not consider the status of the activity under the proposed plan constituted by Plan Change 5 which was notified during an adjournment of the hearing, but it appears to us still to be a discretionary activity. As such, the Court may grant or refuse consent under section 104B of the Act and, if consent is granted, may impose conditions under section 108 of the Act. As we have stated, while most of the appeals opposed the grant of the land use consents, Meridian’s appeal was only concerned about seven of the conditions placed on the CODC consent – these related to traffic issues and to the amount payable under a development levy.

#### 1.3.2 Regional consents

[17] A number of consents were applied for by Meridian from the Otago Regional Council. These are essentially related to construction activities and all are required in terms of the Regional Water Plan. The types of resource consents required are:



## Landuse Consents:

- to replace and where necessary install culverts within various waterbodies throughout the proposed wind farm site;
- to disturb the beds of various waterbodies associated with construction works throughout the proposed wind farm site;
- to deposit fill material associated with fill disposal areas which may enter surface waterbodies;
- to deposit excess material which may enter surface waterbodies;
- to erect defences against water to manage and control waterbodies where necessary throughout the proposed wind farm site;
- to construct bores for the purpose of taking groundwater in order to lower localised groundwater tables.

[18] A number of discharge permits have also been sought as follows:

- to discharge stormwater runoff to land and water throughout the subject site associated with construction, maintenance and use of structures and ancillary facilities associated with the proposed wind farm;
- to discharge contaminants to land where they may enter water, namely silt and sediment from construction, maintenance and use activities associated with the proposed wind farm;
- to discharge contaminants to water, namely silt and sediment from construction, maintenance and use activities associated with the proposed wind farm;
- to discharge abstracted ground water to land as a result of lowering localised water tables during construction throughout the proposed wind farm site.

[19] A number of water permits have also been applied for by Meridian:

- to take ground water in order to lower localised water tables during the construction of the proposed wind farm throughout the site;



- to temporarily divert water in order to install culverts within various water bodies associated with the proposed wind farm;
- to divert stormwater around fill disposal areas on the proposed wind farm site during construction and on completion of the works.

[20] The applications and the activities for which consent is sought are variously to be considered either as a controlled activity, a restricted discretionary activity or a discretionary activity in terms of the Otago Regional Council Water Plan. At the time of the Council hearing, a report was prepared by a Regional Council officer, Mr Christophers. His report included a table of the consents in question and this table set out the activity status of each individual consent. No party questioned that before us.

[21] The only appeal relating to the Regional Council consents was that of Mr Douglas and his family. They opposed the grant of resource consents completely.

### 1.3.3 Resource consents from the Dunedin City Council

[22] We were advised by Mr Beatson for Meridian that roadworks within the road reserve width of the Old Dunstan Road do not require resource consents in either the Central Otago district or Dunedin City. However, it appears that some works (e.g. possible bridging of Sutton Stream at the base of the eastern scarp of the Rock and Pillar/Lammermoor Ranges) may require works outside the road reserve and so further resource consents may be necessary.

## 1.4 **The matters to be considered**

[23] Under section 104(1) of the RMA we are subject to Part 2 of the Act to have regard to any actual and potential effects on the environment of allowing the activity<sup>8</sup>; the relevant statutory instruments<sup>9</sup>; and other relevant matters<sup>10</sup>, and we must also have regard to the local authorities' decisions<sup>11</sup>. We set out our findings, predictions, and judgements on each of those matters in the following chapters:

<sup>8</sup> Section 104(1)(a) of the RMA.

<sup>9</sup> Section 104(1)(b) of the RMA.

<sup>10</sup> Section 104(1)(c) of the RMA.

<sup>11</sup> Section 290A of the RMA.



Chapter 2.0	The facts
Chapter 3.0	The law
Chapter 4.0	The landscape
Chapter 5.0	The possible effects – qualitative analysis
Chapter 6.0	Efficient use of resources? – attempting to quantify the costs and benefits
Chapter 7.0	Should the power generation facility be approved under the operative district plan?
Chapter 8.0	Overall evaluation and outcome

[24] All issues between Meridian and the respondents have been resolved by consent.



## 2.0 The facts

### 2.1 The Meridian site

[25] The Meridian site is on the western side of the broad, heavily dissected, plateau which is the southern end of the Rock and Pillar Range and the northern end of the Lammermoor Range. To use the word ‘range’ for the area encompassing the site feels quite wrong in the New Zealand sense of the word ‘range’ as meaning a chain of mountains. We have called the area which is:

- south of McPhees Rock (at the southern end of Rock and Pillar Range); and
- north of Ailsa Crag (on the Lammermoor Range)

– “the Lammermoor” since it is a moor – a high tussocky, often bleak, tree-less area containing some bogs. Because so much of the case revolves around the nature of the relevant landscape and because the relevant plan says much about the objectives and policies for the district’s and region’s landscapes, we describe the Lammermoor’s landscape, or the landscape of which the Lammermoor is part, in detail in Chapter 4.0.

### 2.2 The wind resource

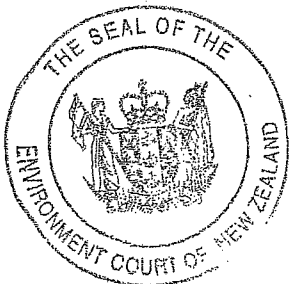
[26] Situated in the “Roaring Forties” and remote from large land masses New Zealand is a windy country. Mr Botha, a mechanical engineer with Meridian and with considerable experience in wind farm development stated in his evidence-in-chief that New Zealand is “often referred to as the Saudi Arabia of the wind industry”<sup>12</sup>. That this is an apt description is shown in a map of the World-wide wind resource appended to Mr Botha’s evidence<sup>13</sup>. Within New Zealand there are<sup>14</sup> “... clear concentrations of potential in the lower North Island, Canterbury, Otago and Southland” as shown on the two maps<sup>15</sup> annexed to this decision marked “B”.

<sup>12</sup> Mr P C Botha, evidence-in-chief para 4.1 [Environment Court document 27].

<sup>13</sup> Mr P C Botha, evidence-in-chief Figure 1 [Environment Court document 27].

<sup>14</sup> Mr J C Gleadow, Appendix B of affidavit dated 13 August 2008 [Environment Court document 42] quoting a Connell Wagner Limited report dated 25 March 2008 and entitled “Transmission to Enable Renewables Economic Wind Resource Study”.

<sup>15</sup> Mr J C Gleadow, Appendix A of affidavit dated 13 August 2008 [Environment Court document 42].



[27] Wind records from 1976 to 1991 are available from work done at the University of Otago. This led Meridian to the conclusion<sup>16</sup> that sites of particular potential value are located in the Lammerlaw and Lammermoor Ranges. This is generally confirmed by an examination of the maps based on 2003 data in the Connell Wagner report mentioned above.

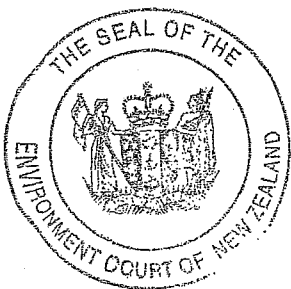
*The wind data*

[28] Because the Upland Landscape Protection Society (“ULPS”) contended that there was not enough wind on the Meridian site, especially during winter, we read and heard evidence about the wind resource on the site. Mr Botha wrote that he was responsible for establishing wind recording stations on and adjacent to the project site. Eight stations were installed and used to record wind speed and direction and air temperature. The records obtained range in length from a minimum of 95 days at one station, to 2.5 years at two stations. It was also Mr Botha’s responsibility to ensure the quality of the records from these stations and to interpret the validated data. Cross-examined as to the duration of site specific data necessary for wind farm design, he stated that a minimum of one year was sufficient provided there was at least one station in reasonable proximity that could be used as a correlation station. The data from this station would be used to determine whether the particular year was an unusual one. Of five nearby stations three had records suitable for this purpose. These were at Deepstream, Glendhu and Traquair at approximately 20, 28 and 38 kilometres distance respectively from the centre of the project site. These stations allowed 11 years of data to be synthesised for each of Meridian’s recording sites.

[29] Parameters of importance when evaluating a wind resource are mean wind speed at the level of the turbine hub, temporal and spatial distributions of wind speed, gustiness and turbulence intensity. Two of Meridian’s wind stations measured at 80 metres above ground level (“agl”), and the other six recorded at 10 metres agl. The latter were converted to 80 metres agl by standard methods. Eleven year averages for each of the parameters listed above were estimated for those stations with records of duration greater than one year by means of records from the correlation stations.

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<sup>16</sup> Mr P C Botha, evidence-in-chief para 4.2 [Environment Court document 27].





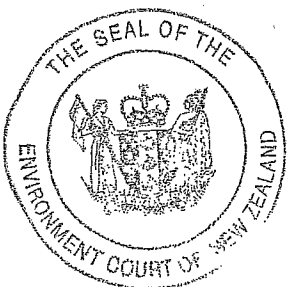
[30] Data from one wind station was requested by the appellant Mr Carr. This was provided by Meridian in tabular form showing at half hour intervals the wind speed and direction and temperature as recorded at the Rocklands B1 station in the southern section of the project site. Mr Carr had this data analysed and used it to point out anomalies in the record. In particular he noted a section of the record for which the anemometer appeared not to be responding. We are not troubled by that: such a section is not unusual in a long record. Reasons for this may include icing or jamming of the anemometer, or failure of the data transmission system. In any event Mr Carr did not pursue the issue in any substantive way.

[31] To determine conditions at each turbine site the computer program WAsP was used. This is a numerical model that calculates wind flow over a given topography. As input it accepts wind speed and direction as functions of time at the recording sites and calculates those parameters at other locations, in this case at each turbine site. This constitutes the modelled temporal and spatial distributions of wind speed and direction. These results, when combined with the turbine generation characteristics, allow the expected energy output from each turbine and thus the wind farm as a whole to be determined.

[32] Leaping ahead a little from facts to predictions we should explain that the expected energy output is used to calculate a capacity factor for the wind farm. This is the total energy predicted to be produced per year as a percentage of the energy that would be produced in a year if the turbines all operated at their maximum output for the whole year. Mr Botha combined the expected site wind distribution, determined as described above, with the power curve of the proposed turbines to estimate a capacity factor of 37% for Lammermoor site. In calculating this value allowance was made for typical losses including wake effects, electrical efficiency, turbine availability, icing, blade degradation and substation maintenance. The 37% compares very favourably with the international average for existing wind farms of 23%<sup>17</sup>, although we should record here that witnesses for other appellants did not accept that Meridian's 37% would be met in practice. No evidence was produced to support any other capacity factor, so we

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<sup>17</sup> Mr A J Muldoon, evidence-in-chief para 11.2 [Environment Court document 26].



accept Meridian's prediction. We also note here that the capacity factor is not a measure of the efficiency of a wind farm in extracting energy from the wind. Modern turbines achieve efficiencies of up to 85%<sup>18</sup>. Nor is the capacity factor a measure of the time a wind farm will be generating power. For the Lammermoor wind farm the latter figure is expected to be at least 88%<sup>19</sup>.

[33] The wind rose for the site presented by Mr Botha<sup>20</sup> shows the predominant wind (approximately 42% of the time) to be from the northwest sector, with winds from the southwest sector occurring some 24% of the time. The wind rose also shows the percentage or time the wind velocity lies within the stated bands. Mr Botha reported the average site speed is in excess of 8 m/s at 80 m agl<sup>21</sup>. This wind speed suggests an IEC class II turbine would be appropriate<sup>22</sup>.

[34] The turbulence and gustiness of winds on the site are relevant because any turbine would need to deal with them. As to the first, turbulence intensities are calculated from the standard deviation of the wind speeds. On the project site turbulence intensities so calculated were low, reflecting the gentle rolling nature and small surface roughness of the site. Gustiness was raised in cross-examination<sup>23</sup>. In response, Mr Botha reported that the maximum recorded gust was 176 km/hr and that, with in excess of 10 years of record, there were statistical methods available to assign probabilities to extreme gust velocities. (The IEC class II turbine mentioned above can tolerate gusts up to 216 km/hr<sup>24</sup>. In view of this Mr Botha appeared to have no concern over the possibility of high velocity gusts effecting the turbines, so we consider these issues no further.)

<sup>18</sup> Mr P C Botha, evidence-in-chief para 9.7 [Environment Court document 27].

<sup>19</sup> Mr P C Botha, evidence-in-chief para 9.5 [Environment Court document 27].

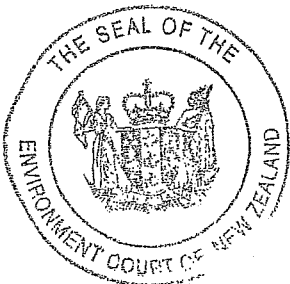
<sup>20</sup> Mr P C Botha, evidence-in-chief Fig. 3 [Environment Court document 27].

<sup>21</sup> Mr P C Botha, evidence-in-chief para 4.11 [Environment Court document 27].

<sup>22</sup> Mr P C Botha, evidence-in-chief para 3.1 [Environment Court document 27].

<sup>23</sup> Transcript, p. 996.

<sup>24</sup> Mr P C Botha, evidence-in-chief para 3.1 [Environment Court document 27].



[35] The data recorded at the two 80 metre stations and its recording, validation and interpretation were subjected to independent audit by Garrad Hassan Pacific Limited. Its report<sup>25</sup> states that the data as recorded was of high quality and sufficient to determine the parameters necessary for an evaluation of the site's potential as a wind farm. The report concludes by noting "the wind conditions and other site features make wind power generation extremely attractive on the proposed Project Hayes site."

*Seasonality of the wind resource*

[36] Mr Leyland, an electrical and mechanical engineer with expertise in power systems appearing for Mr Sullivan, drew attention<sup>26</sup> to the seasonality of a wind resource. By analysing the average monthly output of the Manawatu wind farms he found generation to be lower than the annual average in the March to August period and higher than the annual average in the spring months. This seasonal distribution corresponds to that of hydro lake inflows. These are low in autumn and winter and high in spring.

[37] Mr Botha presented examples of these seasonal variations by plotting actual average monthly wind speed variations from the annual mean for the West Wind and Te Apiti wind farms and the expected variations from the annual mean at the Lammermoor site based on 11 years of simulated data<sup>27</sup>. The wind speeds are some 2.5% lower than the annual mean in the May to August period<sup>28</sup>. We note that since power depends on the cube of the wind speed this corresponds to a 10.7% reduction in power output, a value close to the 9% reduction given by Mr Leyland<sup>29</sup>. Also on his figure Mr Botha plotted data which are referred to in his evidence-in-chief as hydro averages for Lakes Tekapo, Pukaki and Ohau. On the figure the data are referred to as lake inflows while Mr Leyland believed them to be lake levels<sup>30</sup>. The variation from the mean annual

<sup>25</sup> Mr P C Botha, rebuttal evidence, Attachment A [Environment Court document 27A?].

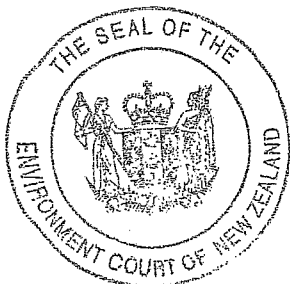
<sup>26</sup> Mr B W Leyland, evidence-in-chief section 4.0 [Environment Court document 80].

<sup>27</sup> Mr P C Botha, rebuttal evidence Fig 3 [Environment Court document 27A].

<sup>28</sup> Mr P C Botha, evidence-in-chief para 2.11 [Environment Court document 27].

<sup>29</sup> Mr B W Leyland, evidence-in-chief para 4.4 [Environment Court document 80].

<sup>30</sup> Transcript, pages 3074-5.



value for the March to August period averages 22 to 25%<sup>31</sup>. On this data “hydro averages” show greater seasonality than do wind speed and wind power output.

*Conclusions on the wind resource*

[38] In summary, we find the wind resource for the Meridian site to have been well researched and documented. We accept Mr Botha’s views, as expressed throughout his evidence, that the wind resource combined with the extent and topography of the Meridian site make it an excellent site for a large wind farm. There are of course other matters we must consider when evaluating the appropriateness of a wind farm on the Lammermoor. They are considered elsewhere in this decision.

**2.3 The surrounding area**

[39] Looking at the big picture first: the eastern portion of the Central Otago district contains, by New Zealand standards, a very large area not traversed by a State Highway. A line from Ranfurly to Lawrence (north/south) is 90 kilometres long while a line from Roxburgh to Middlemarch (east/west) is 64 kilometres across. Where those lines intersect is the Meridian site on the Lammermoor. Neither of those lines crosses a sealed road, and much of the area between the four towns is a series of tree-less round-topped ranges accumulating towards the south into a large plateau.

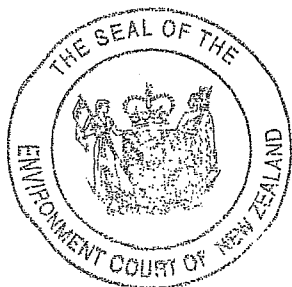
[40] There are three principal sets of northeast-southwest ranges lying like barnacled leviathans across Central Otago. They are:

- on the eastern side is the Rock and Pillar Range;
- in the centre is the Rough Ridge with the North Rough Ridge north of it;
- in the west (and much lower) are the Knobby Range (above the Clutha River) and north of that the Crawford Hills, Raggedy Range and Blackstone Hill.

Connecting the southern ends of the series of three is the northwest-southeastern line of the Pinelheugh Range, Mt Teviot, and the Lammermoor and Lammerlaw Ranges which together form the large if dissected plateau we referred to in the previous paragraph.

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<sup>31</sup> Mr P C Botha, evidence-in-chief para 2.12 [Environment Court document 27].



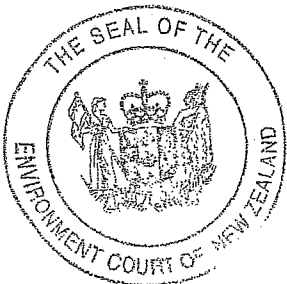
[41] The complex upland massif formed by all those ranges is the heart of Central Otago. It is all connected visually and in landscape terms. It is possible to walk from the top of the Rock and Pillar Range in a sweeping semi-circle to the south and then up to Blackstone Hill<sup>32</sup> without getting one's feet wet<sup>33</sup>. The general impression of these ranges when on them is of a vast (again, by New Zealand standards) and open, upland area.

[42] To find the site within this area one travels west from Mosgiel, near Dunedin, along State Highway 87 towards the long, high and even line of the Rock and Pillar Range (to the north or right side of the view) and the Lammermoor Range (to the south or left side). The crest of the ranges is (approximately) the western boundary of Dunedin City and beyond the ranges is Central Otago district. At Clarks Junction the highway turns north and runs parallel with the eastern scarp of the Rock and Pillar Range, towards Middlemarch. However, from Clarks Junction another road, the Old Dunstan Road (often called the 'Dunstan trail' in tourist brochures), travels northwest directly towards a low point in the long ridge. This road follows the general alignment of an old goldminers' route used in the 1860s. At the foot of the eastern scarp of the ranges the road crosses Sutton Stream and climbs steeply up the scarp, with the predominant vegetation changing from the vivid greens of cropped/exotic pasture to the softer brown/golden endemic tussocks. At the top of the scarp at about 850 metres above sea level (having climbed 400 metres from Sutton Stream) a wide plateau dissected by streams is discovered. Old Dunstan Road then turns northeast above a lake (actually a reservoir created by damming the Logan Burn) set in a large shallow basin on the plateau. The road then travels north towards Round Hill (1058 masl) in a diagonal line across the plateau which is the Lammermoor.

[43] Northeast of Round Hill the main bulk of the Rock and Pillar Range rises another 300 metres. The road continues north to the western side of the Lammermoor. After pausing to observe the scroll plain of the Taieri River, winding across the Serpentine Flat 300 metres below, and the Rough Ridge beyond, the road then plunges down that face to the heritage Styx Hotel and Jailhouse buildings. The line of the Old

<sup>32</sup> On the ranges between Becks and Oturehua.

<sup>33</sup> The only place the walker has to cheat is when crossing the Manuherikia River using a Central Otago Rail Trail bridge.

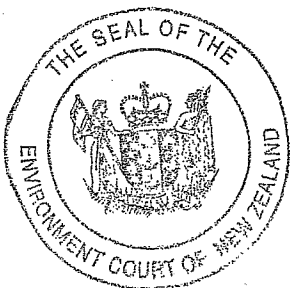


Dunstan Road is briefly lost on the Serpentine Flat, but can be found a few kilometres northwest at the southern end of the Maniototo Plain.

[44] In the Taieri valley on the western side of the Lammermoor there are roads on both sides of the Serpentine Flat. On the eastern side of the valley and running southwest from the Styx Hotel is the Upper Taieri-Paerau Road. If the Loganburn Ford Road is followed across the Serpentine Flat the Linnburn Runs Road is reached. At the intersection of those two roads is a small group of houses including one owned by the appellants, Mr and Mrs Manson. Their farm includes the rock and tussock hillside of Rocky Peak (739 masl) which pushes the Taieri River into another gorge north of Paerau. Mr Manson gave evidence that he strongly believes that the site is misdescribed as being on the 'Lammermoor Range', and that it is on the Rock and Pillar Range. Looking at the topographical map<sup>34</sup> NZ 260-H43 there is some strength in what he says. We sidestep the issue by calling the area of the site the 'Lammermoor' and not the 'Lammermoor Range'. That is justified both by the moorland topography and by the fact that some of it is part of Lammermoor Station.

[45] Also on the northwestern side of the Taieri River, and about 1.5 km south of the Linnburn Runs Road/Deep Creek Road is another farm, "Burnbrae", which is owned by the appellants Mr E and Mrs C Laurensen and their family trust.

[46] The Lammermoor is in the catchment of the Taieri River which, encompassing 5,650 km<sup>2</sup>, is one of New Zealand's largest river catchments. The river's headwaters rise on the Lammerlaw Range to the south of the site. Collecting various small tributaries the Taieri River runs north at the foot of the Lammermoor Scarp and along the western edge of the Rock and Pillar Range. It then winds east around the northern end of the Rock and Pillar Range before heading south (parallel to its earlier course) along the eastern side of that range to below Sutton. From there the river flows southeast down the Taieri Gorge to the Taieri Plain and the sea. At 318 kilometres in length, the river is New Zealand's fourth longest.



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<sup>34</sup> Exhibit 9.3.

[47] The Meridian site is nearly surrounded by publicly-owned land which in a number of places shares a boundary with the site. The public land is:

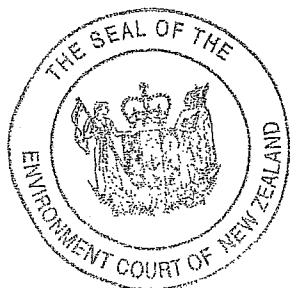
- (1) the Rock and Pillar Conservation Area is to the northeast with its closest point about one kilometre from the Meridian site;
- (2) the Stonehurst Conservation Area shares a boundary with the eastern side of the site (north of the Logan Burn Reservoir);
- (3) the Te Papanui Conservation Park is to the southeast of the site on the broad crest of the Lammermoor Range (the closest points are about one kilometre apart and there are conservation covenants over the intervening part of Rocklands Station);
- (4) the Taieri Rapids Scenic Reserve is a small reserve on the southwestern corner of the Meridian site;
- (5) the Taieri Wetlands Wildlife Management Reserves is 200 to 300 metres below the site and to the west. It is part of the Serpentine Flat scroll plain at a distance of two or three kilometres from the site;
- (6) the Logan Burn Reservoir including a reserve margin which varies in width between 600 and 1200 metres;
- (7) Shepherds Hut and Stony Creek Wildlife Management Reserves which can be accessed from Pylon Road. They provide public access along the stream's margins and protection for the high biodiversity values remaining.

#### 2.4 The history of the area

[48] The human history of the Meridian site is the history of the Lammermoor, and so is bound up as part of the history of Central Otago. Little is known of the Maori iwi – the Waitaha and Ngai Tahu – on the Lammermoor, probably because they were only visitors, and not inhabitants. Maori interest in the area focussed on food gathering, particularly of moa and weka, and as a route to get to other parts of Central Otago. It is not clear whether the Lammermoor was an actual hunting site, or a route to the hunting grounds of the Maniototo Plain<sup>35</sup>. It is possible that the routes across the Lammermoor that are the focus of the heritage interest today were first used by Maori, and later

<sup>35</sup>

Mr P R Petchey, evidence-in-chief, p. 6 [Environment Court document 5].



travellers were following routes established by the Maori<sup>36</sup>. A nohoanga site (traditional camping site) in the Logan Burn gorge near the Upper Taieri Paerau Road is shown on the District Council's Planning Maps.

[49] European settlement of the Lammermoor area began after the 1848 purchase by the Government of the mid-part of the South Island from Ngai Tahu in what has become known as 'Kemp's Purchase'. The land was made available initially for freehold purchase, and then as pastoral leasehold land in 1851. The evidence is somewhat confusing<sup>37</sup>, but it appears, based on the evidence of Mr Harrington<sup>38</sup>, that the entire Lammermoor area – including part of the Lammerlaws, Te Papanui, the Meridian site and the entire Rock and Pillar Range – was originally licensed (not leased) as one block known as the Loganburn Run covering some 120,000 acres. This large licence was divided into smaller pastoral leases soon after the turn of the century<sup>39</sup>. The current stations which have part of their land affected by Meridian's proposal were identified in part 1.1 of this decision.

[50] Sheep have been the main focus of the extensive pastoralism of the area. In the mid 1860s there were some 39,000 sheep run on two of the stations<sup>40</sup>. This extensive pastoralism remains a feature of the area today, with over 26,000 head of stock<sup>41</sup> being grazed on the five<sup>42</sup> properties within the project site. Rabbit numbers are unknown, but rabbits reached the area in the early 1870s<sup>43</sup>.

<sup>36</sup> Mr P R Petchey, evidence-in-chief para 3.4 [Environment Court document 5].

<sup>37</sup> Compare Mr P R Petchey, evidence-in-chief paragraphs 3.7 to 3.9 [Environment Court document 5] with Mr J W Douglas 'Rebuttal evidence of Mr P R Petchey' para 3.8 [Environment Court document 15A].

<sup>38</sup> Transcript, p. 2194 ff.

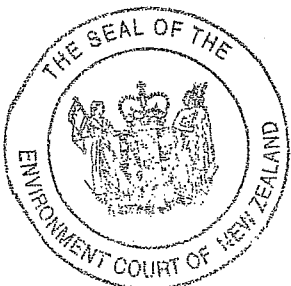
<sup>39</sup> Mr P R Petchey, evidence-in-chief para 3.8 and exhibit 3.5 page 9 (Environment Court document 5).

<sup>40</sup> Mr P R Petchey, evidence-in-chief para 3.8 records over 16,000 on Rocklands in 1868, and Exhibit 3.5 (p. 9) records 23,000 on the Rock and Pillar run [Environment Court document 5].

<sup>41</sup> Mitchell Partnerships, Project Hayes Assessment of Environmental Effects 2006, Original hearing AEE Vol. 1.0.

<sup>42</sup> Sheet 100 – Overall Site Development Land Ownership Plan, Appendix G to Appendix B AEE Vol. 2.0.

<sup>43</sup> Exhibit 3.5 p. 9.





[51] The area was one of the earliest to undergo land tenure review when the Rocklands lease was reviewed in 1995. This review resulted in the creation of the Te Papanui Conservation Park which lies just to the south of the proposed wind farm<sup>44</sup>. It also resulted in a covenant over 2,500 hectares of freehold land to protect historic mining sites and the designation of 35 kilometres of public access tracks and 26 kilometres of riverbank reserves<sup>45</sup>. Since then the leases resulting from the division of the more northern part of what was the Rock and Pillar lease have also been through tenure review, resulting in significant sections of the Rock and Pillar Range being set aside as part of the conservation estate<sup>46</sup>. In fact the Rock and Pillar Conservation Area is now continuous along the eastern side of the Rock and Pillar Range from just north of the Meridian site<sup>47</sup>. Of the three leases at the southern end of what was the Rock and Pillar lease, two have entered into tenure review. The Stonehurst lease completed tenure review in or after 2005<sup>48</sup> with the result that part of that lease straddling Old Dunstan Road and abutting onto the project site between the Logan Burn Reservoir and Old Dunstan Road became part of the Rock and Pillar Conservation Area<sup>49</sup>. The Kelvin Grove lease lies between the ex-Stonehurst part of the Rock and Pillar Conservation Area and the rest of the Conservation Area. This lease entered tenure review at about the same time (1997-2005) as the Stonehurst lease<sup>50</sup> but did not complete the tenure review process<sup>51</sup>.

[52] Pastoralism was the initial impetus for the development of a road over the Lammermoor. By the late 1850s there was a rough track across the Lammermoor called The Mountain Track by the isolated homesteads of Central Otago it served<sup>52</sup>. In 1858 funds were made available for three "pastoral roads" into Central Otago, one of which was the option of the 'Mountain Track' over the Rock and Pillars<sup>53</sup>. The

<sup>44</sup> Mr P R Petchey, evidence-in-chief para 3.10 [Environment Court document 5].

<sup>45</sup> Mr W Harrington, evidence-in-chief para 14 [environment Court document 51].

<sup>46</sup> Exhibit 3.2 Map 5-15.

<sup>47</sup> Mr P Rough, evidence-in-chief Sheet 2 of the Attachments, Transcript p. 104, Exhibit 3.2 p. 5 (not paragraph 1 as stated in transcript) [Environment Court document 3].

<sup>48</sup> Kingett Mitchell evidence to original hearing, AEE Vol. 3, Appendix E, p. 48.

<sup>49</sup> See Sheet 2 of Rough evidence-in-chief attachments and maps 5-15 and 1 of Exhibit 3.2.

<sup>50</sup> Transcript, p. 133 and handwritten date (28/2/97) on p. 1 of copy provided in evidence.

<sup>51</sup> Transcript, p. 136.

<sup>52</sup> Mr G C Sydney, evidence-in-chief para 25 [Environment Court document 11].

<sup>53</sup> Ms S Hinds, evidence-in-chief p. 2 [Environment Court document 16].



'Mountain Track' was investigated in 1858/1859<sup>54</sup> and funds voted for its development as a dray track in 1860<sup>55</sup>. It was ready for use by drays in April 1861<sup>56</sup>.

[53] With the discovery of gold in the Dunstan region in August 1862<sup>57</sup>, large numbers of gold-seekers headed into Central Otago. They were in a hurry and their choices were limited. The 'Mountain Track' was the shortest route<sup>58</sup>. It is likely that several thousand hopeful prospectors travelled the 'Mountain Track' over the next few months, most of them on foot or by dray<sup>59</sup>. On 6 November 1862<sup>60</sup> the first coach travelled the 'Mountain Track' as a trial, and on 25 November 1862<sup>61</sup> the first scheduled coach run was made.

[54] Although the 'Mountain Track' was the most direct route, it was also the most difficult and dangerous due to the steep climbs and the extremes of weather on the Lammermoor. After two years of often precarious coaching across the Lammermoor, and after the particularly hard winter of 1864 the decision was made to use the alternative Pigroot (now State Highway 85) for winter coaching<sup>62</sup>. The 'Mountain Track' – now called 'the Old Dunstan Road' was still used for coaches in the summer months, as well as by those on foot, horseback and by drays, servicing the travelling needs of both the gold-diggers and the pastoral communities well into the 1800s<sup>63</sup>. The use of the Old Dunstan Road continued into the 20th century at sufficient volumes that an hotel was still operating in the early part of the century<sup>64</sup>. Although closed to public use by locked gates in winter since 2003<sup>65</sup>, it has continued as a summer route through to the present day<sup>66</sup>.

<sup>54</sup> Mr J W Douglas, rebuttal evidence to Mr P R Petchey, appendix 1 p. 1 [Environment Court document 15A].

<sup>55</sup> Transcript, pages 357 and 363 and Ms S Hinds, evidence-in-chief p. 2-3 [Environment Court document 16].

<sup>56</sup> Ms S Hinds, evidence-in-chief p. 3 [Environment Court document 16].

<sup>57</sup> Mr P R Petchey, evidence-in-chief p. 8 [Environment Court document 5].

<sup>58</sup> Mr P R Petchey, evidence-in-chief para 3.12 [Environment Court document 5].

<sup>59</sup> Ms S Hinds, evidence-in-chief para 5 [Environment Court document 16].

<sup>60</sup> Mr P R Petchey, evidence-in-chief extract p. 30 [Environment Court document 5].

<sup>61</sup> Ms S Hinds, evidence-in-chief para 6 [Environment Court document 16].

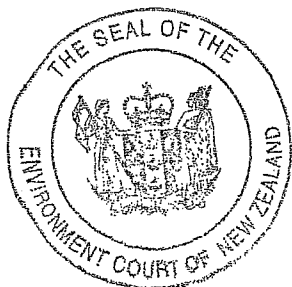
<sup>62</sup> Mr P R Petchey, evidence-in-chief para 3.13 [Environment Court document 5].

<sup>63</sup> Ms S Hinds, evidence-in-chief para 7 [Environment Court document 16].

<sup>64</sup> Mr J W Douglas, Landscape/visual/heritage evidence-in-chief p. 16 para 5.3.5 [Environment Court document 15].

<sup>65</sup> Mr J W Douglas, rebuttal evidence to Mr P R Petchey, para 5.11 [Environment Court document 15A].

<sup>66</sup> Ms S Hinds, evidence-in-chief para 7 [Environment Court document 16].



[55] The Old Dunstan Road has been minimally upgraded through the years, including widening and installation of concrete fords and culverts at stream crossings, with some gravel application to parts of the road on the Dunedin side<sup>67</sup>. The Old Dunstan Road follows the same route as it did in the late 19th century and only slightly deviates from the route the diggers took in the 1860s<sup>68</sup>. In appearance, although slightly wider and of slightly better quality, it “retains the essential elements of its original existence”<sup>69</sup>. It is 102 kilometres from Clarks Junction to Moa Creek over the Lammermoor and Rough Ridge<sup>70</sup>.

[56] The ‘Mountain Track’ was not the only way the gold-diggers crossed the Lammermoor in the 1860s. Spillers Track crossed the Lammermoor at the southern end. It also probably follows a route first established by Maori<sup>71</sup>. The history of the development and use of this track was not presented in evidence. It was still in use in the early 20th century<sup>72</sup>. The eastern end of Spillers Track is now Pylon Road which, as the name suggests, is a road servicing the power pylons of the Roxburgh-Three Mile Hill transmission line. While Pylon Road is closed to public vehicular traffic by a locked gate, Spillers Track (including Pylon Road) is open to self-propelled public access – walking, biking or on horseback<sup>73</sup>. Not only was Spillers Track a route across the Lammermoor, it also serviced the small amount of mining activity known to have occurred on the Lammermoor. These mines were probably first worked some time in the 1860s or 1870s<sup>74</sup>, and were still being worked into the 20th century<sup>75</sup>. The evidence of this mining activity can still be seen in many places in the area through which Spillers Track passes<sup>76</sup>.

<sup>67</sup> Mr P R Petchey, evidence-in-chief para 4.18 [Environment Court document 5].

<sup>68</sup> Mr P R Petchey, evidence-in-chief para 4.15 [Environment Court document 5].

<sup>69</sup> Mr P R Petchey, evidence-in-chief para 4.19 [Environment Court document 5].

<sup>70</sup> Mr R J Greenaway, evidence-in-chief para 1.11 [Environment Court document 59].

<sup>71</sup> Mr P R Petchey, evidence-in-chief para 3.4 [Environment Court document 5].

<sup>72</sup> Mr J W Douglas, Landscape/visual/heritage evidence-in-chief p. 20 para 6.1.2 [Environment Court document 15].

<sup>73</sup> Mr R J Greenaway, evidence-in-chief Appendix 1 [Environment Court document 59].

<sup>74</sup> Mr P R Petchey, evidence-in-chief paragraphs 3.11 and 4.9 [Environment Court document 5].

<sup>75</sup> Mr J W Douglas, Landscape/visual/heritage evidence-in-chief p. 20 para 6.2.2 [Environment Court document 15].

<sup>76</sup> See Map 1, Archeological Site Locations, attached to Mr P R Petchey’s evidence-in-chief [Environment Court document 5].



[57] Prior to, and immediately following, the 1862 discovery of gold the only services to the travelling public on the 'Mountain Track' were those provided by the homesteads of the pastoral leases<sup>77</sup>. The increase in travellers following the 1862 discovery prompted a number of establishments to set up and service the trade. As well as two coaching firms travelling the route, there were at least two hotels on the Lammermoor in the vicinity of the project site: McKirdy's Hotel beside what was then the Great Moss Swamp and is now the Logan Burn Reservoir, and McPhees Hotel on the Lammermoor summit in the vicinity of McPhees Rock<sup>78</sup>. Other establishments on the Mountain Track included hotels at Deep Stream, possibly at Sutton Stream; two at Styx (Paerau)<sup>79</sup>, and the jail at Styx.

[58] As gold fever died out travellers took easier routes and the services, no longer needed on the Mountain Track, faded away. The name applied to the route changed: from one reflecting the terrain it traversed (the Mountain Track) to one reflecting the destination it served (the Dunstan Road) and then again to reflect its history (the Old Dunstan Road). The road remains, minimally maintained<sup>80</sup>, as a "back country dirt road"<sup>81</sup>, usable with care by two wheel drive motor vehicles in prolonged dry weather<sup>82</sup>.

[59] Pastoral farming reasserted itself in the 20th Century as the pre-eminent activity on the Lammermoor. Recreational skiing began in the area in 1932<sup>83</sup> and recreational use of the area grew from then, and remains a feature of the area today.

## 2.5 The uses of the area (farming, water reservoir, energy transmission)

[60] The Meridian site is used for farming by the five landowners. Sheep and cattle are grazed at very low rates – about one sheep per two hectares. Post and wire fences have been constructed across the Meridian site, especially on the boundary lines. There are stockyards and airstrips, and an extensive network of farm tracks on either side of

<sup>77</sup> Ms S Hinds, evidence-in-chief paragraphs 4 and 5 [Environment Court document 16].

<sup>78</sup> Mr P R Petchey, evidence-in-chief para 3.14 [Environment Court document 5].

<sup>79</sup> Mr P R Petchey, evidence-in-chief para 3.14 [Environment Court document 5].

<sup>80</sup> Mr P R Petchey, evidence-in-chief para 3.15 [Environment Court document 5].

<sup>81</sup> Mr P R Petchey, evidence-in-chief para 4.22 [Environment Court document 5].

<sup>82</sup> Mr P R Petchey, evidence-in-chief para 3.15 [Environment Court document 5].

<sup>83</sup> Evidence of Mr R J Greenaway to original hearing, p. 98, AEE, Vol. 3.



the Logan Burn. About 350 hectares of the Meridian site within Lammermoor Station has been ploughed and sown (above the Logan Burn Reservoir) with exotic grasses. On our observation there has been limited take by sown grasses and instead other adventitious species (and some native species) such as sheep's sorrel (*Rumex acetosella*) have introduced themselves to the ploughed areas.

*Schemes for conserving water quantity and quality*

[61] The Logan Burn Reservoir was built to store water for release to the Maniototo irrigation scheme when required and to generate modest amounts of electricity at the Paerau generating station.

[62] Also relevant under this head is that one of the reasons for the Papanui Conservation Park was to protect the head of Deep Creek catchment which supplies some of Dunedin City's water.

*Transmission infrastructure (and constraints)*

[63] A corridor across the southern end of the Lammermoor is used for infrastructure. It contains the 220 kiloVolt ("kV") Roxburgh-Three Mile Hill section of the national electricity grid. The pylons along this line vary in height, but the tallest is up to 45 metres high.

[64] At some point we need to discuss the wider grid because it raised issues of concern to parties opposing Meridian's application, and here is convenient. The starting point is that power is distributed throughout New Zealand over a network of high voltage transmission lines referred to as the National Grid. The grid is owned and operated by Transpower. Power generators such as Meridian have open access to the grid provided they meet minimum technical standards. The National Grid, in common with all transmission systems, has constraints which limit the operating capacity of the system. Those of immediate importance to Meridian's proposal are:

- the capacity of the lines between the Clutha and Waitaki Rivers, referred to as the Lower South Island ('LSI') constraint; and



- the capacity of a 220/110 kV transformer at Roxburgh substation known as the RoxT10 transformer ('RoxT10').

The Cook Strait cable is also a constraint on the National Grid which could have a bearing on the proposal if its power is to be transmitted to the North Island or when, for example in a dry year, South Island power generation needs to be supplemented by generation in the North Island.

[65] Mr Timothy George, General Manager Grid Investment for Transpower, discusses the LSI and RoxT10 constraints in an Appendix to his evidence-in-chief<sup>84</sup>. He explained that there are three lines between the Clutha River and the Waitaki River over which power flows from and into the LSI. The constraint is the summer thermal limits on the Roxburgh/Livingstone line through Danseys Pass for both south to north (export) and north to south (import) flows. Mr George notes that in 2006 the constraint limited export flows for 0.1% of the time which he claimed was trivial<sup>85</sup>. Exhibit 73.1 "Lower South Island Transmission Upgrade Investigation" outlines the options being considered by Transpower to increase the capacity of the LSI constraint to assist with the potential connection of new generation in the LSI.

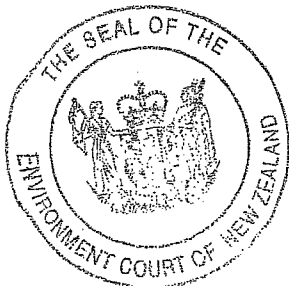
[66] The constraint on RoxT10 is a thermal constraint. It is applied so that flows in the event of a credible failure in one of the 110 kV circuits serving Otago/Southland do not exceed the technical limit of the transformer. There have been approximately 700 occasions totalling eight hours between March 2006 and April 2008 when the constraint bound<sup>86</sup>. Options to reduce this constraint have been considered by Transpower but not implemented as the constraint can be managed in ways that do not have a high cost.

[67] Further north, power transmission from the Waitaki Valley to the North Island is via the High Voltage Direct Current ('HVDC') link from Benmore to Haywards which includes the Cook Strait cable. At present the cable is limited to 600 MW approximately but plans have been approved by the Electricity Commission to upgrade its capacity to 1400 MW by 2012. Possible constraints on the wind farm proposal and

<sup>84</sup> Mr T A George, evidence-in-chief appendix [Environment Court document 37A].

<sup>85</sup> Mr T A George, evidence-in-chief para 148 [Environment Court document 37A].

<sup>86</sup> Mr T A George, evidence-in-chief para 133 [Environment Court document 37A].



other South Island power going north and on the southward flow of power will thus be much reduced by that time.

## 2.6 Other uses of the area (recreation, tourism, heritage protection)

### 2.6.1 Introduction

[68] Recreational evidence was provided by two witnesses: Mr Greenaway, a consultant leisure and open space planner for Meridian, and Ms J I Kelly for the Central Otago Recreational Users Forum ("CORUF"). Ms Kelly informed us that CORUF consists of some 60 recreational clubs, groups and individuals comprising several thousand persons<sup>87</sup>.

[69] Around the site there are<sup>88</sup> at least six reserves, two conservation parks, a reservoir used as a trout fishing destination, and a network of paper roads, public roads, easements and esplanade reserves allowing access. They are all available for recreational use. Clockwise we heard evidence pertaining to:

#### (1) *The Rock and Pillar Range*

This Range to the northwest of the site is used by walkers, hunters and trampers in summer<sup>89</sup>. It is also used by cross-country skiers in winter<sup>90</sup>. Access is via steep tracks on the eastern face, or by a track turning off the Old Dunstan Road towards McPhees Rock. The Rock and Pillar Range contains 23 km<sup>2</sup> of reserve along the crest of the range, and more recently acquired land (formerly part of Stonehurst Station) along the eastern side of the Old Dunstan Road, near McPhees Rock<sup>91</sup>. There are two mountain huts on the range above Middlemarch. The Rock and Pillar Hut Trust maintains Big Hut and the Otago Tramping and Mountaineering Club maintains Leaning Lodge. At Big Hut visitor numbers increased from 96 in 2001 to 347 in 2007<sup>92</sup>. The Department of Conservation does not

<sup>87</sup> Ms J I Kelly, evidence-in-chief para 5 [Environment Court document 17].

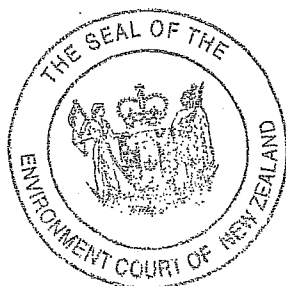
<sup>88</sup> Detailed above in section 2.3.

<sup>89</sup> Mr R J Greenaway, evidence-in-chief p. 5/48 [Environment Court document 59].

<sup>90</sup> Mr R J Greenaway, evidence-in-chief p. 5/48 [Environment Court document 59].

<sup>91</sup> Mr R J Greenaway, evidence-in-chief p. 6/48 [Environment Court document 59].

<sup>92</sup> Ms J I Kelly, further submissions called 'rebuttal evidence 20 June 2008' para 30 [Environment Court document 71].



promote 4WD activity in the Rock and Pillars, and avoids mentioning it as an appropriate activity<sup>93</sup>.

(2) *The Logan Burn Reservoir*

The place of this artificial lake in the landscape we will discuss later. The lake is used for angling, although ‘... actual angling use is likely to be moderate’<sup>94</sup>. Boating on the reservoir is facilitated by a boat ramp near the Logan Burn dam. As many as 30 boats a day have been reported on the water in the January/February period with an average of three to six boats a day<sup>95</sup>.

(3) *The Old Dunstan Road*

This road is an easy four wheel drive route in three seasons but is closed in winter (June to 30 September). Apart from sight-seers in cars (50-60 vehicles per day in 2007 with a Waitangi Day peak of 150<sup>96</sup>), the Old Dunstan Road is used by fit mountain-bikers and by horse-riders. It is recognised as a mountain biking route comprising two sections. One from Clarks Junction to Paerau which skirts the project site and the other from the upper Taieri Plain to the Ida Valley. Mr Greenaway’s usage figures were disputed by CORUF<sup>97</sup> as being limited in scope and based on inadequate research. Ms Kelly offered a selection of comments obtained from a web search that suggest the Old Dunstan Road receives a ‘varied and interesting’ amount of use<sup>98</sup>. We cannot determine anything quantitative from this listing. In any event it is clear there are many opportunities for recreation based on the Old Dunstan Road.

<sup>93</sup> AEE, Appendix J page 48 and Transcript, p. 2429.

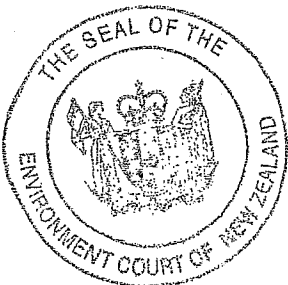
<sup>94</sup> Mr R J Greenaway, evidence-in-chief p. 5/48 [Environment Court document 59].

<sup>95</sup> Mr R J Greenaway, evidence-in-chief p. 11/48 [Environment Court document 59].

<sup>96</sup> Mr R J Greenaway, evidence-in-chief p. 5/48 [Environment Court document 59].

<sup>97</sup> Ms J I Kelly, further submissions called ‘rebuttal evidence 20 June 2008’ para 9 [Environment Court document 71].

<sup>98</sup> Ms J I Kelly, rebuttal evidence 20 June 2008 paragraphs 13 to 33 [Environment Court document 71].





(4) *Great Moss Swamp Wetlands, Shepherds Hut and Stony Creek Wildlife Management Reserves*

Although the significance of these lies principally in their ecological value, collectively they also provide access for recreational activities.

(5) *Te Papanui Conservation Area*

Mr Greenaway described the use of this area to the south of the site on the Lammermoor Range as follows:

This area of snow tussock is predominantly of conservation rather than recreation value. However, a 4WD track extends through the park from Old Dunstan Road and is the dominant access route, leading to or from Lawrence. Some mountain biking and horse trekking occurs. The only recreational hut in the park – Mountain Hut – has recently been removed due to its poor condition ... Recreational use is low.

In cross examination by Mr Holm, Mr Greenaway stated that the area is “being managed by the Department of Conservation primarily for its conservation values rather than its recreation values”<sup>99</sup>. This was disputed by the Otago Conservation Board witness, Mr F Sutherland, a member of the Board when the Park was established, who in cross-examination by Mr Holm asserted<sup>100</sup>:

... it [Te Papanui Conservation Park] was primarily reserved for its tussock values and its landscape values and its recreational values in a location close to the city of Dunedin ...

(6) *Rocklands Station*

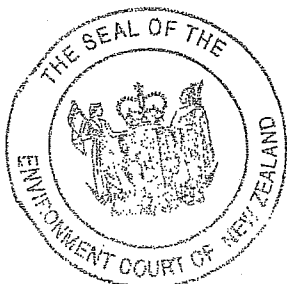
Parts of Rocklands Station at the southern end of the Meridian site are subject to access easements or contain legal roads which are used for a small amount of recreation<sup>101</sup>. The easements limit public use to access on foot or by bike. Mr Greenaway wrote<sup>102</sup>:

<sup>99</sup> Transcript, p. 2145.

<sup>100</sup> Transcript, p. 3049.

<sup>101</sup> Mr R J Greenaway, evidence-in-chief p. 6/48 [Environment Court document 59].

<sup>102</sup> Mr R J Greenaway, evidence-in-chief p. 6/48 [Environment Court document 59].



The public walking and cycling route from Old Dunstan Road to the Taieri Rapids Scenic Reserve is largely based on Pylon Road ... and for much of the route is within 500 metres of its towers and cables.

(7) *The Upper Taieri River*

The public recreational areas include:

- the scroll plain (including the Serpentine Flat) west of the Upper Taieri-Paerau Road;
- Canadian Flat;
- the Taieri Rapids Scenic Reserve.

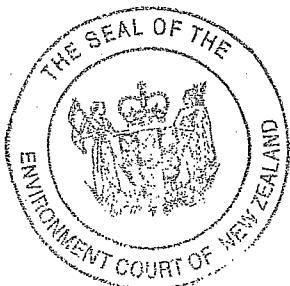
Mr Greenaway wrote<sup>103</sup>:

Canadian Flats, Serpentine and the upper Taieri River:

These areas include Department of Conservation Wildlife Management Reserves around the upper Taieri River and offer angling and hunting opportunities. Recreational use is very low at the Taieri Rapids Scenic Reserve and increases downstream. Where the river meets the flats, an important angling destination exists.

The upper Taieri wetlands are important. The Central Otago District Plan records<sup>104</sup>:

Of special significance is the Upper Taieri wetlands. These wetlands are at least of national importance for wildlife values ... Fifty-two species of bird have been recorded there. The former Wildlife Service rated the wetlands as being internationally important as waterfowl habitat, as one of the three most valuable freshwater wildlife habitats in Otago, and one of the ten most valuable in New Zealand.



<sup>103</sup> Mr R J Greenaway, evidence-in-chief p. 6/48 [Environment Court document 59].  
<sup>104</sup> Central Otago District Plan, para 2.4.3(iv).

Water fowl hunting is a popular recreational activity throughout the district. The Upper Taieri wetlands are a regionally significant waterfowl hunting area used by over 300 hunters annually.

(7) *The Styx Jail and Hotel*

These old heritage buildings are at Paerau where the Old Dunstan Road, after winding down the escarpment above the Taieri River, meets the Styx Patearoa Road on the flats.

(9) *Other heritage sites*

The main heritage goldmining site on the project site can be accessed from Spillers Track, an early road which retains its original form in some sections. This is the Pettigrew/Clunies claim which contains Pettigrews hut, water races and sluicing remains. Early pastoral sites include sod stockyards and early shepherds'/boundary riders' hut sites. Trig stations are also considered to be part of the historic landscape as tangible reminders of early surveying work<sup>105</sup>. We have no doubt that these form part of a heritage landscape of interest to those whose enthusiasms lie in examining the past.

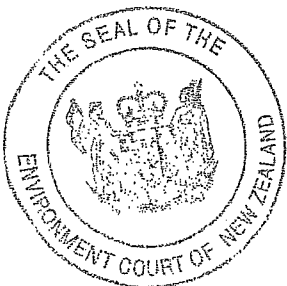
2.6.2 Commercial tourism

[70] Tourism Central Otago's website lists six tour operators offering tours in the study area<sup>106</sup>. Of these, two reported using the Old Dunstan Road and venturing onto the Lammermoor. One makes occasional visits to the Rock and Pillar Range to view flowering alpine plants and one takes tourists to the Otago Central Rail Trail. We note this is 2006 information. Ms Kelly updated<sup>107</sup> it by referring to another company taking tourists to the Rail Trail. She also noted the numbers using the Rail Trail had increased approximately 10% per year since 2003. In view of the current financial climate we consider we are safe to use Mr Greenaway's figures.

<sup>105</sup> Meridian's AEE Volume 3 Appendix G, para 9.7.

<sup>106</sup> Mr R J Greenaway, evidence-in-chief p. 9/48 [Environment Court document 59].

<sup>107</sup> Ms J I Kelly, further submissions called 'rebuttal evidence 20 June 2008' paragraphs 34-36 [Environment Court document 71].



### 2.6.3 Fishing

[71] In relation to the Logan Burn Reservoir, a Mr Kent, in a 2006 fishing guide quoted by Mr Greenaway<sup>108</sup>, stated:

... (the Logan Burn Reservoir) holds a reasonable stock of brown trout averaging 1.3 kg but these are not easy to catch on a fly until the cicadas arrive in late January. The water is brownish in colour...

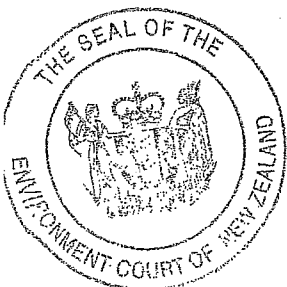
Mr Greenaway reproduced figures from a National Angler Survey<sup>109</sup> for angler days by two month periods. They are for one year (2001/2002), have large error margins and were described by the fishing guides interviewed by Mr Greenaway as being on the high side. In addition we note the comment from one of these guides<sup>110</sup> that the fishing can be variable from year to year and thus we have little confidence in the figures presented. Against that, Ms Kelly, quoting from a NIWA publication, noted that the 2001/2002 National Angler Survey figures total 4280 compared to 1320 visits in 1994/96 and infers a significant increase in fishing at the Logan Burn Reservoir<sup>111</sup>.

[72] In regard to the Taieri River Mr Greenaway again quoted from Mr Kent's 2006 fishing guide<sup>112</sup>:

...the water is heavily peat stained making sight fishing difficult unless the fish are rising. There are few fish above Canadian Flat. At Serpentine Flat ... some excellent nymph and dry fly fishing can be experienced on calm days with accurate casting.

[73] Mr Greenaway interviewed three fishing guides identified through the Maniototo Visitors Information Centre<sup>113</sup>. One takes visitors, including internationals to Logan Burn Reservoir. However, the majority of internationals prefer river fishing and thus the

<sup>108</sup> Mr R J Greenaway, evidence-in-chief para 2.9 [Environment Court document 59].  
<sup>109</sup> Mr R J Greenaway, evidence-in-chief para 2.11 [Environment Court document 59].  
<sup>110</sup> Mr R J Greenaway, evidence-in-chief p. 11/48 [Environment Court document 59].  
<sup>111</sup> Ms J I Kelly, further submissions called 'rebuttal evidence' para 42 [Environment Court document 71].  
<sup>112</sup> Mr R J Greenaway, evidence-in-chief para 2.14 [Environment Court document 59].  
<sup>113</sup> Mr R J Greenaway, evidence-in-chief p. 10/48 *et ff* [Environment Court document 59].



guides make greater use of the upper Taieri River. Despite that, neither the Taieri River nor the Logan Burn Reservoir are referred to in "New Zealand's Top Trout Fishing Waters" by Kent and Marsden (2003) as quoted by Mr Greenaway<sup>114</sup>. Mr Greenaway notes they are also absent from the 'more selective angling guides'.

#### 2.6.4 Tramping, walking and skiing

[74] Mr Greenaway wrote that there are no named formal walking tracks on the Lammerlaw/Lammermoor/Rock and Pillar Range plateau<sup>115</sup>, and that access is confined to the 4WD drive tracks. This was disputed by Ms Kelly in her submissions. She referred to tracks listed in "Day walks in Dunedin and Coastal Otago" by Bill Wilson (no date is given) and to tracks identified by trampers she interviewed<sup>116</sup>. These tracks encompass Te Papanui Conservation Area and the Rock and Pillar Range. Further, in our observation this is the sort of country where, if fit enough, a person can wander at will.

[75] Skiing is based around Big Hut and Leaning Lodge and is generally cross country skiing. That the maintenance of these facilities is now the responsibility of private groups is evidence of the values placed upon them<sup>117</sup> and on the recreational opportunities they facilitate.

#### 2.6.5 Mountain biking

[76] The Otago Central Rail Trail is the most heavily promoted mountain bike route in the district. It is mentioned in 16 of the popular guides cited by Mr Greenaway<sup>118</sup>. Only two mentioned the Old Dunstan Road as a mountain bike route. It, in common with other mountain routes, is clay based and unsuitable in wet or winter conditions.

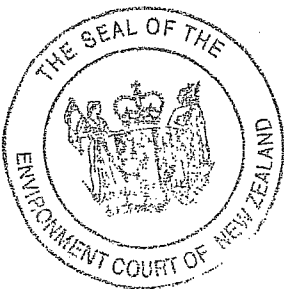
<sup>114</sup> Mr R J Greenaway, evidence-in-chief para 2.8 [Environment Court document 59].

<sup>115</sup> Mr R J Greenaway, evidence-in-chief para 2.16 [Environment Court document 59].

<sup>116</sup> Ms J I Kelly, further submissions called 'rebuttal evidence 20 June 2008' paragraphs 72-74 [Environment Court document 71].

<sup>117</sup> Ms J I Kelly, further submissions called 'rebuttal evidence 20 June 2008' para 79 [Environment Court document 71].

<sup>118</sup> Mr R J Greenaway, evidence-in-chief para 2.20 [Environment Court document 59].



### 2.6.6 Driving and sightseeing

[77] Mr Greenaway quotes from a 1988 publication by Mr B Mason as follows:

Recreational vehicle use is heaviest on the Old Dunstan Road which is usable by two wheel drives during dry conditions. This is a distinctive motoring experience although rapid pasture development, roadside fencing and road upgrading is taming the wild land character of this upland... The Lammermoors and Lammerlaws are occasionally visited by off-road vehicle clubs, although there are considerable hazards.

We note the date of this publication and are aware that conditions may have changed in the intervening twenty-one years. In particular we find that the 'pasture development' on the plateau is very limited. Most of the development has occurred between Clarks Junction and the eastern scarp (and on that face).

[78] No mention was made by Mr Greenaway of rally driving or multisport events, such as the Southern Traverse, which Ms Kelly claimed make use of the study area<sup>119</sup>.

### 2.6.7 Horse trekking

[79] The Otago Goldfields Trust organises an annual Goldfields Cavalcade which involves eight or nine trails of different grade, length and form of transport (walking, riding, heavy and light wagons) beginning at different locations and finishing at a host town. In 2007 the event comprised four walking trails, two wagon trails and four riding trails<sup>120</sup>. There have been 16 cavalcades since 1991 with recent ones involving some 500 people and 300 horses travelling for up to eight days<sup>121</sup>. In most years a trail will pass over the Lammermoor/Lammerlaw area<sup>122</sup>. It was Ms Kelly's submission that the Old Dunstan Road is "at the heart of the Otago Cavalcade"<sup>123</sup>. Mr Greenaway offers the opinion<sup>124</sup> that casual horse trekking is an infrequent activity in the area surrounding the project site.

<sup>119</sup> Ms J I Kelly, further submissions called 'rebuttal evidence 20 June 2008' para 49 [Environment Court document 71].

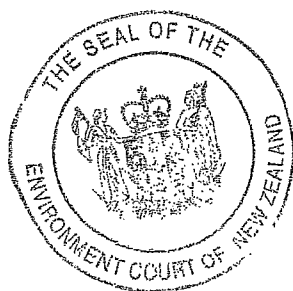
<sup>120</sup> Mr R J Greenaway, evidence-in-chief para 2.30 [Environment Court document 59].

<sup>121</sup> Dr M J Floate, submission para 21 [Environment Court document 22].

<sup>122</sup> Mr R J Greenaway, evidence-in-chief para 2.30 [Environment Court document 59].

<sup>123</sup> Ms J I Kelly, further submissions called 'rebuttal evidence 20 June 2008' para 37 [Environment Court document 71].

<sup>124</sup> Mr R J Greenaway, evidence-in-chief para 2.29 [Environment Court document 59].



#### 2.6.8 Hunting

[80] The Fish and Game New Zealand web pages devoted to hunting for the Otago Region make no mention of hunting in the study area<sup>125</sup>. Limited game bird hunting including for Canadian Geese and some ducks occurs in the Logan Burn area. We would be very surprised if there is not some shooting of rabbits and/or hares. We observed spent cartridges in a number of places during our site inspections.

#### 2.6.9 Photography, botanising, art and filming

[81] These are all activities undertaken in the study area. Brief reference is made to them by Ms Kelly who has recorded the views of people she interviewed<sup>126</sup>. That was not, strictly speaking, evidence but we find it highly probable that people take photographs in the area, and we read evidence of the appellant Mr Douglas which states that he botanises in the area.

#### 2.6.10 Recreational significance of the study area

[82] Having assessed each of his recreational 'settings' in the study area and the activities within them Mr Greenaway concluded<sup>127</sup> that the settings are most likely to be of regional significance, and that sufficient use is made of the sites to suggest to him that they are of more than local significance. He referred particularly to the Old Dunstan Road and the Logan Burn Reservoir. He also suggested that the Otago Central Rail Trail may be of national significance.

[83] Nowhere does Ms Kelly offer an alternative 'significance' rating. She does comment that in relying on numbers Mr Greenaway failed to appreciate that people go to an area for the quality of the experience<sup>128</sup>. In her submission<sup>129</sup> she challenged Mr Greenaway's apparent assumption that outdoor recreation can be, and is, divorced from its surroundings.

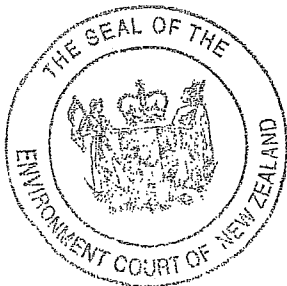
<sup>125</sup> Mr R J Greenaway, evidence-in-chief para 2.29 [Environment Court document 59].

<sup>126</sup> Ms J I Kelly, further submissions called 'rebuttal evidence 20 June 2008' paragraphs 83-86 [Environment Court document 71].

<sup>127</sup> Mr R J Greenaway, evidence-in-chief para 3.5 [Environment Court document 59].

<sup>128</sup> Ms J I Kelly, further submissions called 'rebuttal evidence 20 June 2008' para 87 [Environment Court document 71].

<sup>129</sup> Ms J I Kelly, submission para 2 [Environment Court document 88].



[84] We find that the Old Dunstan Road and surrounding public lands are of great importance to recreational users. We consider the potential effects of the Meridian proposal on these users in Chapter 5.0.

## 2.7 The vegetation of the Lammermoor

### 2.7.1 Introduction

[85] We rely upon the descriptions primarily of Dr K M Lloyd, a botanist called by Meridian Limited, in the AEE report by Kingett Mitchell and of Dr A F Mark, called by the Maniototo Environmental Society Incorporated. Most of the wind farm site is located within the Rock and Pillar Ecological District (of the Central Otago Ecological Region) but the southern part lies within the Waipori Ecological District (of the Lammerlaw Ecological Region). In both districts the upland vegetation above 800 masl comprises largely indigenous tall tussock grassland vegetation in which the narrow-leaved snow tussock (*Chionochloa rigida* subsp. *rigida*) is the dominant species. A range of other vegetation types is associated with rock outcrops and wetlands<sup>130</sup>. The Manorburn Ecological District lies only 1-2 kilometres to the west and the Maniototo approximately 11 kilometres to the north.

[86] Although woody species may once have been more widespread<sup>131</sup> the site vegetation is generally described as having a blanket uniformity which arises from the snow tussock dominance. A species inventory from a survey carried out on site notes 126 species – 25 exotic and 101 native – of lichens and mosses present<sup>132</sup>. Dr Lloyd identified nine nationally or regionally threatened and uncommon plant species<sup>133</sup> within the farm envelope<sup>134</sup>. Three vegetation plant communities – tussock grassland, wetland bog and rock outcrop shrubland – were identified. We detail them because of their importance as the drivers of ecosystems and in particular of fauna habitat and because they underpin so much of the sense of place elsewhere described.

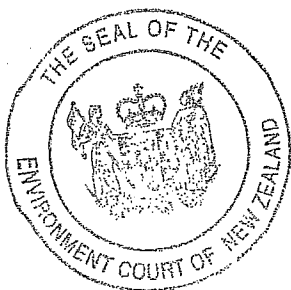
<sup>130</sup> Dr K M Lloyd, evidence-in-chief para 2.1 [Environment Court document 35].

<sup>131</sup> AEE, Volume 3 para 5.3.1.

<sup>132</sup> AEE, Volume 3 para 5.3.1.

<sup>133</sup> Dr K M Lloyd, evidence-in-chief Table 1 [Environment Court document 35].

<sup>134</sup> Dr K M Lloyd, evidence-in-chief para 4.14 [Environment Court document 35].





### 2.7.2 Tussock grassland

[87] About 95% of the site is tussock grassland<sup>135</sup> dominated by snow tussock. Inter-tussock vegetation usually comprises a mat of low growing native and exotic grasses, herbs and sub-shrubs<sup>136</sup>. Exotic grasses include perennial ryegrass (*Lolium perenne*), white clover (*Trifolium repens*), cocksfoot (*Dactylis glomerata*), brown top (*Agrostis capillaris*) and sweet vernal (*Anthoxanthum odoratum*). Sheep's sorrel (*Rumex acetosella*) is widespread and on the more sparsely vegetated areas. Exotic weed species include two species of Hawkweed, mouse ear (*Hieracium pilosella*), tussock hawkweed (*Hieracium lepidulum*), cats-ear (*Hypochoeris radicata*) and Yorkshire fog (*Holcus lanatus*).

[88] Dr Lloyd describes the native species golden Spaniard (*Aciphylla aurea*), patotara (*Leucopogon fraseri*), *Raoulia subsericea*, *Hebe odora*, and inaka (*Dracophyllum longifolium*) as ubiquitous in the tussock vegetation with a wide range of additional native species found at lower densities<sup>137</sup>. Three endemic spring annuals (*Myosotis*, *Ceratocephalus*, *Myosorus*) germinate, flower, fruit and seed all within spring<sup>138</sup>.

[89] Snow tussock values were outlined by Dr Mark who has researched their ability to maximise quantity, quality and delayed/sustained yield of water. The species make-up and quality of the tussock grassland cover over the site is driven by site topography and farming practices. Kingett Mitchell's AEE report found the southern and eastern areas inter-tussock flora healthier and more species rich with tussock height 0.5-1 metre tall leading to minimal inter-tussock gaps. It assessed vegetation along the western scarp as more modified with tussock height not greater than 0.5 metres with inter-tussock gaps > 1.0 metre<sup>139</sup>. On dry shoulders and where thin soils occur on sunny slopes snow tussock is described as sparse and dense mats of mouse-ear hawkweed are present. Dr Lloyd wrote<sup>140</sup> that although these appear degraded a surprising diversity of indigenous plant species may be present including patotara, *Pimelia prostrata*, *Carex*

<sup>135</sup> AEE, Volume 3, para 5.3.1.

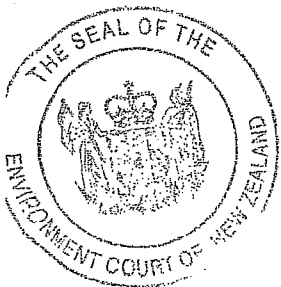
<sup>136</sup> Dr K M Lloyd, evidence-in-chief para 4.4 [Environment Court document 35].

<sup>137</sup> Dr K M Lloyd, evidence-in-chief para 4.1 [Environment Court document 35].

<sup>138</sup> Exhibit 35.1.

<sup>139</sup> AEE, Volume 3 para 5.3.2.

<sup>140</sup> Dr K M Lloyd, evidence-in-chief para 4.5 [Environment Court document 35].



*brevifolia*, *Coprosma petriei*, *Geranium sessilifolium*, *Raoulia subsericea*, and blue tussock (*Poa colensoi*).

[90] Dr Lloyd stated that<sup>141</sup> older pasture which is present on some sunny slopes at lower elevation and sunny ridges (including some tussock species) was not formed by cultivation but by intense stock grazing pressure together with oversowing and/or topdressing. This pasture also occurs in linear strips beside most of the farm access roads. Despite the decrease in tussock vigour the evidence was that the vegetation still gives the impression of an extensive and continuous snow tussock cover<sup>142</sup>. Dr Lloyd believes these areas comprise indigenous vegetation.

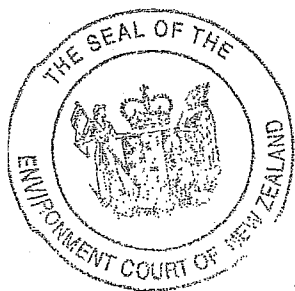
### 2.7.3 Shrubland

[91] Dr Lloyd<sup>143</sup> considered that rock outcrops are particularly important for the overall diversity of plant species at the site. There are many rock outcrops and cliffs in the deeply incised gorges of the Taieri River and the Logan Burn. They are also frequent on side slopes and scattered on ridges at higher elevations throughout the site. High elevation ridge tops are associated with porcupine shrub (*Melictyus alpinus*), herbs such as *Acaena caesiiglauca* and *Veronica densiflora* in open sites and the fern (*Asplenium richardii*) and hooked sedge (*Uncinia zotovii*) in shady overhangs. Coral broom is sparsely present. Rock outcrops in the Logan Burn have more extensive shrubland containing mingimingi (*Coprosma propinqua*), matagouri (*Discaria toumatou*), corokia (*Corokia cotoneaster*), *Carmichaelia petriei* on dry slopes with two *Coprosma* species, *Hebe rakaiensis*, and inaka (*Intertexta alpinus*) more prominent on shady slopes or where there is more moisture. Shrubland around rocky outcrops includes *Coprosma propinqua*, *C. intertexta*, *Melictyus alpinus*, *Meulenbeckia complexi*, *Polystichum vestituri*, *Pteridium esculentum* and golden Spaniard. Mr Patrick also noted *Oleara cymbifolia*, *Oxothamus fulfida*, and *Drachophyllum uniflora*.

<sup>141</sup> Dr K M Lloyd, evidence-in-chief para 4.13 [Environment Court document 35].

<sup>142</sup> Dr K M Lloyd, evidence-in-chief para 4.1 [Environment Court document 35].

<sup>143</sup> Dr K M Lloyd, evidence-in-chief para 4.6 [Environment Court document 35].



[92] A remnant population of Hall's totara is present on bluffs in the upper Logan Burn Gorge<sup>144</sup>. This population is important as natural stands of native trees are very rare in Central Otago.

[93] Dr Lloyd stated<sup>145</sup> that sheep often shelter beside rock outcrops particularly on hill tops and these stock camps are associated with locally intensive grazing that usually maintains a closely-cropped turf of exotic grasses and indigenous herbs such as *Leptinella serrulata* and *Aceana tesca*. Intense use of these stock camps results in raised fertility through high inputs of dung.

#### 2.7.4 Gully floors, bog wetlands

[94] The AEE assesses these as comprising less than 3% of the site<sup>146</sup>. They occur where the rolling plateau of the site is described "as being dissected by a network of numerous small water courses and ephemeral stream gullies most of which contain marshes of varying size, wetness and composition. In total these gully systems cover approximately 346 hectares (this figure includes a five metre buffer<sup>147</sup>).

[95] The wetland community comprises a mosaic of sedges and cushionplants<sup>148</sup>. Kingett Mitchell described sphagnum (*Sphagnum cristatum*) and cushion bogs as common within the area and regionally and nationally significant because of their rarity<sup>149</sup>:

These wetlands also support significant threatened plant populations and provide habitat for a unique terrestrial fauna.

The upland Sphagnum dominated wetlands are considered to have had excellent water holding potential and contribute to the steady stream flow in many of the catchments.

<sup>144</sup> Dr K M Lloyd, evidence-in-chief para 4.11 and Plate 3 [Environment Court document 35].

<sup>145</sup> Dr K M Lloyd, evidence-in-chief para 4.7 [Environment Court document 35].

<sup>146</sup> AEE, Volume 3, Appendix E p. 18.

<sup>147</sup> AEE, Volume 3, Appendix E para 5.3.3.

<sup>148</sup> AEE, Volume 3, Appendix E para 5.9.5.

<sup>149</sup> AEE, Volume 3, Appendix E paragraphs 5.9.3 and 5.9.5.



Sphagnum bog is described as occurring<sup>150</sup>:

[w]ithin gullies with catchments of sufficient size to provide constant water seepage at or close to the soil surface. *Sphagnum cristatum* forms a sodden matt to about 50 cm deep down the central part of the wetland and is interspersed with a small range of associated species such as *Centrolepis ciliata*, *Celmisia gracilentia* (pekapeka) and *Drosera arcturi* (wahu).

Other wetland species include *Dracophyllum potitum*, the penwiper fern (*Blechnum pennamarina*), *Lycopodium fastigiatum* and *Uncinia rubra*.

[96] Dr Lloyd describes<sup>151</sup> red tussock (*Chionochloa rubra* subsp. *cuprea*) as being present in and on the margins of gully floor wetlands and also present as scattered plants along alluvial terraces beside larger streams such as the Logan Burn. Commonly found sedges, rautahi (*Carex coriasea*) and *Carex gaudichaudiana* are found in gully floor fens and bogs along with a wide range of herbs such as *Ranunculus multiscapus*, and *Schizeilama cockayneana*. Some gully wetlands have scattered shrubs of *Olearia bullata*. Exotic species are common in many gully floor wetlands including the grasses, sweet vernal, brown top, and Yorkshire fog (*Holcus lantus*) along with jointed rush (*Juncus articulatus*) and *J. conglomeratus*. Dr Lloyd found ephemeral wetlands<sup>152</sup> to be uncommon. Between Spillers and Soutra Hills he noted a distinctive suite of small wetlands which were potential fill sites.

#### 2.7.5 Existing pest plant species

[97] Mouse-ear hawkweed is extensively distributed through the tussock grasslands with tussock hawkweed present on moist shady slopes. Dr Lloyd is of the opinion that hawkweed invasion on pasture is generally a consequence of grassland depletion, rather than the cause of it. A local farmer supported this view saying that *Hieracium* patches on the slope were the result of clover that had failed. Gorse (*Ulex europaeus*) is present above the western side of the Logan Burn Reservoir. Dr Lloyd believes it was almost

<sup>150</sup> AEE, Volume 3, Appendix E para 5.3.3.

<sup>151</sup> Dr K M Lloyd, evidence-in-chief para 4.8 [Environment Court document 35].

<sup>152</sup> Dr K M Lloyd, evidence-in-chief para 4.9 [Environment Court document 35].



certainly originated from seed dispersal on machinery used to construct the dam. One mature and several immature Lodge pole pines (*Pinus contorta*) were noted by Dr Lloyd as being in the vicinity and also one crack willow tree (*Salix fragilis*).

#### 2.7.6 Conclusions

[98] We find that the site's vegetation is dominated by a broad expanse of tussock grassland. Shallow depressions, containing sphagnum and other wetland species form a fine network across the site and are regionally and nationally significant. Some rocky outcrops and a major gorge within the site envelope provide habitat for larger and some woody species. Rare and endangered plants are also found within the site envelope.

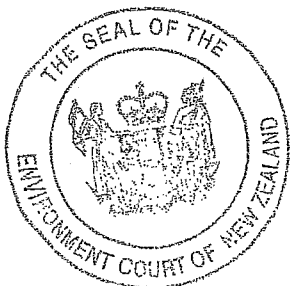
[99] Both the tussock and the sphagnum species have been shown to have water retention and dispersal properties which are of benefit to habitat health locally and the hydrological systems of the wider catchment. The site is dominated by native vegetation and has a species richness with the capacity to support a wide range of fauna. Pastoralism has introduced a range of plants which have added a further dimension to the mosaic of inter-tussock species. Where farming practices and roading have caused disturbance weed species are more widespread. While the vegetation looks (and is) largely natural it is not wholly the same as the vegetation that was on the site in the 1850s. It is likely that there were more '... scrub conifers and small leaved shrub species ...'<sup>153</sup>. Some vestiges of former vegetation may be seen in areas which have been burnt less frequently if at all.

[100] All the stations comprising the Meridian site are working farms so these uplands have been extensively grazed by cattle and sheep; they have also been periodically burned, and parts of them oversown and topdressed<sup>154</sup>. For example on Lammermoor Station the slopes above the Logan Burn Reservoir have recently been ploughed and resown with exotic grasses as the owner showed us on one of our site inspections. Dr Lloyd wrote that<sup>155</sup> the farming practices:

<sup>153</sup> Mr S K Brown, rebuttal evidence para 28 [Environment Court document 4A].

<sup>154</sup> Dr K M Lloyd, evidence-in-chief para 4.1 [Environment Court document 35].

<sup>155</sup> Dr K M Lloyd, evidence-in-chief para 4.1 [Environment Court document 35].



... have reduced the stature of tussock plants, and increased tussock density, relative to what would be expected in unmodified snow tussock grassland. Inter-tussock vegetation usually comprises a mat of low-growing native and exotic grasses, herbs, and subshrubs[:]. The exotic species mouse-ear hawkweed (*Hieracium pilosella*), browntop (*Agrostis capillaris*), and sweet vernal (*Anthoxanthum odoratum*), and the native species golden spaniard (*Aciphylla aurea*), patotara (*Leucopogon fraseri*), and *Raoulia subsericea* are ubiquitous.

[101] Adjacent areas on the Rock and Pillar Range, the Lammermoor Range and the Lammerlaw Range – especially where contained in the Conservation Estate – have larger tussocks and fewer exotic species.

## 2.8 Fauna

### 2.8.1 Birds

[102] The evidence for Meridian only covered one bird species in any detail – the New Zealand falcon (*Falco novaeseelandiae*). That was the subject of evidence for Meridian from Dr Richard Seaton, perhaps New Zealand's leading expert on this species. He carried out a survey within the falcon's breeding season on 11, 12 and 13 December 2006. As to habitat suitability, he wrote that the whole of the Meridian site is suitable for hunting by falcons, but<sup>156</sup> "only the rocky gorges, such as the Logan Burn, are suitable for nesting falcons". During his survey he located three pairs of falcon and one lone bird in and around the site. Because the average home range of a pair of falcons in open habitat<sup>157</sup> is 15 km<sup>2</sup> he considered there were likely to be further falcon nest sites within and around the site. The eastern form of the falcon as found on the site is distributed through the eastern and central parts of the South Island<sup>158</sup>. Under the Department of Conservation's 'Threat Classification System Lists'<sup>159</sup> the eastern form is described as being in 'gradual decline'. Dr Seaton says the species is not endangered.

... a species that faces extinction but that is buffered by a moderate to large population size ([e.g.] ... more than 5,000 individuals) and a very slow rate of decline (5% to 10% over the next 10 years).

<sup>156</sup> Dr R Seaton, evidence-in-chief para 3.3 [Environment Court document 55].

<sup>157</sup> Dr N Fox (1977) 'The Biology of the New Zealand Falcon', Ph.D. thesis, University of Canterbury Christchurch, 418 pp.

<sup>158</sup> Dr N Fox (1977) 'The Biology of the New Zealand Falcon', Ph.D. thesis, University of Canterbury Christchurch, 418 pp.

<sup>159</sup> R Hitchmough, L Bull and P Cromarty, (2007) 'New Zealand Threat Classification Lists 2005', DOC, Wellington, 194 pp.



[103] Over 50 species of birds have been recorded on the nearby Taieri scroll plain. Our site inspection in high summer showed that there are other bird species present even closer to the site especially near the Logan Burn Reservoir. We saw Paradise Shelduck, Spur-winged Plover, (Double-)Banded Dotterel, and various species of wildfowl and flocks of small (introduced) passerines. Skylarks and New Zealand Pipits were seen within the Meridian site.

### 2.8.2 Invertebrates

[104] Dr R Mitchell (called for Meridian) agreed with the description by Mr B Patrick (called for the Douglas family) of the entomology of the Meridian site which we have therefore used as a basis of fact regarding terrestrial invertebrates of the site. A large number of surveys have been undertaken on or near the Meridian site, particularly by Mr Patrick whose work (with others) on insects of grasslands, wetlands and shrublands of the Great Moss Swamp area has taken place over a span of 26 years<sup>160</sup>.

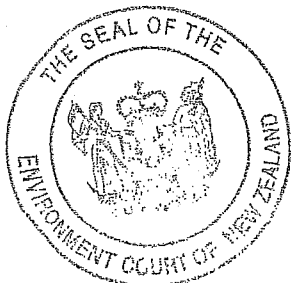
[105] Habitats across the site, dense and more open grasslands, finger gully wetlands, and shrublands support a diverse assemblage of terrestrial invertebrates. Within them overall, the insect fauna is species rich, especially among moths and butterflies with a high degree of seasonality, habitat partition and altitudinal variation<sup>161</sup>. 189 species of Lepidoptera have been recorded in the vicinity<sup>162</sup>. The insect fauna of Central Otago has a number of special features in the New Zealand context. Some are present in the proposed project area:

- species-rich autumn - emerging moth fauna representing three families of *Lepidoptera*;
- flightless, relatively immobile females in some moth species representing several different *Lepidoptera* families;
- high species richness of day-flying geometrids - dependant on inter-tussock herbs and low shrubs;
- a number of rare , threatened, local species at the biogeographical limit.

<sup>160</sup> Mr B H Patrick, evidence-in-chief para 1.9 [Environment Court document 84].

<sup>161</sup> Mr B H Patrick, evidence-in-chief para 2.7 [Environment Court document 84].

<sup>162</sup> Mr B H Patrick, evidence-in-chief para 2.7 [Environment Court document 84].



[106] Rarely recorded species nationwide include the moths: *Hydriomena canescens* in the Tortricidae, a new genus and species *Heloxycannus patricki*, *Trachypepla* new species, *Pasiphila humilis*, *Asterivora* new species, *Pasiphila* new species, *Dichromodes ida* and *Tmetolophota* new species.

[107] Eight species of the ancient family *Hepialidae* are found here and are of international interest in terms of species richness, their moss bog habitat, number of genera represented, seasonality, mixture of diurnal, crepuscular and nocturnal species and annual or biennial emergence pattern<sup>163</sup>. One, *Aoraia rufivena* with a wing span of 7 cm, is among New Zealand's largest moths and has a mouse-sized flightless female<sup>164</sup>. The grassmoth genus *Orocrambus* is well represented with 18 species in the grass and sedge communities both wet and dry<sup>165</sup>. Late autumn emerging moths include four small tortricids including the rare *Eurythecta leucothrinca*, the uncommon *Epichorista tenebrosa*, geometrid *Asaphodes sericodes*, an undescribed *Scoparia* new species first detected here and three hepialid species<sup>166</sup>. So far 22 species of day-flying geometrids have been identified. New Zealand has the largest number of species in this sub family (*Larentiinae*) and the Lammermoor- Great Moss Swamp-Rock and Pillar zone contains the highest number of diurnal species of this sub-family in New Zealand<sup>167</sup>.

[108] The representation described above covers many genera and confirms the ecological importance of the area. While that representation has relationships to both the Rock and Pillar and Lammermoor ranges, Mr Patrick emphasised<sup>168</sup> that it has its own characteristics: high species richness of the *Orocrambus* grassmoth species, high species richness of hepialid moths and low altitudinal occurrences of many diurnal geometrids. Further, because the project site harbours one threatened moth species (*Heloxycannus patricki*) – threatened in gradual decline and one rare moth species

<sup>163</sup> Mr B H Patrick, evidence-in-chief para 2.10 [Environment Court document 84].

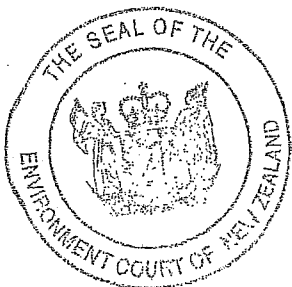
<sup>164</sup> Mr B H Patrick, evidence-in-chief para 8 [Environment Court document 84].

<sup>165</sup> Mr B H Patrick, evidence-in-chief para 2.11 [Environment Court document 84].

<sup>166</sup> Mr B H Patrick, evidence-in-chief para 2.12 [Environment Court document 84].

<sup>167</sup> Mr B H Patrick, evidence-in-chief para 2.13 [Environment Court document 84].

<sup>168</sup> Transcript (2009), p. 3217.





(*Heloxycannus candescens*) the area is ecologically significant under the rarity and distinctiveness criterion<sup>169</sup>.

### 2.8.3 Lizards

[109] Ten species of lizard occur in Eastern Otago. Three have been recorded within the site envelope<sup>170</sup>: the gecko *Hoplodactylus* sp. "Otago large", and two skinks – McCann's (*Oligosoma maccanni*) and the common skink (*Oligosoma nigriplantare*). All are legally protected under the Wildlife Act, the first having a conservation status of "Gradual Decline", the second and third having the status of "Not Threatened". A fourth species, the skink *Oligosoma inconspicuum* which has a conservation status of "Gradual Decline", has been recorded at several sites just outside the site envelope.

[110] For the section of its Assessment of Environmental Effects ("AEE") on lizards Meridian commissioned a survey and report from Kingett Mitchell Limited. That firm reported<sup>171</sup> that McCann's skink were widespread and common throughout the site envelope. The common skink (*O nigriplantare polychroma*) was found at 43% of the sites searched above 900 metres. The AEE report recorded<sup>172</sup> that:

... the healthy lizard population observed during recent surveys is a good indicator that introduced predator populations in the area (particularly mustelids, rats and cats) are low which is a key factor in the viability of the sites bird, lizard and invertebrate fauna.

[111] The report also recorded that the survey had found rocky outcrops and associated tussock and shrubland are key habitats for geckos and skinks. Rocky outcrops provided habitat for some species and sun basking for others, and grasslands were used as habitat and corridors. It continued<sup>173</sup>:

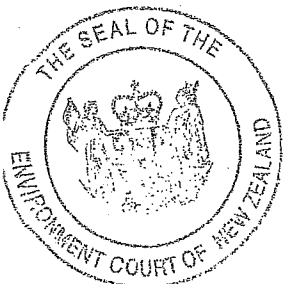
<sup>169</sup> Dr R A Mitchell, summary statement of caucus meeting para 6 [Environment Court document 56].

<sup>170</sup> Mr T R Jewell, evidence-in-chief para 3.8 [Environment Court document 50].

<sup>171</sup> Meridian's AEE Volume 3 para 5.5.2.

<sup>172</sup> Meridian's AEE Volume 3 para 5.9.4.

<sup>173</sup> Meridian's AEE Volume 3 para 5.9.2.



... lizards that inhabit individual rock outcrops must be considered as part of a wider population which relies upon vegetation areas to facilitate the movement of individuals and genes between sub-populations (i.e., meta-population).

[112] At the hearing Meridian called Mr T R Jewell, an ecologist specialising in the lizards of southern New Zealand, to present evidence on the species and status of lizards in the Lammermoor Range and within the site envelope. His evidence was based on:

- a site visit in January 2008;
- the lizard assessment in the AEE;
- a lizard report prepared by Messrs Golder Kingett in 2007;
- the ecology evidence presented at the Council hearing; and
- relevant literature.

In Mr Jewell's opinion this information base was adequate to define the current position with respect to lizards in the site envelope area and to assess the effects that wind farm construction may have on the lizards and their habitat.

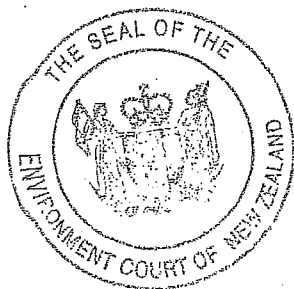
[113] The relevant literature was chiefly reports by Dr Geoffrey Patterson who had published papers in 1985 and 1992 on surveys carried out along Old Dunstan Road. Both Mr Jewell and Mr B H Patrick, an ecologist called by Mr Douglas, relied upon Dr Patterson's work and on personal communication with Dr Patrick for updated information.

[114] Mr Jewell concluded from his analysis of the available data and his site visit that lizard abundance on the site is already low<sup>174</sup> although he was also of the opinion that *Oligosoma maccanni* and *Oligosoma nigriplantare polychroma* are present and widespread<sup>175</sup>. Mr Jewell sited habitat loss and the introduction of mammalian predators as having contributed to a decline. Farming practices, he wrote, had the effect that<sup>176</sup>:

<sup>174</sup> Mr T R Jewell, evidence-in-chief para 3.11 [Environment Court document 50].

<sup>175</sup> Mr T R Jewell, evidence-in-chief para 5 [Environment Court document 50].

<sup>176</sup> Mr T R Jewell, evidence-in-chief para 4.2 [Environment Court document 50].



...most of the natural grassland and shrubland habitat has long since has been replaced by pasture in which secondary native plant growth has sprung up or encroached.

This and the use of fire he believed were farming practices contributing to low abundance and diversity. Mr Patrick, whose snow tussock habitat assessments have been integral to his invertebrate research, viewed the habitat differently. He described<sup>177</sup> the area as:

..dominated by the endemic snow tussock *Chionachloa rigida*, with significant native shrublands on steep slopes and wetland margins...significantly the inter-tussock cover is high ...

[115] There was some a debate about the exact nature of the *Oligosoma inconspicuum* identified by Dr Patterson in the vicinity of the site. Mr Patrick wrote<sup>178</sup> that recent genetic analysis shows it to be genetically distinct from *Oligosoma inconspicuum* making the proposed project site part of its only known habitat. Mr Jewell said further taxonomic work was necessary. We note that the Kingett Mitchell Limited report states<sup>179</sup> that lizard taxonomy in the South Island has half the species known still waiting formal description and a scientific name. This 'backlog' explains somewhat the process around a skink which has been found locally but is yet to be taxonomically identified as a new species.

[116] Kingett Mitchell Limited searched for this species as part of their 2007 investigation and did not find any within the envelope. Mr Jewell concluded that if *Oligosoma inconspicuum* is present within the project envelope then it is of much rarer occurrence than it is in some adjacent lands<sup>180</sup>. Mr Patrick contended that Mr Jewell's evidence with respect to *Oligosoma inconspicuum* was incomplete<sup>181</sup>. He believed that *Oligosoma inconspicuum* are difficult to find and hard to identify and, further, that the surveys did not adequately search in the appropriate places. In his rebuttal evidence Mr Jewell disagreed with these assertions.

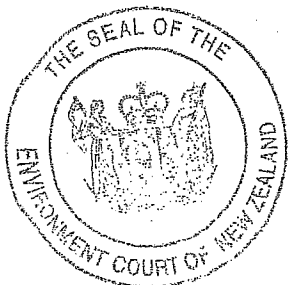
<sup>177</sup> Mr B H Patrick, evidence-in-chief para 2.1 [Environment Court document 84].

<sup>178</sup> Mr B H Patrick, evidence-in-chief para 3.19 [Environment Court document 84].

<sup>179</sup> Meridian's AEE Volume 3 para 5.5.1.

<sup>180</sup> Mr T R Jewell, evidence-in-chief para 3.9 [Environment Court document 50].

<sup>181</sup> Mr B H Patrick, evidence-in-chief para 3.17 [Environment Court document 84].



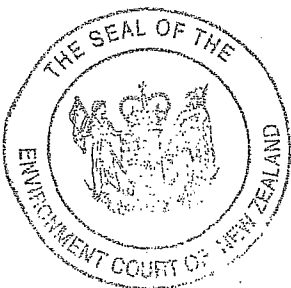
[117] Dr R M Bartlett, an ecologist called by Meridian, reviewed Meridian's expert ecological evidence. She agreed with the findings of Mr Jewell and in particular that the project site does not provide any core habitat for threatened species<sup>182</sup>. We give this evidence minimal weight because basically it just relies on Mr Jewell's evidence.

[118] We prefer the evidence of Mr Patrick to that of Mr Jewell because Mr Jewell only visited the site once for a couple of hours; relied on others' evidence including the survey material done at much greater depth but then does not rely on it; admitted the survey work is still inadequate (as did Dr Bartlett). Further, Mr Bartlett's opinions were more consistent with the AEE. In the end result we are left with a fairly hazy picture of the site's significance for lizards. That is of concern given that a section 6(c) matter of national importance may be raised – whether the site is a significant habitat of indigenous fauna.

#### 2.8.4 Fish

[119] We read evidence from Meridian's witness, Dr R M Allibone, an eminent specialist in fresh water fisheries, and from Mr M J Dale, a water resource scientist for the Otago Regional Council, about research on the non-migratory galaxiid of the area around and including the project site. They did meet and agree on a number of issues including that the fisheries values of the areas include the presence of habitat of two threatened native fish, trout spawning areas, and a stream occupied by a threatened fresh water crayfish. The distribution of these species is known for all the areas of construction and roading, and sites of instream works are all identified<sup>183</sup>.

[120] The project development lies entirely within the Taieri River catchment with the total length of waterways in the site envelope, said by Dr Allibone to be 121.9 km<sup>184</sup>. The Taieri River scroll plain and the Logan Burn Reservoir are closely associated receiving waters. A description of the aquatic systems within the boundary of the project site was provided by Dr Allibone<sup>185</sup>:



<sup>182</sup> Ms R M Bartlett, evidence-in-chief para 6.20 [Environment Court document 60].

<sup>183</sup> Dr R M Allibone, rebuttal evidence para 24 [Environment Court document 33A].

<sup>184</sup> Dr R M Allibone, evidence-in-chief para 3.4 [Environment Court document 33].

<sup>185</sup> Dr R M Allibone, evidence-in-chief paragraphs 5.1 and 5.2 [Environment Court document 33].

The area encompasses much of the Logan Burn and its tributaries that enter the Burn in its gorge and other small streams, Spillers Creek, an unnamed tributary of the Styx Creek and tributaries of the upper Taieri River. Two characteristic stream types are present; shallow to steep gradient rocky bottomed streams with schist gravel and cobble substrate and shallow gradient meandering streams often with the dominant cover provided by macrophytes (aquatic plants)... A large wetland exists between the headwaters of the unnamed Logan Burn tributary and Spillers Creek. Other wetland areas exist in the tussock grasslands at the head of gullies and on the top of ridges.

[121] Dr Allibone said the invertebrate fauna of the two stream types are different with the variety of habitats in the streams providing for a diverse range of invertebrate taxa including the threatened invertebrate, the freshwater crayfish or koura (*Paranephrops zealandicus*)<sup>186</sup>. Koura are classified as in 'gradual decline'. They co-exist with brown trout and occur in very low densities<sup>187</sup>. The two threatened native galaxiid occurring in the site vicinity are the flathead galaxias, described as being in 'gradual decline' and Eldon's galaxias currently classified as 'nationally vulnerable'<sup>188</sup>. All the species mentioned have populations living elsewhere in the Taieri catchment.

[122] The area has been surveyed frequently over a number of years<sup>189</sup> and in the project site the distribution of brown trout and flathead galaxiid is mutually exclusive<sup>190</sup>:

- the brown trout spawning grounds within the project site were described by Dr Allibone as being at Shepherd Hut Stream and McHardies Creek with fish passage through the Pylon Road culvert on Shepherd Hut Stream restricted at times during low flows. Brown trout also occur downstream of the reservoir with spawning occurring in the Logan Burn tributaries.
- Dr Allibone described the surveyed locations of flathead galaxiid as Spillers Creek, a small Logan Burn Reservoir tributary, the Upper Taieri River and its tributaries, McPhees Creek, a small unnamed Logan Burn tributary, the upper reaches of Shepherds Hut Creek, and tributaries of McHardies Creek. These are described as key aquatic areas by Dr Allibone because of the threat status of the fish. Riparian margins of these streams are also strategic areas

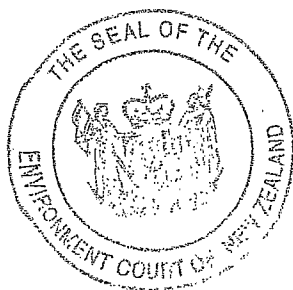
<sup>186</sup> Dr R M Allibone, evidence-in-chief para 5.10 [Environment Court document 33].

<sup>187</sup> Dr R M Allibone, evidence-in-chief para 4.2 [Environment Court document 33].

<sup>188</sup> Dr R M Allibone, evidence-in-chief para 4.4 [Environment court document 33].

<sup>189</sup> Dr R M Allibone, evidence-in-chief para 5.3 [Environment Court document 33].

<sup>190</sup> Dr R M Allibone, evidence-in-chief para 5.5 [Environment Court document 33].



as they maintain bank structure, provide shade and minimise sediment inputs<sup>191</sup>.

[123] There was a consensus that brown trout eliminate smaller non-migratory galaxiids from streams where they have become established. The introduction of trout into the Logan Burn appears to have excluded flathead galaxias from 80-90% of the catchment<sup>192</sup>. Naturally enough the most significant threat to the non-migratory galaxiids is introduced predators. The locations of barrier waterfalls that prevent brown trout access to the galaxiid habitat have been located during survey work. They are documented on Dr Allibone's Map 14 as being at Spillers Creek Cascade, McPhees Creek Cascade and McPhees Creek waterfall. Barriers have been identified by the Department of Conservation as a first priority of protection in the non-migratory galaxiid recovery plan<sup>193</sup>.

[124] Dr Allibone wrote that natural sediment sources are not widespread or frequent<sup>194</sup>. Most existing sediment sources are related to disturbance by human farming activities which include existing roads and tracks, bulldozer lines cut to clear tussock to ease access for fencing, ploughed fire breaks, small stock tracks, stock damage to riparian areas and headwater wetlands and soil cultivation such as ploughing<sup>195</sup>. Despite the disturbance which is associated with farming Dr Allibone stated that the galaxiid species maintain good populations in streams where low intensity sheep and cattle grazing occurs.

[125] Current sediment levels are already elevated above the natural level. Dr Allibone's research in the area showed<sup>196</sup> that the high quality of these systems indicate they are resilient to intermittent sediment pulses (associated with storm events) and the present increased sediment levels. However, streams containing Elsdons galaxiid

<sup>191</sup> Dr R M Allibone, evidence-in-chief para 6.2 [Environment Court document 33].

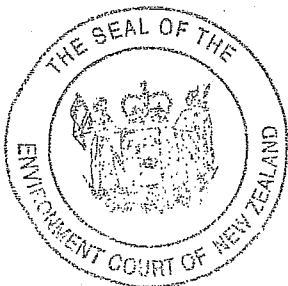
<sup>192</sup> Dr R M Allibone, evidence-in-chief para 5.5 [Environment Court document 33].

<sup>193</sup> Dr R M Allibone, evidence-in-chief para 6.10 [Environment Court document 33].

<sup>194</sup> Dr R M Allibone, rebuttal evidence para 4 [Environment Court document 33A].

<sup>195</sup> Dr R M Allibone, rebuttal evidence paragraphs 5 to 8 [Environment Court document 33A].

<sup>196</sup> Dr R M Allibone, evidence-in-chief paragraphs 6.0 to 6.9 [Environment Court document 33].



populations will only be affected by road construction activities as there are no populations recorded within the turbine construction envelope<sup>197</sup>.

[126] Potential threats to ecosystems generated by the project were identified as:

- Sediment loads, unusual /infrequent loads
- Vehicle contamination
- Pest species introduction
- Loss of habitat - including spawning grounds
- Land use changes
- Water take

We discuss the possibility of these in Chapter 5.0 of this decision.

## 2.9 Other aspects of the existing environment

[127] We have discussed most of the relevant aspects of the environment of the Meridian site earlier, for example in 2.3 where we discussed the surrounding area. However, there are three recent resource consents which may be relevant. Suites of resource consents have been granted to three proposed wind farms: at Lake Mahinerangi, near the Teviot River, and at Kaiwera Downs respectively.

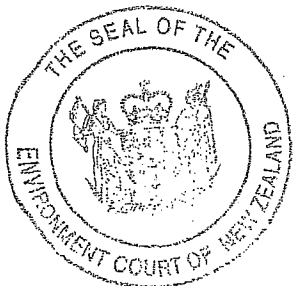
### *The Mahinerangi wind farm*

[128] This site is four kilometres north of Lake Mahinerangi and on a lower plateau (at between 600 and 730 masl) at the very southern end of the Lammermoor Range. At its closest point the Mahinerangi site is 17 kilometres from the Meridian site. On 25 July 2008 the Environment Court issued an interim decision<sup>198</sup> confirming the grant of resource consents for this wind farm. A final decision was issued on 19 December 2008<sup>199</sup>. The Mahinerangi wind farm ("MHF") is proposed to have up to 100 turbines, rather smaller than those on the Meridian site (maximum height 145 metres).

<sup>197</sup> Statement of agreed facts para 2a [Environment Court document 1A].

<sup>198</sup> *Upland Landscape Protection Society Incorporated v Clutha District Council and Otago Regional Council* Decision C85/2008.

<sup>199</sup> *Upland Landscape Protection Society Incorporated v Clutha District Council and Otago Regional Council* Decision C140/2008.



[129] The crests of the Lammermoor and Lammerlaw Ranges to the west and northwest of the Mahinerangi site are at about 1100 masl, that is about 400 metres higher than the site itself.

*The Teviot wind farm*

[130] Resource consent was granted by the CODC in October 2007 for a small wind farm (1.8 MW nameplate capacity) on a peninsula above the Teviot River at Horseshoe Bend.

*The Kaiwera Downs wind farm*

[131] This site is approximately 15 km southwest of Gore and 10 km east of Mataura. The site area is 2,568 hectares and consent was granted for a maximum of 83 turbines with a maximum height to blade tip of 145 metres. The Kaiwera Downs site is 70 or more kilometres south of the Mahinerangi site. The local authorities' decision<sup>200</sup> granting consents was appealed to the Environment Court but the appeal was withdrawn on 9 February 2009.

## 2.10 Climate change

[132] At first sight it is curious that a case about a windfarm should need any consideration of climate change since wind energy is a renewable resource. The issue arises as an unintended (or so we assume) consequence of the enactment of section 7(i) and (j) of the RMA on 2 March 2004. Those paragraphs now require a consent authority (including, on appeal, the Environment Court) to have particular regard to:

...

- (i) the effects of climate change
- (j) the benefits to be derived from the use and development of renewable energy.

[133] Evidence on climate change was presented principally by Dr D S Wratt for Meridian and Professor R M Carter for the appellant Mr Sullivan. Others who



<sup>200</sup> Decision of Gore District Council and Southland Regional Council dated 30 May 2008 attached to the Notice of Appeal in *Upland Landscape Protection Society Incorporated v Gore District Council and Southland Regional Council* (ENV-2008-CHC-151).



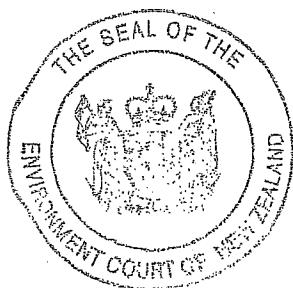
addressed climate change were Professor C R de Freitas for Mr Sullivan and Mr P F Gurnsey for the Crown.

[134] The general scientific meaning of 'climate change' refers to the sum of all changes in climate without reference to the causes of change. It is often discussed in terms of changes in globally averaged temperatures over time. Estimates of these changes have been developed for the past 65 million years by using proxies for temperature. These include tree rings, pollen counts, oxygen isotopes and the chemical composition of marine fossils. There was no dispute among the witnesses that climate change had occurred, is occurring now and will continue in the future. Similarly, there was no dispute that until approximately the mid-19th century all climate changes occurred naturally. The driving forces included the sun's activity, variations in the earth's orbit and in the angle of tilt of its axis. Cycles of differing periodicities ranging from tens to thousands of years have been identified in the climate record and linked to these variations.

[135] The witnesses all agreed that since the mid-19th century human activity (anthropogenic activity) has influenced climate change by increasing the concentrations of greenhouse gases ("GHGs") in the atmosphere. These GHGs include carbon dioxide, methane, nitrous oxide, hydrofluorocarbons and water vapour. They are referred to as GHGs because they trap heat within the lower atmosphere, thus causing the earth's surface to be warmer than it would be in their absence – the greenhouse effect. Any increase above 'natural' levels will enhance this effect and may cause further warming and induce other, not well understood, changes in the climate system. It is these latter effects, their mechanisms and the resultant feed-back loops which are being vigorously debated by the scientific community. As a consequence there is ongoing argument as to the magnitude of the anthropogenic effect and even as to whether its end result is to warm or cool the atmosphere. An understanding of the anthropogenic effect is important because the RMA has introduced a specific definition of 'climate change' as<sup>201</sup>:

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<sup>201</sup> Section 2 of the RMA – added from 2 March 2004 by section 4 of the Resource Management (Energy and Climate Change) Amendment Act 2004 (2004 No. 2).



a change of climate that is attributed directly or indirectly to human activity that alters the composition of the global atmosphere and that is in addition to natural climate variability observed over comparable time periods.

Professor Carter observed that the definition does not allow meaningful scientific discussion because it refers to attribution rather than evidence, it does not define who is to do the attributing, and it only considers change that is caused by human induced greenhouse gas emissions. While this may be so, it is the definition we must use when applying the RMA.

[136] By virtue of RMA section 7(i) we must have particular regard to the effects of climate change as defined in the Act. This is not to say we ignore natural variations in climate change since section 104(c)(1) allows us to consider any matter we see as being relevant.

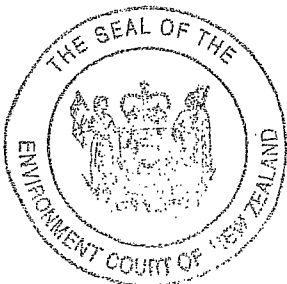
[137] Dr Wratt is General Manager (Climate Change) at the National Institute of Water and Atmospheric Research. He has published widely on matters related to climate change and served as a Lead Author for both the Third and Fourth Assessment Reports ("ARs") published by the Intergovernmental Panel on Climate Change ("IPCC") in 2001 and 2007 respectively. The role of the IPCC as set out by Dr Wratt is to<sup>202</sup>:

... assess on a comprehensive, objective, open and transparent basis the latest scientific, technical, socio-economic literature produced world-wide relevant to the understanding of the risk of human induced climate change, its observed and predicted impacts and options for adaptation and mitigation.

[138] Dr Wratt further described the IPCC's role as<sup>203</sup> to provide comprehensive assessment reports every five to seven years backed up by other more technical papers. He described how there are contributions from experts all over the world in all relevant disciplines. This process, its transparency, possible bias and the likelihood of it being captured by governments was traversed extensively in both Professor Carter's evidence

<sup>202</sup> Dr D S Wratt, evidence-in-chief para 10 [Environment Court document 28].

<sup>203</sup> Dr D S Wratt, evidence-in-chief para 11 [Environment Court document 28].



and in cross-examination of Dr Wratt. He responded to the cross-examination by outlining in detail the IPCC procedures as they relate to preparation of draft documents, their review, the response to review criticisms and the formalisation of final documents and summary statements. We have considered Professor Carter's evidence to the effect that the IPCC Reports are not universally accepted by the scientific community but we accept Dr Wratt's views as to the robust nature of the IPCC processes and the reliance that can be placed on their published reports.

[139] One of the key findings of the IPCC Fourth Assessment Report noted by Dr Wratt is that<sup>204</sup>:

Global atmosphere concentrations of carbon dioxide, methane, and nitrous oxide have increased markedly as a result of human activities since 1750 and now far exceed pre-industrial values determined from ice cores spanning many thousands of years.

Dr Wratt was not so emphatic in his conclusions where he linked this undoubted increase in greenhouse gas concentrations with climate change<sup>205</sup>:

... most of the observed increase in global average temperatures since the mid 20th century is very likely due to the observed increase in anthropogenic greenhouse gas concentrations.

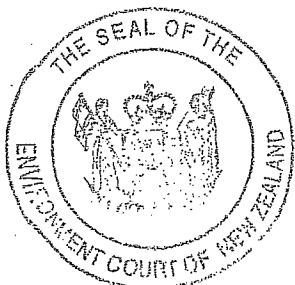
"Very likely" is defined by the IPCC and adopted by Dr Wratt to mean greater than 90% probability. That is the meaning that has also been adopted by at least some divisions of the Environment Court, and which we use here for reasons we explain briefly in Chapter 5.0 of this decision when we come to make our predictions as to the possible effects of Meridian's specific proposal in this case.

[140] When asked by the Court to outline the evidential basis for his conclusion Dr Wratt referred to detailed computer modelling studies<sup>206</sup>. These studies started with an assessment, commissioned by the IPCC, of the changes in temperature over the last 100 years for all major continental areas except Antarctica, which lacked the necessary records. A number of different modelling groups then attempted to reproduce these

<sup>204</sup> Dr D S Wratt, evidence-in-chief para 14 [Environment Court document 28].

<sup>205</sup> Dr D S Wratt, evidence-in-chief para 44 [Environment Court document 28].

<sup>206</sup> Transcript, page 1171, lines 20-46.



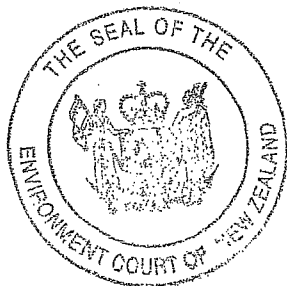
changes using best estimates of changes in energy from the sun and of volcanic eruptions. For the first 50 years the observed temperature changes lay within the band defined by the outputs from the various models. For the second 50 years they lay well outside this band. Thus no model was able to produce an output replicating the observations. Known changes in GHGs and aerosol emissions were then added to the models. The observed results then lay within the band defined by the models for the whole 100 years. Thus without the inclusion of GHGs the models could not simulate the warming that occurred in the latter part of the 20th century. With GHGs included however the models could simulate this warming.

[141] It is this evidence that Dr Wratt believes underlies the IPCC conclusion that there is at least a 9 out of 10 chance that<sup>207</sup>:

... globally averaged net effect of human activities since 1750 has been one of warming.

Even if we do not accept Dr Wratt's and the IPCC's attribution of changes in the composition of the global atmosphere to human activity because of the 90% probability assigned to it, we must accept the unequivocal attribution by the New Zealand Government as set out in section 7(i) of the RMA. This was reinforced by the evidence presented on climate change for the Crown by Mr Gurnsey. The evidence is clearly premised on the Government's view that human activity is increasing the concentrations of greenhouse gases in the atmosphere and that this is a cause of climate change. This is clearly set out in his rebuttal evidence<sup>208</sup>:

The New Zealand government is of the view that climate change is real, is happening now and requires a response. This approach is based on the majority opinion of the international scientific community that human activities have resulted in substantial global warming from the mid-20th century, and that continued growth in greenhouse gas concentrations caused by human-induced emissions will generate high risks of dangerous climate change.



<sup>207</sup>

Dr D S Wratt, evidence-in-chief para 18 [Environment Court document 28].

<sup>208</sup>

Mr P F Gurnsey, rebuttal evidence para 8 [Environment Court document 39].

### 3.0 The law

#### 3.1 The matters to be considered

[142] At the end of Chapter 1.0 we set out the matters to be considered under section 104(1) of the RMA. In summary they are:

- the actual and potential effects of the proposed wind farm on the environment;
- the statutory instruments -- in this case the Central Otago District Plan, Plan Change 5 to that plan, and the Otago Regional Policy Statement are most relevant;
- other matters to be had regard to; and
- Part 2 of the RMA.

We consider the legal issues raised by each of those matters in turn.

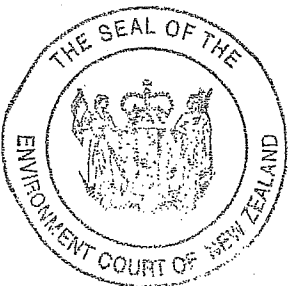
#### 3.2 Actual and potential effects on the environment (section 104(1)(a) of the Act)

[143] The phrase 'actual and potential effects ... on the environment' in section 104(1)(a) of the Act has caused difficulties in some cases. In particular, the law is unclear as to whether potential effects that may occur (but may not) should be considered as part of the environment. For example, in this case should we consider the potential effects (on the landscape in which the Lammermoor is set) of a wind farm near Lake Mahinerangi?

[144] The interpretation of section 104(1)(a) has been approached from two directions. First the question "What is 'the environment'?" is, at first sight, simply answered by referring to the definition in section 2 of the RMA which states that:

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) of this definition or which are affected by those matters:

The complication that arises is whether a consent authority should take into account the possibility of future changes in the environment not caused by the application under consideration.

[145] Secondly, the use of the phrase “actual and potential effects ... (on the environment)” in section 104(1)(a) is rather puzzling because in a sense all the effects of a proposed activity are potential rather than “actual” at the time of consideration by the consent authority<sup>209</sup>. We consider that Parliament probably intended “actual effects” to be the likely effects of an activity, and “potential effects” to be the unlikely effects, i.e. effects of “low probability but high potential impact”<sup>210</sup>. However, in *Dye v Auckland Regional Council*<sup>211</sup> the Court of Appeal settled that:

... Parliament has implicitly abandoned the s 3 definition of effect which only applies unless the context otherwise requires. Had Parliament wished to adopt the definition, it would have used simply the word “effects” (as in s 105(2A)) rather than the words “any actual or potential effects”. Indeed if the definition is invoked it would have the awkward consequence that s 104(1)(a) would be dealing with actual potential effects and potential effects. Everything points to a deliberate intention here to address only effects which are “actual” and “potential”; albeit putting the matter that way is in any case inherently very wide and capable of capturing some, if not all, of the subtleties of the s 3 definition. So far therefore, in spite of the seemingly deliberate decision not to rest on the defined term “effect”, it is not easy to see what confining purpose the legislature may have had.

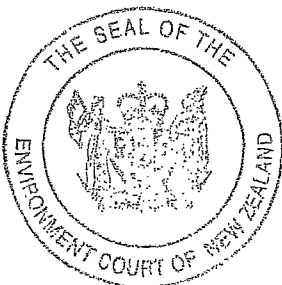
[146] To see what Parliament was contemplating it is useful to recognise that the “actual and potential effects” of a land use activity in terms of section 104(1)(a) of the RMA, and the other relevant<sup>212</sup> effects occurring or which may possibly occur in or on the environment containing an application site can be placed in the following sets:

<sup>209</sup> Unless the application is to retrospectively authorise an existing illegal activity.

<sup>210</sup> As in the definition in section 3(f) RMA.

<sup>211</sup> *Dye v Auckland Regional Council* [2001] NZRMA 513 at [41]; [2002] 1 NZLR 337; (2001) 7 ELRNZ 209.

<sup>212</sup> Under section 104(1)(c) of the Act.



- (1) existing effects of current activities in the existing environment;
- (2) the effects which “will” – see *Dye v Auckland Regional Council*<sup>213</sup> – and the potential effects “which may happen or ... may not”<sup>214</sup> occur as a result of the activity;
- (3) all other section 3 and other relevant possible effects of the proposed activity;
- (4) permitted baseline potential effects of other activities on the site (see *Bayley v Manukau City Council*<sup>215</sup>);
- (5) potential effects of permitted and/or approved activities off-site (*Queenstown Lakes District Council v Hawthorn Estate Limited*<sup>216</sup> (“Hawthorn”) effects);
- (6) possible future effects under resource consents contemplated for the surrounding environment not granted (*Dye v Auckland Regional Council*<sup>217</sup>, *Gould v Rodney District Council*<sup>218</sup> effects).

That sets (1) and (2) should be considered is uncontroversial and we consider set (3) effects are almost always relevant under section 104(1)(c) of the Act. As for set (4), section 104(2) of the RMA gives a consent authority a discretion to consider those or not.

[147] The effects in set (5) were decided authoritatively to be relevant by the Court of Appeal in *Hawthorn*<sup>219</sup> where the Court of Appeal explained that:

<sup>213</sup> *Dye v Auckland Regional Council* [2001] NZRMA 513 at [38]; (2001) 7 ELRNZ 209; [2002] 1 NZLR 337,

<sup>214</sup> *Dye v Auckland Regional Council* [2001] NZRMA 513 at [39]; (2001) 7 ELRNZ 209; [2002] 1 NZLR 337.

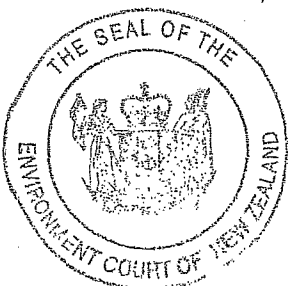
<sup>215</sup> *Bayley v Manukau City Council* [1998] NZRMA 396; [1999] NZLR 568.

<sup>216</sup> *Queenstown Lakes District Council v Hawthorn Estate Limited* [2006] NZRMA 424 at para [57].

<sup>217</sup> *Dye v Auckland Regional Council* [2001] NZRMA 513; (2001) 7 ELRNZ 209; [2002] 1 NZLR 337.

<sup>218</sup> *Gould v Rodney District Council* [2006] NZRMA 217.

<sup>219</sup> *Hawthorn* [2006] NZRMA 424.



... the provisions of the Act ... lead to the conclusion that when considering the actual and potential effects on the environment of allowing an activity, it is permissible, and will often be desirable or even necessary, for the consent authority to consider the future state of the environment, on which such effects will occur.

However, the Court qualified that by stating<sup>220</sup>:

It would be too speculative to consider whether or not [future applications might be made and] consents might be granted and to then proceed to make decisions about the future environment as if those resource consents had already been granted.

The Court concluded<sup>221</sup>:

In our view, the word “environment” embraces the future state of the environment as it might be modified by the utilisation of rights to carry out permitted activity under a district plan. It also includes the environment as it might be modified by the implementation of resource consents which have been granted at the time a particular application is considered, where it appears likely that those resource consents will be implemented. We think Fogarty J erred when he suggested that the effects of resource consents that might in future be made should be brought to account in considering the likely future state of the environment. We think the legitimate considerations should be limited to those we have just expressed. ...

[Our emphasis]

[148] The effects in set (6) were, in effect, rejected as irrelevant when the Court of Appeal decided in *Dye* that cumulative effects are “all ... effects which are going to happen as a result of the activity under consideration”. Tipping J wrote<sup>222</sup>:

The definition of effect includes “any cumulative effect which arises over time or in combination with other effects”. The first thing which should be noted is that a cumulative effect is not the same as a potential effect. This is self evident from the inclusion of potential effects separately within the definition. A cumulative effect is concerned with things that will occur rather than with something which may occur, that being the connotation of a potential effect. This meaning is reinforced by the use of the qualifying words “which arises over time or in combination with other effects”. The concept of cumulative effect arising over time is one of a gradual build up of consequences. The concept of combination with other effects is of effect A combining with

<sup>220</sup> *Hawthorn* [2006] NZRMA 424 at para [74].

<sup>221</sup> *Queenstown Lakes District Council v Hawthorn Estate Limited* [2006] NZRMA 424 at para [84].

<sup>222</sup> *Dye v Auckland Regional Council* [2001] NZRMA 513 at paragraphs [38] and [39].





effects B and C to create an overall composite effect D. All of these are effects which are going to happen as a result of the activity which is under consideration. The same connotation derives from the words “regardless of the scale, intensity, duration or frequency of the effect. [Emphases added]

*Dye* was explained by Cooper J in *Gould v Rodney District Council*<sup>223</sup> as follows:

... I consider that all that was said in *Dye* was that an effect that may never happen, and which, if it does, will be the result of some activity other than the activity for which consent is sought, cannot be regarded as a “cumulative effect”.

That appears to indicate that *Dye* only applies in a resource consent situation and, presumably, where there are not any express objectives, policies and rules about cumulative effects, or alternative sites.

[149] It is not clear that the Court of Appeal agrees with the High Court in *Gould v Rodney District Council* that the narrow interpretation in *Dye* should be tightly applied.. In *Auckland Regional Council v Living Earth Limited*<sup>224</sup> that Court referred, again on a resource consent appeal, to a definition in the Auckland Regional Policy Statement (“the ARPS”) which reads:

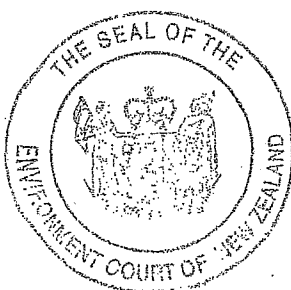
The term ‘effects’ is defined in section 3 of the RM Act. Within that definition, ‘cumulative effects’ include:

...

- (d) effects which would arise over time as a result of implementing a particular policy, as well as the effects which may stem over a period of time from a particular decision.

William Young P (giving the decision of the Court) remarked obiter:

We note in passing that this definition proceeds on the basis of an interpretation of “cumulative effects” that was rejected in *Dye* at [39].



<sup>223</sup> *Gould v Rodney District Council* [2006] NZRMA 217 at [122].

<sup>224</sup> *Auckland Regional Council v Living Earth Limited* (2008) 14 ELRNZ 305 at [37].

In other words, if potential effects caused by a relevant activity may occur in combination with other effects for other possible activities a local authority must ignore those (at least when considering a resource consent application).

[150] In summary on sets (5) and (6) effects: as we understand *Gould*, Cooper J was stating that the effect of *Dye* is that set (6) should not be considered. We respectfully agree that is the practical course when considering a resource consent application. However, the wider reading of *Dye* confirmed by *Auckland Regional Council v Living Earth Limited* suggests that set (5) should not be considered either. That seems inconsistent with *Hawthorn*<sup>225</sup> in which Cooper J delivering the judgement of the Court of Appeal simply confirmed<sup>226</sup> his own explanation of *Dye* as given in *Gould*.

#### *Accumulative effects*

[151] In *Robinson et ors v Waitakere City Council*<sup>227</sup> the Environment Court sidestepped the problem it perceived with a wide interpretation of *Dye* (as in the *Living Earth* case) as follows:

Since there are undoubtedly possible effects which may or may not occur – and with differing probabilities – and possibly in combination with other such effects we use the term ‘accumulative effects’ to apply to those. ‘Accumulative effects’ are a large set of effects which includes the more limited set of ‘cumulative effect[s]’ defined by section 3(d) of the RMA...

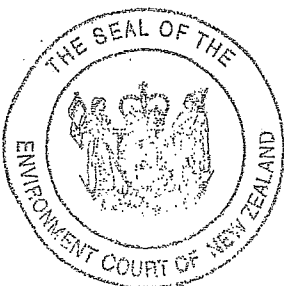
We follow that approach and hold that the intersection of the effects of the possible activities in the sets (1), (2), (3) and (5) identified above will cause “accumulative effects” in the meaning of *Robinson et ors v Waitakere City Council*<sup>228</sup>. Another way of looking at the potential accumulative effects of consented activities is to regard those as part of ‘the environment’ in accordance with *Hawthorn* quoted above. The disadvantage of that approach is that it encourages the consent authority to look at the consented activity (e.g. in these proceedings the Mahinerangi wind farm) rather than its potential effects and thus leads it away from the issue of concern to the consent authority

<sup>225</sup> [2006] NZRMA 424.

<sup>226</sup> [2006] NZRMA 424 at para [83].

<sup>227</sup> *Robinson et ors v Waitakere City Council* Decision A3/2009 at [34].

<sup>228</sup> *Robinson et ors v Waitakere City Council* Decision A3/2009 at [34].



which is the intersection of those potential effects and those from the proposal being considered.

[152] If we find in a later chapter that there is a medium likelihood that the Mahinerangi project (for which TrustPower holds a resource consent) will be built if the Meridian project on the Lammermoor is also approved then we hold that we should consider either:

- (a) the accumulative effects of the Lammermoor proposal together with those from a Mahinerangi wind farm; or
- (b) the effects of the Meridian proposal on an 'environment' which contains the Mahinerangi wind farm;

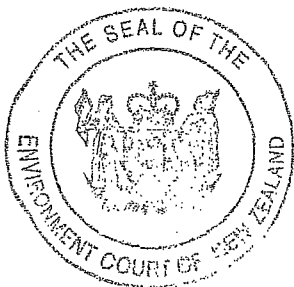
– since we see no real difference between those two statements. If we find that there is less than a medium likelihood that Mahinerangi will be built then perhaps it should be considered as an alternative to Meridian's project. We consider whether alternatives are relevant later in this chapter.

### 3.3 The Central Otago District Plan (s 104(1)(b)(iv) of the Act)

#### 3.3.1 The scheme of the district plan

[153] The Central Otago District Plan became operative on 1 April 2008. There are two volumes to the CODC's district plan – one of issues, objectives, policies and rules, and the second of maps. Volume One contains 19 chapters called 'Sections'. The relevant sections are as follows:

1. ...
2. The Resources and Significant Resource Management Issues of the District
3. ...
4. Rural Resource Area
5. ...
- ...
12. District-wide Rules
13. Infrastructure, Energy and Utilities
14. Heritage Buildings, Places, Sites, Objects and Trees



15. Financial Contributions
16. ...
- ...
18. Definitions
19. Schedules

### 3.3.2 The resources and issues

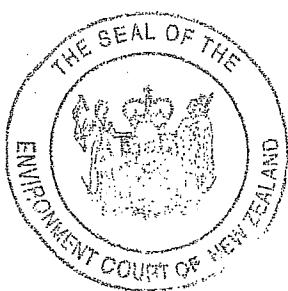
[154] In section 2 of the CODC district plan various “areas of outstanding landscape value” are identified<sup>229</sup>. The areas shown are considered<sup>230</sup> by the district plan to be outstanding natural features or landscapes within the district and are to be provided for in terms of section 6(b) of the RMA. In addition to being shown on the figure they are listed in the text as<sup>231</sup>:

- Kawarau Gorge
- Butchers Dam locality
- Upper Clutha terraces
- Cromwell Gorge
- Alexandra rock faces
- Elevated areas providing visual backdrop to Lake Dunstan near Bendigo
- Blue Lake/St Bathans backdrop
- Old Man/Old Woman Garvie Range complex
- Hawkduns/Ida Range including Danseys Pass
- Upper Manorburn/Poolburn/Serpentine
- Lindis Pass
- Poolburn Gorge
- Nevis Valley backdrop
- Dunstan Mountains tor tops
- Upper Taieri scroll plan
- Upper Manuherikia and Hawkdun escarpment.

<sup>229</sup> Figure 2.2 [District Plan, p. 2:9].

<sup>230</sup> District Plan, p. 2:7.

<sup>251</sup> District Plan, p. 2:7.



The nearest of these areas to the Meridian site are the 'Serpentine' and the Upper Taieri Scroll Plain (both to the west of the site). Since most of the Meridian site is over 900 masl it is relevant that the district plan also states<sup>232</sup>:

Areas of outstanding landscapes, areas over 900 metres in elevation, and land in the Upper Manorburn-Lake Dunstan Management Area have been shown on the planning maps.

### 3.3.3 The Rural Resource Area

[155] Section 4 of the district plan deals with the 'Rural Resource Area' of the district. As shown on Maps 70 and 71 of Volume Two of the district plan the Meridian site is in the Rural Resource Area. The *prima facie* relevant objectives for the Rural Resource Area include paraphrases<sup>233</sup> of section 5(2) and 6(c) of the RMA, which we will not repeat, and three more specifically worded objectives. The latter are<sup>234</sup>:

#### 4.3.2 Objective – Landscape and Amenity Values

To maintain and enhance rural amenity values created by the open space, landscape, natural character and built environment values of the District's rural environment.

#### 4.3.3 Objective – Outstanding Landscapes and Natural Features, Land Over 900 metres and Land in the Upper Manorburn/Lake Onslow Landscape Management Area

To protect the Districts<sup>235</sup> outstanding landscapes and natural features, land over 900 metres and land in the Upper Manorburn/Lake Onslow Landscape Management Area (including landforms) from the adverse effects of inappropriate subdivision, use and development.

#### 4.3.4 Objective – Recreation Resources

To maintain and enhance the quality of the District's recreation resources and public access to those resources.

We note here that, strangely, the three categories of land in objective 4.3.3 have the same objective, i.e. they appear to be required to be treated the same way. That equal treatment flows through into the policies as we see next. So areas over 900 masl are

<sup>232</sup> District Plan, p. 2:8.

<sup>233</sup> Objective 4.3.1 [Central Otago District Plan, p. 4:7] and Objective 4.3.8 [Central Otago District Plan, p. 4:8].

<sup>234</sup> Objectives 4.3.2 to 4.3.4 [Central Otago District Plan pp. 4:7 – 4:8].

<sup>235</sup> Here and in succeeding quotations all apostrophes are omitted or added as shown in the district plan.



treated rather uncomfortably as a kind of 'Clayton's' outstanding natural landscape: an outstanding natural landscape which you do not actually call that.

[156] The most relevant policies are<sup>236</sup>:

**Policy – Landscape and Amenity Values**

To manage the effects of land use activities and subdivision to ensure that adverse effects on the open space, landscape, natural character and amenity values of the rural environment are avoided, remedied or mitigated through:

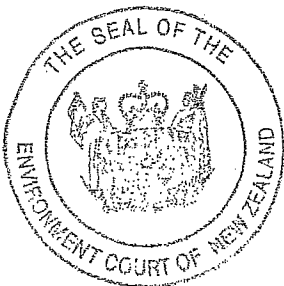
- (a) The design and location of structures and works,
- (b) Development which is compatible with the surrounding environment including the amenity values of adjoining properties,
- (c) The ability to adequately dispose of effluent on site,
- (d) Controlling the generation of noise in back country areas,
- (e) The location of tree planting, particularly in respect of landscape values, natural features and ecological values,
- (f) Controlling the spread of wilding trees;

– and<sup>237</sup>:

**Policy – Outstanding Landscapes and Natural Features, Land Over 900 metres and Land in the Upper Manorburn/Lake Onslow Landscape Management Area**

To recognise the District's outstanding landscapes and natural features and land over 900 metres and land in the Upper Manorburn/Lake Onslow Landscape Management Area which:

- (a) Are unique to the district, region or New Zealand; or
- (b) Are representative of a particular landform or land cover occurring in the Central Otago District or of the collective characteristics and features which give the District its particular character; or
- (c) Represent areas of cultural or historic significance in the district, region or New Zealand; or
- (d) Contain visually or scientifically outstanding geological features; or
- (e) Have characteristics of cultural, historical and spiritual value that are significant to Kai Tahu ki Otago



<sup>236</sup> Policy 4.4.1 [Central Otago District Plan, p. 4:9].  
<sup>237</sup> Policy 4.4.6 [Central Otago District Plan, p. 4:12].

and provide protection for them from inappropriate subdivision, use and development.

The Explanation<sup>238</sup> includes the following:

... Landscapes and natural features considered to be outstanding in the Central Otago District are identified as Sections 2.3.1 and 2.3.2 commencing on page 2:6 and are identified on the planning maps. Elevated areas of the District that are over 900 metres and land in the Upper Manorburn/Lake Onslow Landscape Management Area are also identified on the planning maps.

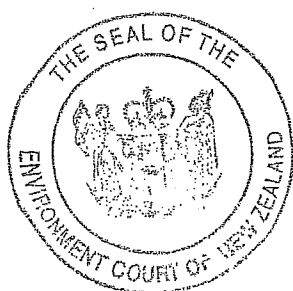
The right-hand bottom corner of Map 70<sup>239</sup> shows areas of land above 900 metres above sea level. Most of the Meridian site is within an area above 900 masl.

[157] The rules for the Rural Resource Area provide<sup>240</sup> that any activity not listed as controlled, discretionary etc is a permitted activity if it complies with the rules and standards set out in sections 4.7.6 and 12 to 15 of the plan. Thus farming is a permitted activity on the Lammermoor site. However, for land over 900 metres that is subject to a rule which sets a standard for activities as follows<sup>241</sup>:

- (1) No activity shall have the effect of:
- (a) Erecting any structure (excluding post and wire fences) or building, or
  - (b) Cutting new roads, new tracks, new landings, or new utility service lines, or
  - (c) Excavating material in excess of 20m<sup>3</sup> (volume) and/or disturbing any land 50m<sup>2</sup> in area or greater in any one hectare in any continuous period of 5 years but excluding cultivation of areas previously cultivated (for the avoidance of doubt this does not apply to the maintenance of roads, tracks, landings, fire breaks and other works), or
  - (d) Establishing woodlots, production forestry or shelter belts, or
  - (e) Subdivision of land (except for the purpose of creating reserves or conservation areas),

within any area identified as an outstanding landscape, land over 900 metres or land in the Upper Manorburn/Lake Onslow Landscape Management Area as shown on the planning maps and including outstanding landscapes as identified in Schedule 19.6.2 except as provided for by Rules 13.7.6 and 13.7.8.

<sup>238</sup> Central Otago District Plan, p. 4:12.  
<sup>239</sup> Central Otago District Plan, Volume 1 Map 70.  
<sup>240</sup> Rule 4.7.1 [Central Otago District Plan, p. 4:28].  
<sup>241</sup> Rule 4.7.6L [Central Otago District Plan, p. 4:65].



Thus for a considerable part of the Meridian site any permitted baseline is basically limited to current high country pastoral farming activities. The exceptions in rules 13.7.6 and 13.7.8 are for recently freeholded properties under the Crown's tenure review process. They are not relevant for the purposes of these proceedings.

### 3.3.4 District-wide rules (section 12 of the district plan)

[158] Section 12 of the district plan provides district-wide rules and performance standards. None of these is relevant in this case because section 13 (discussed next) over-rides this section.

### 3.3.5 Infrastructure, energy and utilities (section 13 of the district plan)

[159] Section 13 of the district plan contains provisions for infrastructure, energy and utilities. The substantive objectives are preceded by a statement which reads<sup>242</sup>:

The objectives in this section of the Plan are intended to provide a complete code for those activities to which Section 13 applies.

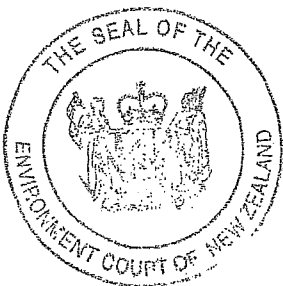
The same statement appears in chapter 13.4 of the plan which sets out relevant policies. There is a similar statement later in the rules but without the use of the word 'intended'.

[160] There are three objectives in section 13. They relate to the roading network, utilities and to the development of energy resources. The latter two objectives are particularly relevant to this proposal. Objective 13.3.2 relates to utilities and is<sup>243</sup>:

To enable the efficient operation and development of utilities while ensuring that effects on amenity, heritage, landscape values and public safety are avoided, remedied or mitigated.

Objective 13.3.3 relates to the development of energy resources and requires<sup>244</sup>:

In the development of energy resources, to have particular regard to the use of natural and physical resources in a manner which avoids, remedies or mitigates significant adverse effects on the environment.



<sup>242</sup> Central Otago District Plan, p. 13:4.

<sup>243</sup> Central Otago District Plan, p. 13:4.

<sup>244</sup> Central Otago District Plan, p. 13:4.



[161] A number of implementing policies within section 13.4 are also relevant. Policy 13.4.1 recognises the positive contribution of infrastructure. This policy is:

To recognise the essential and positive contribution that infrastructure and its ongoing development makes to the social, economic, and cultural wellbeing, and to the health and safety of the District's people and communities.

[162] Policy 13.4.3 relates to public works and network utilities. This policy reads<sup>245</sup>:

To enable the development and operation of public works and network utilities that are sited or designed in such a way that amenity, heritage and landscape values are not significantly adversely affected.

This policy is relevant to the assessment of the transmission line (and the substations) because these are utilities. There is also a policy<sup>246</sup> as to co-siting of utilities and their location in corridors.

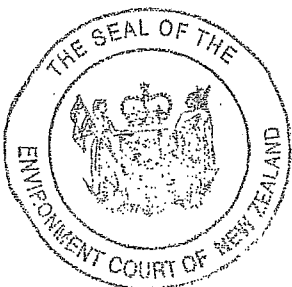
[163] Policy 13.4.7 is most important because it is specific to the development of power generation facilities. "Power generation facility" is defined<sup>247</sup> as meaning "a facility, operation, or activity whose principal purpose is to generate energy, and includes ... wind turbines ..." and "Infrastructure" is defined<sup>248</sup> as meaning "those built structures necessary for operating and supplying utilities and services to the community including ... electricity ...". We hold that Meridian's proposed wind farm is a power generation facility. The policy seeks<sup>249</sup>:

To ensure that the development of power generation facilities avoids, remedies or mitigates:

- (a) Adverse effects on ecosystems, habitats, soils and minerals.
- (b) Impact on communities, infrastructure and services.
- (c) Adverse effects generated during the construction phase, particularly in terms of noise, lightspill, glare, vibration, dust, traffic generation and earthworks.

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<sup>245</sup> Central Otago District Plan, p. 13:6.  
<sup>246</sup> Policy 13.4.5 [Central Otago District Plan].  
<sup>247</sup> Central Otago District Plan, p. 18:8.  
<sup>248</sup> Central Otago District Plan, p. 18:5.  
<sup>249</sup> Central Otago District Plan, pp. 13:7 and 13:8.



- (d) Potential for the loss of or irreversible change to outstanding landscapes.
- (e) Impacts on heritage values.
- (f) Adverse effects on cultural values of importance to Kai Tahu ki Otago.
- (g) Ongoing effects of the development including land stability issues.
- (h) Potential effects on local climate.
- (i) The potential impact of natural hazard events and the effect the activity itself may have on exacerbating natural hazards.
- (j) Impact on public access to and along the margins of lakes and rivers or to natural and physical features.

We note that this is a very general policy in that it copies the formula in section 5(2)(c) of the RMA of avoiding, remedying or mitigating adverse effects.

[164] Policy 13.4.8 may be relevant to the subject proposal. This policy<sup>250</sup> seeks to reduce the environmental impact of developing power generation by "... encouraging investigation into a wide range of renewable energy sources ...". Its explanation states that development of energy production facilities has to date concentrated on resources that are more easily accessed; that, with advances in technology and depletion of these resources, together with a greater awareness of the environmental cost often associated with the development of these resources, alternate energy resources are becoming a more attractive development option; and that the investigation and development of low impact renewable sources of energy is encouraged.

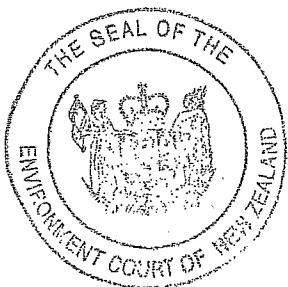
[165] Policy 13.4.9 deals with conservation and efficient use of energy and is<sup>251</sup>:

To promote the conservation and efficient use of energy through:

- (a) Encouraging the use of energy efficient technology and building design.
- (b) Educating the public about energy efficiency and its benefits.
- (c) Encouraging industry and transport operators to adopt energy efficient management practices.

<sup>250</sup> Central Otago District Plan, p. 13:8.

<sup>251</sup> Central Otago District Plan, p. 13:9.



[166] Section 13.6 of the plan sets out the principal reasons for adopting the objectives, policies and methods. It notes<sup>252</sup> that “the development of infrastructure, network utilities and power generation facilities within the District has the potential to create significant adverse environmental effects”. It recognises that these activities are essential elements in the efficient functioning of the community, and explains that utilities and works with potentially significant effects will require assessment through the resource consent process.

*The rules*

[167] Section 13.7 of the plan sets out rules that are relevant to infrastructure, energy and utilities. Rule 13.7.1 states that section 13.7 is to be a complete code. More particularly, this section of the plan states that<sup>253</sup>:

The rules in this section of the Plan provide a complete code for those activities to which Section 13 applies. Other than in relation to Financial Contributions (Section 15) and Subdivision (Section 16) and the Definitions in Section 18, no rule in any other part of this plan shall apply to any activity dealt with by this section, unless the application for that rule is directly referred to in this section of the Plan.

[168] As indicated earlier, section 13 includes rules relevant to utilities and power generation facilities. The following rules from section 13.7 of the plan are relevant to the activities proposed by Meridian in this case. Rule 13.7.2 makes the ‘construction, upgrading or realignment of roads within road reserves ... a permitted activity’ and encroachment beyond the road reserve is similarly a permitted activity.

The construction of a road not aligned with a legal road is a discretionary activity<sup>254</sup>.

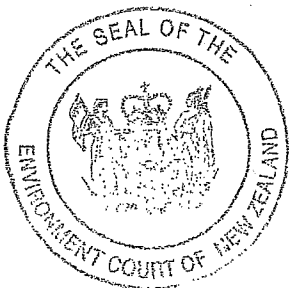
[169] Rule 13.7.4(iii) as to power generation facilities states that any activity that<sup>255</sup>:

<sup>252</sup> Central Otago District Plan, p. 13:12.

<sup>253</sup> Central Otago District Plan, p. 13:13.

<sup>254</sup> Rule 13.7.2(iii) Central Otago District Plan, p. 13:13.

<sup>255</sup> Rule 13.7.2(iii) Central Otago District Plan, p. 13:13.



- (a) Involves or is associated with the construction and commissioning of a power generation facility,
- OR
- (b) Results in an increase in the height of a dam ...  
is a discretionary activity.

For the purposes of this rule "construction and commissioning" activities includes those activities directly involved with the building and operation of a new energy production facility.

That shows (albeit confusingly) that development of a new power generation facility:

- (a) includes both its construction and its commissioning; and
- (b) 'commissioning' 'includes its operation' by virtue of the special definition for this rule.

It is important that the rule refers not only to development of such facilities but also to their operation. That is the only express reference (but it is enough) to actual operation of a facility such as a wind farm in section 13 of the district plan.

[170] Rule 13.7.7 relates to the operation, maintenance, repair, upgrading and removal of network utilities. Relevant parts of this rule include<sup>256</sup>:

- (i) The operation, maintenance, repair, replacement, reconstruction and upgrading of network utilities (including existing network utilities and earthworks to maintain the utility's function) is a permitted activity.

That list is fairly comprehensive and made more so by an inclusive definition of 'upgrading'. We consider any changes or connection to the Roxburgh-Three Mile Hill Line would be covered by this rule.

[171] Rule 13.7.10 relates to electricity reticulation. It states (relevantly)<sup>257</sup>:

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<sup>256</sup> Central Otago District Plan, pp. 13:17-18.  
<sup>257</sup> Central Otago District Plan, pp. 13:19-20.



(i) New overhead lines ... and new support structures not exceeding 15 metres in height are:

(a) Permitted activities in the Rural ... Resource Area..., and

...

provided that this does not apply to ...

1. Areas of outstanding landscape, land over 900m and land in the Upper Manorburn/Lake Onslow Management Area as identified on the planning maps, and
2. Areas of significant indigenous vegetation, habitat of indigenous fauna and wetlands identified in Schedule 19.6.1 and the planning maps; and

...

**(ii) Support Structures Exceeding 15m in Height**

New pylons, poles and other support structures exceeding 15m in height together with associated lines, ancillary structures and telecommunications facilities for the purpose of transmitting electricity are discretionary activities<sup>258</sup>.

[172] Rule 13.7.15 sets out a range of performance standards for utilities. These standards relate to ground disturbance, parking, radio frequency radiation, stormwater control, noise, provision of as-built plans, construction and general standards, and separation distances. Where one or more of these standards are breached by the creation of a utility, then consent to a discretionary activity is required. We consider the application of section 13 of the operative district plan in Chapter 7.0 of this decision.

**3.3.6 Heritage**

[173] The most relevant heritage objective requires<sup>259</sup> recognition and provision for the protection of those sites that contribute to the district's historic character. 'Significant' historic<sup>260</sup> sites are identified in a schedule<sup>261</sup> to the district plan. The Styx Gaol at Paerau is shown<sup>262</sup> as one such item, as are the neighbouring Styx Hotel and Stable<sup>263</sup>. The Old Dunstan Road is not included.

<sup>258</sup> Central Otago District Plan p. 13:20.

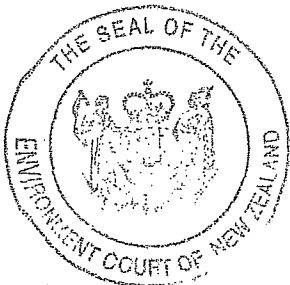
<sup>259</sup> Objective 14.3.2 [Central Otago District Plan, p. 14:5].

<sup>260</sup> Policy 14.4.7 [Central Otago District Plan, p. 14:8].

<sup>261</sup> Schedule 19.4 to the Central Otago District Plan.

<sup>262</sup> Schedule 19.4 item 284 to the Central Otago District Plan.

<sup>263</sup> Schedule 19.4 item 285 [Central Otago District Plan].



### 3.3.7 Financial contributions (section 15 of the district plan)

[174] Section 15 of the district plan deals with financial contributions, and we record here that the CODC's decision imposed a condition<sup>264</sup> setting a 'development impact levy at 0.375%' of the total capital value of the consented wind farm development<sup>265</sup>. In his submissions for the CODC Mr Todd relied on this as a roll-up provision for any adverse environmental effects. He relied on policy 15.4.2 which includes, amongst the purposes for which financial contributions may be sought, the following:

- (a) To provide for the expansion and/or development of the recreational resources and facilities of the District ...
  - ...
  - (c) To protect and/or enhance ecosystems, habitats, landscapes, landforms or significant natural features including the natural character of rivers, lakes and wetlands and their margins;
  - (d) To maintain and enhance amenity values;
  - (e) To provide, relocate or upgrade public services and facilities including parking facilities;
  - (f) To protect sites of heritage and cultural value ...
  - (g) To avoid, remedy, mitigate or compensate for adverse environmental effects on the community or any group within the community;
  - (h) To provide for public access where appropriate;
  - (i) To restore land and/or other natural physical resources upon completion of any activity.
- [Our emphasis]

[175] Policy 15.4.4 is:

... to encourage sub dividers and/or developers to first deal with environmental effects not readily quantifiable through:

- (a) Negotiation and private agreement with affected parties; and/or
- (b) Through project design;
- (c) Before utilising financial contributions to compensate for such effects.

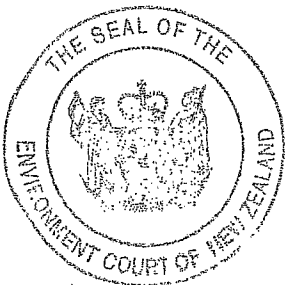
Thus the agreement which the Department of Conservation and the New Zealand Historic Places Trust reached with Meridian were encouraged by the district plan.

<sup>264</sup>

Condition 83.

<sup>265</sup>

The method to determine this value is given in Advice Note (a) of the CODC consent conditions.



[176] Rule 15.6.4 then sets out the circumstances where development impact levies can be imposed. In particular these include where adverse effects cannot be adequately avoided or remedied.

### 3.4 Plan Change 5 to the district plan (s 104(1)(b)(iv) of the Act)

[177] On 11 October 2008 – between two parts of the hearing of this proceeding – the CODC notified Plan Changes 5A to 5W (generically called “PC5”) to the district plan. Submissions closed on 23 December 2008. PC5 is primarily concerned with landscape.

[178] Plan Change 5A proposes to add to the description of features and landscapes in the district plan a further explanation and description as follows<sup>266</sup>:

Further work and considerable consultation on the Rural Study in 2005 and 2006 and a report prepared by Robson Garland, Ian Brown Consultants and LA4 Landscape Architects entitled Central Otago District Rural Review has resulted in the identification of a number of landscapes of high natural character values and high landscape quality that are areas of Extreme or High sensitivity, landscapes that are of Significant sensitivity and Significant landscape features within the District. The landscapes identified in the report as being areas of Extreme or High sensitivity are outstanding natural landscapes in terms of section 6(b) of the Act and are as follows:

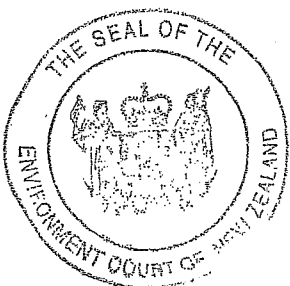
- Pisa and Dunstan Ranges
- Hector, Nevis Valley, Garvie and Old Woman Ranges
- Hawkdun and St Bathans Ranges
- Lake Dunstan and Lake Roxburgh

The landscapes of significant sensitivity are:

- Lindis Pass
- Cairnmuir, Obelisk and Old Man Ranges
- Northern Knobby, Lammerlaw and Lammermoor Ranges
- Kawarau Gorge
- Clutha River below Clyde Dam
- Upper Manuherikia
- Lowburn, Bendigo and Clyde Terraces
- Terrace between the Dunstan Range and Manuherikia River.

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<sup>266</sup> PC5, p. 3.



Significant landscape features are:

Sugar Loaf and Bendigo glacial river terraces

Rocky backdrop to Alexandra

Flat Top Hill

Upper Taieri Scroll River

Lakes Onslow, Manorburn and Poolburn

Blue Lake, St Bathans

Tiger Hill

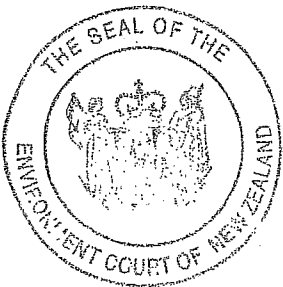
The landscapes and landscape features identified in the Rural Study are categorised on the basis of sensitivity as shown on the "Central Otago Rural Review Landscape Assessment Maps" that are contained in Schedule 19.22.

It will be noted that the Lammermoor Range is described as a landscape of 'Significant sensitivity' but that the Rock and Pillar Range is omitted (perhaps because its crest is within Dunedin City).

[179] The Significant Issues in section 2 of the district plan are also proposed to be changed (relevantly) as follows – the underlined words are those to be added:

<p><u>Significant Issue – Outstanding Landscapes</u>          The District contains a number of outstanding landscapes that require <u>identification and</u> protection from inappropriate subdivision, use and development. In determining what is inappropriate subdivision, use and development in these landscapes it must be recognised that these landscapes are often utilised by people and communities to provide for their social, economic and cultural wellbeing.</p>	<p>Cross Reference:          Issue 4.2.1 (pg 4:2)          Objective 4.3.3 (pg 4:7)</p>
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and:





<p><u>Significant Issue – Central Otago’s Unique and Distinctive Landscape</u></p> <p>The Central Otago District has a unique and distinctive landscape. While the landscape is constantly evolving through natural processes, farming and other land use activities the semi-arid, rocky nature of the landscape means it can be vulnerable to <del>the effects of change, in particular</del> the visual effects of structures (including telecommunication masts, <u>wind farms</u> and other large structures); cultivation of tussock grasslands, large scale earthworks, new roads, <u>residential built development on elevated land</u> establishing woodlots, production forestry or shelter belts on elevated land and wilding tree spread. <u>Subdivision is often the precursor of land use activities such as those listed above.</u> The District’s built heritage, particularly in the form of cottages and ruins, and remnants of the early goldmining era, has also made a significant contribution to the landscape values of Central Otago.</p>	<p>Cross Reference: Issue 4.2.2 (pg 4:2) Objective 4.3.2 (pg 4:7)</p>
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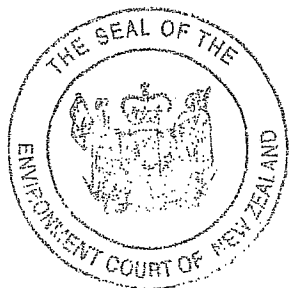
[180] PC5C then proposes to amend and reorder two relevant objectives for the Rural Resource Area (which includes the Lammermoor) as follows<sup>267</sup>:

**4.3.2 Objective – Outstanding Landscapes and Natural Features, Land Over 900 metres, and Land in the Upper Manorburn/Lake Onslow Landscape Management Area and areas of Extreme and High Sensitivity and Significant Landscape Features**

To protect the Districts outstanding landscapes and natural features, land over 900 metres, and land in the Upper Manorburn/Lake Onslow Management Area (including landforms) and areas of Extreme and High sensitivity and Significant landscape features as shown on the Landscape Assessment Maps in Schedule 19.22 from the adverse effects of inappropriate subdivision, use and development.

**4.3.2 3 Objective – Landscape and Amenity Values**

To maintain and enhance rural amenity values created by the open space, landscape, natural character and built environment values of the District’s rural environment, and to maintain the open natural character of the hills and ranges.



<sup>267</sup>

Text to be included is double underlined and text to be deleted is struck out: PC5, pp. 6 and 7.

[181] PC5D then proposes to amend policies 4.4.1 – 4.4.6, 4.4.9 and 4.4.10 in section 4.4 of the Operative Central Otago District Plan as follows (relevantly):

**4.4.6 1 Policy – Outstanding Landscapes and Natural Features, Land Over 900 metres, and Land in the Upper Manorburn/Lake Onslow Landscape Management Area and areas of Extreme and High Sensitivity and Significant Landscape Features**

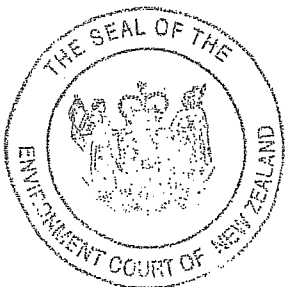
To recognise the District's outstanding landscapes and natural features and land over 900 metres, and land in the Upper Manorburn/Lake Onslow Management Area and areas of Extreme and High sensitivity and Significant landscape features as shown on the Landscape Assessment Maps in Schedule 19.22 which:

- (a) Are unique to the district, region or New Zealand; or
  - (b) Are representative of a particular landform or land cover occurring in the Central Otago District or of the collective characteristics and features which give the District its particular character; or
  - (c) Represent areas of cultural or historic significance in the district, region or New Zealand; or
  - (d) Contain visually or scientifically outstanding geological features; or
  - (e) Have characteristics of cultural, historical and spiritual value that are significant to Kai Tahu ki Otago;
  - (f) Have high natural character values and high landscape quality that can be distinguished from the general landscapes of the Central Otago District
- and provide protection for them from inappropriate subdivision, use and development.

**4.4.1 2 Policy – Landscape and Amenity Values**

To manage the effects of land use activities and subdivision to ensure that adverse effects on the open space, landscape, natural character and amenity values of the rural environment are avoided, remedied or mitigated through:

- (a) The design and location of structures and works, particularly in respect of the open natural character of hills and ranges, skylines, ridgelines, prominent places and natural features,
- (d) Development which is compatible with the surrounding environment including the amenity values of adjoining properties,
- (c) The ability to adequately dispose of effluent on site,
- (d) Controlling the generation of noise in back country areas,
- (e) The location of tree planting, particularly in respect of landscape values, natural features and ecological values,
- (f) Controlling the spread of wilding trees.



(g) Encouraging the location of buildings in valley floors rather than on hillsides to maintain the open natural character of hills and ranges.

In respect of section 13 of the district plan PC5P proposes to delete<sup>268</sup> the passages which intend the objectives and policies to be a code for the activities to which section 13 applies.

[182] Until very late in writing this decision we had overlooked, as counsel must have during the hearing, that one consequence of the notification of Plan Change 5 is that in effect it constitutes a “proposed plan” under which consent is also necessary. That results from section 9 of the RMA which states:

- (1) No person may use any land in a manner that contravenes a rule in a district plan or proposed district plan unless the activity is –
- (a) expressly allowed by a resource consent ...

“Proposed plan” is defined<sup>269</sup> in the Act as meaning (relevantly):

... a proposed plan, or variation to a proposed plan, or change to a plan that has been notified under clause 5 of Schedule 1 but has not become operative in terms of clause 20 of Schedule 1...

We consider that the “proposed plan” for the purposes of section 9 is the district plan as if all the components of the plan change were included.

[183] Thus there are two district plans for the application to be considered under. That situation arose in *O'Connell Construction Limited v Christchurch City Council*<sup>270</sup> where the High Court was considering an appeal about a resource consent in a situation where there was an operative (transitional) plan and a proposed plan. Panckhurst J wrote<sup>271</sup>:

<sup>268</sup> PC5, p. 32.

<sup>269</sup> Section 2 of the RMA.

<sup>270</sup> *O'Connell Construction Limited v Christchurch City Council* [2003] NZRMA 216 (HC).

<sup>271</sup> *O'Connell Construction Limited v Christchurch City Council* [2003] NZRMA 216 (HC) at [79] and [80].



The final question of law is whether the Environment Court erred in its approach by considering the application as if two separate consents were required under the transitional and proposed plans. The submission of counsel was to the effect that the application was assessed and declined under both plans; whereas the Court was required to consider the activity in light of each plan, but ultimately determine which plan was to be accorded most weight as part of the discretionary process under s 105(1)(c).

I did not understand there to be any difference between counsel as to the correct approach. The Court of Appeal in *Bayley v Manukau City Council*<sup>272</sup> held that assessments under both the transitional and proposed plans were required, although the weight to be given “to the outgoing plan especially a transitional plan prepared under former legislation, will depend on the stage which the proposed plan has reached”.

[184] He continued<sup>273</sup>:

After the application has been considered in terms of both plans if the inclination is to grant, or refuse, it under both then there is no need to assess the weight to be accorded to each plan. That further step will only be necessary where the inclination is to grant under one and refuse under the other. See *Stokes v Christchurch City Council*<sup>274</sup>, *Boon's Neighbourhood Action Group (Inc) v Christchurch City Council*<sup>275</sup>. I agree with this analysis.

In the light of that authority we hold that the proposed plan as a whole consists of Plan Changes 5A to 5W as inserted into those parts of the operative district plan which are not affected by Plan Change 5. As we understand it, the status of the proposed wind farm does not change under the proposed plan – it is still discretionary. However, there are different objectives and policies to apply to the proposed activity under Plan Change 5 and its deemed proposed plan.

### 3.5 The regional instruments (s 104(1)(b)(iii) of the Act)

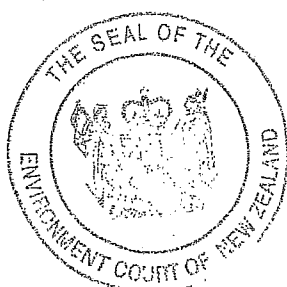
[185] Under section 104(1)(c) of the RMA we must have regard to the Otago Regional Policy Statement (“the RPS”) and to the Otago Regional Plan: Water. We will discuss

<sup>272</sup> *Bayley v Manukau City Council* [1998] NZRMA 513 at 519 (CA).

<sup>273</sup> *O'Connell Construction Limited v Christchurch City Council* [2003] NZRMA 216 at [81].

<sup>274</sup> *Stokes v Christchurch City Council* [1999] NZRMA 409.

<sup>275</sup> *Boon's Neighbourhood Action Group (Inc) v Christchurch City Council*, Environment Court, Christchurch, C71/2001, 4 May 2001, Judge J A Smith.



that to the extent necessary when considering Mr Douglas' appeal. It is also worth noting that since the 2005 amendment to section 75 of the RMA, the district plan should "give effect to" the RPS, and that Plan Change 5 to the district plan (discussed above) is partly motivated by the wish to give effect to the RPS.

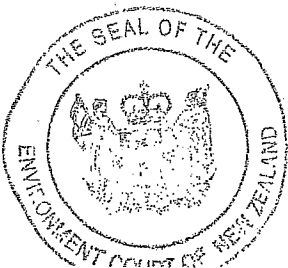
[186] The RPS, which came into force on 1 October 1998, ten years earlier than the operative district plan, contains objectives and policies on many relevant issues. The most relevant chapters in the RPS – to these proceedings – are emphasised in the following list:

1. Introduction
2. Treaty of Waitangi
3. Regional Description
4. Manawhenua Perspective
5. **Land**
6. **Water**
7. Air
8. Coast
9. Built Environment
10. **Biota**
11. Natural hazards
12. **Energy**
13. Wastes etc
14. **Monitoring and Review**
15. **Cross Boundary Issues**

[187] Most of the relevant objectives<sup>276</sup> for land use are high-minded but vacuous. Almost any application for resource consent would meet objectives 5.4.1, 5.4.2 and 5.4.4.

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<sup>276</sup> Objectives 5.4.1, 5.4.2 and 5.4.4 [RPS pp. 50 and 51].



[188] Objective 5.4.3 is simply 'To protect outstanding natural features and landscapes ...'<sup>277</sup>. The RPS does not state precisely where an ONL or ONF may be found within the region. The relevant implementing policy is<sup>278</sup>:

- 5.5.6 To recognise and provide for the protection of Otago's outstanding natural features and landscapes which:
- (a) Are unique to or characteristic of the region; or
  - (b) Are representative of a particular landform or land cover occurring in the Otago region or of the collective characteristics which give Otago its particular character; or
  - (c) Represent areas of cultural or historic significance in Otago; or
  - (d) Contain visually or scientifically significant geological features; or
  - (e) Have characteristics of cultural, historical and spiritual value that are regionally significant for Tangata Whenua and have been identified in accordance with Tikanga Maori.

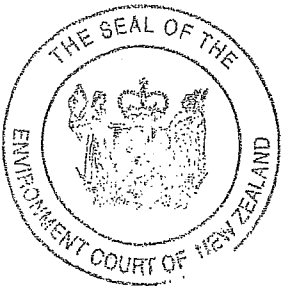
The words of this policy suggest that any landscape which is to be protected must both be an ONL and possess one of the characteristics identified in (a) to (e).

[189] The explanation which follows is not really consistent with the policy<sup>279</sup>. The explanation is :

The recognition and identification of outstanding natural features and landscapes should be based on objective criteria and undertaken in consultation with the community or have outstanding or significant values that are substantially recognised by the Otago community.

Features and landscapes that give the Otago region its distinctive character and particular identity include its expansive tussock grasslands and semi arid lowland for country, the south-east Otago bush remnants and scroll plain wetlands, glacial lakes and block mountain ranges and heritage landscapes such as the historic goldfield sites.

It is important that identification of Otago's outstanding natural features and landscapes be carried out as part of the process for protection from inappropriate subdivision, use and development. Until this identification is completed, careful consideration will need to be given as to whether a particular feature or landscape falls within the scope of Policy 5.5.6.



<sup>277</sup> RPS pp. 50-51.  
<sup>278</sup> RPS p. 56.  
<sup>279</sup> RPS pp. 56-57.

The means of achieving protection may include voluntary arrangements, covenants, the resource consent process or where necessary and appropriate, purchase.

The explanation seems to suggest that the five sets of characteristics are the criteria for being an outstanding natural landscape. Despite that confusion, and importantly for this case, the explanation does strongly imply that “expansive tussock grasslands” are one type of outstanding natural landscape and that they contribute to the region’s “distinctive character and particular identity”.

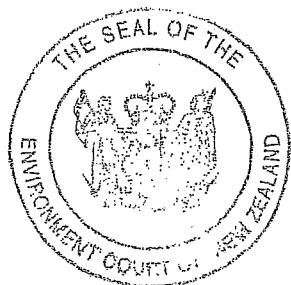
[190] Finally, in relation to landscape the methods identified in the RPS to accomplish those policies include (relevantly) the ORC preparing<sup>280</sup> (after consultation) ‘an inventory of Outstanding Natural Features and Landscapes that are regionally significant’. This does not seem to have been carried out by the ORC in the ten years since the RPS came into force.

[191] The Methods which the RPS states “... may be used by Otago’s territorial local authorities ...” include<sup>281</sup>:

- 5.6.20 Develop policies and other means, including rules where appropriate, to ensure that Otago’s outstanding natural features and landscapes are protected from inappropriate subdivision, use and development.

That contrasts with policy 13.4.7 of the operative district plan which merely requires that the development of a power generation facility avoids, remedies or mitigates “Potential for the loss of or irreversible change to outstanding landscapes”.

[192] Chapter 10 (Biota) of the RPS includes these three objectives for biota (relevantly):



<sup>280</sup> Method 5.6.17 [RPS p. 60].

<sup>281</sup> Method 5.6.20 [RPS p. 60].

- To maintain and enhance the life-supporting capacity and diversity of Otago's biota<sup>282</sup>;
- To protect Otago's natural ecosystems ... from significant biological and natural threats<sup>283</sup>;
- To maintain and enhance the natural character of areas with significant indigenous vegetation and significant habitats of indigenous fauna<sup>284</sup>.

[193] Chapter 12 (Energy) of the RPS states in its introduction<sup>285</sup>:

... less conventional energy sources such as biogas, solar, cogeneration and wind power are increasingly recognised as acceptable long-term energy sources which, for Otago, appear likely to offer more promising opportunities and lower associated environmental impacts (eg. the potential wind farm site of Rocklands in inland Otago).

So the RPS has identified an area on the Lammermoor which the RPS calls 'Rocklands' – presumably the farming station of that name – as being a particularly appropriate site for a wind farm. Considerable emphasis was given to this statement in submissions by counsel for Meridian and the CODC. However, it is only an introductory comment, not an objective or policy and we give it no weight.

[194] The objectives in the RPS in respect of energy are<sup>286</sup>:

- 12.4.1 To avoid, remedy or mitigate the adverse effects on Otago's communities and environment resulting from the production and use of energy.
- 12.4.2 To sustainably and efficiently produce and use energy taking into account community values and expectations.
- 12.4.3 To encourage use of renewable resources to produce energy.

The policies do not add much to those three objectives. It is not clear to us how these objectives are meant to work with (for example) objective 5.4.3 as to protection of outstanding natural landscapes.

<sup>282</sup> Objective 10.4.1 [Otago RPS p. 139].

<sup>283</sup> Objective 10.4.2 [Otago RPS p. 139].

<sup>284</sup> Objective 10.4.3 [Otago RPS p. 139].

<sup>285</sup> Regional Policy Statement p. 171.

<sup>286</sup> Regional Policy Statement p. 171.





[195] Finally on the RPS, it is worth recording that it contains an objective about cross-boundary issues. Objective 15.4 is<sup>287</sup>:

15.4.1 To ensure that cross boundary issues are identified, agreed to and are dealt with in an efficient and effective manner.

An earlier policy<sup>288</sup> in respect of territorial local authorities requires that ‘Otago’s ... district councils must show the processes they will use to deal with issues which cross territorial boundaries’. We were not referred to anything in the Central Otago District Plan about this, despite the fact that the Meridian site is on the Dunedin City boundary. We discuss the implications of that proximity in Chapter 7.0.

### 3.6 Other matters to be had regard to (s 104(1)(c) of the Act)

#### 3.6.1 Other relevant matters raised in the evidence

[196] Various other matters were raised in the evidence. We will discuss the relevant matters when making our overall assessments under the plans. In the following two sections we identify two relevant sets of national documents which we should have regard to.

#### 3.6.2 The National Energy Strategy

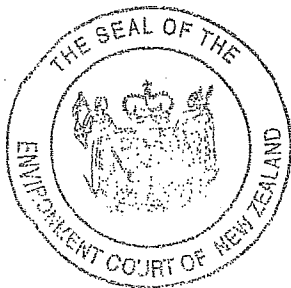
[197] A number of witnesses referred to the current National Energy Efficiency and Conservation Strategy containing the renewable energy generation target of 90% by 2025. At the continuation of the hearing in 2009 (after the national elections in November 2008) Ms Arthur appeared for the Crown to confirm the Crown’s position. Ms Arthur did not explicitly mention the National Energy Efficiency and Conservation Strategy or the renewable energy target, but stated<sup>289</sup> more generally that “Government policy has not changed”. She outlined the changes that the new government had initiated – the review of the Emissions Trading Scheme (“ETS”) and the bill to repeal the ten-year restriction on the construction of new thermal base-load capacity – and went on to state<sup>290</sup> “the Crown still supports the use of renewable energy”. From this we conclude that, with the exception of the details of the ETS and the restriction on new

<sup>287</sup> Regional Policy Statement, p. 213.

<sup>288</sup> Policy 15.2.3 (Regional Policy Statement, p. 211).

<sup>289</sup> Ms B H Arthur, further submissions 29 January 2009 para 2 [Environment Court document 65].

<sup>290</sup> Ms D H Arthur, further submissions 29 January 2009 para 5 [Environment Court document 65].



thermal capacity, the National Energy Efficiency and Conservation Strategy, including the target of 90% renewable generation of 2025 is the policy of the new government.

### 3.6.3 International treaties

[198] A number of witnesses referred to the United Nations Framework Convention on Climate Change and its Kyoto Protocol. The obligations under these treaties have been enacted in domestic law in the Climate Change Response Act 2002 and the section 7 amendments to the RMA. Various divisions of the Environment Court have considered these provisions in wind farm cases in recent years:

- *Genesis Power Limited v Franklin District Council*<sup>291</sup> (“the Awhitu case”);
- *Meridian Energy Limited v Wellington City Council*<sup>292</sup> (“the Makara decision”);
- *The Outstanding Landscape Protection Society Incorporated v Hastings District Council*<sup>293</sup> (“the Unison One decision”);
- *Upland Protection Society Incorporated v Clutha District Council*<sup>294</sup> (“the Mahinerangi decision”);
- *Motorimu Wind Farm Limited v Palmerston North City Council*<sup>295</sup> (“Motorimu”);
- *Unison Networks Limited v Hastings District Council*<sup>296</sup> (“Unison Two”).

These all had regard to New Zealand’s approach to its international obligations when undertaking the overall assessment required by the Act and we follow their approach.

<sup>291</sup> *Genesis Power Limited v Franklin District Council* [2005] NZRMA 541.

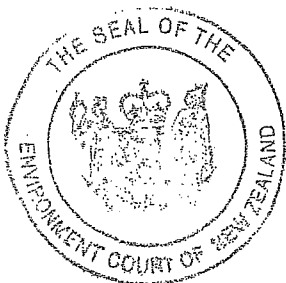
<sup>292</sup> *Meridian Energy Limited v Wellington City Council* Decision W31/2007.

<sup>293</sup> *The Outstanding Landscape Protection Society Incorporated v Hastings District Council* [2008] NZRMA 8 at paragraphs [99] to [101].

<sup>294</sup> *Upland Protection Society Incorporated v Clutha District Council* Decision C85/2008.

<sup>295</sup> *Motorimu Wind Farm Limited v Palmerston North City Council* Decision W67/2008 (26 September 2008) at para [346].

<sup>296</sup> *Unison Networks Limited v Hastings District Council* Decision W11/2009 (23 February 2009) at paragraphs [137] – [138].



### 3.7 Part 2 of the RMA

#### 3.7.1 The strong directions in sections 6 to 8

[199] Under section 104(1) of the RMA our regard to the matters in paragraphs (a) to (c) is “subject to Part 2” of the Act. First and most importantly in that part, section 5 sets out that the RMA has the single purpose of sustainable management of the relevant natural and physical resources. Sections 6 to 8 then provide ‘strong directions’ – to use the phrase of the Privy Council in *McGuire v Hastings District Council*<sup>297</sup> – as to how to achieve that sustainable management. Issues were raised as to the meaning of some of these provisions, including an important issue as to how much the RMA contemplates a consent authority looking at alternatives to the proposal before it. We consider that issue later in this chapter.

#### 3.7.2 Section 6 matters

[200] The relevant matters of national importance under section 6 are:

...

(b) The protection of outstanding natural features and landscapes from inappropriate subdivision, use, and development:

(c) The protection of areas of significant indigenous vegetation and significant habitats of indigenous fauna:

...

(f) The protection of historic heritage from inappropriate subdivision, use, and development.

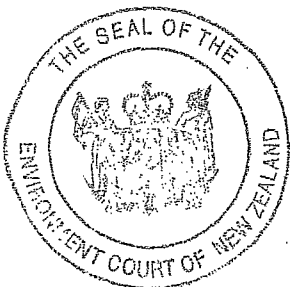
The issues under section 6(c) in this proceeding are all factual and predictive but the application of sections 6(b) and 6(f) is more complicated.

#### *Outstanding natural landscapes*

[201] Section 6(b) requires us to recognise any relevant outstanding natural landscape. In *Wakatipu Environmental Society Incorporated v Queenstown Lakes District Council*<sup>298</sup> the Court identified the components of a landscape as the amended *Pigeon Bay* criteria. Extra factors arising out of ‘cultured natural landscape’ were discussed in

<sup>297</sup> *McGuire v Hastings District Council* [2001] NZRMA 557; [2002] 2 NZLR 577 (PC) at [21].

<sup>298</sup> *Wakatipu Environmental Society Incorporated v Queenstown Lakes District Council* [2000] NZRMA 59.



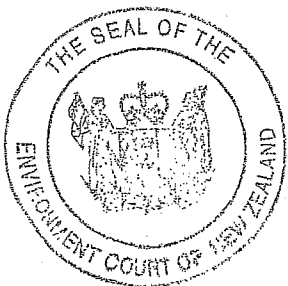
*Long Bay-Okura Great Park Society et ors v North Shore City Council*<sup>299</sup>. We now pull together the threads from those cases and state what we understand a landscape to be under the RMA by recategorising the amended *Pigeon Bay* criteria in an attempt to parcel them into three sets with the more objective factors in (1) and the more value-laden factors in (2) and (3). This comes with a sense of caution about reducing discussion of any landscape to its elements. There is always a danger of not seeing a landscape for the tussocks.

[202] In our view a landscape is four-dimensional in space and time within the given environment – often focussed on a smaller relevant space such as an application site – which is the sum of the following:

- (1) a reasonably comprehensive (but proportionate to the issues) description of the characteristics of the space such as:
  - the geological, topographical, ecological and dynamic components of the wider space (the natural science factors);
  - the number, location, size and quality of buildings and structures;
  - the history of the area;
  - the past, present and likely future (permitted or consented) activities in the relevant parts of the environment; and
- (2) a description of the values of the candidate landscape including:
  - an initial assessment of the naturalness of the space (to the extent this is more than the sum of the elements described under (1) above);
  - its legibility – how obviously the landscape demonstrates the formative processes described under (1);
  - its transient values;
  - people and communities' shared and recognised values including the memories and associations it raises;
  - its memorability;
  - its values to tangata whenua;
  - any other aesthetic values; and

<sup>299</sup>

*Long Bay-Okura Great Park Society et ors v North Shore City Council* Decision A78/2008.



- any further values expressed in a relevant plan under the RMA; and
- (3) a reasonably representative selection of perceptions – direct or indirect, remembered or even imagined – of the space, usually the sub-sets of:
  - (a) the more expansive views of the proposed landscape<sup>300</sup>; and
  - (b) the views, experiences and associations of persons who may be affected by the landscape.

[203] There is some repetition within the sets. For example the objective characteristics of the landscape go a long way towards determining its naturalness. More widely, the matters in the third set influence the perceptions in the second.

[204] To describe and delimit a landscape a consent authority needs at least to consider the matters in set (1) and, to the extent necessary and proportionate to the case, those in sets (2) and (3) also. After delimiting the landscape, the consent authority must assess its naturalness. The criteria for ‘naturalness’ were stated by the Environment Court in *Long Bay-Okura Great Park Society Incorporated et ors v North Shore City Council*<sup>301</sup> to include:

- relatively unmodified and legible physical landform and relief;
- the landscape being uncluttered by structures and/or obvious human influence;
- the presence of water (lake, river, sea);
- the presence of vegetation (especially native vegetation) and other ecological patterns.

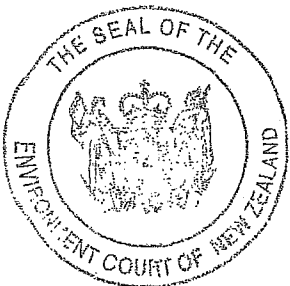
[205] There is sometimes criticism of Part 2 of the RMA for the extent of subjectivity it is said to introduce. Some of this may be inevitable if Parliament maintains the role of the RMA in reconciling different cultural attitudes to resources as in sections 6(e), 7(a) and 8 of the Act. But the test of naturalness in section 6(b) is an important qualification of the word ‘landscape’ and introduces a considerable degree of objectivity

<sup>300</sup>

*Kircher v Marlborough District Council* Decision C90/2009 (Judge McElrea) at para [76].

<sup>301</sup>

*Long Bay-Okura Great Park Society Incorporated et ors v North Shore City Council* Decision A78/2008 at para 135.



to the concept of a natural landscape. Supporting the relative objectivity of the concept we note that humans may even have an evolved preference for those characteristics. In his recent book *The Art Instinct* Mr Denis Dutton describes recent work on "... the kind of ideal landscape that human beings would find intrinsically pleasurable"<sup>302</sup>. He lists its elements as<sup>303</sup>:

- open spaces of low (or mown) grasses interspersed with thickets of bushes and groupings of trees;
- the presence of water directly in view, or evidence of water nearby or in the distance;
- an opening up in at least one direction to an unimpeded vantage on the horizon;
- evidence of animal and bird life;
- a diversity of greenery, including flowering and fruiting plants.

The coincidence between those elements and the 'criteria' for naturalness in the *Long Bay* case seems remarkable<sup>304</sup>. The ideal landscape type described by Mr Dutton is of course closer to the 'cultured native landscape' described by Dr Simon Swaffield, than to what we might call the 'near endemic landscape' type that still exists in some (mainly coastal or mountainous) parts of New Zealand.

[206] There are no invariable criteria for outstandingness – it depends on the specific characteristics of the 'natural landscape' being considered. The landscape of the Meridian site is discussed in the next chapter.

#### *Historic heritage*

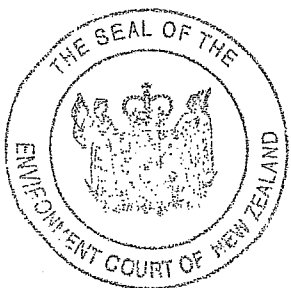
[207] Section 6(f) makes the protection of historic heritage from inappropriate development a matter of national importance. Section 2 of the Act defines the phrase "historic heritage" as:

- (a) means those natural and physical resources that contribute to an understanding and appreciation of New Zealand's history and cultures, deriving from any of the following qualities:

<sup>302</sup> D Dutton, *The Art Instinct* (Bloomsbury Press at New York) 2009, p. 15.

<sup>303</sup> D Dutton, *The Art Instinct* (Bloomsbury Press at New York) 2009, p. 15.

<sup>304</sup> Or perhaps not: the *Long Bay* criteria were stated after considering research by Dr Simon Swaffield of Lincoln University. Mr Dutton works less than 20 kilometres away at Canterbury University.



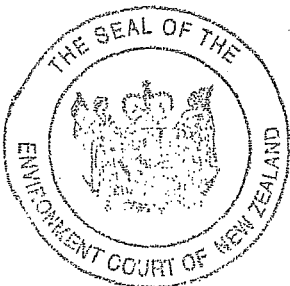
- (i) archaeological:
  - (ii) architectural:
  - (iii) cultural:
  - (iv) historic:
  - (v) scientific:
  - (vi) technological; and
- (b) includes –
- (i) historic sites, structures, places, and areas; and
  - (ii) archaeological sites; and
  - (iii) sites of significance to Maori, including wahi tapu; and
  - (iv) surroundings associated with the natural and physical resources.

The important point for present purposes is that the concept of historic heritage appears to include the context of a heritage site, structure, place or even area. We infer that from the inclusion of ‘surroundings’ within the definition of “historic heritage”. For example, in these proceedings we have found that the Old Dunstan Road across the Lammermoor is historic heritage. A further issue for us to determine will be the extent of the ‘heritage surroundings’ or, as the landscape architect called for MESI (Ms Steven) put it, the ‘heritage setting’ of the Old Dunstan Road.

[208] The phrase ‘heritage landscape’ is often used when speaking of the surroundings of historic heritage. Mr Rough referred<sup>305</sup> to a “Heritage Landscapes Thinktank” whose thoughts were published by the New Zealand Historic Places Trust which explored the utility of the phrase. However, we consider this usage may be dangerous under the RMA where the word ‘landscape’ is used only in section 6(b). Further, the concept of a landscape includes heritage values, so there is a danger of double-counting as well as of confusion if the word ‘landscape’ is used generally in respect of section 6(f) of the Act.

### 3.7.3 Section 7 (generally)

[209] We are to have particular regard (relevantly) to these matters:



<sup>305</sup> Mr P Rough, evidence-in-chief paragraphs 113 and 114 [Environment Court document 3].

- (a) ...
- (aa) The ethic of stewardship:
- (b) The efficient use and development of natural and physical resources:
- (ba) the efficiency of the end use of energy:
- (c) The maintenance and enhancement of amenity values:
- (d) Intrinsic values of ecosystems:
- (e) *Repealed.*
- (f) Maintenance and enhancement of the quality of the environment:
- (g) Any finite characteristics of natural and physical resources:
- (h) The protection of the habitat of trout and salmon:
- (i) the effects of climate change:
- (j) the benefits to be derived from the use and development of renewable energy.

Because more submissions were made about section 7(b) that is considered in 3.9 below. We discuss the other paragraphs of section 7 in order now.

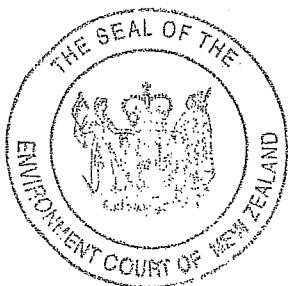
*The ethic of stewardship (section 7(aa))*

[210] Mr Todd submitted for the CODC<sup>306</sup> that "... currently the owners of the land have the primary role of stewardship ..." and that the Regional and District Councils play a role through their plans and consent procedures. He also acknowledged that government departments and quangos such as the Department of Conservation and the Historic Places Trust also have a stewardship role in relation to adjoining lands. On the other hand, in *The Outstanding Landscape Protection Society Incorporated v Hastings District Council*<sup>307</sup> the Environment Court wrote:

... It is valid to see "stewardship" in two ways in this context. First, that it would be best achieved by preserving these visual, landscape and other amenity values unaltered, and that change to them should be avoided. Alternatively, that we will be better stewards of the planet's resources for the benefit of future generations if we accept some compromise of those values for the purpose of at least slowing climate change, by taking advantage of non-polluting and renewable sources of energy. The issue here is whether the compromise required for this proposal, whether alone or cumulative upon that already accepted to allow [two other consented] proposal[s] goes beyond the point of what is appropriate and acceptable.

<sup>306</sup> Mr G M Todd, submissions 16 February 2009 [Environment Court document 85].

<sup>307</sup> *The Outstanding Landscape Protection Society Incorporated v Hastings District Council* [2008] NZRMA 8 at [88].





[211] The ‘ethic of stewardship’ has a long if rather theocentric history. In Plato’s *Phaedrus*<sup>308</sup> a character states: “It is everywhere the responsibility of the animate to look after the inanimate”. In the 17th century Hale CJ wrote, extrajudicially<sup>309</sup>:

The end of man’s creation was that he should be the viceroy of the great God of heaven and earth in this inferior world; his steward ... or farmer of this goodly farm of the lower world.

[212] The idea that stewardship appears to involve a responsible compromise of landowners’ dominion over their land seems to be demonstrated in the *Makara*<sup>310</sup> decision. There the Environment Court discussed stewardship and appeared to find it cut both ways:

First, that [stewardship] would be best achieved by preserving this landscape unaltered, and that change to it should be avoided. Alternatively, it could be argued that *we* will be better stewards of the planet’s resources for the benefit of future generations if we allow some compromise of amenity for the purpose of at least slowing climate change, by taking advantage of non-polluting and renewable sources of energy.

We assume that the italicised “we” refers to all New Zealanders. Importantly the decision also links stewardship with section 5(2) of the Act.

[213] We were not given any substantive submissions or evidence that would help us resolve who Parliament is intending to apply the ethic of stewardship to. We will attempt to resolve this briefly in Chapter 7.0.

*Energy (section 7(ba) and (j))*

[214] There is one interpretative issue here: “what is meant by the efficient end use of energy”? As the Environment Court did in *Lower Waitaki River Management Society Incorporated v Canterbury Regional Council*<sup>311</sup> we adopt the approach of the Board of Inquiry into the Upper North Island Grid Upgrade<sup>312</sup> concerning section 7(ba):

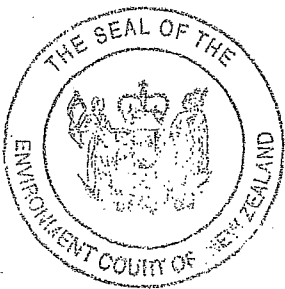
<sup>308</sup> *Phaedrus* 246b.

<sup>309</sup> Sir Matthew Hale *The Primitive Origination of Mankind* (London, 1677) Section 4, p. 370.

<sup>310</sup> *Meridian Energy Limited v Wellington City Council* Decision W31/2007 at para [369].

<sup>311</sup> *Lower Waitaki River Management Society Incorporated v Canterbury Regional Council* Decision C80/2009 at para [193].

<sup>312</sup> Draft Report and Decision (May 2009) at para 2341.



... the end-use of energy, outside the scope of a transmission grid, and is beyond being influenced by however robust and resilient the grid may be. This topic is simply irrelevant to the circumstances of the proposed ... resource consents.

We consider that the end use of energy, and the efficiency thereof (outside of any issues in supplying to the receiving electricity grid), are not relevant to resource consents for generation facilities.

[215] The benefits of developing and using renewable energy (section 7(j)) are factual and predictive issues which we consider elsewhere.

*Maintenance and enhancement of amenity values and quality of the environment (section 7(c) and (f))*

[216] Amenity is defined in section 2 of the RMA as meaning:

... 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.

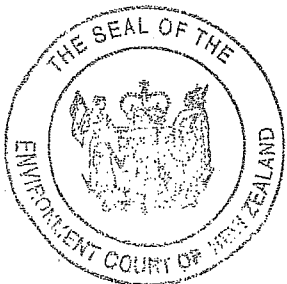
The Court has held that protection of views under this paragraph is not only for adjacent landowners but also for passers-by and future generations: *Pacific Investment Trust v Banks Peninsula District Council*<sup>313</sup>. Otherwise these values are largely subsumed in consideration of the landscape values we consider later.

*Intrinsic values of ecosystems (section 7(d))*

[217] We received little or no evidence on the economic values of any 'intrinsic values' possessed by the land subject to the application. The 'existence value' of ecosystems has been the subject of investigation by economists recently, so there is the potential for probative evidence to be given on this issue. That is important because a matter we are to have particular regard to should not have been simply ignored by the parties.

---

<sup>313</sup> *Pacific Investment Trust v Banks Peninsula District Council* Decision C86/2000.



[218] We did receive ecological evidence about the values of the various ecosystems and we attempted to describe that in Chapter 2.0.

*Any finite characteristics of natural and physical resources (section 7(g))*

[219] This paragraph raises questions of fact and prediction considered later.

*The protection of the habitat of trout and salmon (section 7(h))*

[220] Several issues were raised in the evidence – the effect of trout habitat including spawning grounds being affected by sedimentation (and/or eutrophication?).

*The effects of climate change (section 7(i))*

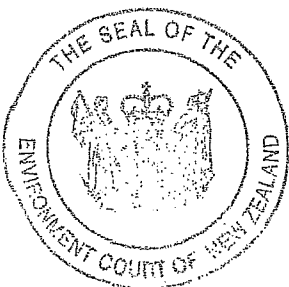
[221] Section 7(i) of the RMA states that we are to have particular regard to the effects of ‘climate change’. That term is defined by section 2 of the RMA as meaning:

... a change of climate that is attributed directly or indirectly to human activity that alters the composition of the global atmosphere and that is in addition to natural climate variability observed over comparable time periods.

We consider the definition has two components. Climate change is a change:

- (1) that is attributed to human activity that alters the composition of the global atmosphere; and
- (2) that is in addition to natural variability.

Sentence (1) does not say ‘caused by’. We consider if a party reasonably attributes changes to the composition of the global atmosphere to human activity then it falls within the definition of climate change for the purposes of the Act. We assume Parliament’s intention was for local authorities to avoid scientific discussion about the existence and extent of anthropogenic climate change and get on with the local circumstances of resource consent applications.



[222] In Chapter 2<sup>314</sup> we accepted the New Zealand Government's attribution to human activity of the changes in the composition of the global atmosphere. Section 7(i) thus applies and we must have particular regard to the effects of climate change as defined in the RMA.

### 3.8 Efficient use of resources (section 7(b) of the Act)

#### 3.8.1 Efficiency of using the wind

[223] It was a general theme of Meridian's case and supported by the CODC through Mr Todd's submissions<sup>315</sup> that it would be efficient in terms of section 7(b) to use the wind which is currently not utilised. There is support for that proposition in two of the wind farm cases decided to date by the Environment Court: *Genesis Power Limited v Franklin District Council*<sup>316</sup> ("the Awhitu case"); and more directly in *The Outstanding Landscape Protection Society Incorporated v Hastings District Council*<sup>317</sup> ("the Unison One decision") where the Court wrote<sup>318</sup>:

... the energy in the wind is a presently untapped resource, and the use of that resource to produce electricity by a process which does not emit pollutants is at the heart of this project. It would plainly be an efficient use of the resource, which will otherwise be wasted.

[224] In wind farm cases it is becoming common – see for example *Makara*<sup>319</sup>, *Unison One*<sup>320</sup> – to put two benefits into the ledger as efficient use of resources: the use of the wind (previously 'wasted') and the continued use of the (farm) land underneath. While we certainly agree that both those are important positive potential effects of a wind farm, we consider that approach is potentially misleading. If section 7(b) is to be more than another way of restating a value judgement about irreconcilable values then the issues it

<sup>314</sup> At section 2.10 of this decision.

<sup>315</sup> Environment Court document 85.

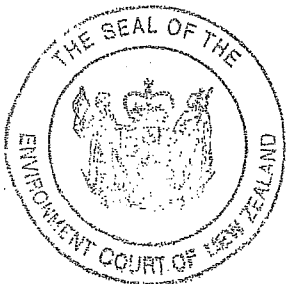
<sup>316</sup> *Genesis Power Limited v Franklin District Council* [2005] NZRMA 541 at para [200].

<sup>317</sup> *The Outstanding Landscape Protection Society Incorporated v Hastings District Council* [2008] NZRMA 8 at paragraphs [99] to [101].

<sup>318</sup> *The Outstanding Landscape Protection Society Incorporated v Hastings District Council* [2008] NZRMA at para [89].

<sup>319</sup> *Meridian Energy Limited v Wellington City Council* Decision W31/2007 at para [370].

<sup>320</sup> *The Outstanding Landscape Protection Society Incorporated v Hastings District Council* [2008] NZRMA 8.



raises should be stated more concretely and fully for the reasons stated in the *Lower Waitaki*<sup>321</sup> case.

[225] In *Unison One*<sup>322</sup> the Court held that it is efficient to utilise wind – it is a waste to leave it unutilised – and also to continue production from the farm underneath it. We consider it might equally be alleged that it is efficient to spend the money that would be needed to buy expensive wind turbines, to buy cheap coal and cheap coal-driven plants and pay any carbon tax. In fact that was Mr Leyland’s evidence in these proceedings. It is also efficient, in the sense of avoiding waste, not to reduce the area of outstanding natural landscapes.

[226] We are uncomfortable with a cherry-picking approach to efficiency. We prefer to follow the decision of the Court (slightly differently composed) in *Lower Waitaki River Management Society Incorporated v Canterbury Regional Council*<sup>323</sup>:

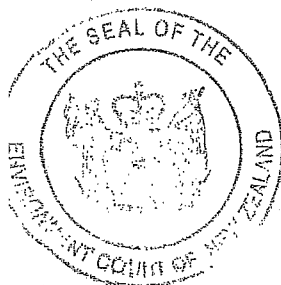
We consider that efficiency in section 7(b) of the RMA requires a consent authority to consider the use of all the relevant resources and, preferably, their benefits and costs. It is nearly meaningless to consider the benefits of only some of the resources involved in the proceeding because the artificial weighting created by sections 5 to 8 of the Act will not be kept within the statutory proportions if the only matters given the ‘particular regard to’ multiplier (see *Baker Boys Limited v Christchurch City Council*<sup>324</sup>) in section 7(b) are those which are not identified elsewhere in section 7. Further, it is very helpful if the benefits and costs can be quantified because otherwise the section 7(b) analysis merely repeats the qualitative analysis carried out elsewhere in respect of sections 5 to 8 of the Act.

<sup>321</sup> *Lower Waitaki River Management Society Incorporated v Canterbury Regional Council* Decision C80/2009.

<sup>322</sup> *The Outstanding Landscape Protection Society Incorporated v Hastings District Council* [2008] NZRMA 8 at [89].

<sup>323</sup> *Lower Waitaki River Management Society Incorporated v Canterbury Regional Council* Decision C80/2009 at [196].

<sup>324</sup> *Baker Boys Limited v Christchurch City Council* [1998] 433 at para (98).



### 3.8.2 How is efficiency determined?

[227] First we emphasise that we are not concerned with the viability or profitability of the project to Meridian itself. We respectfully follow Greig J in *NZ Rail v Marlborough District Council*<sup>325</sup> where he stated:

That economic considerations are involved is clear enough. They arise directly out of the purpose of promotion of sustainable management. Economic well-being is a factor in the definition of sustainable management in s 5(2). Economic considerations are also involved in the consideration of the efficient use and development of natural resources in s 7(b). They would also be likely considerations in regard to actual and potential effects of allowing an activity under s 104(1). But in any of these considerations it is the broad aspects of economics rather than the narrower consideration of financial viability which involves the consideration of the profitability or otherwise of a venture and the means by which it is to be accomplished. Those are matters for the applicant developer and, as the Tribunal appropriately said, for the boardroom.

[228] Counsel for Meridian submitted<sup>326</sup> that because the wind farm is a discretionary activity under the district plan this raises the inference that the activity is an efficient use of resources. Mr Beatson's authority for this was the *Awhitu* decision<sup>327</sup> and which referred to *LRG Investments Limited v Christchurch City Council*<sup>328</sup> that appears to ultimately rely on *Swindley v Waipa District Council*<sup>329</sup>. There the Planning Tribunal stated that when considering an application for a discretionary activity, consent authorities<sup>330</sup>:

... do not have responsibility for determining the relative efficiency of the use of resources proposed, compared with other possible uses of those resources. Rather, the fact that a particular class of activity is recognised by a district plan as a permitted, controlled or discretionary activity implies that in general that class of activity is an efficient use and development of the resources for the purposes of Part II.

<sup>325</sup> *NZ Rail v Marlborough District Council* [1994] NZRMA 70, 88 (HC).

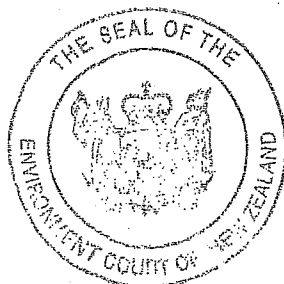
<sup>326</sup> Mr A Beatson, submissions dated 28 July 2008 paragraphs 129 and 195 [Environment Court document 23].

<sup>327</sup> *Genesis Power Limited v Franklin District Council* [2005] NZRMA 541.

<sup>328</sup> *LRG Investments Limited v Christchurch City Council* C64/1998.

<sup>329</sup> *Swindley v Waipa District Council* Decision A75/1994.

<sup>330</sup> *Swindley v Waipa District Council* Decision A75/1994 at p. 23.



However, *Swindley* does record<sup>331</sup> that the matter was not argued fully before the Tribunal.

[229] The Tribunal in *Swindley* stated that having a discretionary status implied that “in general that class of activity” was efficient. This implies that while there is *a priori* an assumption that a class of activity may be efficient, it may not necessarily be so for any specific proposal, and needs to be confirmed with regard to the specifics of that proposal. For the economic reasons stated in the *Lower Waitaki* decision we consider that is correct, and especially where a matter of national importance is raised under section 6 to the RMA, the specific costs and benefits of a proposal should be examined and if possible quantified.

[230] While in an engineering sense efficiency means the ratio of outputs to inputs, in economic terms it is not an absolute but a relative concept. We hold that under section 7(b) of the Act there are two questions to answer when determining the efficiency of the use of resources:

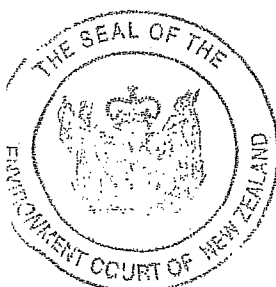
- (1) is the value achieved from the resources utilised the greatest benefit that could be achieved from those resources?
- (2) could that same benefit be produced utilising resources of lower value if they were organised differently, or if a different set of resources was used?

The first point is about maximising the benefits achieved from the resources being utilised; and the second is about minimising the resource costs of achieving a given benefit. However, Meridian challenged whether at least the alternative in (2) was relevant under the RMA.

[231] Mr Rennie QC referred to the recent High Court decision in *Dome Valley Residents Association Incorporated v Rodney District Council*<sup>332</sup> which was about an application to establish a helicopter base in a rural area. The appellant society argued that the Environment Court was wrong not to have considered alternative locations.

<sup>331</sup> *Swindley v Waipa District Council* Decision A75/1994 at p. 23.

<sup>332</sup> *Dome Valley Residents Association Incorporated v Rodney District Council* [2008] NZRMA 534.



There was no issue of national importance under section 6 of the RMA in the proceeding. Priestley J held<sup>333</sup> that “There is no authority ... which suggests that as part and parcel of the consideration of a resource consent application, alternative sites have to be considered or cleared out”. He expanded on that when refusing leave for an appeal to the Court of Appeal in *Dome Valley District Residents Society Incorporated v Rodney District Council*<sup>334</sup>:

... [A]lternative sites may be an issue where section 6 matters of national importance are in play or with applications where there will be significant adverse effect on the environment.

...

This in my judgment is not such a case. The adverse effects in terms of determinations by RDC and the Environment Court were minor rather than significantly adverse.

It would be a nonsense to suggest that the dictum of Hammond J, [in the *TV3 Network* case] made in a s 6 context, should be carried across holus bolus to all resource consent applications. Such an outcome would need legislative change and would probably, in respect of most applications for unpermitted uses, lead to chaos. The current policy and structure of the legislation is not designed to force an applicant to trail from backyard to backyard to appease the aggrieved backyard owners of a preferred site.

[232] Counsel for Meridian then submitted<sup>335</sup>:

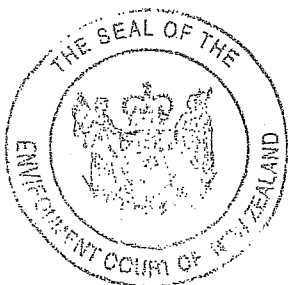
These comments from the High Court indicate that alternatives *may* be an issue, but their consideration should be on a case-by-case basis – not considered “holus bolus” in all applications. This is consistent with Meridian’s position – that is, in reality, there are no ‘alternatives’ for wind farms in a practical sense. The only real question regarding alternatives is whether [to] make use of the wind resource at a site or not.

We also point out that there is a complete difference between that case, which relates to what can be done *from* a site, and the present application which relates to what can be done *on* this site. Transmission towers can be sited in many places, to transmit from the selected site. Windfarms must be sited where the wind resource exists.

<sup>333</sup> [2008] NZRMA 534 at para [98].

<sup>334</sup> *Dome Valley District Residents Society Incorporated v Rodney District Council* HC Auckland, CIV-2008-404-587, 8 December 2008, at paragraphs [37] and [38].

<sup>335</sup> Closing submissions paragraphs 362 and 363 [Environment Court document 93].





Later Mr Rennie referred to *Motorimu Wind Farm Limited v Palmerston North City Council*<sup>336</sup> as authority for the proposition that the alternatives available are simply whether to use the resource or not. We consider the answer to that is given in the *Lower Waitaki* case already referred to.

[233] For MBS Mr Holm submitted<sup>337</sup>:

Without some very strong and clear justification, that is specific, inherent and unique to the power generation at the Hayes site (and is an attribute which in generation terms only applies to the Hayes site), the Court is entitled to consider whether or not the Applicant has, as a matter of evidence, given consideration to other sites where the wind resource can be utilised so that the conflict with Section 6(b) can be avoided, mitigated or remedied and sustainable management of natural resources better promoted (section 5).

### 3.8.3 Are alternative locations relevant?

[234] We note what the Environment Court recently stated in *Lower Waitaki River Management Society Incorporated v Canterbury Regional Council*<sup>338</sup>:

Economic efficiency generally requires that all credible alternatives to a proposal should be identified and included within a cost-benefit analysis<sup>339</sup> to reduce the risk of choosing projects ahead of alternatives that contribute more to society. Not only should the benefits of a project be greater than the costs, but the least cost way of producing those benefits should be implemented<sup>340</sup>. However, there is a real issue as to whether that is required by the RMA.

The Court then went on to find that the RMA does require consideration of alternatives in certain circumstances. It concluded<sup>341</sup>:

... it is not usually necessary to consider alternative uses of the resources in question, or the use of alternative resources to obtain a similar benefit. However, there are at least three exceptions:

<sup>336</sup> *Motorimu Wind Farm Limited v Palmerston North City Council* Decision W67/2008.

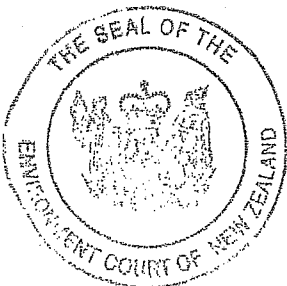
<sup>337</sup> Mr Holm, final submissions para 1.32 [Environment Court document 89].

<sup>338</sup> *Lower Waitaki River Management Society Incorporated v Canterbury Regional Council* Decision C80/2009 at para [197].

<sup>339</sup> Kahn, James R. *The Economic Approach to Environmental & Natural Resources*, 3<sup>rd</sup> ed. Thompson South-Western, Ohio, USA. (2005) p. 155.

<sup>340</sup> Kahn, James R. (2005) pp 154-155.

<sup>341</sup> *Lower Waitaki River Management Society Incorporated v Canterbury Regional Council* Decision C80/2009 at para [201].



- (1) where the costs cannot be fully internalised to the consent holder;
- (2) where there is no competitive market (e.g., in congestion on roads where the relevant resource is the land near those roads; we also note there is a very limited market in water permits); or
- (3) where there is a matter of national importance in Part 2 of the Act involved and the cost benefit analysis requires comparing measured and unmeasured benefits and costs (as is usually the case) so that the consent authority has to rely principally on its qualitative assessment, e.g. *TV 3 Network Services Limited v Waikato District Council*<sup>342</sup>.

We take that as a starting point, but in these proceedings we heard rather more legal argument on the issue. So we now turn to consider the case law.

[235] First we should point out that there is one express provision in the RMA in Schedule 4 clause 1(b) which suggests that alternatives do need to be considered on a resource consent application. That arises out of the requirement<sup>343</sup> that every application for a resource consent must include an assessment of environmental effects "... in accordance with Schedule 4...". The Schedule identifies matters which should be included in such an assessment and "[w]here it is likely that an activity will result in any significant adverse effect on the environment ..." requires:

... a description of any possible alternative locations or methods for undertaking the activity:

[236] In *TV3 Network Services Limited v Waikato District Council*<sup>344</sup> the appellant had appealed to the High Court on the ground (amongst others) that the Environment Court had "... erred in law when it considered the question of alternative sites"<sup>345</sup>. Hammond J stated<sup>346</sup>:

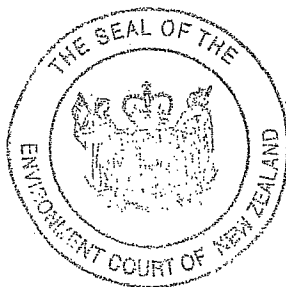
<sup>342</sup> *TV 3 Network Services Limited v Waikato District Council* [1997] NZRMA 539; [1998] 1 NZLR 360 (HC).

<sup>343</sup> Section 88(2) of the RMA.

<sup>344</sup> *TV3 Network Services Limited v Waikato District Council* [1997] NZRMA 539 (HC); [1998] 1 NZLR 360.

<sup>345</sup> [1997] NZRMA 539 (HC) at 542.

<sup>346</sup> [1997] NZRMA 539 (HC) at 542.



As a matter of common sense, a consideration of whether there are suitable alternatives strikes me as a fundamental planning concern. But, in response to the specific technical objection raised by Mr Brabant, I can see nothing in the Act which precludes the course taken by the Environment Court. I can understand Mr Brabant's practical concern that an applicant for a resource consent should not have to clear off all the possible alternatives. But I do not think that that is what the Court was suggesting. It is simply that, when an objection is raised as to a matter being of "national importance" on one site, the question of whether there are other viable alternative sites for the prospective activity is of relevance.

We do not understand *Dome Valley* to undermine the principle in *TV3 Network* that alternatives should be examined when a matter of national importance is raised.

[237] *McGuire v Hastings District Council*<sup>347</sup> was a designation case. Lord Cooke, giving the advice of the Privy Council, recorded that the potential road-line affected Maori values which are a matter of national importance under section 6(e) of the RMA. He continued:

the ... statutory provisions quoted do mean that special regard to Maori interests and values is required in some policy decisions as determining the routes of roads. Thus, for instance, Their Lordships think that if an alternative route not significantly affecting Maori land which the owners desire to retain were reasonably acceptable, even if not ideal, it would accord with the spirit of the legislation to prefer that route. So, too, if there were no pressing need for a new route to link with the motorway because other access was reasonably available.

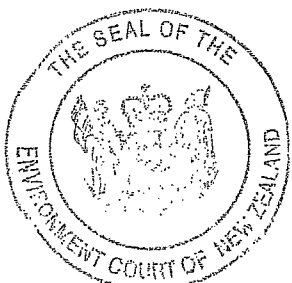
Of course in designation cases there is a statutory obligation<sup>348</sup> for the requiring authority to consider "alternative sites, routes, or methods of undertaking the work", so *McGuire* is not authoritative on the issue facing us.

[238] More directly relevant is a recent section 120 appeal – *Te Maru o Ngati Rangiwewehi v Bay of Plenty Regional Council*<sup>349</sup>. In that case the matter of national importance was under section 6(e) of the Act – the importance to Ngati Rangiwewehi of springs "... known as Te Puna of Pekehaua ... colloquially called The Taniwha

<sup>347</sup> *McGuire v Hastings District Council* [2001] NZRMA 557; [2002] 2 NZLR 577 (PC) at [21].

<sup>348</sup> Section 168A(3)(b) of the RMA.

<sup>349</sup> *Te Maru o Ngati Rangiwewehi v Bay of Plenty Regional Council* [2008] 14 ELRNZ 331.



Springs”<sup>350</sup> as one of their taonga. The Environment Court referred to the authorities above (and another designation case<sup>351</sup>) and concluded that<sup>352</sup>:

The authorities clearly establish that a consideration of the merits of an alternative source of supply is a necessary part of whether a proposal will result in sustainable management, when as here, an objection is raised as to a matter of national importance.

[239] There is also a recent passage in the judgment of the Court of Appeal in *McLaurin v Hexton Holdings Limited*<sup>353</sup> that suggests it is comfortable with alternatives being looked at in RMA proceedings, at least if that makes life easier for Superior Courts. That case concerned the provision of access to land which was ‘landlocked’ within the meaning of section 129B of the Property Law Act 1952. The Hexton family was faced with a ‘chicken-and-egg situation’<sup>354</sup> where:

... the Environment Court ... held off making a final decision while access was sorted out in the High Court but the lack of resource consent was now being used as a ground of opposition to the s 129B application [in the High Court].

The Court of Appeal continued<sup>355</sup>:

With respect, we think the Environment Court was wrong not to decide the issue. And Hexton was wrong not to press that issue to finality before commencing its s 129B application. The structure of the Resource Management Act is such that “any person” may apply for resource consents affecting land over which they might have no ownership or other rights: see s 88 ... What consent authorities are concerned with is the proposed activity’s effects, not the nature of the applicant’s legal rights or interest in the particular land. Of course, obtaining a resource consent in circumstances where the applicants have no rights to the land in question will not avail those applicants unless they can acquire an interest in the land which permits them to make use of the resource consent obtained. In this case, **there is no reason why the Environment Court could not have evaluated the three access options Hexton put up. ...**

[Our emphasis]

<sup>350</sup> (2008) 14 ELRNZ 331 at [2].

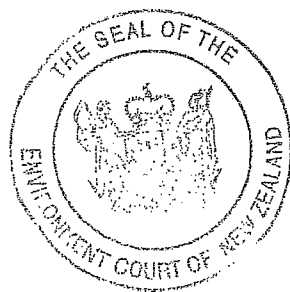
<sup>351</sup> *Friends and Community of Ngawha Inc v Minister of Corrections* [2002] NZRMA 401 para [55].

<sup>352</sup> (2008) 14 ELRNZ 331 at [57].

<sup>353</sup> *McLaurin v Hexton Holdings Limited* CA212/2007; [2008] NZCA 570.

<sup>354</sup> CA212/2007; [2008] NZCA 570 at para [43].

<sup>355</sup> CA212/2007; [2008] NZCA 570 at para [47].



[240] Mr Rennie submitted<sup>356</sup>:

If alternative (and not so productive) sites are advanced, then such proposals could not be expected to be advanced through the consent process and on to construction. As an example of the next best sites available to potential competitors, Mahinerangi and Kaiwera Downs appear to fall into this category. Given the evidence before this Court, you cannot rely upon or assume those projects as alternatives to this one – they may not be built at all.

We consider that is not correct. If an alternative site has been identified in another resource consent application then that is useful whether or not it is used by another applicant. If a similar project on an alternative site:

- (a) is not likely to proceed then it can be considered as an alternative site (if circumstances require that to be examined); or
- (b) is likely to proceed (or is at least not fanciful) then it comes into the equation as part of the relevant 'environment' or as a potential accumulative effect.

[241] Mr Rennie also submitted<sup>357</sup> that:

Once one starts looking at alternative sites, there would be almost no end to the comparisons between projects that could be undertaken. Equally there would be no end to the various externalities that could arise in relation to each location. There would be no reliable and detailed costing of the various possible options for other projects. The fine grained comparison that the Act requires could not be undertaken.

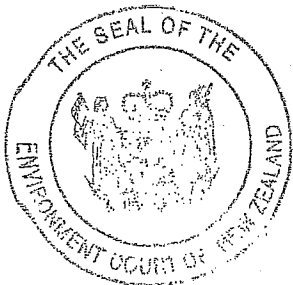
The answer to this is that if an alternative site does not raise any matter of national importance then a fine-grained analysis may not be necessary.

#### 3.8.4 Conclusions on alternatives

[242] In summary, section 7(b) requires a comprehensive and explicit cost-benefit analysis of the proposal. In that analysis:

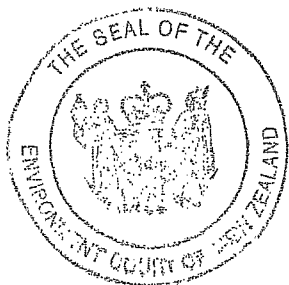
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<sup>356</sup> Final submissions, paragraphs 369-370 [Environment Court document 93].  
<sup>357</sup> Final submissions, para 370 [Environment Court document 93].



- (a) where market valuations are not available, non-market techniques may be used; and
- (b) where the values of the market are different from those of society, alternative societal values may be applied.

The idea behind the cost-benefit analysis is to assess, firstly, whether the proposal has a positive net benefit, and then whether there are credible alternative uses of the resources, or credible alternative resources that could produce the desired output, which have a greater net benefit. In doing so, we need to have regard for whether (environmental) compensation is being given, and the adequacy of that compensation. The outcome of this assessment of efficiency is then one matter in the overall assessment under section 5. We hold that alternatives can be considered where section 6 matters are concerned. It is possible, but we do not decide, that alternatives should also be considered in other cases where there are significant environmental effects.



#### 4.0 The landscape

##### 4.1 Describing the landscape

[243] Map 70 of the Central Otago District Plan<sup>358</sup> contains the Meridian site. The key shows that different areas are marked as (variously):

- areas of outstanding landscape value<sup>359</sup>;
- the areas over 900 metres; and
- the Lake Onslow Landscape Management Area.

We attach marked “C” a copy<sup>360</sup> of Map 70 to show the categorisation of the Meridian site as (mostly) in an area over 900 metres but not as an area of outstanding landscape value. Thus the district plan is clear: the Meridian site is not an outstanding natural landscape under section 6(b) of the Act. Despite that the appellants (other than Meridian) and supporting parties argued that the Meridian site is part of an outstanding natural landscape. As a question of fact and judgement we may decide that issue for ourselves. We are not bound by the categorisations in the district plan – see *Unison Networks Limited v Hastings District Council*<sup>361</sup> – although obviously we must give that plan appropriate weight.

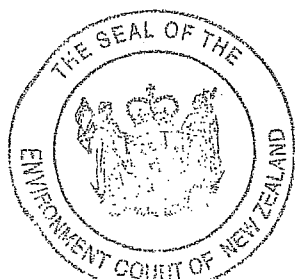
[244] So one of the most important factual issues in this case is whether the Meridian site is, or is part of, an outstanding natural landscape. After describing the natural science characteristics and elements of the area we then have to determine: first what landscape the Meridian site is in, secondly the extent of its naturalness and, finally, whether it is outstanding.

<sup>358</sup> Volume 2: District Planning Maps, Map 70.

<sup>359</sup> That is the description of “OL” in the key to the Planning Maps.

<sup>360</sup> Reduced to A4 size from the original A3.

<sup>361</sup> *Unison Networks Limited v Hastings District Council* HC Wellington, 11 December 2007, CIV-2007-485-896, Potter J.



## 4.2 Natural science characteristics and elements

### 4.2.1 Geomorphology

[245] The ranges of Central Otago are made of some of New Zealand's older rocks – metamorphic schist. The landform is<sup>362</sup>:

... typically gently rolling low relief surfaces that are described as broadly flat-crested and differentiate them from the quite different narrow sharp-crested ridges typical of most mountains in the Southern Alps.

Those surfaces comprise part of the 'Waipounamu Erosion Surface'. The conventional understanding<sup>363</sup> of the Waipounamu Erosion Surface is that it is part of an ancient plain that formed between 110 and 30 million years ago. Weather and erosion wore down the landscape which was then again submerged and layers of sedimentary rock laid down on the erosion surface. It was then raised above sea level again, but irregularly with the ranges raised more than the valleys. Subsequent erosion has stripped most of the younger sedimentary rocks off the surface.

[246] Dr Mabin produced<sup>364</sup> a figure showing how the Waipounamu Erosion Surface now appears. This figure was drawn by a Mr McCraw<sup>365</sup> in 1965 and shows what he called the upland landscape as nearly 29% of the Waipounamu Erosion Surface. Dr Mabin described it as the "most commonly occurring and extensive" landform<sup>366</sup> in Central Otago. The higher parts of Central Otago generally comprise what Mr McCraw showed as:

- Mountain Tor landscape;
- Fretted landscape;
- Modified Tor and Fretted landscape;
- Upland landscape.

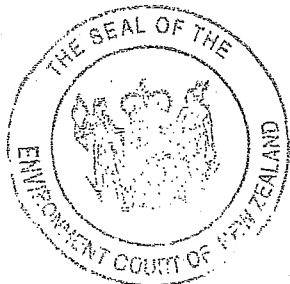
<sup>362</sup> Dr M C G Mabin, evidence-in-chief para 3.3 [Environment Court document 6].

<sup>363</sup> Dr M C G Mabin, evidence-in-chief para 3.9 [Environment Court document 6].

<sup>364</sup> Dr M C G Mabin, evidence-in-chief Figure 1 [Environment Court document 6].

<sup>365</sup> *NZ Geographical Society Miscellaneous Series 5*: 30-45.

<sup>366</sup> Dr M C G Mabin, evidence-in-chief para 3.16 (Table 1) [Environment Court document 6].





We think it is more appropriate to use the word “landform” than “landscape” (which is usually a wider concept in the RMA) but otherwise accept Dr Mabin’s use of Mr McCraw’s descriptions. Dr Mabin points out<sup>367</sup> that the Meridian site is in the “Upland” landform.

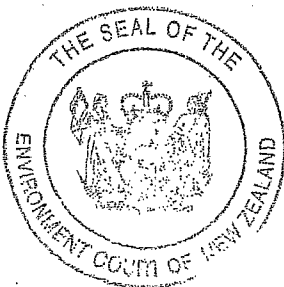
[247] The Lammermoor is much broader than one would expect from looking at it from below. It is about 12 kilometres across the top of the plateau between the crests of the western scarp (300 metres vertically above the Taieri River) and the eastern scarp (400 metres higher than Clarks Junction). The Meridian site is on the northwestern side of the Lammermoor, west of the Logan Burn Reservoir. While the site is generally contained within the “Upland” landform it contains more detailed landforms which Dr Mabin described as<sup>368</sup>:

- Tor-less terrain;
- Valleys in Tor-less terrain;
- Gorges in Tor-less Terrain;
- Basin Margin slopes (above the Logan Burn Reservoir).

The majority of the site is ‘Tor-less Terrain’ and that contains the vast majority of the proposed turbines<sup>369</sup>:

Broad rounded ridge crests occur at the top of the landscape, and will be the landform element most affected by Project Hayes. The ridges run for several kilometres with relatively little change in elevation.

The area is less geomorphically dynamic than many in New Zealand. Erosion by water is the most common<sup>370</sup> geomorphic process but it is slow because of the relatively low rainfall<sup>371</sup> – less than 800 mm per year. As a result many small streams and shallow valleys have formed a complex and subtle patterning across the Lammermoor. There are also two deep gorges within the Meridian site envelope – the Logan Burn winds a



<sup>367</sup> Dr M C G Mabin, evidence-in-chief para 3.21 [Environment Court document 6].

<sup>368</sup> Dr M C G Mabin, evidence-in-chief para 4.6 and Figure 2 [Environment Court document 6].

<sup>369</sup> Dr M C G Mabin, evidence-in-chief para 4.11 [Environment Court document 6].

<sup>370</sup> Dr M C G Mabin, evidence-in-chief para 4.27 [Environment Court document 6].

<sup>371</sup> Dr M C G Mabin, evidence-in-chief para 4.27 [Environment Court document 6].

very twisted course through the northern end of the site, and the smaller Spillers Creek runs through a gorge as it descends the scarp about one-third of the distance from the southern end of the site.

[248] The soils on the Meridian site are<sup>372</sup> brown soils, strongly acidified, with low levels of phosphorus and calcium, low availability of nutrients, and average levels of organic matter and nitrogen. Those factors limit plant productivity of introduced commercial species on the site. Native plants have of course adapted to the conditions (subject to the vagaries of climate change).

#### 4.2.2 Vegetation and ground cover

[249] For anyone on the site or surrounding area, the most obvious thing about the area is the remarkable uniformity of its vegetation, dominated by tussocks as far as the eye can see across the peneplain. This is an important finding which has serious implications for our assessment of the landscape. We have already described the components of the vegetation of the Meridian site in part 2.7 above.

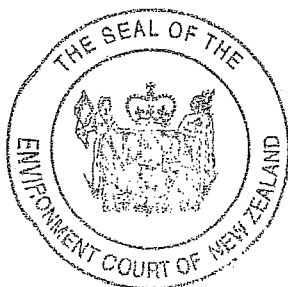
[250] Adjacent to the site, the higher areas on the Rock and Pillar Range (Summit Rock at 1450 masl) and the Lammermoor Range (highpoint is Lammermoor at 1160 masl – at the intersection of the Lammermoor and Lammerlaw Ranges) have greater annual rainfall than the site, and stock is excluded so they have much larger tussocks at greater densities. The vegetation cover changes westward because the annual rainfall decreases in that direction. The driest place in New Zealand is at Alexandra which set a New Zealand record minimum of 167 mm of rain in 1963-64<sup>373</sup>. With less rain the native vegetation takes correspondingly longer to recover from fires and grazing. As a consequence the vegetation off the site and towards the north and west is generally sparser and there are more introduced weeds, the larger species being thyme, sweet briar and pines.

<sup>372</sup>

Dr K M Lloyd, evidence-in-chief para 3.3 [Environment Court document 35].

<sup>373</sup>

Mr S K Brown, evidence-in-chief para 44 [Environment Court document 4].



#### 4.2.3 Structures

[251] There are very few structures of any kind above 900 metres in Central Otago – some gravel or clay roads, fences, power lines, small dams, and scattered buildings – cribs and other huts, yards, and the Serpentine Church on the western side of the Taieri catchment. The site is no exception – fences, tracks some graveled, a few archaeological remains, and the power pylons across the southern end of the site, are the only structures.

#### 4.2.4 Fauna

[252] As described earlier, the fauna of the Meridian site includes endemics which are rare and threatened. It has species rich and diverse invertebrate (insect) communities, birds including pairs of nesting falcon, and an abundant lizard population. There are native fish species, some rare, in the streams, which still support populations of aquatic invertebrates that require high quality habitat. There are also sheep, cattle, rabbits and hares in the area.

#### 4.2.5 Summary

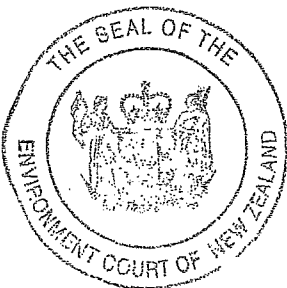
[253] The native natural science elements are the dominant features of the Lammerlaw/Lammermoor/Rock and Pillar Ranges. They are the legible signs of a landscape and ecosystems that have developed on a much longer timescale than human existence (even if modified by fire over the last few centuries).

### 4.3 **Identifying the relevant landscape**

#### 4.3.1 The wider landscape

[254] It is commonplace to speak of 'the Central Otago Landscape' although that means different things to different people. For example, it used to be common to speak of the areas around Lakes Wakatipu, Wanaka and Hawea as part of 'Central Otago'. We suspect that with the naming of the Central Otago District – which does not include those lakes – the 'Central Otago landscape' is generally shrinking to the size of the district.

[255] Only one of the landscape witnesses, Mr S K Brown, took much space placing the sites in the regional context. He analysed various 'landscape units' within 'Inland Otago' by landscape type. The area he analysed is generally enclosed between the



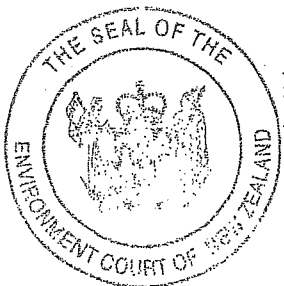
Waitaki River to the north and the Clutha River to the south, the Pisa Range, Old Woman Range, Old Man Range and the western horizon of the Clutha River to the west, and a line parallel with the Otago Coast to the east. The area he discussed included most of the Central Otago District, and land within the Waitaki District, the Central Otago and Clutha Districts, the Queenstown Lakes District and Dunedin City.

[256] The four geophysical descriptions into which he first categorised his components/locations were shown in his Table 1, a simplified and abbreviated version of which we show here<sup>374</sup>:

Mountain ranges	...	(e.g. Dunstan Mountains, St Bathans Range, Old Man Range)
Foothills and ridges	...	Raggedy Range, North Rough Ridge, Rock and Pillar Range, Lammerlaw Range, Mt Teviot, Strath Taieri Hills ... Mt Stuart [West Milton])
Alluvial terraces and basins	...	... Serpentine Flat, Lake Onslow ...
Major river valleys	...	...

We regard that typology as at least limited and in fact probably wrong. To lump so many types of landscape into 'Foothills and ridges' was not very helpful because there are so many examples of those categories. Further, the categorisation undervalues those 'ridges' which are in fact named as 'ranges' e.g. most obviously the Rock and Pillar Range. Also we find on Dr Mabin's evidence there are differences between the rounded ranges of Central Otago and 'the narrow sharp-crested ridges typical of ... the Southern Alps'<sup>375</sup>. The reader would not make that distinction from Mr Brown's categories.

[257] We now examine Mr Brown's classification of particular "components/locations" into the four geophysical descriptions he has identified.



<sup>374</sup>

Mr S K Brown, evidence-in-chief para 65 [Environment Court document 4].

<sup>375</sup>

Dr M C G Mabin, evidence-in-chief para 3.3 [Environment Court document].

### Mountain Ranges

- Category 1A

As Ms Steven pointed out<sup>376</sup> Mr Brown has at least over-simplified matters here. He has parcelled the St Bathans Range and the Hawkdun Range – both of which are block mountains with relatively clean, round lines – with the much more broken greywacke ranges of the Kakanui Mountains between the Maniototo Plain and the Waitaki River.

- Category 1B (Old Man/Old Woman/Garvie/Umbrella Range)

We have no particular problem with this classification or the description of the Ranges given above (although only part of the Garvie and Umbrella Ranges are within the District<sup>377</sup>). However, Mr Brown's map<sup>378</sup> includes the Clutha River and part of Lake Dunstan (upstream of Cromwell) in his category 1B whereas we would have thought the Clutha River and the lake must logically go into his Category 4 type as a new landscape type 4C.

### Foothills and Ridges

- Category 2A (Raggedy Range, North Rough Ridge, Rock and Pillar Range)

This classification includes the three block ridges with tor or fretted landscapes and also much of Rough Ridge but excludes Poolburn Reservoir and the ridge between its catchment and those of the other three reservoirs to the southwest and south. The different vegetation on the three examples of landscape type 2A does not seem to be reflected on his maps<sup>379</sup>. As Ms Steven observed, the areas close to Alexandra, the Knobby Range, and the much lower Raggedy Range and its northern extension (Blackstone Hill) contain much more shrubby growth dominated by sweet briar and other weeds. Even the Rough Ridge has an old carpet of grazed and burnt tussock with extensive patches of *Hieracium*. In contrast, further east and therefore wetter (and higher) the higher part of the Rock and Pillar Range (above 900 masl) has dominant tussock and other alpine plant communities.

<sup>376</sup>

Ms E A Steven, rebuttal evidence para 107 [Environment Court document 9A].

<sup>377</sup>

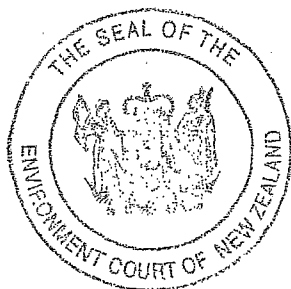
Mr S K Brown, evidence-in-chief Annexures 2B and 3 [Environment Court document 4].

<sup>378</sup>

Mr S K Brown, evidence-in-chief Annexure 4 [Environment Court document 4].

<sup>379</sup>

Mr S K Brown, evidence-in-chief Annexures 4 and 5 [Environment Court document 4].



- Category 2B (Lammerlaw Range, Mt Teviot)

Despite that description – Lammerlaw Range and Mt Teviot – Mr Brown includes much greater areas in this landscape type than those two ranges. Inspection of his overlays on the topographic map<sup>380</sup> shows he has also included:

- Pinelheugh
- the Knobby Range southeast of Alexandra
- the extensive Separation Road area east of the Greenland Reservoir
- lower hills south of Lake Mahinerangi.

Again the vegetation and geomorphical differences between those areas, as described by Ms Steven<sup>381</sup>, are not obviously taken into account. Including the lower hills south of Lake Mahinerangi with the crests of the Lammermoor Range, Lammerlaw Range and Mt Teviot is also difficult to understand.

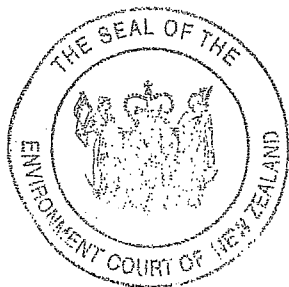
- Category 2C (Taieri Ridge, Highway Hill ..., Lower Ben Lomond, Maraewhenua, Ngapara)

Inspection of the topographic maps<sup>382</sup> (which we regard as 'notorious'<sup>383</sup> for general altitudinal purposes) shows that all this country is much lower than land either north of the Lammermoor or east of it. Categorising the limestone hills of the Ngapara area south of the Waitaki River in the same landscape type as the greywacke hills further up the Waitaki River or the schist of the Taieri Ridge seems very crude to us.

- Categories 2D to 2I

We find the distinctions between these and their boundaries very difficult to understand.

<sup>380</sup> Mr S K Brown, evidence-in-chief Annexures 4 and 5 [Environment Court document 4].  
<sup>381</sup> Ms E A Steven, evidence-in-chief, for example para 21.4 [Environment Court document 9].  
<sup>382</sup> Department of Survey and Land Information Infomap series 260 used by Mr Brown.  
<sup>383</sup> In the legal (non-moralistic) sense of 'generally known and relied on'.



Alluvial Terraces and Basins

• Categories 3A and 3B

These seem to be acceptable types, although it is difficult to see why the area northeast of Lake Dunstan is not 3A rather than 1B as shown on Mr Brown's map<sup>384</sup>.

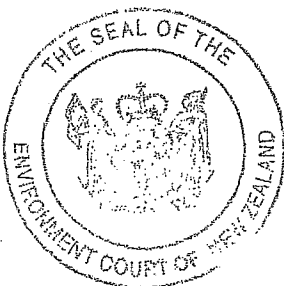
• Category 3C (Serpentine Flats, Lake Onslow, Mossburn, Poolburn)

There are three inconsistencies here. First, by analogy, we do not understand why the Logan Burn Reservoir is not in its own landscape using Mr Brown's logic. Secondly why is the broad ridge separating Lake Onslow from its northern neighbours included in the 'lake' landscape when it is indistinguishable from the landscape east and west of it? Thirdly and most importantly we consider each of the lakes sits in, and is part of, a wider landscape as shown in Ms Steven's map. We find Mr Brown's classification of this category 3C very artificial (even recognising the artificiality of all debates about landscape).

[258] Three members of the Court have heard from Mr Brown before and found him very insightful. But in this part of his evidence we have reservations. In addition to our concerns about his initial typology of 'geophysical descriptions' we must add serious concerns about the reliability of his landscape types. Another reason to place little weight on Mr Brown's evidence identifying the landscape is that cross-examination by Mr Gordon<sup>385</sup> and Mr Marquet<sup>386</sup> showed that he was not deeply familiar with the landscape(s) of Central Otago.

4.3.2 The evidence of the landscape architects as to the landscape's boundaries

[259] To assist us identify the landscape on which the Meridian proposal is to be set, we read evidence and heard cross-examination of five landscape architects. Mr S Brown, as we have already mentioned, and Mr P Rough were called by Meridian, Ms E A Steven and Mr P J Baxter by the Societies. Mr B Espie was 'made available' by, but



<sup>384</sup> Mr S K Brown, evidence-in-chief Annexure 4 [Environment Court document 4]

<sup>385</sup> Transcript, p. 295 *et ff.*

<sup>386</sup> Transcript, p. 322 *et ff.*

not called by, the Central Otago District Council at the Court's request<sup>387</sup> because he had given evidence to the joint hearing by the Councils' commissioners. The evidence of Dr Mabin was also relevant to this issue.

*Mr P Rough's evidence*

[260] Mr Rough, the first landscape architect called by Meridian, analysed its site in terms of the amended *Pigeon Bay* factors<sup>388</sup> and then concluded<sup>389</sup>:

The above assessment of the site, in the context of its surroundings and in terms of the accepted criteria for identifying outstanding natural features and landscapes, suggests that the site, despite having a range of values, does not warrant being accorded the status of outstanding in terms of Section 6(b) of the RMA. This is consistent with the site not being within an area identified in the CODC Plan as an Area of Outstanding Landscape Value or as an outstanding natural landscape feature, place or landscape in the regional study undertaken for the Otago Regional Council<sup>390</sup>.

It is also consistent with a comprehensive landscape assessment undertaken for the CODC by Mary Buckland of LA4 Landscape Architects and others<sup>391</sup>.

[261] We have a number of difficulties with Mr Rough's approach and conclusion. First we found Mr Rough's primary discussion of the 'landscape' very confusing. One example is in paragraph 83 of his evidence-in-chief<sup>392</sup> where he used the word as applying to several different things and/or areas in successive sentences:

- "The Lammermoor Range is a component of the basin and range landscape ..." – this suggests he is talking about a 'landscape type';
- "This landscape of wide north-east-south-west trending valleys, separated by broad flat-crested mountain ranges characterises the Central Otago region" (sic) – here the whole area between Alexandra and Middlemarch is being

<sup>387</sup> Under section 276(1)(c) of the RMA.

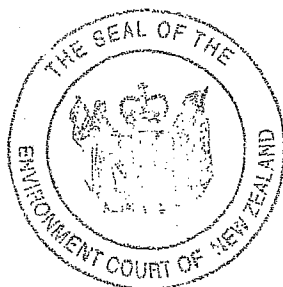
<sup>388</sup> See *Wakatipu Environmental Society Incorporated v Queenstown Lakes District Council* [2000] NZRMA 59.

<sup>389</sup> Mr P Rough, evidence-in-chief paragraphs 107-108 [Environment Court document 3].

<sup>390</sup> Boffa Miskell Limited (1998). *Investigations into Otago's Natural Character Landscape and Significant Natural Areas*.

<sup>391</sup> LA4 Landscape Architects, Robson Garland Limited and Jan Brown Consulting, 2007. "Central Otago District Rural Review, Landscape Assessment Report and Recommendations."

<sup>392</sup> Mr P Rough, evidence-in-chief para 83 [Environment Court document 3].





treated as one landscape; the sentence might have been more accurate if he had written 'This landscape type ... characterises the region'.

- "... the tor-less terrain of Lammermoor Range in the vicinity of the site ..." is treated as a landscape even though he is only considering its geology and geomorphology at this point.

Mr Rough did not clearly identify what landscape he was discussing and whether the site is part or all of it. In the end we believe it comprises something like what we have described as the Lammermoor

[262] Second, Mr Rough recognised at some points the huge scale of the relevant landscape when he referred to:

- '... the vast scale of the landscape ...'<sup>393</sup>;
- 'The landscape in which the farm is located [as being] rural high country with a character that is large scale, open and expansive'<sup>394</sup>;
- '... [the] propos[al] as taking place in an open rural and very expansive landscape'<sup>395</sup>;
- '... the landscape in which the proposed wind site occurs is rural high country with a character that is large scale open and expansive'<sup>396</sup>.

– but never what that landscape is.

[263] Third, we consider little reliance should have been placed on the 'comprehensive landscape assessment' by Ms Buckland because she was not called to give evidence. Meridian said she was available but we were reluctant<sup>397</sup> to hear from her when she had not lodged a brief of evidence with the Environment Court nor given evidence to the Commissioners (and because she may be a witness on Plan Change 5 to the Central Otago District Plan).

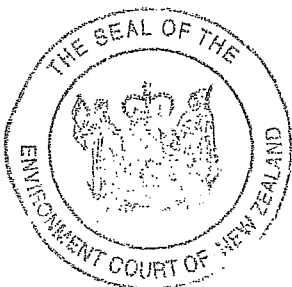
<sup>393</sup> Mr P Rough, evidence-in-chief para 91 [Environment Court document 3].

<sup>394</sup> Mr P Rough, evidence-in-chief para 294 [Environment Court document 52].

<sup>395</sup> Mr P Rough, evidence-in-chief para 306 [Environment Court document 52].

<sup>396</sup> Mr P Rough, evidence-in-chief para 319 [Environment Court document 52].

<sup>397</sup> Anticipating the concerns in Mr Todd's submission (16 February 2009), para 96 [Environment Court document 85].



[264] Fourth, Mr Rough wrote that while he had carried out 'broad-ranging field work'<sup>398</sup> to assess the landscape values of the site he relied more on both "the Proposed Central Otago and the Dunedin City District Plans"<sup>399</sup>. So we are left uncertain as to how much weight we should give to his assessment of the site. Fifth, his assessment based on the plans determined that it has values more associated with section 7(c) and (f) of the RMA than section 6(b) of the Act<sup>400</sup>. It concerns us that he made his assessment before he considered the amended *Pigeon Bay* factors. Finally Mr Rough turned to assess "the northern end of the Lammermoor Range and the site in terms of the generally accepted criteria for identifying outstanding natural features and landscapes"<sup>401</sup>. The 'criteria' Mr Rough referred to appear<sup>402</sup> to be those in *Pigeon Bay*<sup>403</sup>. But those factors – as they are more properly called – do not provide '... criteria for identifying outstanding natural features and landscapes'<sup>404</sup>. As the Environment Court pointed out in *Long Bay-Okura Great Park Society et ors v North Shore City Council*<sup>405</sup>, the amended *Pigeon Bay* factors (as discussed in *Wakatipu Environmental Society Incorporated v Queenstown Lakes District Council*<sup>406</sup>) are descriptive not evaluative. In particular while they help to identify landscapes and the values which affect whether those landscapes are natural and/or outstanding, they do not provide a full checklist for that assessment.

*Mr S Brown's evidence*

[265] The second landscape architect called by Meridian, Mr Brown, was also initially rather vague about what landscape he was discussing in his evidence-in-chief<sup>407</sup>. He seemed to identify the landscape with the Lammermoor Range<sup>408</sup> and that is confirmed by his analysis of the Landscape/Amenity/Natural Character in his Table 5<sup>409</sup>. But then

<sup>398</sup> Mr P Rough, evidence-in-chief para 81 [Environment Court document 3].

<sup>399</sup> Mr P Rough, evidence-in-chief para 81 [Environment Court document 3].

<sup>400</sup> Mr P Rough, evidence-in-chief para 82 [Environment Court document 3].

<sup>401</sup> Mr P Rough, evidence-in-chief para 82 [Environment Court document 3].

<sup>402</sup> Mr P Rough, evidence-in-chief para 70 [Environment Court document 3].

<sup>403</sup> *Pigeon Bay Aquaculture Limited and Others v Canterbury Regional Council* Environment Court Decision C32/1999.

<sup>404</sup> Mr P Rough, evidence-in-chief para 70 [Environment Court document 3].

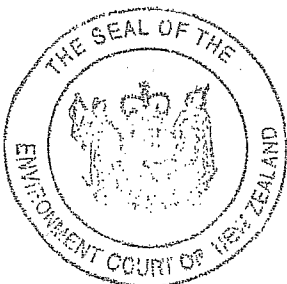
<sup>405</sup> *Long Bay-Okura Great Park Society et ors v North Shore City Council* Decision A78/2008.

<sup>406</sup> *Wakatipu Environmental Society Incorporated v Queenstown Lakes District Council* Decision C180/1999.

<sup>407</sup> Mr S K Brown, evidence-in-chief para 89 *et ff* [Environment Court document 4].

<sup>408</sup> Mr S K Brown, evidence-in-chief paragraphs 89, 91, 92, 93 [Environment Court document 4].

<sup>409</sup> Mr S K Brown, evidence-in-chief para 96 [Environment Court document 4].

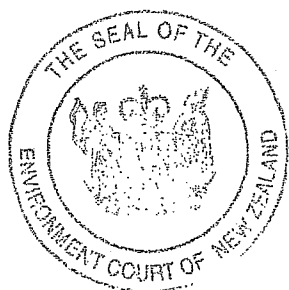


his Annexure 5 shows the 'Lammermoor Range' "landscape unit" as containing the land within these lines:

- it starts at a point near Patearoa near the (lower) Maniototo Plain; and then
- runs nearly due south to McPhees Rock
- then swings southwest past the east side of Round Hill
- to the eastern side of the Logan Burn Reservoir, then
- southeast to a point at the foot of the eastern scarp at the junction of Sutton Stream and Ratty Creek;
- the landscape line then follows the foot of the scarp along the line of Deep Creek (not to be confused with Deep Stream to the east)
- then runs approximately northwest straight across the Lammermoor Range across the Taieri River to Davidsons Top
- then northwards down Bullocky Creek to where the Taieri Rapids emerge from their gorge; and
- northeast along the foot of the western scarp of the Lammermoor
- until it crosses the Taieri where it cuts a gorge in the western flank of the Rock and Pillar Range before
- following the road to the starting point.

[266] Our initial view of this 'landscape' is that – even allowing for the fact that a landscape in the RMA is an "arbitrary cultural lumping", as the Court described it in *Wakatipu Environmental Society v Queenstown Lakes District Council*<sup>410</sup> – it is particularly arbitrary. It is difficult to understand why:

- (a) the sides of the flat-topped plateau are included in the landscape; rather they seem to belong to the landscapes each side (from which they can be seen and which they partly enclose);
- (b) the area north of the Logan Burn Reservoir seems to have been defined by default (it is not, on Mr Brown's view, part of the Rock and Pillar Range);



<sup>410</sup>

*Wakatipu Environmental Society v Queenstown Lakes District Council* [2000] NZRMA 59 at para [78].

- (c) the east-west line over the Lammermoor Range makes no sense (why here, not further north or south?) because the vegetation either side of this line is the same, and there are no distinguishing features either side of Mr Brown's line.

[267] In his rebuttal evidence Mr Brown agreed<sup>411</sup> with Ms Steven that the Meridian site is '... not a landscape entity in its own right and should be identified as part of a wider Lammermoors landscape unit or type'. With respect, that sentence disregards basic semantic distinctions and is at odds with the fine distinctions he makes in landscape terms a little later in his evidence. A unit is usually seen as part of a whole, and a landscape unit is thus a part of a landscape – see *Wakatipu Environmental Society Incorporated v Queenstown Lakes District Council*<sup>412</sup>. A 'type' on the other hand is "a class of things ... having common characteristics"<sup>413</sup>. In our view any landscape type includes a set of landscapes and each of those in turn includes a set of landscape units (and/or features). Mr Brown criticised<sup>414</sup> Ms Steven for "coalesc[ing]" the Lammermoors, Lammerlaws and Pinelheugh Ranges and the Onslow Basin "... into one unit". Checking Ms Steven's evidence shows that she was in fact writing about her landscape 'type'.

[268] We find Mr Brown's own approach even more confusing. He included the Logan Burn Reservoir in his Lammermoor landscape but excluded Lake Onslow, the Manorburn Reservoir and the Poolburn Reservoir from their encompassing landscape, rather putting them in their own landscape type. We find that very artificial and indeed inconsistent. In our view the Poolburn Reservoir in particular sits on top of its landform. The contours on the topographical map<sup>415</sup> show that it is only about 40 metres below the

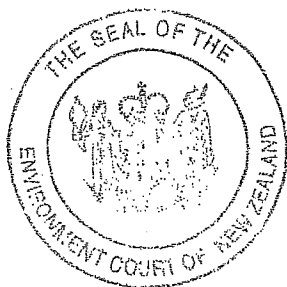
<sup>411</sup> Mr S K Brown, rebuttal evidence para 11 [Environment Court document 4A].

<sup>412</sup> *Wakatipu Environmental Society Incorporated v Queenstown Lakes District Council* Decision C3/2002 at [33] and later.

<sup>413</sup> *The New Zealand Oxford Dictionary* [1999] OUP.

<sup>414</sup> Mr S K Brown, rebuttal evidence para 16 [Environment Court document 4A].

<sup>415</sup> Topographic Map 260-H42 "Waipiata" (not in evidence but a matter of public record) (2003) LINZ.



ridge to its northwest whereas the Logan Burn is set much deeper in the (same or different) landscape. The Poolburn reservoir is more 'extrovert' to use Mr Brown's word<sup>416</sup> than the Logan Burn reservoir.

[269] Mr Brown was also critical of Ms Steven's landscape (type) because it contains two ranges – the Lammerlaw Range and the Lammermoor Range – which run at right angles<sup>417</sup>. We consider that is meaningless in this context: certainly the boundary of the Taieri catchment turns at right angles, but it is very difficult to tell that from most places within the landscape. The dominant feeling is usually of the broken peneplain. Mr Brown gave too much weight to the inferences to be drawn from the names 'Lammerlaw' and 'Lammermoor' Ranges on a map. Those are arbitrary names for a high plateau formed by the intersection of those areas and Rough Ridge (and, arguably, Pinelheugh) much of which is above 900 masl and gently rolling.

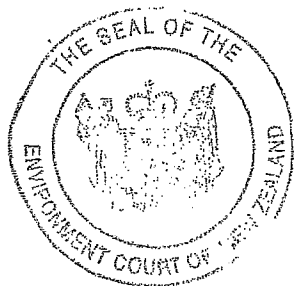
[270] Mr Brown did not initially identify what 'landscape type' his 'Lammermoor Range' as identified in his Annexure 5 was. At the hearing when asked by the Court he described it as a new "2C". That puts the Lammermoor area shown in his Annexure 5 (which clearly includes the western flanks of the Rock and Pillar Range) in nearly the same category of landscape as the foothills south of the Waitaki River and the coastal hills near Oamaru. We do not find that comparison accurate or helpful.

*Ms E A Steven's evidence*

[271] As a preliminary point to our consideration of Ms Steven's evidence we record that Meridian criticised Ms Steven for her involvement with the Royal Forest and Bird Protection Society Incorporated ("the RFBPS") in the adjacent Queenstown Lakes District and in the Mackenzie District. The RFBPS has made submissions under her name as signatory on landscape issues, and Meridian implied that Ms Steven's work for that society somehow discredited her objectivity here. We feel uncomfortable with that. Any professional person is entitled to have their own life in other areas, and we consider it is normally inappropriate to bring that into a hearing unless directly relevant. In any event we consider Ms Steven's written evidence was full, careful and coherent and generally consistent. She also gave her answers in cross-examination dispassionately

<sup>416</sup> Mr S K Brown, rebuttal evidence para 16 [environment Court document 4A].

<sup>417</sup> Mr S K Brown, rebuttal evidence para 17 [Environment Court document 4A].



and after thought. We are slightly troubled that she has a picture<sup>418</sup> of the “Central Otago community’s vision for the future landscapes of the district ...” which is not<sup>419</sup> contained in the district plan or a change to it, but we do not consider that significantly weakens her evidence. We have reviewed the extensive and testing cross-examination of Ms Steven by Mr Beatson and consider that our initial impressions, that her opinions were not substantially weakened, still hold.

[272] Ms Steven gave evidence which focussed clearly on the first key landscape question: ‘What landscape is the Meridian project in?’ She explained her approach as follows<sup>420</sup>:

A ‘landscape’ for the purposes of assessment such as this is based on a unit of assessment called a ‘landscape type’. To delineate a landscape type, a geomorphically determined ‘land type’ is initially identified augmented by examination of vegetation cover and ecological patterns (which tends to reflect climatic variations as well) and land uses. There may be isolated anomalous features such as lakes or cultural elements, but broadly there is a consistency of visual character over the landscape type and it evokes similar emotions and thoughts.

Classifying of landscape into types is critical step because it orders the information into a framework that is then used in subsequent landscape evaluation. It can have a significant impact on which landscapes are identified as important within the district or region.

Based on that approach she then concluded that the relevant ‘landscape type’ is<sup>421</sup>:

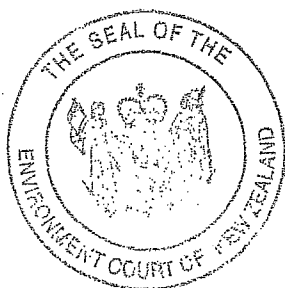
The ‘landscape type’ I define as the site area and the Lammermoor and Lammerlaw ranges, and the Onslow Basin through to the Pinelheugh range. This area features broad open rounded macro landforms shallowly and evenly dissected into curvaceous, smooth, vast tor-less terrain including numerous small flat-bottomed gullies with wetland vegetation. A large water body occupies a central depression. Snow tussock grassland is almost ubiquitous. Landuse is consistently extensive pastoral, summer grazing only of sheep and cattle; or more recent conversion to conservation land. One-off elements include the pylon line, three roads and a few cultivated areas. Plantation forestry is unfortunately about to intrude in the Lake Onslow basin. The deep rocky gorges are a repeated feature along the edges of the Lammermoor range.

<sup>418</sup> Ms E A Steven, evidence-in-chief para 28.5 [Environment Court document 9].

<sup>419</sup> Transcript (2008), p. 522.

<sup>420</sup> Ms E A Steven, evidence-in-chief paragraphs 21.8 and 21.11 [Environment Court document 9].

<sup>421</sup> Ms E A Steven, evidence-in-chief para 21.12 [Environment Court document 9].



We call that area (Ms Steven's landscape type) "the Wider Eastern Central Otago Upland Landscape". It includes the Lake Onslow basin.

[273] To move from the landscape 'type' to a particular landscape Ms Steven then wrote that the process requires<sup>422</sup>:

To define a 'landscape' however also requires an appreciation of its spatial structure and the way it is generally perceived by people as a place. When one senses a change in character, in the thoughts and emotions being evoked by what is seen, then it is likely a different 'landscape' has been entered.

Ms Steven then went on to identify a smaller landscape within the Wider Eastern Central Otago Upland landscape. Her Figure 2<sup>423</sup> includes the crest of the full Lammermoor plateau from a line:

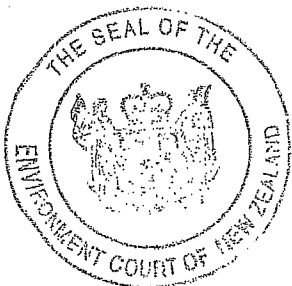
- across the Lammermoor from above Paerau southeastwards past McPhees Rock to the top of the scarp east of 'The Castle'
- then southwest along the crest of the scarp to
- The Twins and the Ship at Anchor
- along the (very flat) crest of the Lammerlaw Range, to the vicinity of
- Lammerlaw Top
- north along the western edge of the Taieri headwaters to
- Davidsons Top and Bottle Rock
- northeast to Canadian Flat
- south to the Taieri Rapids and then northeast
- along the crest of the scarp above the Upper Taieri Paerau Road to
- the end/start point where the Old Dunstan Road climbs onto the plateau.

[274] Ms Steven's rationale was that<sup>424</sup>:

<sup>422</sup> Ms E A Steven, evidence-in-chief para 21.9 [Environment Court document 9].

<sup>423</sup> Ms E A Steven, evidence-in-chief Figure 2 Attachment F [Environment Court document 9].

<sup>424</sup> Ms E A Steven, evidence-in-chief para 21.4 [Environment Court document 9].



... the area between the Rock and Pillar Range and the crest of the Lammerlaw Range (see Fig. 2 Attachment F) taking into account the way the landscape is perceived. Moving over the high parts at either end of this landscape, one senses a different landscape (summit of Rock and Pillar or the Lake Onslow basin).

We accept that her reduced landscape<sup>425</sup> has some anomalies as shown by Mr Beatson in cross-examination<sup>426</sup>, for example we cannot see why the eastern scarp and the Canadian Flats are included. In our view a more consistent line would have been from Spillers Hill southwest to Bottle Hill so as to incorporate the Taieri Gorge Scenic Reserve. In the end her 'landscape' is roughly the same as Mr Brown's: rather more the western scarp than the Lammermoor as we have defined it.

*Mr B Espie's evidence*

[275] Prior to the Council hearing Mr Espie prepared a report<sup>427</sup> for the CODC commenting on the landscape effects of Meridian's application. Following the hearing he wrote a further report<sup>428</sup> reflecting the additional information presented at the hearing. Finally, his evidence before this Court updated his views in response to the evidence exchanged before this hearing. We find the views expressed in his reports and in his evidence to be largely consistent and balanced and he kept to his expertise. For example, he pointed out that even if the Meridian site was found to be within an outstanding natural landscape that did not mean the Meridian development was automatically inappropriate.

[276] In Mr Espie's opinion both the Dunedin City Council and the CODC parts of the Lammermoor Range, together with the Rock and Pillar Range and 'perhaps part or all of the Lammerlaw Range as well' form a coherent whole that reads as one landscape<sup>429</sup>; and that landscape is an outstanding natural landscape. Meridian was critical of the brevity and, Mr Rennie wrote, superficiality of Mr Espie's evidence and reports. Mr Beatson referred to the first report<sup>430</sup> to the Hearing Commissioners where Mr Espie had written:

<sup>425</sup> Ms E A Steven, evidence-in-chief Attachment 2/F [Environment Court document 9].

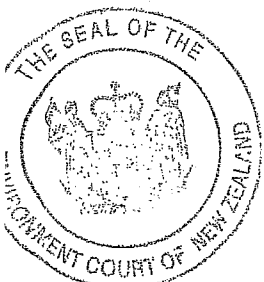
<sup>426</sup> Transcript (2008), pp 504-506 and 539-544.

<sup>427</sup> Mr B Espie, Exhibit BE1 [Environment Court document 21].

<sup>428</sup> Mr B Espie, Exhibit BE2 [Environment Court document 21].

<sup>429</sup> Transcript (2008) p. 719; Mr B Espie, Exhibit BE2 para 4.12 [Environment Court document 21].

<sup>430</sup> Mr B Espie, Exhibit BE1 para 4.12 [Environment Court document 21].





I consider that the landscape of the Rock and Pillar/Lammermoor/Lammerlaw mountains is both outstanding and natural when it is assessed as a whole. Its physical landform is unmodified, highly legible and includes many features of geomorphological interest. The clutter of human influence is very limited compared to most landscapes. There is a very significant degree of indigenous vegetation and ecological patterns as well as remarkable water courses and lakes. It is eminent on a district-wide and national scale due to its dramatic aesthetic qualities, its sense of remoteness and naturalness, its transient values (due to remarkable light and weather conditions) and its memorability.

and asked<sup>431</sup>: “That is the totality of the analysis contained in your initial report where you concluded that the site is outstanding and natural isn’t it?”. Mr Espie replied:

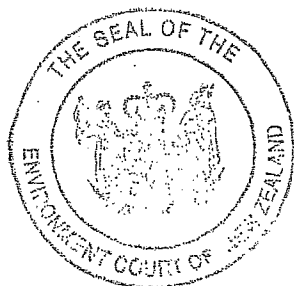
Well, it is a little bit unfair I think to say that “the analysis is contained in the report”. The “report” is a report, which writes down findings.

Given the emphasis put on this passage by Meridian’s counsel we have thought about what it means. We find that Mr Espie was implying that his process of arriving at his conclusions are not in the report, only his findings are, and therefore not too much criticism can be made of him. Further, if his report is examined as a whole, we find that he quite properly notes<sup>432</sup> near the beginning:

... that the Peter Rough report is thorough in terms of its description of the site, its context and the proposal. In this report I will not repeat the findings of the Peter Rough report that I agree with.

That was an admirable attempt to keep his report brief so he should not be penalized for it.

[277] Mr Espie was consistent in his approach to the landscape issues, stating that the first key issue is to ascertain what is the ‘landscape’ that section 6(b) requires. For that reason he was critical of Mr Brown’s use of ‘landscape units’ and the comparisons he drew between them<sup>433</sup>. Mr Espie considered that Mr Brown’s units were smaller than



<sup>431</sup> Transcript (2008), p. 733.

<sup>432</sup> Mr B Espie, Exhibit BE1 at para 2.3 [Environment Court document 21].

<sup>433</sup> Mr B Espie, evidence-in-chief para 4.10 [Environment Court document 21].

the landscapes referred to in section 6(b) of the Act and thus of little help in deciding whether the landscape containing the subject site is outstanding or not. Mr Espie also agreed<sup>434</sup> with Ms Steven's general assertion that the Lammermoors retain a high degree of natural character.

[278] Mr Rennie QC wrote<sup>435</sup> of Mr Espie's criticism "... of others who chose different terminology" that it was "simply a means of superficially discussing the opinion of others as to the area that comprises a landscape without having to critically analyse the reasons for that difference". He submitted<sup>436</sup> that "[t]he term unit does not change the fact that an expert has assessed an area as being separately identifiable as a coherent landscape area with similar characteristics". We consider Mr Rennie is, with respect, wrong. Certainly Mr Espie did not go into the detail in the same way as the other three principal landscape architects. But, perhaps because of that, he seemed to have a better view of the bigger picture. Nor do we consider Mr Espie to have been superficial in his identification of the landscape within that big picture frame.

[279] Mr Rennie also submitted that Mr Espie's approach<sup>437</sup> "... lacked subtlety and did not appreciate the finer distinctions that can be important when large swatches of upland areas are under consideration". It is a truism that every landscape is different from every other if only because it is in a different place. It is also true that parts (units) of a landscape may differ in qualities from others. However, we find when one looks at the Wider Eastern Central Otago Upland Landscape (including the Lake Onslow Basin) its most obvious, indeed outstanding, characteristics are the overall flatness and the remarkable homogeneity of its dominant tussock vegetation (*Chionochloa rigida*).

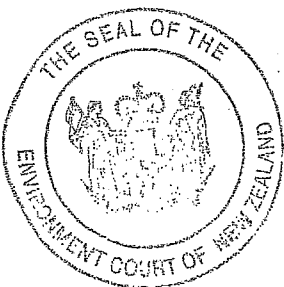
[280] It is possible, as Meridian's witnesses – Mr Brown and Mr Rough in particular – did, to make fine distinctions between the Meridian site and the rest of the Lammermoor, or the wider area, on the grounds of the greater degree of human interference in this area. However, we find that the fact remains that the similarities are much more marked than the differences as objectively assessed. It is a simple matter of seeing how few structures there are in the landscape; how few ploughed areas there are,

<sup>434</sup> Mr B Espie, evidence-in-chief para 4.21 [Environment Court document 21].

<sup>435</sup> Meridian's closing submissions para 132 [Environment Court document 93].

<sup>436</sup> Meridian's closing submissions para 133 [Environment Court document 93].

<sup>437</sup> Meridian's closing submissions para 137 [Environment Court document 93].



and that tussocks are the dominant vegetation in most places. We find that Mr Brown has made distinctions which are too fine when reasonably assessed.

[281] We accept that the crest of the Rock and Pillar Range has different characteristics as Mr Brown identified<sup>438</sup> and Mr Espie conceded<sup>439</sup>. However, we are uncertain that the crest of the Rock and Pillar Range is large enough in its context to be a landscape. It is more accurately described as an outstanding natural feature within the wider landscape. Mr Espie appeared<sup>440</sup> to consider the Rock and Pillar Range as more than its crest. We find that is correct. It contains a large area above 900 metres which is not on its crest, so we do not find Mr Espie as inconsistent as Mr Rennie QC suggested he was.

*Mr P Baxter's evidence*

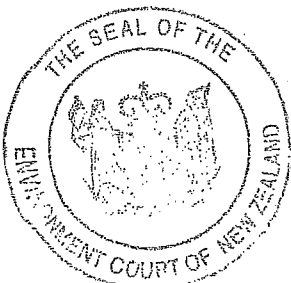
[282] Mr Baxter, who is an experienced landscape architect based in Queenstown, had the weight of his evidence very heavily undermined when he admitted in cross-examination by Mr Beatson that he had made a personal submission<sup>441</sup> opposing Meridian's application. He explained that when he took instructions to appear as an expert he had forgotten making the submission and that he had not appeared at the Council hearings. However, he then admitted that he had been reminded of his submission when finalising his evidence-in-chief. Despite that he could not explain why he had not mentioned his submission in either his evidence-in-chief or his rebuttal evidence. That omission appears to us to be a significant breach of his duty as an expert witness to advise the other parties and the Court of any relevant factors known to him. The existence of an undisclosed submission expressing strong views on a number of aspects of Meridian's proposal is relevant because it throws doubt on the objectivity or rather, since landscape architecture is a very subjective discipline, the impartiality and rationality of his evidence. The fact that he did not compose his submission himself – he described it as a 'pro forma' submission – is irrelevant if it was not disclosed. He

<sup>438</sup> Mr S K Brown, evidence-in-chief paragraphs 91-93 and 97 [Environment Court document 4].

<sup>439</sup> Transcript (2008), p. 717.

<sup>440</sup> Transcript (2008), p. 719 line 16.

<sup>441</sup> Mr P J Baxter, Exhibit 10.2 [Environment Court document 10].



signed it and so became responsible for it. We have not considered his evidence in this decision.

*Dr M C G Mabin's evidence*

[283] Dr Mabin (called by Meridian) is not a landscape architect, but he did give us useful evidence about the geomorphology of the area. As he pointed out the names of the areas describe their characteristics and hence the differences between them: the 'Rock and Pillar Range' is very different from the moorland on the 'Lammermoor'. However, his evidence was not consistent in that his Appendix 1 map shows both to be a tor-less landscape. In any event he concluded<sup>442</sup>:

Project Hayes will be situated on low rolling hills on the broad crest of the Lammermoor Range, and these low-relief mountain tops are characteristic of Central Otago District mountains, and the mountains of the wider central Otago area.

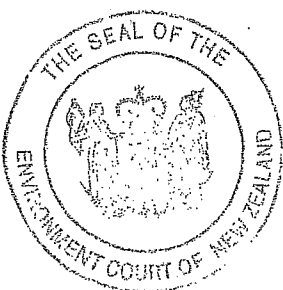
These mountains are formed from remnants of the very large Waipounamu Erosion Surface. The most common landform type of this surface is the Tor-less terrain, and most of the turbines of Project Hayes will be constructed on this landform type.

[284] We find that there are only two high (above 900 metres) tor-less peneplains within Central Otago, one contains the Rock and Pillar, Lammermoor, Lammerlaw Ranges and (South) Rough Ridge and all the land to the west of the Onslow Basin, and an even higher one including the Old Man and Old Woman Ranges. The former, containing the Meridian site is the larger in extent and at lower altitude. The significance of height is the consequential effect on the vegetation of this peneplain: areas of the Waipounamu erosion surface below 900 metres have been much more disturbed.

4.3.3 Findings

[285] We have described how, for Ms Steven, the Meridian site is in a landscape type constituted by the Lammermoor (as we defined it), the Lammerlaw Ranges, the Lake Onslow basin and the Pinelheugh Range, and how she then drew a considerably smaller landscape despite the fact that the Wider Central Otago Upland Landscape contains several contiguous landscapes of the same type.

<sup>442</sup> Dr M C G Mabin, evidence-in-chief paragraphs 8.1 and 8.2 [Environment Court document 6].



[286] Mr Brown considered that was inappropriate for several reasons<sup>443</sup>:

- (1) Ms Steven suggested that 90% or more of the landscape of the Lammermoor is tussock. Mr Brown alleged that is not correct for the Meridian site<sup>444</sup> ‘... significant parts of which have been subject to ploughing, grass oversowing ...’. However, Mr Brown did not quantify the extent of the ploughed areas, and in fact Meridian’s own AEE described<sup>445</sup> the site as having about 95% tussock grasslands, less than 3% gully wetlands, and less than 3% exotic pastoral grassland, and Dr Bartlett gave<sup>446</sup> 92%, 4%, 4%.
- (2) Similarly, Mr Brown wrote that the ‘greater prevalence of pastoralism and pine and douglas fir woodlots’<sup>447</sup> is a feature of the southwestern margins of the Lammerlaws – but we find those areas are not on the plateau but are a series of complex foothills dropping from about 900 masl down to the Clutha River.
- (3) Mr Brown considered the Lammermoors as he has defined them are “[i]n purely geophysical terms ... an area of transition”<sup>448</sup> which is<sup>449</sup>:
  - less elevated – than the Rock and Pillars;
  - less visually prominent – in general; and
  - more physically and visually isolated from the web of settlements and transportation corridors.

We do not understand what Mr Brown meant by a ‘geophysical transition’. In any event, even the natural science factors include more than merely physical factors. Other factors such as the vegetation and presence (or absence) of buildings and other structures are very important too. We are left with a persistent concern that Mr Brown gave inadequate weight to the vegetation, homogeneity and scale of the area, as well as the relative lack of buildings and infrastructure. For example when he responded to Ms

<sup>443</sup> Mr S K Brown, rebuttal evidence para 16 [Environment Court document 4A].

<sup>444</sup> Mr S K Brown, rebuttal evidence para 18 [Environment Court document 4A].

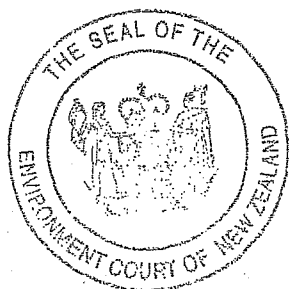
<sup>445</sup> Meridian AEE Volume 3 Tab E para 5.3.1.

<sup>446</sup> Dr R M Bartlett, evidence-in-chief para 5.1 [Environment Court document 60].

<sup>447</sup> Mr S K Brown, rebuttal evidence para 18 [Environment Court document 4A].

<sup>448</sup> Mr S K Brown, rebuttal evidence para 22 [Environment Court document 4A].

<sup>449</sup> Mr S K Brown, rebuttal evidence para 22 [Environment Court document 4A].



Steven who makes precisely those points in her evidence-in-chief<sup>450</sup> he did not disagree with her but observed that<sup>451</sup>:

... it is the very immensity of the landscape that offers potential to 'swallow up' the sort of scale of development envisaged ...

- (4) Mr Brown regarded the different susceptibility<sup>452</sup> or sensitivities<sup>453</sup> of the landscape as somehow affecting its identification. We consider that is the wrong way around. Identification of the landscape must come before identification of its sensitivities to development.

[287] In summary we prefer Mr Espie's view (supported to some extent by Ms Steven's view) to that of Mr Brown on the identification of the landscape. We are encouraged in that preference by Mr Brown's opinion of the immensity of the landscape. He fails, even in his rebuttal evidence, to consider the scale of the landscape as an identifying feature but simply moves to consider the size and "simplicity"<sup>454</sup> of the landscape as a factor limiting the inherent 'sensitivity' of the landscape which is to take into account an irrelevant factor at this point.

[288] While acknowledging the differences between the Lammermoor and the higher, differently vegetated Rock and Pillar Range identified by Meridian's witnesses, we consider from the evidence of Ms Steven – as to landscape type – and Mr Espie, and from our site inspections that these differentiating features are outweighed by the amazing homogeneity of the landscape. All the pictures of the area show a vast (by New Zealand standards) treeless plateau covered in either soft-textured golden-brown tussock or snow (or a mix of the two).

[289] We conclude that on the evidence of Mr Espie and of Ms Steven's type that the relevant landscape is the Wider Central Otago Upland Landscape identified above with most of the Lake Onslow Basin and the area to the north of it be excluded for three reasons. First the Lake Onslow Basin is<sup>455</sup> "... about to be significantly compromised ... by a large conifer plantation that is just starting to show above the tussocks under Mt

<sup>450</sup> Ms E A Steven, evidence-in-chief para 18.10 [Environment Court document 9].

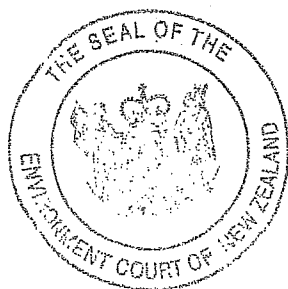
<sup>451</sup> Mr S K Brown, rebuttal evidence para 24 [Environment Court document 4A].

<sup>452</sup> Mr S K Brown, rebuttal evidence para 12 [environment Court document 4A].

<sup>453</sup> Mr S K Brown, rebuttal evidence para 19 [Environment Court document 4A].

<sup>454</sup> Mr S K Brown, rebuttal evidence para 21 [Environment Court document 4A].

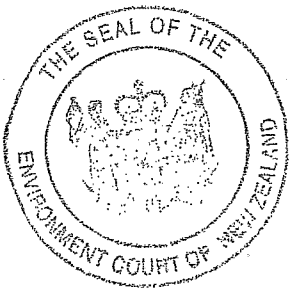
<sup>455</sup> Ms E A Steven, rebuttal evidence para 9 [Environment Court document 9A].



Teviot"; and, secondly, the shape of the landscape should be kept compact and so the separation of the Lake Onslow Basin necessitates that the other two reservoirs (Pool Burn and Manor Burn) and surrounding land should be excluded too. Thirdly, as Ms Steven stated, as one moves into the Lake Onslow Basin there is some sense of moving into a different lower landscape despite the fact this area is still part of the Waipounamu Erosion Surface.

[290] For the avoidance of doubt we describe the landscape as comprising the following area (starting at the western corner):

- it starts at 900 masl by the track Point 003446 on Infomap 260 G43 (Roxburgh) which is about two kilometres west of Lammerlaw Rock (1167 masl)
- then runs southeast along the 900 metre contour south of Lammerlaw Top (1210 masl)
- along the 900 metre contour on the south side of the Lammerlaw Range past 'Lammermoor' at 1160 masl to Little Peak (945 masl) above Lake Mahinerangi
- northeast at the 900 metre contour below the crest of the scarp on the eastern side the Lammermoor Range to the Old Dunstan Road
- northeast to the junction of Stony Creek and Burgan Stream then northeast to Trig G (1051 masl)
- around the entire Rock and Pillar Range at the 900 masl contour and back southeast to
- the Old Dunstan Road at 900 masl above Paerau
- southwest along the 900 masl contour at the top of the escarpment above the Styx basin (jumping the Logan Burn gorge)
- in a southwest line along the scarp edge past Spillers Creek along the 900 metre contour line on the northwestern side of Spillers Hill (960 masl) to the Taieri Rapids Scenic Reserve
- further southwest across the Taieri River to the 900 metre contour below Bottle Rock (974 masl)
- around Bottle Rock along the 900 metre contour to the north and west



- along that contour to the west of Davidsons Top (1127 masl) and
- then southwest along the 900 metre contour around the 900 metre contour to the west of Davidsons Top and Lammerlaw Rock (enclosing Teviot Swamp) to the start.

For precision we call that landscape “the Eastern Central Otago Upland Landscape” although basically it is the three – Lammerlaw/Lammermoor/Rock and Pillar – Ranges. We have adopted the 900 masl contour as the bottom line of the landscape in deference to the Central Otago District Plan’s use of that line, and we have tried to keep the shape of the landscape compact for the same reason. We consider the crest of the Rock and Pillar Range is likely to be an outstanding natural feature within that landscape we have just described.

[291] Although precision is often necessary when describing an area with reference to map features, we acknowledge that boundaries of landscapes are not always so clear. The description above should not be read with excessive precision. If outlining the landscape on a map, it should be marked with a broad brush, not a fine-tipped pen (except where the 900 metre contour is followed).

#### 4.4 Assessing the naturalness of the landscape

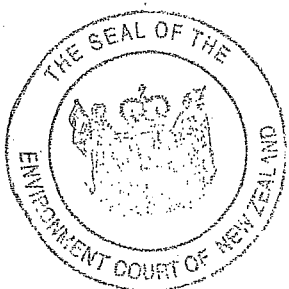
[292] In the previous chapter we referred to the criteria of naturalness given in *Long Bay-Okura Great Park Society Incorporated et ors v North Shore City Council*<sup>456</sup>. There the Environment Court stated that:

... the list of criteria of naturalness under section 6(b) of the RMA ... includes:

- relatively unmodified and legible physical landform and relief;
- the landscape being uncluttered by structures and/or obvious human influence;
- the presence of water (lake, river, sea);
- the presence of vegetation (especially native vegetation) and other ecological patterns.

We now consider the Eastern Central Otago Upland Landscape in the light of those criteria.

<sup>456</sup> *Long Bay-Okura Great Park Society Incorporated et ors v North Shore City Council* Decision A78/2008 at para 135.





[293] We find that the Eastern Central Otago Upland landscape is relatively unmodified, and the peneplain or Waipounamu Erosion Surface is clearly legible. The landscape has certainly been affected by human activity: Maori probably reduced the areas of woody vegetation by burning, and since Europeans arrived there has been the history of mining, pastoral farming, fence, road and track building, and recreation described earlier. Even if the observer does not know of the landscape's earlier history, it has been noticeably affected to some extent by humans – we have described tracks, fences, old mining works, huts, sheepyards, and some ploughed and grassed areas. Across the southern side of the Meridian site there are also the 220 kV Roxburgh-Three Mile Hill electricity lines, shadowed by Pylon Road. However, the extent of modification and human influence should not be overstated: even the evidence of human influence on the site envelope extends over a very large area (about 135 km<sup>2</sup> according to Dr Mabin). We agree with Mr Espie when he wrote<sup>457</sup>:

I believe that Mr Rough generally overstates the degree to which these modifications reduce the naturalness of the landscape. I believe that the scale of the landscape must be borne in mind. This is a vast, open and very empty landscape.

Cross-examination<sup>458</sup> did not affect those statements. We accept them as correct and important, as we do the next sentence<sup>459</sup>:

The modifications that Mr Rough points out have only a minor impact on the natural character that is appreciated by observers.

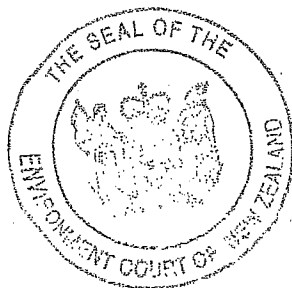
[294] As for the presence of water: there are several lakes in the wider area – the Onslow, Manorburn, Greenland and (especially) Logan Burn Reservoirs – which look natural but are not. Their dams are low unobtrusive structures tucked into gorges and away from the main body of water. Mr Brown suggested that the presence of these reservoirs reduced the naturalness of the area. However, as he pointed out in his general discussion of naturalness<sup>460</sup> the presence of “water areas” is one of the criteria of

<sup>457</sup> Mr B Espie, evidence-in-chief para 4.7 [Environment Court document 21].

<sup>458</sup> Transcript (2008), p. 715.

<sup>459</sup> Mr B Espie, evidence-in-chief para 4.7 [Environment Court document 21].

<sup>460</sup> Mr S K Brown, evidence-in-chief para 31 [Environment Court document 4].



naturalness. So, paradoxically, the cultured naturalness of the landscape is enhanced by these 'unnatural' lakes.

[295] Focussing on the Eastern Central Otago Upland Landscape the Logan Burn Reservoir is in the middle of that landscape. The lake was created by a small concrete dam (recently raised by 0.80 metres) across the Logan Burn. Despite that the reservoir looks natural – like a lake – and, we find, enhances the overall level of perceived naturalness of its setting. Turning to the ground cover: much of the landscape is in narrow-leaved snow tussock, interspersed with smaller plants of different species depending on the density of the tussocks. That density is determined largely by the interplay of rainfall, fires, ploughing (in small areas), topdressing and grazing. There are a few small cribs<sup>461</sup> around the lake, and an abandoned bus<sup>462</sup>.

[296] In his Table 5 the Meridian witness, Mr Brown, evaluated<sup>463</sup> the naturalness of his Lammermoor Range landscape as 'High Moderate'. He defined that value as follows<sup>464</sup>:

- Naturalness/Natural Character: Reflects the relative predominance of natural elements, patterns and processes in the landscape and the relative absence of manmade structures and overt signs of human activity.

We find it quite baffling that the much lower Raggedy Range and Blackstone Hill, with their highly modified vegetation (part of Mr Brown's 2A landscape), should be given a 'high' sense of naturalness compared with the Lammermoor.

[297] Mr Rough's main discussion of the naturalness of the site comes under the heading 'Aesthetic values including memorability and naturalness'<sup>465</sup>. He wrote<sup>466</sup>:

<sup>461</sup> 'Baches' to people north of the Waitaki.

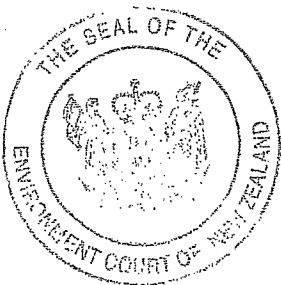
<sup>462</sup> Mr P Rough, evidence-in-chief para 66 [Environment Court document 3].

<sup>463</sup> Mr S K Brown, evidence-in-chief Table 5, following para 96 [Environment Court document 4].

<sup>464</sup> Mr S K Brown, evidence-in-chief para 66 [Environment Court document 4].

<sup>465</sup> Mr P Rough, evidence-in-chief before para 88 [Environment Court document 3].

<sup>466</sup> Mr P Rough, evidence-in-chief para 89 [Environment Court document 3].



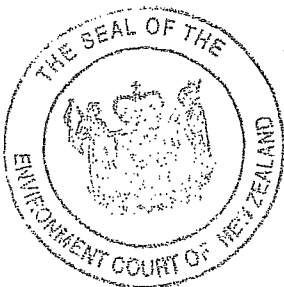
From the Serpentine Flat on the north-western side of the Lammermoors the relatively steep slopes above the valley floor and the broad crest of the range on the skyline appear to be highly natural and lacking in obvious human activity (refer Figure 10 above). This north-western side of the Lammermoor Range has higher aesthetic value than the south-eastern side which is perhaps less memorable because the landform is much less imposing and considerable areas of the land's surface has been modified by cultivation and the establishment of exotic pasture. On the other hand, despite its artificial origin, the alpine lake appearance of the Logan Burn Reservoir has considerable aesthetic quality, is a memorable feature and, away from the dam, evokes qualities of naturalness.

[298] Mr Rough considered the signs of human influence we have described and continued<sup>467</sup>:

The reservoir itself, with its dam, spillway and access road, although it may generally appear to be a natural feature in the landscape, is artificial and in having flooded the bulk of the Great Moss Swamp reduced the inherent naturalness of the foreground to, and thus the setting of, the northern section of the Lammermoor Range. Despite its historic association, its memorable nature and the opportunity it affords to experience the high country landscape in the vicinity of the site, Old Dunstan Road is a feature that also somewhat reduces the naturalness of environment in the vicinity of northern end of the Lammermoor Range.

Farm roads, fences, airstrips and trig stations are features on the land which also diminish its naturalness but, in the context of the vast scale of the landscape, these are very minor elements and their effect on reducing aesthetic value and natural character is accordingly very minor.

We conclude that Mr Rough is saying that farm features have a very minor effect on naturalness, but the Logan Burn Reservoir, the Old Dunstan Road and (elsewhere he suggests) the Pylon Road and the 220 kV line reduce naturalness rather more. Elsewhere he stated that the site does not have any indigenous forest cover (in fact it has relicts in the Logan Burn gorge which is surrounded by the site and this part of the site envelope) nor does it have "... the resplendent cover of indigenous tussock grassland such as is found ... in Te Papanui Conservation Park ..."<sup>468</sup>.



<sup>467</sup>

Mr P Rough, evidence-in-chief paragraphs 90 and 91 [Environment Court document 3].

<sup>468</sup>

Mr P Rough, evidence-in-chief para 86 [Environment Court document 3].

[299] We find that Mr Rough is generally accurate in describing the elements which reduce the naturalness of the site. However, his evidence is weakened by his failure to acknowledge the scale of the site compared with the principal signs of human occupation (roads, the reservoir, power lines). Further, he vacillates between describing the site or a larger area outside it so as to include features (the Logan Burn dam and lake and the Old Dunstan Road) which he says reduce the naturalness. It is also convenient that his 'Northern Lammermoor' landscape is just large enough to contain what he regards as derogating features (the reservoir, Old Dunstan Road, Pylon Road, and the line of pylons) and small enough to exclude the Rock and Pillars and, more importantly, the southern Lammermoor Range and the Lammerlaw Range. There is a slight self-serving turn in his selection which makes us doubt the objectivity of his assessment.

[300] Ms Steven wrote<sup>469</sup>:

Whilst certainly not pristine in an ecological sense, the existing landscape is highly natural in a relative sense, within the context of the central ranges (most of which are more modified than this one) and relative to the modified basin floors.

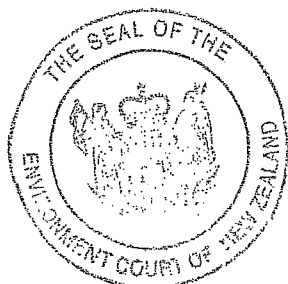
She continued<sup>470</sup>:

In the wider Otago sense this area would still be regarded as very natural by most people, simply because there is a relative absence of obvious human artifacts particularly ones not related to pastoral run farming, and because of the apparently intact tussock grassland cover. The great sweeps of unbroken tussock, fold after fold of unmodified land form, clean landform horizons, rock outcrops, falcon and the patterns of wetland under a big sky are essential features supporting naturalness.

We find that Ms Steven has accurately described both her landscape and the slightly more logical (as we believe it to be) Eastern Central Otago Upland landscape. We consider Mr Espie's view is consistent with that of Ms Steven.

<sup>469</sup> Ms E A Steven, evidence-in-chief para 18.15 [Environment Court document 9].

<sup>470</sup> Ms E A Steven, evidence-in-chief para 18.16 [Environment Court document 9].



#### 4.5 Is the landscape outstanding?

##### 4.5.1 The Central Otago District Plan on the landscape

[301] The Explanation<sup>471</sup> to policy 4.4.6 includes the following:

... Landscapes and natural features considered to be outstanding in the Central Otago District are identified as Sections 2.3.1 and 2.3.2 commencing on page 2:6 and are identified on the planning maps. Elevated areas of the District that are over 900 metres and land in the Upper Manorburn/Lake Onslow Landscape Management Area are also identified on the planning maps.

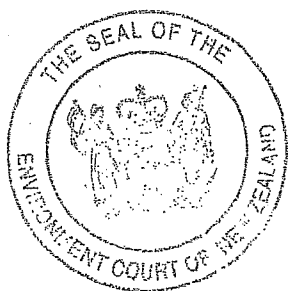
The right-hand bottom corner of Map 70<sup>472</sup> shows areas of land above 900 metres above sea level. Most of the Meridian site is within such an area (i.e. is above 900 masl), but it is not described as a “outstanding landscape area” and is therefore not regarded as an “outstanding natural landscape” for the purposes of the operative district plan.

##### 4.5.2 Plan Change 5 to the district plan

[302] On 11 October 2008 – between the second and third stages of the hearing of this proceeding – the CODC notified Plan Changes 5A to 5W (generically called “PC5”) to the district plan. PC5 is primarily concerned with the landscapes of the district.

[303] Plan Change 5A proposes to add to the description of features and landscapes in the district plan a further explanation and description as follows<sup>473</sup>:

Further work and considerable consultation on the Rural Study in 2005 and 2006 and a report prepared by Robson Garland, Ian Brown Consultants and LA4 Landscape Architects entitled Central Otago District Rural Review has resulted in the identification of a number of landscapes of high natural character values and high landscape quality that are areas of Extreme or High sensitivity, landscapes that are of Significant sensitivity and Significant landscape features within the District. The landscapes identified in the report as being areas of Extreme or High sensitivity are outstanding natural landscapes in terms of section 6(b) of the Act and are as follows:



<sup>471</sup> Policy 4.4.6 [Central Otago District Plan, p. 4:12].

<sup>472</sup> Central Otago District Plan, Volume J Map 70.

<sup>473</sup> PC5, p. 3.

- Pisa and Dunstan Ranges
- Hector, Nevis Valley, Garvie and Old Woman Ranges
- Hawkdun and St Bathans Ranges
- Lake Dunstan and Lake Roxburgh

The landscapes of significant sensitivity are:

- Lindis Pass
- Cairnmuir, Obelisk and Old Man Ranges
- Northern Knobby, Lammerlaw and **Lammermoor** Ranges
- Kawarau Gorge
- Clutha River below Clyde Dam
- Upper Manuherikia
- Lowburn, Bendigo and Clyde Terraces
- Terrace between the Dunstan Range and Manuherikia River.

Significant landscape features are:

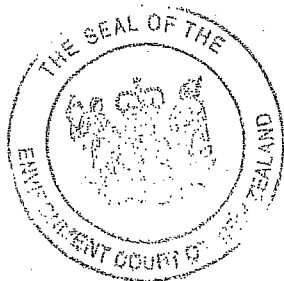
Sugar Loaf and Bendigo glacial river terraces  
 Rocky backdrop to Alexandra  
 Flat Top Hill  
 Upper Taieri Scroll River  
 Lakes Onslow, Manorburn and Poolburn  
 Blue Lake, St Bathans  
 Tiger Hill

The landscapes and landscape features identified in the Rural Study are categorised on the basis of sensitivity as shown on the "Central Otago Rural Review Landscape Assessment Maps" that are contained in Schedule 19.22.

[Our emphasis]

It will be noted that the Lammermoor Range is described as a landscape of 'Significant sensitivity' but that the Rock and Pillar Range is omitted (perhaps because its crest is within Dunedin City).

[304] The Significant Issues in section 2 of the district plan are also proposed to be changed (relevantly) as follows – the underlined words are those to be added:



<p><u>Significant Issue – Outstanding Landscapes</u></p> <p>The District contains a number of outstanding landscapes that require <u>identification and</u> protection from inappropriate subdivision, use and development. In determining what is inappropriate subdivision, use and development in these landscapes it must be recognised that these landscapes are often utilised by people and communities to provide for their social, economic and cultural wellbeing.</p>	<p>Cross Reference: Issue 4.2.1 (pg 4:2) Objective 4.3.3 (pg 4:7)</p>
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and:

<p><u>Significant Issue – Central Otago’s Unique and Distinctive Landscape</u></p> <p>The Central Otago District has a unique and distinctive landscape. While the landscape is constantly evolving through natural processes, farming and other land use activities the semi-arid, rocky nature of the landscape means it can be vulnerable to <del>the effects of change, in particular the</del> visual effects of structures (including telecommunication masts, <u>wind farms</u> and other large structures), cultivation of tussock grasslands, large scale earthworks, new roads, <u>residential built development on elevated land</u> establishing woodlots, production forestry or shelter belts on elevated land and wilding tree spread. <u>Subdivision is often the precursor of land use activities such as those listed above.</u> The District’s built heritage, particularly in the form of cottages and ruins, and remnants of the early goldmining era, has also made a significant contribution to the landscape values of Central Otago.</p>	<p>Cross Reference: Issue 4.2.2 (pg 4:2) Objective 4.3.2 (pg 4:7)</p>
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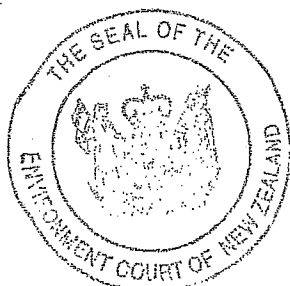
#### 4.5.3 Evidence on the values of the Eastern Central Otago Upland Landscape

##### *Legibility of the landscape*

[305] Because of the uniformity of the dominant tussock cover, and because there is almost no higher vegetation on it, the whole upland area (to use a neutral term) of and around the Lammermoor is readily legible as an eroding plain. Given the general homogeneity of ground colour and texture – brown/golden or greenish (when seen from close to) tussocks – it reads as a plain that is being slowly and gently eroded by the streams running off it into the Taieri River. It has a soft and undulating landform.

##### *Transient values*

[306]. We usually put very little weight on transient values. All landscapes, even (especially) industrial landscapes, can look exceptional in certain light and atmospheric conditions. However, the ‘two season’ values of the Lammermoor are worth recording. For at least half of the year the area is a tussock landscape but for some months it may



be covered in snow. So there is a sense of 'two landscapes for one' here that otherwise only exists in New Zealand's much more widely spread toothed mountains. Other ephemeral values are recognised in the writing about Central Otago which we describe (briefly) soon.

*Shared and recognised values*

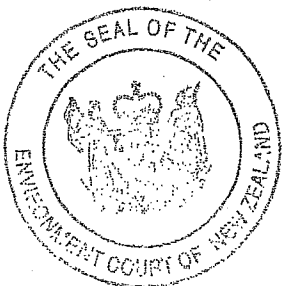
[307] For Meridian Mr Rough relied on the fact that the district plan does not describe the Meridian site as an outstanding natural landscape. That is often a valid way of assessing the issue as to whether a landscape has shared and recognised values, although there are reasons (inconsistencies in the district plan; the proposed Plan Change; the characterisation in the Dunedin City Council Plan; the provisions of the Regional Plan) which we discuss later as to why it may not be appropriate in these proceedings.

[308] Mr G Sydney, a well-known<sup>474</sup> artist who is also a member of the MESI gave evidence as to the values of the landscape. We accept his expertise to give evidence about the aesthetic, and shared and recognised values of the landscape although we consider that evidence very carefully due to his own personal involvement in the issues. He wrote how<sup>475</sup>:

... [his own] oil painting 'Maniototo', 1996, depicts a view across the Maniototo Plains, looking south and west, and features the ridge that may become the Project Hayes site. Ironically, the landscape depicted in that work has been endorsed by the Department of Conservation as a fitting example to accompany its promotional material *Celebrating the Outstanding Landscapes of Central Otago* ... and the reproduction of the work was paid for by the Department.

Mr Sydney also wrote without false modesty<sup>476</sup>:

These landscapes of Central have been the focus and subject of artists and writers too numerous to list. Film-makers from the freshest amateur to the world's most prominent directors have made fine use of its magnetic appeal. Examples include *Illustrious Energy*, *In My Father's Den*, *Fifty Ways of Saying Fabulous*, and *Lord of the Rings*. ...



<sup>474</sup> One of his paintings of the Ida Valley is on the front cover of the district plan.

<sup>475</sup> Mr G C Sydney, evidence-in-chief para 21 [Environment Court document 11].

<sup>476</sup> Mr G C Sydney, evidence-in-chief para 33 *et ff* [Environment Court document 11].



Some of the great names in New Zealand's art heritage have come to this expansive Central Otago landscape for inspiration, for rich subject matter, and to discover more aesthetic forms with which to explore our identity and our separateness. Marilyn Webb has identified painters Colin McCahon, Rita Angus, Michael Smither, Bill Sutton, Trevor Moffitt, R N Field, Doris Lusk, George O'Brien, Austen Deans, Peter McIntyre, Elizabeth Stevens, Neil Driver, Ralph Hotere, Tom Field and myself; and writers Janet Frame, Ruth Dallas, Owen Marshall, Vincent O'Sullivan, Elizabeth Smither, Brian Turner, Charles Brasch, James K Baxter, David Eggleton, Neville Peat, O E Middleton, Cilla McQueen, and Lauris Edmond.

...

We find that to be an impressive list which suggests strongly that the wider "Central Otago landscape" does have widely recognised and shared values.

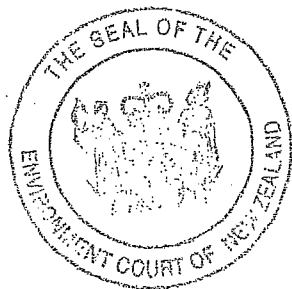
[309] Mr Sydney attempted to explain how those values are so widely recognised<sup>477</sup>:

It does not surprise me that I frequently hear people confessing – often with some bewilderment – that they feel "at home" in a particular landscape, for reasons they themselves cannot explain. And the number of times one hears this belonging to and love of particular South Island landscapes expressed by those who have spent very little time amongst them, is telling.

...

Why is it we so often cling to the significance of one special place, one special spot, one particular view, and hold that to our hearts for comfort, for a clearer sense of 'where we come from' and for confirmation of our identities? I believe that everyone has a deep secret spot, a special place, a landscape that brings them a profound, often inexplicable contentment, whether they carry it only in their memories, or can access it frequently. I believe too that the thousands of New Zealanders for whom Central Otago carries so much private meaning turn to the writers, poets and artists for tangible evidence of what they themselves feel and sense, but cannot always explain.

[310] We should also record our finding that the naturalness of the Wider Eastern Central Otago Upland Landscape is enhanced by the presence of a number of lakes – Lake Onslow and the Poolburn, Manorburn and Logan Burn Reservoirs. These lakes are all artificial, but they "look" natural, unless one is on or near their dams.



<sup>477</sup> Mr G C Sydney, evidence-in-chief para 36 *et ff* [Environment Court document 11].

*Tangata whenua values*

[311] We read little evidence as to the values of the Meridian site or the wider landscape for tangata whenua. The project site is regarded as being associated with the waka Araiteuru<sup>478</sup> and Te Runanga O Otakou have identified they hold important links with this particular area<sup>479</sup>. The Old Dunstan Road is identified as a traditional trail of significance and it is likely that camps were established along this trail particularly near rocky outcrops<sup>480</sup>. Lithic sources, moa and weka hunting drew Maori to the area with the latter continuing until about 1870<sup>481</sup>. The District Plan maps show a Nohoanga site on the edge of the Logan Burn.

*Aesthetic values*

[312] We read the evidence of Mr Brian Turner, a writer. Mr Turner is strongly opposed to the Meridian wind farm. In his opinion<sup>482</sup>:

One of the priceless things that makes Central Otago unique and so captivating – gives it the ‘world of difference’ that the brand-assigners and the Central Otago District Council (CODC) use to proudly advertise and promote the area – is that most of its hills and block mountain ranges aren’t visually polluted. It gives them an extraordinary and memorable aura, one that’s ineffable, often grand.

The title poem of his collection *Taking Off* includes a passage about birds soaring:

...  
 where the nor’ wester  
 flips off the ridges  
 and the tussock is  
 restless and shines  
 on the hillsides, ...

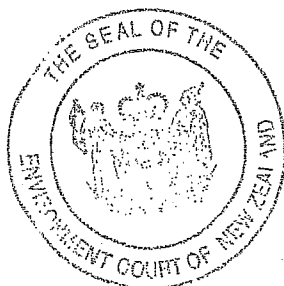
<sup>478</sup> Meridian AEE Volume 1 para 9.13.1.

<sup>479</sup> Meridian AEE Volume 1 para 9.13.2.

<sup>480</sup> Meridian AEE Volume 1 para 9.13.2.

<sup>481</sup> Meridian AEE Volume 3 Tab G para 5.1.

<sup>482</sup> Mr B L Turner, evidence-in-chief para 33[ Environment Court document 12].



That northwest wind is in fact the predominant wind which Meridian wishes to use on its site. Because Mr Turner has lived in and written about Otago for most of his life we regard him as an expert on the aesthetics of Central Otago although we treat all his opinions with great caution because of his frank subjective approach to the concept of a wind farm on the Lammermoor.

[313] Mr Turner drew our attention to earlier references to the scale of the landscape and to its predominant tussock cover. He referred to an essay<sup>483</sup> by Mr T H Scott published in 1950 which contains both themes when it referred to a ‘... noble and old country ... lovely with tussock’ and a country that ‘... could have been a continent’. He concluded by referring to Mr Philip Temple’s summary<sup>484</sup> – which plays with the golden colour of the tussock landscape – ‘Here, the gold will always be the land ...’. We accept those are valid and now shared descriptions of the wider landscape’s values. The tramper pushing into a nor’wester or the musterer hit by a southerly buster are likely to express their feelings more ruggedly.

*Historic values*

[314] These have been described earlier in this decision.

4.5.4 Direct evidence on whether the landscape is outstanding

*The evidence for Meridian*

[315] Meridian’s witness, Mr Rough, conceded<sup>485</sup> in answer to a question from Mr Marquet that he had not made his own district-wide assessment but had relied on the district plan. In Mr Rough’s own assessment of the site he would only go this far<sup>486</sup>:

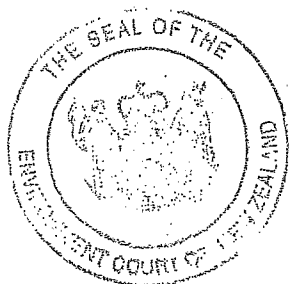
... it is clear that the northern end of the Lammermoor Range, in the general vicinity of Logan Burn Reservoir, and which occupies both Central Otago District and Dunedin City District land, is not of as high landscape and visual quality as conservation lands on the Rock and Pillar Range to the north, and within Te Papanui Conservation Park to the south, or a range of other areas within the Otago District.

<sup>483</sup> T H Scott, ‘South Island Journal’ Landfall 1950.

<sup>484</sup> P Temple, Introduction to Central (a book of photographs by Arno Gasteiger).

<sup>485</sup> Transcript (2008), p. 152..

<sup>486</sup> Mr P Rough, evidence-in-chief para 111 [Environment Court document 3].



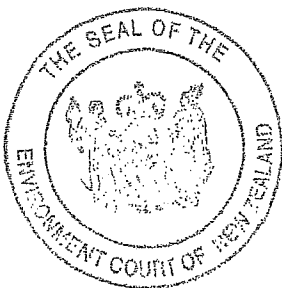
[316] Meridian’s other landscape witness Mr Brown summarised his evaluation of the Meridian site in his Table 5 as follows<sup>487</sup>:

**LAMMERMOOR RANGE : PROJECT HAYES SITE  
VALUES**

<i>Landscape / Amenity / Natural Character:</i>	
<i>Expressiveness:</i>	Moderate
<i>Unity:</i>	High – Moderate
<i>Naturalness:</i>	High – Moderate
<i>Sense of Place:</i>	High
<i>Structure &amp; Patterns:</i>	Moderate – Low
<i>Heritage Associations:</i>	High – Moderate
<i>Gateway Values:</i>	Low
<i>Value Rating:</i>	<b>Moderate - High</b>

He defined those terms as follows<sup>488</sup>:

- **Expressiveness:** The degree to which a landscape is ‘self evidently’ spectacular or at least sufficiently dramatic that it leaves a lasting impression
- **Unity:** The degree to which a landscape displays a certain consistency and harmony in relation to its internal components
- **Naturalness/Natural Character:** Reflects the relative predominance of natural elements, patterns and processes in the landscape and the relative absence of manmade structures and overt signs of human activity
- **Sense of Place:** The extent to which a landscape’s array of features, elements and patterns evokes the feeling of a distinctive local character that can be distinguished from that of other locations, districts &/regions
- **Structure & Patterns:** Reflecting the attractive interplay and counterpoint of landscape components that contribute to both its attractive composition and visual coherence
- **Historic Associations:** Reflecting the presence and interaction with key historic sites & heritage areas
- **Gateway Values:** The degree of which particular landscapes contribute to the experience of entering Central Otago and impart impressions of its landscape character and values.



<sup>487</sup> Mr S K Brown, evidence-in-chief following para 96 [Environment Court document 4].

<sup>488</sup> Mr S K Brown, evidence-in-chief Table 2 (after para (66)) [Environment Court document 4].

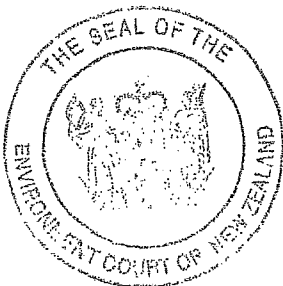
[317] We refer to Mr Brown's detailed analysis shortly. Here we record his conclusion<sup>489</sup>:

As a result, it is my opinion that the subject site displays somewhat less overall landscape value and sensitivity to wind farm development than other high country landscapes, both within its immediate vicinity and closer to both the Otago coast and Alps. Many of those landscapes are indeed truly eminent, conspicuous, outstanding and worthy of protection in perpetuity from my point of view. By contrast, Meridian Energy's Project Hayes' site is rather more recessive – both at the macro and local scales – and displays a range of attributes that make it acceptable as wind farm site.

*Evidence for other parties*

[318] For the Maniototo Environmental Society Ms Steven wrote that<sup>490</sup> “[t]here is no doubt in my mind that the summit landscape on the Lammermoor is an outstanding natural landscape”. She set out in a table<sup>491</sup> her very brief summary of the various witnesses' assessment of the qualities of the landscape. Mr Rough (for Meridian) was aggrieved by that<sup>492</sup> but we consider Ms Steven is not unfair in what she is doing. There is a consistent negative quality about Mr Rough's assessment, which is caused in our view by his isolation of the 'Northern Lammermoor Range' from the Rock and Pillars to the north, and the rest of the Lammermoor Range (and the Lammerlaw Range) to the south and southwest.

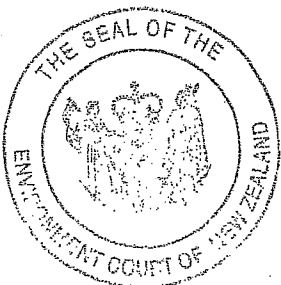
[319] Ms Steven also set out in a further table<sup>493</sup> in her rebuttal evidence her response to Mr Brown's evaluation. We repeat her table here, but referencing the passages in Mr Brown's evidence in her left-hand column:



<sup>489</sup> Mr S K Brown, evidence-in-chief para 114 [Environment Court document 4].  
<sup>490</sup> Ms E A Steven, evidence-in-chief para 19.9 [Environment Court document 9].  
<sup>491</sup> Ms E A Steven, evidence-in-chief Attachment H [Environment Court document 9].  
<sup>492</sup> See Mr P Rough, rebuttal evidence para 3.5 [Environment Court document 3A].  
<sup>493</sup> Ms E A Steven, rebuttal evidence after para 115 [Environment Court document 9A].

Mr Brown's findings:	[Ms Steven's] response:
<p>The Lammermoors have a profile which is less strongly articulated<sup>494</sup></p> <p>Lacks the visual presence, less distinctive visual profile ... less influential as a gateway range</p> <p>A much more remote and<sup>495</sup> visually discreet feature</p>	<p>The range form is very legible with a strongly defined scarp on each side</p> <p>Has a distinctive skyline, "doorstep to Central",</p> <p>In direct view approaching from the east and beckoning; dominant feature at close range enclosing the Styx basin and directly confronting travellers/recreationists coming from the west via Lake Onslow/Deep Creek or Rough Ridge;</p> <p>Is more remote from Maniototo basin but still definitive enclosing rim or 'wall'.</p>
<p>"certainly less than pristine"<sup>496</sup></p> <p>"internally the character of the Lammermoor is also clearly influenced by past farming use across most of its upper slopes, continuing pastoral activity on its margins and the apparently natural but in fact highly modified man induced character of the Logan Burn/Great Moss Swamp plateau<sup>497</sup></p> <p>rough pasture grasses still prevail across much of the Lammermoor landscape<sup>498</sup></p> <p>its rather jumbled terrain lacks the coherence and drama of the likes of the adjoining Rock and Pillar Range<sup>499</sup></p>	<p>The landscape is ecologically modified but ... in fact less so ... than other ranges such as Raggedy (no snow tussock left), North Rough Ridge (little snow tussock left), Rough Ridge (comparable but possibly more patchy).</p> <p>All ranges are affected by pastoral activity but this range has large areas retired from grazing. The landscape still has a significant indigenous component and is not all man-induced (95% of the site has a snow tussock cover; there is a substantial part of the whole range under conservation management for its indigenous qualities, more than anywhere else in Central). The area is thought to have always carried snow tussock.</p> <p>"Rough pasture grass" is a somewhat derogatory term for snow tussock. All larger lakes in Central are man made.</p> <p>The terrain is no more "jumbled" than anywhere else in my opinion, in fact the terrain has lower legibility where there is extensive tor development. Coherence is more related to the continuity of tall tussock cover and absence of intrusive cultural changes such as cultivation – generally coherence is as high here as on other ranges, if not higher. The landscape can be dramatic under certain light conditions.</p>

494 Mr S K Brown, evidence-in-chief para 91 [Environment Court document 4].  
 495 Mr S K Brown, evidence-in-chief para 92 [Environment Court document 4].  
 496 Mr S K Brown, evidence-in-chief para 97 [Environment Court document 4].  
 497 Mr S K Brown, evidence-in-chief para 93 [Environment Court document 4].  
 498 Mr S K Brown, evidence-in-chief para 93 [Environment Court document 4].  
 499 Mr S K Brown, evidence-in-chief para 93 [Environment Court document 4].

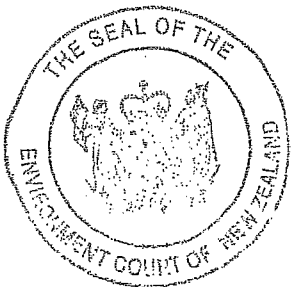


Lacks drama <sup>500</sup> and majesty <sup>501</sup> of the mountain chains	High visual drama not a pre-requisite for high value; its different natural character contributes to total natural landscape diversity.
Does not have the same level of visual drama, definition, containment or interest or memorability as the other ranges <sup>502</sup>	Is well defined and contains Styx basin and Rocklands plateau strongly; also southern rim to the Maniototo; is memorable for its long even skyline, the 'waist' between the two higher ends.
Enjoys a sense of remoteness and relative isolation from the outside world <sup>503</sup>	Agree that it does have a sense of remoteness and isolation but this is a key value rather than an advantage.
that to an appreciable degree enhances its austere even barren aesthetic <sup>504</sup>	Not so austere as the semi-arid rocky areas, in fact the Lammermoor is renowned for its dense tussock and moister environment and extensive wetlands.
Does not have the same proximity to areas of settlement or the Rail Trail and State highways, a degree of physical isolation and visual discreetness <sup>505</sup>	It is true it is more remote from settled places and main highways. It is seen from the Rail Trail between Wedderburn and Ranfurly at a distance as an enclosing range. See note above re isolation.  Very close proximity to important recreation experiences (Old Dunstan Trail; Logan Burn reservoir; Rock and Pillar; Stonehurst and Te Papanui conservation areas)
Is not a focus of view due to expansive nature of landscapes it is part of <sup>506</sup>	True, but wind farm will become a focus of attention because of alien form and movement.
The scale of this landscape with long viewing distances to and across them enhances the potential to visually accommodate and 'swallow up' even quite large scale modification <sup>507</sup>	Applicable to all the ranges; scale is in principle compatible; but other wind farm attributes are not such as unnatural character and alien form and breakdown of isolation
Historic heritage is not exceptional compared to other parts of Central <sup>508</sup>	Is just as important as anywhere else, although I note very high heritage ratings have been given to more modified settings such as St Bathans and Lake Roxburgh.

On the whole we find Ms Steven's evidence considerably more accurate where the witnesses disagree.

[320] Mr Espie has the advantage that he considered what we have found to be the correct landscape – his Rock and Pillar/Lammermoor/Lammerlaw Ranges landscape which we have called the Eastern Central Otago Upland Landscape. He consistently

500 Mr S K Brown, evidence-in-chief para 93 [Environment Court document 4].  
501 Mr S K Brown, evidence-in-chief para 73 [Environment Court document 4].  
502 Mr S K Brown, evidence-in-chief para 97 [Environment Court document 4].  
503 Mr S K Brown, evidence-in-chief paragraphs 93 and 97 [Environment Court document 4].  
504 Mr S K Brown, evidence-in-chief para 93 [Environment Court document 4].  
505 Mr S K Brown, evidence-in-chief para 98 [Environment Court document 4].  
506 Mr S K Brown, evidence-in-chief para 99 [Environment Court document 4].  
507 Mr S K Brown, evidence-in-chief para 93 [Environment Court document 4].  
508 Mr S K Brown, evidence-in-chief para 95 [Environment Court document 4].



described this as an outstanding natural landscape. We have already quoted his first conclusion<sup>509</sup>. In his second report<sup>510</sup> he succinctly ran through the *Pigeon Bay* factors, then referred to the fact that part of the relevant landscape<sup>511</sup> is in Dunedin City and has been described as outstanding, and concluded that<sup>512</sup>:

The slabs of Peneplain mountains that make up the Lammerlaws, Lammermoors and the Rock and Pillar Range are inseparable, are one landscape and are both outstanding and natural when assessed as a whole.

He confirmed in his evidence that the two reports represented his professional opinion<sup>513</sup>. We accept his opinion above the other experts in these proceedings.

#### 4.5.5 The views of the local authority's commissioners

[321] The local authority commissioners were split over whether the site is, or is in, an Outstanding Natural Landscape ('ONL'). The majority view (with the Chairman, Mr Matthews dissenting) was that<sup>514</sup>:

... although the landscape is significant it is not outstanding in its qualities. It is the view of the four Commissioners holding this majority view that if this landscape were classified as outstanding then all the block folded mountains of Central Otago would be similarly classified.

The Commissioners heard a different suite of landscape architects than us – although Mr Brown, Mr Rough, and Mr Espie were common to both hearings. The reasons for their views were first that they preferred the evidence of Mr Brown and Mr Rough; and secondly<sup>515</sup>:

Commissioners in the majority view arrived at the conclusion that the Project site is not an outstanding natural feature or part of a natural outstanding landscape and that the general landscape and environmental values of the Project site are considerably less than those found on the Rock and Pillar Range, in Te Papanui Conservation Park and on Rough Ridge. Put

<sup>509</sup> Mr B Espie, Exhibit BE1 para 4.12 [Environment Court document 21] – quoted in section 4.3.2 above.

<sup>510</sup> Mr B Espie, Exhibit BE2 [Environment Court document 21].

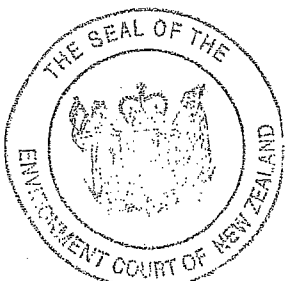
<sup>511</sup> Mr B Espie, Exhibit BE2 para 2.15 [Environment Court document 21].

<sup>512</sup> Mr B Espie, Exhibit BE2 para 2.15 [Environment Court document 21].

<sup>513</sup> Mr B Espie, evidence-in-chief para 5.1 [Environment Court document 21].

<sup>514</sup> Commissioners' decision (undated) p. 109.

<sup>515</sup> Commissioners' decision (undated) pp 110-111.





differently, the Commissioners ascribing to this view, accept that the Project site is not outstanding when viewed in the Central Otago context; rather this landscape type is common place in that context. To be outstanding in the Central Otago context, the Lammermoor Range or the Project site needs to have special qualities that lift it above the norm for the District. None of the evidence in these Commissioners['] view revealed such particular qualities of the site when compared to the similar block mountain ranges that comprise much of the remainder of the district.

We are uneasy with their conclusions. First we do not prefer the ultimate opinions of Mr Rough and Mr Brown for reasons we have endeavoured to explain.

[322] Secondly, while the Commissioners compared the site with 'similar block ranges' in the district, we consider that ignores these differences:

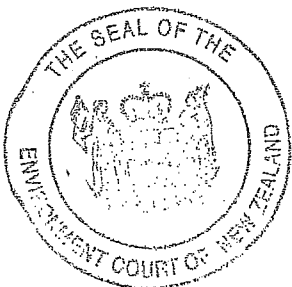
- (a) while many of the 'block ranges' of Otago are isolated and may be considered as separate landscapes, the Eastern Central Otago Upland Landscape is a much larger continuous area – more a crumpled tablecloth on a table than a block;
- (b) as Dr Mabin's map shows, there is only one other landscape in Central Otago that is similar and that is the Old Man/Old Woman Ranges complex (which is higher but smaller in area);
- (c) there are rainfall and, very importantly, vegetation differences between this area and land further west of Pinelheugh (as pointed out by Ms Steven).

[323] The approach taken by the Hearing Commissioners is supported by a submission from Mr Rennie QC in his closing<sup>516</sup> where he referred to a statement in *Wakatipu Environmental Society Incorporated v Queenstown Lakes District Council*<sup>517</sup> ("the first Queenstown landscape case"). The Court observed<sup>518</sup>:

<sup>516</sup> Meridian's closing submissions para 147 [Environment Court document 93].

<sup>517</sup> *Wakatipu Environmental Society Incorporated v Queenstown Lakes District Council* [2000] NZRMA 59.

<sup>518</sup> *Wakatipu Environmental Society Incorporated v Queenstown Lakes District Council* [2000] NZRMA 59 at para [85].



... what is outstanding can in our view only be assessed – in relation to a district plan – on a district-wide basis because the sum of the district’s landscapes are the only immediate comparison that the territorial authority has.

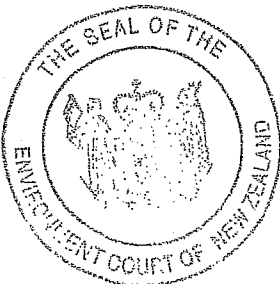
That passage was recently adopted by the Environment Court in *Unison Networks Limited v Hastings District Council*<sup>519</sup> (“*Unison Two*”). We disagree for several reasons. First, too much emphasis can be given to the statement in the first Queenstown landscape case. For example, the very next sentence in that decision states<sup>520</sup>:

In the end of course, this is an ill-defined restriction, since our “mental” view of landscapes is conditioned by our memories of other real and imaginary landscapes in the district and elsewhere, and by pictures and photographs and verbal descriptions of them and other landscapes.

Secondly, an extension to that approach has to be made if regional considerations are relevant as *Unison Two* recognised. Thirdly, while the local authority may be confined to its knowledge of its district, the Environment Court need no longer be since, in the intervening 11 years since the first Queenstown landscape case was decided, it has built up its knowledge of New Zealand’s landscapes.

[324] When considering the significance of the relevant landscape each side has criticised the other’s witnesses for not giving sufficient weight to the relevant differences between the Meridian landscape setting and other landscapes. For example, Meridian’s counsel submitted<sup>521</sup> that Ms Steven and Mr Espie had:

- (a) down-played the differences between the Meridian site and both the Rock and Pillar Range and the part of the Lammermoor Range within Te Papanui Conservation Park; and
- (b) failed to recognise that<sup>522</sup> “most or all of the block faulted ranges in Central Otago have similar or better qualities”.



<sup>519</sup> *Unison Networks Limited v Hastings District Council* W11/2009 at [85].

<sup>520</sup> The First Queenstown landscape case [2000] NZRMA 59 at [85].

<sup>521</sup> Mr H Rennie QC, closing submissions at [168] [Environment Court document 93].

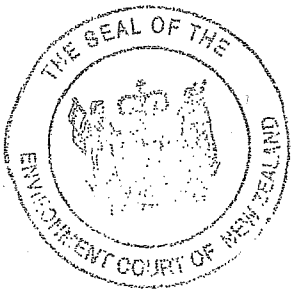
<sup>522</sup> Mr H Rennie QC, closing submissions at para [168] [Environment Court document 93].

The arguments for the (other) appellants were the mirror image of those. Who is closer to being correct?

[325] While we accept all the signs of human involvement on the Meridian site and surrounding area described by Meridian's witnesses, we have found them to be overstated. From almost anywhere around the site there is a feeling of a continuous tussock dominated landscape. The Lammermoor is, objectively examined, a remarkable natural area within a larger homogenous area generally of higher quality. So we consider that Meridian's witnesses and counsel have exaggerated the relatively small-scale differences.

[326] We judge that Meridian has wrongly assessed the landscape in itself and compared with other parts of Central Otago and the region. We agree immediately that the Eastern Central Otago Upland Landscape has lesser qualities than the plateau centred on the Old Woman Range. However, the comparison consistently made between the Meridian site's landscape, as identified most clearly by Mr Brown, and the other "better" block mountains he identifies within Central Otago is a serious oversimplification:

- (1) to reduce the Lammermoor's environs to being simply a block faulted range ignores its clearly legible origins as part of the Waipounamu erosion surface with the Lammermoor and Lammerlaw Ranges. The views from near McPhees Rock<sup>523</sup> clearly show that;
- (2) the Eastern Central Otago Upland Landscape as a whole is a plateau not simply a block-faulted mountain. At best it could be described as two block-faulted mountain ranges at right angles, hinged around Lammermoor trig (1160 masl) but even that understates the sense of an upland plateau gained from many parts of the landscape. So we consider the Eastern Central Otago Upland Landscape is not the same as the other long, thinner, rounded ranges of Central Otago;
- (3) the vegetation on the Meridian site is, despite its poorer quality, still dominated by tussock and it is:



<sup>523</sup> Mr Rough's photopoint 120.

- (a) very similar to the rest of the Lammermoor within Dunedin City, and that of the slopes above 900 metres around the Rock and Pillar summit (which has a smaller area of different vegetation) and to the Lammermoor Range and Lammerlaw Range;
- (b) increasingly different from the dryland vegetation of Rough Ridge and the (lower) ridges further west towards Alexandra and the Manuherikia River which contains more and larger weeds;
- (4) the Eastern Central Otago Upland Landscape is almost tree-less;
- (5) while the Meridian site is lower than the Rock and Pillar Range on the southern Lammermoor Range it is a little higher than the Lammermoor within Dunedin City and considerably higher than land to the east and west of its scarps.

[327] We conclude that the witnesses of Meridian's opponents described the site's landscape and its qualities and relative differences more accurately and objectively than Meridian's own witnesses did. They concentrated on the large and important differences, not on the "finer distinctions" referred to by Mr Rennie and the witnesses called by Meridian.

#### 4.5.6 Having regard to the Otago RPS

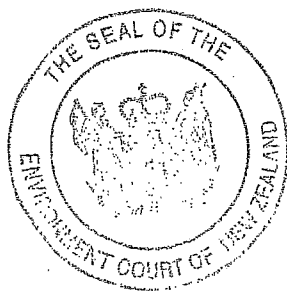
[328] We must have regard to<sup>524</sup> any relevant provisions of<sup>525</sup> the Otago RPS. We identified earlier<sup>526</sup> the objective in that plan and the implementing policy which requires protection of those of Otago's outstanding natural landscapes which also<sup>527</sup> (relevantly) are unique to, or characteristic of the region, or representative of a particular land form or land cover or of the collective characteristics which give Otago its particular character, or represent areas of cultural or historic significance. We find that the Eastern Central Otago Upland Landscape is unique to the region as well as characteristic of it. It is also representative of the tor-less upland landform covered in (mainly) native tussocks, and it represents an area of both cultural and historic significance. When the Court asked Meridian's witness Mr Brown whether he knew of similar landscapes in New Zealand he referred to the Mackenzie Basin and the Volcanic

<sup>524</sup> Section 104(1) of the RMA.

<sup>525</sup> Section 104(1)(b)(iii) of the RMA.

<sup>526</sup> In Chapter 3.0 of this decision.

<sup>527</sup> Policy 5.5.6 [Otago RPS p. 56].



Plateau. In the Court's experience those landscapes are completely different. They are at different (lower) altitudes. They have different land forms (the Mackenzie Basin is at the bottom of its landscape, and the Volcanic Plateau is dominated by the volcanoes which formed it). They contain many more introduced plants, especially conifers: the Mackenzie Basin is lined with windbreaks and contains some plantations; the Volcanic Plateau's shrubland contains greater areas of introduced heather; and there are *Pinus contorta* wildings and plantations of other species.

#### 4.5.7 Conclusions

[329] There are a number of landscapes and landscape types<sup>528</sup> in Central Otago. Some of the most famous Central Otago landscapes are the views portrayed in many of Grahame Sydney's paintings – flat lowlands (with or without railway shed or farm building) in the foregrounds and softer mysterious round hills in low sun in the background. These paintings show the 'range and basin' landscape described by the landscape architects<sup>529</sup> although it needs to be borne in mind that 'range' is used as much in the meaning of that word in the 'Home on the Range'. That is, it means<sup>530</sup>:

- (a) a large area of open land used for grazing or hunting;
- (b) a tract over which one wanders,

– as more or more than the usual New Zealand sense of<sup>531</sup>:

'a a row, series, line, or tier, esp of mountains or buildings (*Ruahine Range*). **b** (esp. as **the ranges**) *NZ & Aust.* mountainous or hilly country not necessarily forming a single divide.

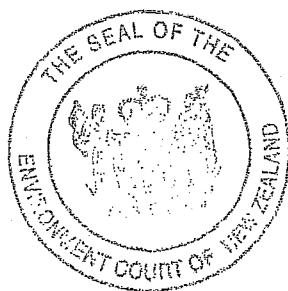
In many ways the block-faulted mountains of Central Otago fit within both those sets of meanings of 'range', but those to the east are more within the first set.

<sup>528</sup> Ms E A Steven, evidence-in-chief paragraphs 8.1 to 8.15 [Environment Court document 9] and the concept of 'landscape type' is discussed (in rather different terms) by Mr S K Brown, evidence-in-chief paragraphs 40-42 [Environment Court document 4].

<sup>529</sup> Ms E A Steven, evidence-in-chief para 8.5 [Environment Court document 9].

<sup>530</sup> The New Zealand Oxford Dictionary p. 930 'range', meanings 11a and b.

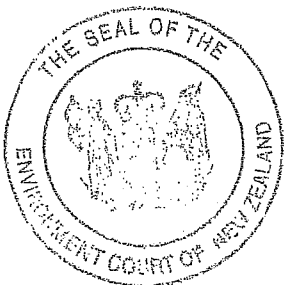
<sup>531</sup> The New Zealand Oxford Dictionary p. 930 'range' meaning 4.



The basin and range landscapes contain natural features such as Blackstone Hill and the North Rough Ridge which may or may not be outstanding. There is a separate landscape on the modified tor and fretted landscape between Alexandra and the Greenland and Manorburn Reservoirs that is different in many ways to almost all other landscapes within the district – it is drier, weedier, rockier, more treed (albeit mainly with exotic conifers) than most of the other upland landscapes. There also appears to be a working landscape in the Maniototo and vineyard landscapes around Alexandra and Cromwell. There are clearly separate upland landscapes west of the Clutha River.

[330] In this case we are concerned with the Eastern Central Otago Upland Landscape as we have defined it. After long and careful thought we prefer the evidence of Mr Espie (supported to a considerable extent by Ms Steven’s evidence on landscape type) and find that the Eastern Central Otago Upland Landscape is an outstanding natural landscape within the meaning of section 6(b) of the RMA. Our reasons for that conclusion are as follows:

- (1) the landscape is a separate whole with its own landform (tor-less uplands); it is covered by grassland dominated by the native narrow-leaved snow tussock<sup>532</sup>; it is an upland peneplain which falls away on all sides except to the tor-studded ridges to the west and north; and it contains its own suite of native birds and insects;
- (2) the landscape is also close to the natural end of the continuum from natural to urbanised. Despite the fact that it has been affected by human activity, Meridian accepted<sup>533</sup> that “the area has a high degree of naturalness”;
- (3) the landscape is legible in the sense that its peneplain looks like part of a Waipounamu Erosion Surface;
- (4) the landscape has important transient values – it has two seasons – one with snow and one without; and pairs of charismatic New Zealand falcon live in the landscape for much of the year. Other transient values include the sunrises and sunsets over the tussock landscape and low light conditions which create dramatic shadowing effects in the folds of the

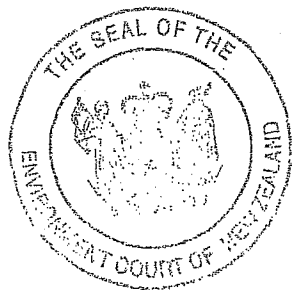


<sup>532</sup> *Chionochloa rigida*.

<sup>533</sup> Meridian, closing submissions para 164 [Environment Court document 93].

land. Those and cloud phenomena such as the 'Taieri Pet'<sup>534</sup> we regard as of very minor but not negligible importance;

- (5) the values we have described are largely shared and recognised, although there is some sense of a 'farmers versus the rest' divide. For example, those of the farmers or trustees who own the land comprising the Meridian site and gave evidence – Mr Elliott<sup>535</sup> and Mr Harrington<sup>536</sup> – strongly emphasised the modified nature of their farms (Lammermoor and Rocklands Station respectively). The Hearings Commissioners too regarded the Meridian site as a 'working farm landscape'. On the other hand the members of the appellant MES, supported by the Central Otago Recreational Users Forum ("CORUF"), represent what we find is a large group in the Central Otago and wider communities who share the values described by Mr Sydney, Mr Turner and Ms Kelly;
- (6) the historical associations of the landscape are important. Prehistoric evidence is limited but suggests stone working and hunting activities. The common link is the Old Dunstan Trail which has both European and Maori sites associated with it. Other relevant archaeological sites include Spillers Track and the gold mining and pastoral sites;
- (7) it meets two of the special criteria in the Otago RPS: it is a type of landscape which is unique to and characteristic of the region, and it is also an area of historic significance mainly through the presence of the Old Dunstan Road;
- (8) the landscape includes the entire headwaters of the Taieri River as another unifying theme;
- (9) finally, and very importantly it is, by New Zealand standards, a large landscape as Mr Espie and Ms Steven (of the type) observed. While New Zealand has millions of hectares of 'high country' not much of it is (relatively) flat. There are extensive areas of plain, e.g. the Canterbury Plains, but they are usually lower and have been substantially modified by ploughing. The landscape is very unusual for its large size, openness, long natural skylines, relative flatness, the expansive homogenous vegetation

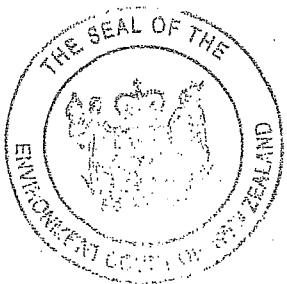


<sup>534</sup> Ms E A Steven, evidence-in-chief Second Attachment [Environment Court document 9].

<sup>535</sup> Mr R J S Elliot, evidence-in-chief [Environment Court document 54].

<sup>536</sup> Mr W O Harrington, evidence-in-chief [Environment Court document 51].

cover dominated by tussocks, and for the fact that it is at the top rather than at the foot of mountains.





## 5.0 The possible effects : qualitative analysis

### 5.1 Introduction

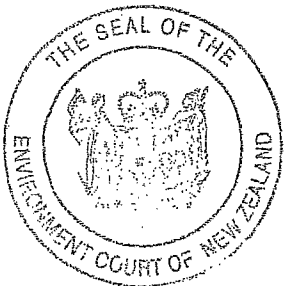
[331] We now turn to our predictions as to the potential effects of the proposed wind farm. We use ‘prediction’ to mean our collective degree of belief about the relative degree of certainty or uncertainty about each of the alleged possible effects. We try to express our degree of uncertainty in probabilistic terms: see the list in the Schedule attached to *Clifford Bay Marine Farms Limited v Marlborough District Council*<sup>537</sup>.

[332] One column of that list includes the scale of probability terms used by the International Panel on Climate Change (“the IPCC”). These were criticised by Professor Carter, a witness called by the appellant Mr Sullivan, who wrote<sup>538</sup>:

The IPCC has adopted a qualitative scale of probability terms (which are deployed by Dr Wratt throughout his statement) that has no rigorous basis. IPCC terms such as “likely (>66% probable)” and “very likely (>90% probable)” have no actual statistical meaning, but instead represent only considered opinions. This is because the IPCC provides no empirical evidence that events predicted to have a >66% probability have indeed occurred at least two times out of three in the past.

The use of such terminology is highly misleading, and represents sociology not science.

We cannot comment on whether the IPCC’s approach is sociology or science, although we are concerned that Professor Carter is using a very limited and high-minded definition of science. If we say that the probability of a true die rolling a 1, 2, 4 or 5 on one throw is 66%, is that statistically meaningless? In any event our approach to predictions about possible future events is the legal one required under the RMA: we express Bayesian probabilities rationally based on the evidence presented – see *Long Bay-Okura Great Park Society Incorporated et ors v North Shore City Council*<sup>539</sup> and the authorities referred to there. Courts do not have the luxury of time in which to find statistically meaningful results approaching the ideal of near-certainty and confirming (or not) a null hypothesis. We generally have to decide the cases given to us within a short period on the evidence, however incomplete, presented by the parties.



<sup>537</sup>

*Clifford Bay Marine Farms Limited v Marlborough District Council* Decision C131/2003.

<sup>538</sup>

Professor R M Carter, evidence-in-chief para 7.1.12 [Environment Court document 24].

<sup>539</sup>

Decision A78/2008 at para [302] *et ff.*

[333] We will assess the ‘actual and potential effects of the activity on the environment’<sup>540</sup> both qualitatively in this chapter and, as far as the evidence will allow, quantitatively in the next. At all points where possible avoidance, remediation or mitigating of potential adverse effects was discussed in the evidence we consider that too, particularly in relation to the form of adaptive management proposed in Meridian’s Construction Environmental Management Plan (“CEMP”) and supplementary plans under it.

## 5.2 Positive effects

### 5.2.1 Meeting the demand for more electricity

[334] In his evidence-in-chief, Mr Waipara informed us of the ongoing need for new electricity generation, both nationally and regionally, to meet the growth in electricity demand<sup>541</sup>. He stated that national electricity demand was expected to grow by 500–700 GWh per annum on average<sup>542</sup>. He stated that South Island demand growth had exceeded supply growth over a number of years<sup>543</sup> and that there was a ‘clear need’<sup>544</sup> for new South Island generation to increase security of supply and to place downward pressure on electricity prices. He drew support for his view from the joint statement of transmission experts, when they agreed that<sup>545</sup>:

Additional energy in GWh in the Otago-Southland region from wind generation will improve the regional energy demand balance. The same applies to the South Island as a whole.

However, we note that Mr Waipara’s comments were made in the context of a discussion on the constraints<sup>546</sup> of moving energy into and out of the Lower South Island (‘LSI’) and the South Island generally, and the likelihood of the possible upgrades to lessen or remove those constraints. He provided no quantification of the value of the social benefit that would result if a wind farm is built on the Lammermoor.

<sup>540</sup> Section 104(1)(a) of the RMA.

<sup>541</sup> Mr G M T P Waipara, evidence-in-chief pp 7-9 [Environment Court document 25].

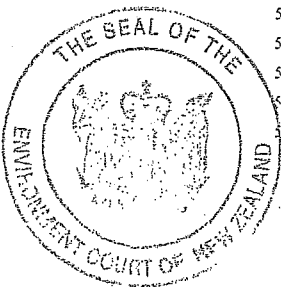
<sup>542</sup> Mr G M T P Waipara, evidence-in-chief para 32 [Environment Court document 25].

<sup>543</sup> Mr G M T P Waipara, evidence-in-chief para 34 [Environment Court document 25].

<sup>544</sup> Mr G M T P Waipara, evidence-in-chief para 37 [Environment Court document 25].

<sup>545</sup> Mr G M T P Waipara, evidence-in-chief para 43 [Environment Court document 25].

<sup>546</sup> The constraints are identified and discussed earlier in Chapter 2.0 of this decision.



### 5.2.2 Placing downward pressure on electricity prices

[335] Mr Muldoon appeared to consider the benefits of renewable generation as self-evident and Meridian's commitment to renewable generation in general, and wind generation in particular, as a logical consequence of these benefits<sup>547</sup>.

[336] Mr Muldoon described the benefits of wind generation to Meridian as including that it is the most "environmentally benign" of the economic generation alternatives<sup>548</sup>, it complements Meridian's hydro portfolio<sup>549</sup>, and it aligns with government policy settings<sup>550</sup>. Mr Muldoon stated that "...wind has very substantial environmental and socio-economic benefits" and that the costs are "...essentially a subjective response to the visual and landscape effects"<sup>551</sup>. In his rebuttal Mr Muldoon claimed that the Lammermoor wind farm will deliver 'major benefits' to South Island consumers and the electricity market as a whole in "improving security of supply and placing downward pressure on electricity prices"<sup>552</sup>. In response to questions from the Court Mr Muldoon clarified that this does not mean the Lammermoor wind farm would cause or contribute to a decrease in electricity prices but it will "hold the price"<sup>553</sup>. We discuss this further in the next chapter.

### 5.2.3 Reducing carbon emissions

[337] Mr Muldoon put the CO<sub>2</sub> emissions avoided, if the Lammermoor wind farm was built, at 1.280 million tonnes per annum<sup>554</sup>. Dr Denne explained that the economic benefit to New Zealand in terms of reduced carbon emissions flows directly from New Zealand's ratification of the Kyoto Protocol<sup>555</sup> and the intention to meet the commitments under the Protocol<sup>556</sup>. It is clear from this that the economic benefit has been severed from the debates about the environmental effects that may flow from the Kyoto Protocol, or indeed from the debates surrounding climate change generally. This was confirmed by Dr Denne in cross-examination when he stated that emissions trading

<sup>547</sup> Mr A J Muldoon, evidence-in-chief pp 4-7 [Environment Court document 26].

<sup>548</sup> Mr A J Muldoon, evidence-in-chief para 10.8(c) [Environment Court document 26].

<sup>549</sup> Mr A J Muldoon, evidence-in-chief para 10.8(d) [Environment Court document 26].

<sup>550</sup> Mr A J Muldoon, evidence-in-chief para 10.8(f) [Environment Court document 26].

<sup>551</sup> Mr A J Muldoon, evidence-in-chief para 10.10 [Environment Court document 26].

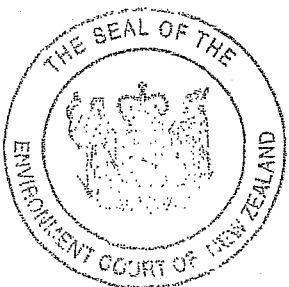
<sup>552</sup> Mr A J Muldoon, rebuttal evidence para 1.37 [Environment Court document 26A].

<sup>553</sup> Transcript p. 962.

<sup>554</sup> Mr A J Muldoon, evidence-in-chief para 10.13 [Environment Court document 26].

<sup>555</sup> Dr T Denne, evidence-in-chief para 14 [Environment Court document 29].

<sup>556</sup> Dr T Denne, evidence-in-chief para 19 [Environment Court document 29].



has “turned an environmental objective into an economic objective”<sup>557</sup>. The Court put to Dr Denne<sup>558</sup> that the economic benefits of an emissions trading scheme flow from the Kyoto agreements and trading in Kyoto units. Dr Denne agreed and stated:

... the fact that New Zealand has signed up to Kyoto and intends to meet its commitments, means that there are economic benefits in New Zealand from a reduction in emissions here.

We understand the effect of the Kyoto Protocol to be that New Zealand gains economically while the environmental benefit is global, and that the benefits to New Zealand flow from our commitment to the Kyoto Protocol, independent of any emissions trading scheme.

[338] Under the Protocol, New Zealand has an allocation of allowed carbon emissions (309.5 million Kyoto units) for the period 2008 - 2012<sup>559</sup>. To the extent that New Zealand has a higher level of carbon emissions the country is required to purchase Kyoto units from other countries. Any reduction in emissions either reduces the number of Kyoto units that have to be purchased or creates a surplus of Kyoto units, which can then be sold. Kyoto units trade at a price and this price sets the value of any reduction in carbon emissions<sup>560</sup>. Dr Denne informed us that the Kyoto commitments are to be internalised through the mechanism of the Emissions Trading System (ETS) set up by the Climate Change (Emissions Trading and Renewable Preference) Bill<sup>561</sup>. This establishes New Zealand Units equivalent to Kyoto units, which will be traded at the same price as Kyoto units<sup>562</sup>. Electricity generation using carbon-emitting fuels and technology will incur the cost of the New Zealand units required to account for their emissions. Non-emitting generation will not. Carbon-emitting generators are expected to pass on the cost of the required units in their offer prices, causing an increase in the wholesale electricity price and increased profitability to non-emitting generators<sup>563</sup>. We discuss Dr Denne’s quantification of these factors in the next chapter.

<sup>557</sup> Transcript p. 1206.

<sup>558</sup> Transcript, p. 1210.

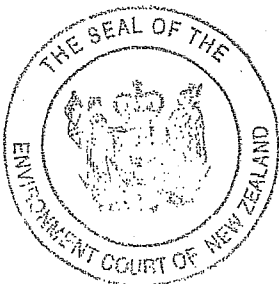
<sup>559</sup> Dr T Denne, evidence-in-chief para 15 [Environment Court document 29].

<sup>560</sup> Dr T Denne, evidence-in-chief para 19 [Environment Court document 29].

<sup>561</sup> Dr T Denne, evidence-in-chief para 26 [Environment Court document 29].

<sup>562</sup> Dr T Denne, evidence-in-chief para 28 [Environment Court document 29].

<sup>563</sup> Dr T Denne, evidence-in-chief para 30-31 [Environment Court document 29].



#### 5.2.4 Complementarity of wind to hydro

[339] Several witnesses proposed that generation by the Lammermoor wind farm would allow synergies between wind and hydro generation to be obtained. Mr Waipara stated<sup>564</sup>:

...hydro generation...is an ideal compli[e]ment to wind generation. In simple terms, hydro generation can be utilised to firm wind by increasing electricity generation at times when the wind doesn't blow. Moreover, hydro generation can also be reduced at times when wind generation is operating at high output levels. It is this ability of hydro generation to flexibly moderate its output across a day in response to wind generation variations that makes the two technologies an ideal compli[e]ment to one another.

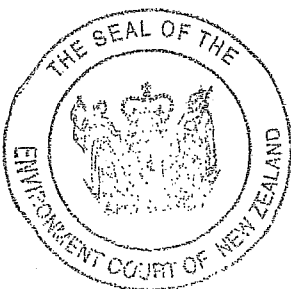
He restated this in his rebuttal evidence in the context of a discussion on the costs of wind integration<sup>565</sup>, then went on to state that "...the New Zealand system has an abundance of hydro capacity that can be employed over short time horizons to manage or balance the output of a wind farm". Mr Muldoon endorsed this when outlining Meridian's reasons for developing significant wind generation capacity, although he restricted his assessment of the benefits of wind-hydro complementarity to within the Meridian generation portfolio<sup>566</sup>. He went further in his rebuttal evidence when he stated<sup>567</sup>:

Meridian[']s strategy is to unlock the flexibility of the hydro system with storage to meet the short term peak demand – a role which hydro is extremely good at fulfilling. ... The combination of the Waitaki system with Hayes (the short term flexibility of hydro and the long term predictability of wind) makes the overall system work.

[340] The witnesses for the Crown reiterated the same theme. Mr Gurnsey in the context of the dry year risk stated<sup>568</sup>:

One of the considerable advantages of electricity generated by wind is that it can help complement hydro-generation. Typically there is still wind available in dry years or expected periods of low rainfall, enabling water to be conserved.

<sup>564</sup> Mr G M T P Waipara, evidence-in-chief Appendix A, para 98 [Environment Court document 25].  
<sup>565</sup> Mr G M T P Waipara, rebuttal evidence paragraphs 19-25 [Environment Court document 25A].  
<sup>566</sup> Mr A J Muldoon, evidence-in-chief para 10.8(d) [Environment Court document 26].  
<sup>567</sup> Mr A J Muldoon, rebuttal evidence para 1.26 [Environment Court document 26A].  
<sup>568</sup> Mr P F Gurnsey, evidence-in-chief Attachment One, page 4 [Environment Court document 39].



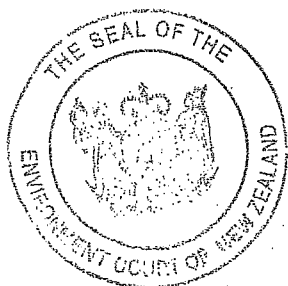
Mr Calman stated<sup>569</sup>:

Wind energy can complement hydro-generation and reduce the impact of dry years. Even if there is little rain, there is usually still wind, allowing water in hydro lakes to be conserved. . . . Hayes, with its proximity to the Waitaki hydro system, would be in a good position to enable smooth integration with hydro and would help to ensure continued electricity supply during dry periods.<sup>570</sup> . . . Hydro generators can respond quickly to changes in generation requirements, in the event that there is not enough electricity being generated, and can store water when the wind is blowing for later use.

[341] Mr Boyle stated that wind and hydro generation are complementary: “when the wind is blowing, hydro generation can be reduced, water conserved and wind spill reduced”<sup>571</sup>. From this we gather that the benefit of the complementarity works in favour of wind generation, allowing the maximum output of a wind farm to be achieved. It suggests that there is a benefit external to the wind farm in terms of the potential for hydro generators to conserve water for later use. Mr Calman reiterated this view when he said that<sup>572</sup> “[e]ven if there is little rain, there is usually still wind, allowing water in hydro lakes to be conserved”. Mr Boyle wrote that taking advantage of this complementarity makes commercial sense when one generator has both hydro and wind generation facilities. He noted that, although this was still possible through the market operations when there were different owners of the different generation types, transaction costs may prevent it<sup>573</sup>.

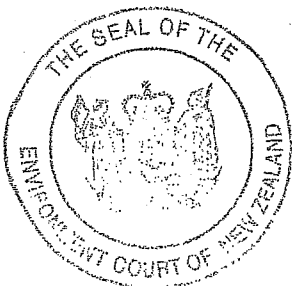
[342] However, we agree with Mr Leyland<sup>574</sup> that the utility of wind power being complementary to hydro power is reduced by the seasonal distributions of the wind resource and of hydro lake inflows or lake levels. We acknowledge that for complementarity to be effective there must be hydro storage available when the wind blows and water available for generation when it does not. The situation will vary from year to year.

<sup>569</sup> Mr S D C Calman, evidence-in-chief para 32 [Environment Court document 40].  
<sup>570</sup> Mr S D C Calman, evidence-in-chief para 29 [Environment Court document 40].  
<sup>571</sup> Mr T A George, evidence-in-chief para 83 [Environment Court document 37A].  
<sup>572</sup> Mr S D C Calman, evidence-in-chief para 29 [Environment Court document 40].  
<sup>573</sup> Mr T A George, evidence-in-chief para 84 [Environment Court document 37A].  
<sup>574</sup> Mr B W Leyland, evidence-in-chief para 42 [Environment Court document 80].



[343] Complementarity of wind and hydro generation was discussed by Professor Strbac in his evidence-in-chief and reflected his wind integration study for Meridian<sup>575</sup>. That study considered scenarios based on measured wind and water flows for 2005. This was the year with the lowest average wind speed for the period 1995 to 2006 and was also a dry year. Generally complementarity would thus be expected to be low for the scenarios. One of the scenarios, termed the Southland scenario, tested the impact of installing significant quantities of wind generation in the lower South Island. Results of the study showed that capacity-related additional costs were modest for up to 8% more penetration by wind. Professor Strbac ascribes this to the large amount of hydro generation in the South Island and its ability to deal with the inherent variability of wind generation. Professor Strbac made the further point<sup>576</sup> that while the amount of hydro generation greatly exceeds the amount of wind generation it is only at peak times that complementarity between wind and hydro becomes an issue with respect to system reliability. These times occur only for a few hours each day. We find that complementarity while present is very likely to be only a minor positive benefit of a wind hydro system to be put in the scales when weighting the costs and benefits.

[344] There are two important conclusions to be drawn from Professor Strbac's evidence which did not seem to be fully understood by the appellant Mr Sullivan or his witnesses. First that windpower does not solve the problems posed by a shortage of energy at peak times in the winters of dry years. We think Mr Sullivan agreed with that. Despite that, the second conclusion – supported by Professor Strbac's report – is that for up to 20% penetration by wind of the energy supply market, windpower significantly reduces the risk of system failure at those critical times. The reason for the first conclusion is of course that the wind may not be blowing at peak times in dry winters; the reason for the second is that the wind may be blowing somewhere within a wind farm or on a different wind farm.



<sup>575</sup> Submitted with Mr G M T P Waipara's rebuttal evidence [Environment Court document 25A].

<sup>576</sup> Professor G Strbac, evidence-in-chief paragraphs 5.21 and 5.24 [Environment Court document 48].

### 5.2.5 Employment

[345] The project may take five years to construct and commission<sup>577</sup>. At any one time there could be 150 construction workers<sup>578</sup> on site over that period. The majority of that workforce is likely to come from Otago and Southland with ‘... specialized support’ from New Zealand and overseas<sup>579</sup>.

### 5.2.6 Tourism attraction

[346] Meridian’s recreation expert Mr R J Greenaway stated that the wind farm is “... highly unlikely to have any effect – positive or negative – on recreation or tourism use of any area ... away from the Lammermoor ...”<sup>580</sup>. As for visitors to the Lammermoor itself he wrote that<sup>581</sup>:

This means, the proposed wind farm as a tourism product is likely to respond to how it is promoted. If the development is treated as an opportunity and promoted as a sustainable form of land-use and an attraction, it will be one; albeit not a major destination as result of its access issues. If it is described as a negative in tourism literature, tourist perception will likely respond accordingly.

For example, Mr Greenaway regarded the proximity (60 metres) of the nearest turbine to the Old Dunstan Road just above the descent to Paerau as beneficial because it will “reduce the need for visitors to traverse tussock land and/or private land to gain a close view, ... and it is almost certain that many visitors will seek this experience”<sup>582</sup>.

[347] There is no doubt in our minds that the proposed turbines would have a simple, elegant sculptural quality, and that the scale of the proposed project would, upon completion, make a very impressive sight. Some people would find pleasure both in viewing the farm in itself and, as Ms Steven wrote, for “what it symbolises in terms of progress, technical success and use of renewable energy”<sup>583</sup>.

<sup>577</sup> Mr P A Wilson, Project Manager for Meridian, evidence-in-chief para 3.1 [Environment Court document 57].

<sup>578</sup> Mr P A Wilson, evidence-in-chief para 3.1 [Environment Court document 57].

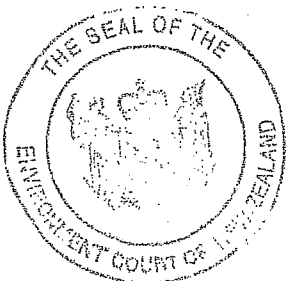
<sup>579</sup> Mr P A Wilson, evidence-in-chief para 3.5 [Environment Court document 57].

<sup>580</sup> Mr R J Greenaway, evidence-in-chief para 4.41 [Environment Court document 59].

<sup>581</sup> Mr R J Greenaway, evidence-in-chief para 4.40 [Environment Court document 59].

<sup>582</sup> Mr R J Greenaway, evidence-in-chief para 5.2 [Environment Court document 59].

<sup>583</sup> Ms E A Steven, evidence-in-chief para 27.15 [Environment Court document 9].





[348] In Mr Greenaway's opinion<sup>584</sup>, except for temporary displacements during construction, the wind farm "will not affect the ability to carry out any of the existing recreational activities" on the Lammerlaw, Lammermoor or the Rock and Pillar Ranges, and recreational effects are limited to visual amenity effects. The visual amenity effects "will cause a shift in the characteristics of the recreational setting ... (and) will modify the level of supply of particular types of recreation settings in Otago"<sup>585</sup>. Although relying on Mr Rough's assessment of the visual amenity impact on the area as "substantial", Mr Greenaway was not convinced<sup>586</sup> that this would result in "notably reduced use" by those seeking a rural or back country experience. He considered angling likely to be the least affected activity as the productivity of the fishing would not be altered. He acknowledged that some displacement to other high country destinations was likely for those seeking a relatively remote experience, and that this would incur additional travel input. He suggested the Poolburn Reservoir, Lake Onslow, the Old Man Range and the Garvie Mountains as likely alternatives. He considered Otago has a "high level of recreation setting substitutability" and that the effect on regional recreation will be low. However, he also acknowledged in cross-examination<sup>587</sup> that the Garvie Mountain alternative he suggested is "a longer drive ... two to three times (longer)" than the Lammermoor for people coming from Dunedin.

[349] We agree with Mr Greenaway that all the many recreational activities that are currently exercised on the Lammermoor (with the possible exception of hang-gliding) will be able to be undertaken under, round, between or in sight of the wind farm. However, we have three difficulties with his general approach. First, we agree with Ms Kelly's submission that the value that many people get from their recreation on the Lammermoor will be diminished by the presence of the wind farm. Secondly, we are not convinced by Mr Greenaway's principle of substitutability when it is applied in practice. For example, we do not consider that cross-country skiers from Dunedin who pick a fine winter's day to go skiing can simply substitute the Old Man Range for the

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Mr R J Greenaway, evidence-in-chief para 4.1 [Environment Court document 59].

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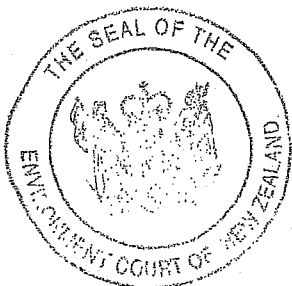
Mr R J Greenaway, evidence-in-chief para 4.26 [Environment Court document 59].

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Mr R J Greenaway, evidence-in-chief para 4.33 [Environment Court document 59].

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Transcript, p. 2430.



Lammermoor Range. Thirdly, we are not convinced that all recreation is equal. In our opinion some recreation may contribute more than other types to people's welfare. For example, it is arguable that activities like walking, mountain-biking, cross-country skiing, angling and horse-riding contribute more than quad-biking or merely sight-seeing by car. Further, for those people who are car-bound there will be ready substitutes whereas for the more active recreationalists it is likely that there are not.

[350] We consider that the value of the recreational experience will be reduced to a more than minor extent, and we consider the issue of quantifying that loss in value in Chapter 6.0.

### 5.3 Predictions about the effects of climate change

[351] Climate change is an extremely complex subject and we are very reluctant to enter a discussion of its causes, and directions and magnitude without a clear direction from Parliament that we should do so. There is none: as discussed in Chapter 3.0 Parliament directs us to assume there is climate change attributable to human causes and to move on from there. That leads us to consider the (very limited) evidence about possible changes to the site envelope and the surrounding area as a result of climate change.

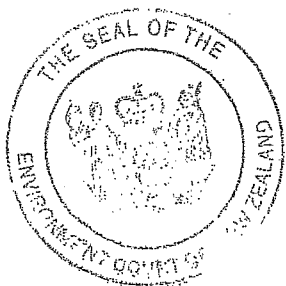
[352] Mr Rennie<sup>588</sup> informed us that the life expectancy of a wind turbine is 25 years but with the "benign conditions" of the Lammermoor site one could reasonably expect 30 years. Witnesses who provided quantitative estimates of climate change did so on time scales much greater than the 35 year life of the first generation of turbines. For example, Dr Wratt gave figures for the Otago region for the year 2090<sup>589</sup>. It would be unwise to try and estimate values for 35 years hence and we decline to do so. There may be a warming or cooling, increased or decreased rainfall and changes in wind characteristics over the 35 years. Insofar as they affect the operation of the wind farm the effects are Meridian's concern. Our concern in this respect is limited to whether climate change over the 35 year term would impact on the outcome of the cost benefit analysis for the project that we undertake in Chapter 6.0. Within that time frame we have no evidence as to how climate change may affect the wind resource. Therefore we

<sup>588</sup>

Mr H Rennie, closing submissions para 379 [Environment Court document 93].

<sup>589</sup>

Dr D S Wratt, evidence-in-chief paragraphs 35 and 38 [Environment Court document 28].



can only assume that there will be no net effect of climate change on the cost benefit analysis over that time period.

[353] Any other concerns relate to the potential effects on the flora and fauna of the site and on recreational activities in and around the site. No witness suggested that there would be any effects of climate change in these areas.

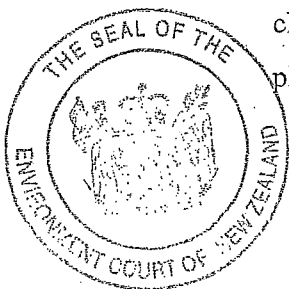
[354] In having regard to the effects of climate change we can consider how these effects might be reduced. We have accepted that anthropogenic induced increases in carbon dioxide concentrations in the atmosphere contribute to climate change. Thus using wind generation rather than carbon emitting generation of electricity will reduce climate change and its effects. Meridian's proposal would thus contribute to reducing the effects of climate change as defined in the Act. Under section 7(i) of the RMA we see it as appropriate to consider this aspect of the proposal as a benefit to be included later in our final assessment under Part 2 of the Act.

[355] Other effects of climate change include the Kyoto Protocol and its attendant responsibilities, proposals for carbon charging and the government's commitment to 90% renewable generation of electricity by 2025. We consider this under section 7(b) of the RMA in Chapter 6.0.

#### **5.4 Earthworks, erosion and sedimentation**

##### **5.4.1 Overview**

[356] On the issues of earthworks and the potential for erosion and sedimentation cross-examination of the experts for Meridian by the opposing parties focussed on the likelihood and effect of extreme events, the presence of snow and ice for long periods, the difficulties with revegetation of disturbed areas, the selection of fill sites and the possibility of sedimentation in the Logan Burn reservoir and the Taieri scroll plain. No expert evidence on erosion and sedimentation was produced by those opposed to the wind farm. Mr Douglas did produce evidence on these issues but did not claim expertise in the subject. The Court agrees these are all important issues which deserve close consideration and we discuss those in the context of the proposed management plans shortly.



#### 5.4.2 Earthworks remediation

[357] There will be a substantial volume of earth moved in the development of this project. For a start the 176 turbine platforms (each 20 m x 25 m) will typically require 1.5 to 3 metre excavation cut depths with certain sites up to five metre depth<sup>590</sup> to create a working platform and/or interface with access roads. Turbine platform construction is likely to generate a volume of 264,000 m<sup>3</sup> of spoil. There is also a perimeter drain formed to collect stormwater<sup>591</sup>. Basecourse is left in situ to assist with future component needs<sup>592</sup>.

[358] Approximately 150 km of internal access roads (including Pylon Road and Reservoir Road) will be required to access the sites with 100 kilometres following existing tracks<sup>593</sup> and 50 kilometres of new roads. Of this roading:

- Approximately 133 kilometres, or 89%, will be on ridgelines and broader flat areas with cuts up to 1.5-2 metres;
- Approximately 8 kilometres, or 5%, will be on gentle cross slopes with cuts of 3-4 metres;
- Approximately 4.5 kilometres, or 3%, will be on steeper cross slopes with cuts of 6-7 metres.

Mr Coulman wrote<sup>594</sup> that internal access roads between turbines would have a running surface ten metres wide, with access routes from the public road network or between main turbine groups a nominal five metres width with localised widening on tight corners.

[359] Temporary "fit-to-purpose" access tracks three metres wide will be constructed from core roads to the transmission tower locations. The tracks will use underlying substrate but may require upgrading with basecourse material. We are not sure how long

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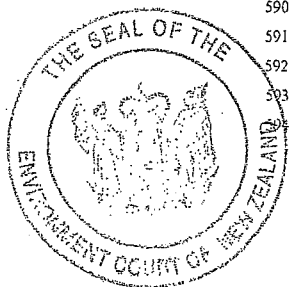
Mr A J Coulman, evidence-in-chief para 9.12 [Environment Court document 30].

Mr A J Coulman, evidence-in-chief para 9.13 [Environment Court document 30].

Mr A J Coulman, evidence-in-chief para 9.18 [Environment Court document 30].

Mr A J Coulman, evidence-in-chief para 3.4 [Environment Court document 30].

Mr A J Coulman, evidence-in-chief para 2.16 [Environment Court document 30].



these tracks are intended to be<sup>595</sup> and therefore cannot assess the areas of clearance or volumes of fill needed.

[360] The external access road is the Old Dunstan Road from Clarks Junction. That road will have the following changes, mostly outside the CODC boundaries made to it:

- Typical widening of existing 3-5 metres unsealed surface to 5 metres (0-66% increase) over 29.2 kilometres of 31.4 kilometres being upgraded (93% of the total route);
- Widening between 5-7.5 metres for 0.8 km (2.5%);
- Widening between 7.5 metres –10 metres for 0.6 kilometres (2.0 %);
- Widening 10 metres for 0.8 kilometres (2.5%)<sup>596</sup>
- Significant variation is envisaged at Sutton Stream, Stony Creek and the initial section of the Old Dunstan Road totalling over 1.8 kilometres (6%).

Again these changes are proposed to be mitigated by narrowing the road after construction of the wind farm. A major bridge over Suttons Creek within Dunedin City appears to be necessary at the foot of the eastern scarp of the Lammermoor. While many of the proposed works along Old Dunstan Road can probably be carried out within the road reserve as permitted activities, it seems that the bridge over Suttons Creek would require resource consent from the Dunedin City Council. We are concerned that was not applied for at the same time. It should have been for the reasons given in *Affco NZ Limited v Far North District Council No. 2*<sup>597</sup>, but we acknowledge that is likely not to be a critical issue.

[361] Other activities requiring earthworks for which we have not been given a volumetric assessment include:

- the fire substations;
- sediment control measures;
- temporary office and batching plant facilities;

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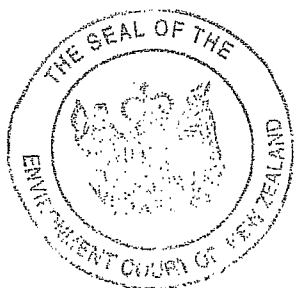
Mr A J Coulman, evidence-in-chief para 9.19 [Environment Court document 30].

<sup>596</sup>

Mr A J Coulman, evidence-in-chief Appendix 4 para 4 [Environment Court document 30].

<sup>597</sup>

*Affco NZ Limited v Far North District Council No. 2* [1994] NZRMA 224.



- laydown areas;
- basecourse borrow pits and crushing platforms;
- infrastructure related to the internal transmission.

Given the overall scale of the project the majority of us consider these are likely to have minor effects if mitigated as proposed.

#### 5.4.3 The proposed management plans

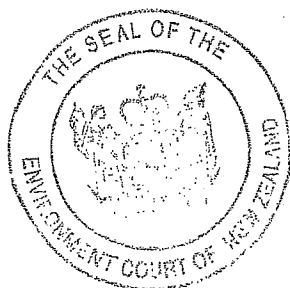
[362] Meridian has recognised the potential for adverse effects associated with the proposed earthworks and the necessity for mitigation of these effects. It proposes to control and thus mitigate erosion and sedimentation effects through the development and implementation of the CEMP and a series of Supplementary Environmental Management Plans (“SEMPs”). The CEMP is proposed as an umbrella document that identifies the management processes and techniques to ensure appropriate environmental management of the site. The SEMPs include details of the erosion and sediment control measures to be used in specific locations or in association with nominated activities. The use of such plans is a standard procedure for large civil engineering works such as those proposed for the Meridian site. This approach was not challenged by any party.

#### *Review of the proposed management plans*

[363] The conditions imposed by the earlier joint hearing required a CEMP and sixteen SEMPs. Eleven of the SEMPs were to deal with particular sections of the site<sup>598</sup> and five were to deal with specific activities including the concrete batching plant and the construction of substations. Issues that as a minimum must be addressed in each plan were set out in detail within the conditions. The conditions also require the CEMP and the SEMPs to be developed in consultation with ecological and hydrological experts and then submitted to the CODC and ORC for approval one month before any work is undertaken.

[364] In his role as a reviewer Mr R B O’Callaghan considered the list of items to be included in the CEMP as set out in the conditions imposed by the Joint Hearings panel.

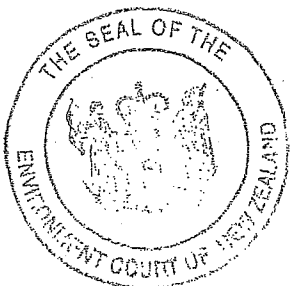
<sup>598</sup> Mr R B O’Callaghan, evidence-in-chief Appendix 1 [Environment Court document 32].



He concluded<sup>599</sup> that the requirements were appropriate for the site and the proposed activity. With respect to the SEMP's he stated<sup>600</sup> that the proposed framework will allow construction activities to take place in an environmentally acceptable manner. No arguments to the contrary were advanced and thus we accept his evaluation.

[365] Meridian's experts pointed to experience gained at Te Apiti, Makara and White Hill wind farms as providing a foundation upon which to develop and implement the CEMP and the SEMP's for the Meridian site on the Lammermoor. It is thus necessary to consider the similarities and differences between these sites before accepting the previous experience to be relevant and appropriate. Mr O'Callaghan helpfully provided a table<sup>601</sup> in which the physical characteristics of Meridian's four wind farms are set out. The volume of earthworks estimated for the Lammermoor site, while somewhat greater in absolute terms than the volumes noted for the other farms, is much less in terms of per turbine and thus per unit area of project site. Further, the construction is to be staged over a period of five years compared to construction periods of two years or less for the other three farms. Differences in slope, site stability and geology all favour the Lammermoor site. The differences in geology are important with respect to erosion. The schist materials of the Lammermoor site contain a much larger proportion of rock and less fine grained material than the soils at Te Apiti. They will therefore be less prone to erosion and will be easier to control by using settling basins.

[366] Mr O'Callaghan's conclusion was that it will be easier to manage erosion and sediment control at the Lammermoor site than at Te Apiti and that the problems at the Lammermoor site will be similar to those encountered and managed at the White Hill and Makara sites. The major problem with the Lammermoor site is the altitude which, being 800 masl to 1000 masl, is up to twice the altitude of the other wind farms and is likely to introduce problems not met at those farms. Coping with snow and ice and revegetation problems are cases in point. The Court agrees with Mr O'Callaghan's conclusion apart from the perceived problems arising from altitude. Those are discussed later in this section of the decision.



<sup>599</sup> Mr R B O'Callaghan, evidence-in-chief para 4.10 [Environment Court document 32].

<sup>600</sup> Mr R B O'Callaghan, evidence-in-chief para 4.11 [Environment Court document 32].

<sup>601</sup> Mr R B O'Callaghan, evidence-in-chief para 6.20 [Environment Court document 32].

*Erosion and sediment control guidelines*

[367] Condition 23(c) of the CODC consent for the Lammermoor site requires the SEMP's to be prepared in accord with the Erosion and Sediment Control Guidelines for the Greater Wellington Region dated September 2002. Condition 4 of the ORC consent has the same stipulation. The wisdom of this was queried both in cross-examination and by the Court. Mr O'Callaghan addressed this issue in his assessment of Meridian's proposals for sediment control. He considered that the Wellington guidelines were more appropriate than the alternative Auckland Regional Council guidelines because<sup>602</sup>:

...(Wellington) guidelines are comprehensive, they have proved to be effective on numerous large earthworks projects and the nature of the soils expected to be encountered at Project Hayes are closer to the soils of the Wellington and Manawatu regions than the soils in the Auckland Region.

Mr Levy, for the ORC, noted that the erosion and sediment control guidelines that have been prepared in New Zealand are based on well-established principles drawn from overseas practice and local experience<sup>603</sup>. In his view any one of the Auckland, Canterbury or Greater Wellington Regional Council guidelines could be applied to the Lammermoor site. By way of explanation Mr Levy drew particular attention to the rainfall intensity experienced on the site, being only 60% of that in Wellington. Given that rainfall intensity is a key driver of erosion Mr Levy concluded that using the Wellington guidelines for the sizing of treatment measures will be a conservative approach. He concurred with Mr O'Callaghan's comments that the soil type at the Lammermoor site will make sediment control feasible using the Wellington guidelines. The Court has no concerns over this approach to sediment control design because of its conservatism.

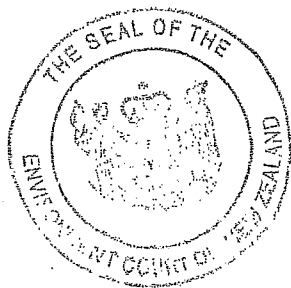
*Basecourse material*

[368] Mr Coulman<sup>604</sup> expected to source basecourse material for construction of the internal access roads from within the site. Some would be obtained from excavations for the roads and turbine foundations or from borrow areas. Mobile crushing plant and screens would process the material on site. The quantity of basecourse available within

<sup>602</sup> Mr B R O'Callaghan, evidence-in-chief para 6.2 [Environment Court document 32].

<sup>603</sup> Mr G J Levy, evidence-in-chief para 13 [Environment Court document 68].

<sup>604</sup> Mr A J Coulman, evidence-in-chief para 9.9 [Environment Court document 30].





the site will be determined at the design stage following geotechnical investigations. We thus have no information as to the quantity of material that may be involved nor as to the possible size and location of the borrow areas. There was no mention of how these areas would be treated following construction.

[369] It is possible that the obtaining, transporting and processing of the basecourse material will be a major on-site operation with attendant sedimentation and revegetation issues. We believe that a SEMP for this activity is warranted. Should the project proceed we will thus add "Obtaining and Processing of Basecourse Material" to the list of activities requiring a SEMP.

*Disposal sites*

[370] Excavation volumes for access roads and turbine foundations are estimated<sup>605</sup> to be  $1.27 \times 10^6 \text{ m}^3$  and  $2.6 \times 10^5 \text{ m}^3$  respectively. These figures include modifications to the northern end of the Old Dunstan Road which have since been removed from the proposal. Some of this material will be used as fill on site, a "cut-to-fill" approach, and the remainder it is proposed to place in disposal sites. Assuming a "cut-to-waste" approach and that all the material (a total of  $1.5 \times 10^6 \text{ m}^3$ ) is surplus, Meridian calculated that  $1 \text{ km}^2$  at an average depth of fill of 1.5 metres will be required. This is a most conservative assumption and represents 1.1% of the site area. More than 100 possible disposal sites are shown on Exhibit 3.6<sup>606</sup>.

[371] The final choice of disposal sites will be based on an assessment of earthworks, ecological and environmental factors and a list of criteria set out by Mr Coulman<sup>607</sup>. Mr M J Dale for the ORC suggested<sup>608</sup> a list of experts whom he considers should form an independent panel to assess, amongst other matters, the location of disposal sites. Mr O'Callaghan suggested<sup>609</sup> a more modest listing for such a group. We prefer Mr O'Callaghan's listing which includes appropriate ORC staff (Mr Dale suggested they be from the Resource Science Unit of the ORC and we concur), the land owner and Meridian's ecological and environmental specialists. The presence of ORC staff, the

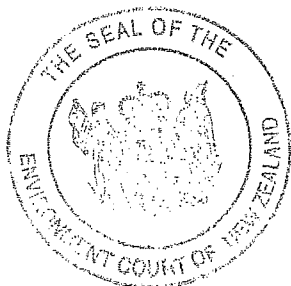
<sup>605</sup> Mr A J Coulman, evidence-in-chief para 9.2 [Environment Court document 30].

<sup>606</sup> Produced by Mr Rough.

<sup>607</sup> Mr A J Coulman, evidence-in-chief para 6.3 [Environment court document 30].

<sup>608</sup> Mr M J Dale, evidence-in-chief para 24 [Environment Court document 63].

<sup>609</sup> Mr R B O'Callaghan, evidence-in-chief para 4.9 [Environment Court document 32].



professional approach expected by the Court of technical people and the requirement that the selection of sites, as part of an SEMP, must be approved by the ORC and CODC should allay Mr Dale's concerns about independence of the group.

[372] Mr Coulman<sup>610</sup> set out the disposal site construction and rehabilitation process. This includes installation of erosion and sedimentation control measures, stripping and stockpiling of top soil, forming the fill surface to blend with the surrounding terrain, and replacing the top soil which would be hydroseeded. The sediment control devices will be maintained, monitored and audited on a regular basis. We would expect the material contained in this Appendix 2 to be incorporated into each of the location specific SEMPs.

[373] The Court looked at disposal sites on its visits to White Hill and Te Apiti. All had either been successfully revegetated and blended well with the landscape or were in the process of revegetating. We do not overlook the higher altitudes at the Lammermoor site and the associated revegetation problems discussed elsewhere in this decision. They may require the sedimentation control methods to remain in place for a considerable period of time and possibly for the life of the project. The SEMPs contained in the Councils' decisions require reference to be made to the removal and decommissioning of sediment control measures. Adding the requirement that ORC approval be obtained before any sediment control measures associated with disposal sites are decommissioned is desirable. This would be a condition of any consent approved by this Court.

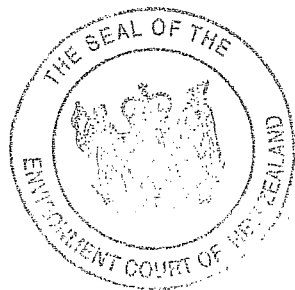
[374] Mr Douglas advocated trucking the surplus material to "suitable valley floor paddocks" for disposal<sup>611</sup>. During cross-examination by Mr Logan, Mr Patrick also advocated trucking surplus material off site rather than covering up to 100 hectares of disposal area<sup>612</sup>. The logistics of such an exercise, including the construction of a suitable road from the Lammermoor to the valley floor, strongly militate against it. The Court sees the suggestion as impractical.

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<sup>610</sup> Mr A J Coulman, evidence-in-chief Appendix 2 [Environment Court document 30].

<sup>611</sup> Mr J W Douglas, statement of evidence on construction para 5.4 (23 July 2008) [Environment Court document 72B].

<sup>612</sup> Transcript, pages 3203-4.



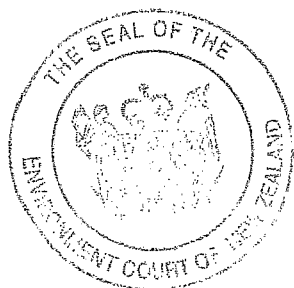
*Extreme events*

[375] Parties opposed to the Lammermoor site quite properly raised the issue of the ability of the proposed sediment control measures to cope with extreme events. No evidence was produced to document or quantify these extreme events so the cross-examination of Meridian's witnesses and their replies lacked specificity and were of a general nature only. The Court acknowledges that extreme events will occur over the project site and they must be considered.

[376] Sediment control devices are designed to operate most efficiently under specified conditions. These are normally related to large but not extreme events. The latter are catered for by measures which operate only during these events. They include managed overflows with higher sediment concentrations and discharges to vegetated areas which can capture the entrained sediment. No evidence was produced to discredit this approach. Dr Richard Allibone, a senior ecological consultant with Golder Associates (NZ) Limited, considered the possible effects of unexpected failure of sediment control structures including as a result of extreme events. It is his experience that the aquatic ecosystems in the upper Taieri catchment are robust and recover rapidly from sudden injections of sediment into streams and rivers<sup>613</sup>. We have no reason to doubt this assertion.

[377] It is during the detailed design phase and the development of the SEMP's that close consideration will be given to expected magnitudes, frequencies and durations of extreme events. The final designs will reflect this analysis and be subject to the approval of both Councils. The Court believes this is the correct approach and has no major concerns about it. We accept that streams are able to recover from one-off storm events but remain unsure as to whether revegetation can provide sufficient entrapment to avoid raising sedimentation levels in the currently pristine stony bottomed streams. Fertiliser is recommended for plant growth by Meridian witnesses but as fill sites are invariably in gully headwaters this aid is not recommended because of the potential for eutrophication of the streams.

<sup>613</sup> Dr R M Allibone, evidence-in-chief para 6.12 [Environment Court document 33].



*Snow and ice*

[378] Mr Carr cross-examined Meridian's experts at length on the issue of how the sediment control devices would cope with the heavy snowfalls experienced on the site and with the frequent icy conditions. It became clear that Mr O'Callaghan had given little thought to these problems<sup>614</sup>. Further, Mr O'Callaghan acknowledged his lack of experience in such conditions<sup>615</sup>. In response to Mr Carr's questions, Mr O'Callaghan took the opportunity to describe how he would deal with the problem of ice formation on the settling ponds<sup>616</sup>. He then expressed confidence that the problem "can be quite relatively easily managed" by virtue of the geometry of the ponds and their entry configuration. He concluded<sup>617</sup> that:

...on this site the entry of water into the pond in an ice situation would need to be dealt with as part of the design of the inlet to the pond, and I might say, the outlet to the pond.

We agree and thus endorse the ORC suggestion that the requirement for the:

Design and maintenance of the erosion and sediment measures shall take into account the effect of freeze and thaw of ice and snow

– be inserted into the specification for the SEMP. The Councils will thus have the opportunity to consider the design proposals as part of their approval process for the SEMP.

#### 5.4.4 Sedimentation in rivers

[379] Mr Douglas noted<sup>618</sup> that the Taieri Scroll Plain wetlands are gradually filling up with current sediment flows. His concern is that the earthworks at the Lammermoor site will accelerate this process. A similar situation no doubt exists at the Logan Burn Reservoir which acts as a permanent sediment trap, i.e. no sediment will be passed from the reservoir to the Taieri river. Any sediment that reaches the Scroll Plain from the

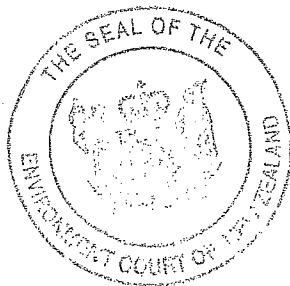
<sup>614</sup> Transcript, p. 1407.

<sup>615</sup> Transcript, p. 1401.

<sup>616</sup> Transcript, p. 1408.

<sup>617</sup> Transcript, p. 1410.

<sup>618</sup> Mr J W Douglas, statement of evidence on construction para 4.8 (23 July 2008) [Environment Court document 72B].



project site must have originated from the western section. Possible sources are roadworks, excavations for turbines and from disposal sites.

[380] Meridian is relying on the methods proposed for sediment control to minimise the sediment contribution even in storm events. From observations<sup>619</sup> made by Dr Allibone we consider it is likely that this will be achieved. He pointed out that the site is in a comparatively low (with respect to other parts of the upper Taieri catchment) rainfall area and thus the potential for construction and operation of the wind farm to affect catchment scale run-off or water quality is very limited. Any effect on the filling up of the wetlands of the Scroll Plain feared by Mr Douglas is likely therefore to be minimal.

[381] Dr Allibone drew our attention to possible effects on the fauna, including endangered species, in the small streams in and around the project site. He then stated<sup>620</sup>:

It is therefore my experience that high sediment input events in the Taieri River system, while appearing dramatic and significant to the eye, rarely have significant deposition impacts or consequential impacts on aquatic ecology in these hill country streams. On occasions the high flows do reduce population densities ... However biodiversity values (such as threatened fish) are not lost, and recovery is rapid.

We respect Dr Allibone's expertise in these matters and accept his predictions on the likely effects on biodiversity values after occasional high sediment input events.

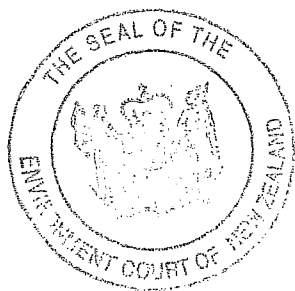
#### 5.4.5 The agreed statement of facts, recommended modifications and our conclusions

[382] There is an agreed statement signed by Mr O'Callaghan and Mr Levy<sup>621</sup>. It sets out modifications to the conditions imposed by the Joint Hearing Committee relating to the management of construction and storm water discharge. We endorse these modifications and would expect to see them incorporated into consent conditions should the consent for the Lammermoor site be confirmed.

<sup>619</sup> Dr R M Allibone, evidence-in-chief para 3.5 [Environment Court document 33].

<sup>620</sup> Dr R M Allibone, evidence-in-chief para 6.12 [Environment Court document 33].

<sup>621</sup> Exhibit 32.1.



[383] Mr Levy<sup>622</sup> gave a more extensive list of modifications which he recommends be made to the Joint Hearings Panel's conditions. Some form the basis of the agreed statement just discussed. There are others the Court would make if it confirms the resource consents. These are:

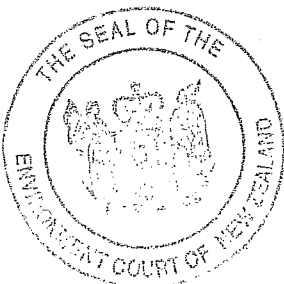
- (1) A new condition be inserted in the CODC and ORC consents as recommended to read "All sediment control measures shall be retained on each earthworks site until that area is fully stabilised to the satisfaction of the consent authority".
- (2) The provisions of the CODC condition 42 should apply also to the ORC consent, in regard to monitoring, and particularly trigger levels and mitigation responses.
- (3) Condition 20 of the CODC consent should be a condition of all ORC consents.
- (4) A new condition be inserted in the CODC and ORC consents as recommended to read:

There shall be appropriate fencing of each construction site to exclude stock from the site until such time as the site is stabilised and revegetation has fully established.

- (5) The following words be added to clause 6 of ORC consent 2006.488: "and, where necessary, fully stabilised".
- (6) A new condition be added to the CEMP as follows:

Design and maintenance of the erosion and sediment measures shall take into account the effect of freeze and thaw of ice and snow.

[384] There is much detailed design of erosion and sediment control procedures and devices to be completed. Under the CEMP/SEMPs approach all this work will be subject to the approval of both Councils. The Court thus expects robust and practical management plans to be developed. Their implementation and monitoring will be of particular importance in ensuring the required environmental outcomes are achieved. The conditions imposed by the Councils' Commissioners supplemented as set out in the previous paragraph are sufficient to enable the necessary monitoring. We note also the



<sup>622</sup> Mr G J Levy, evidence-in-chief Schedule 1 [Environment Court document 68].

opportunity to implement section 128 of the RMA is contained in the conditions set by the Councils' Commissioners.

[385] The Court sees no reason to decline consent for the Meridian wind farm on the basis of concerns about erosion and sedimentation issues provided we are satisfied as to the outcome of the revegetation programme (discussed shortly).

## 5.5 Ecological effects: flora – damage and restoration

### 5.5.1 The earthworks

[386] The flora of the Lammermoor will be affected by earthworks required for:

- (1) Substations
  - Spillers (76 metres x 85 metres)
  - Airstrip (105 metres x 115 metres)
  - Yards (105 metres x 155 metres)
  - Styx 1 (20 metres x 160 metres)
  - Sluicings (270 metres x 110 metres)<sup>623</sup>
- (2) Mounding around Styx substation<sup>624</sup>;
- (3) Services building located outside substation fence<sup>625</sup>;
- (4) Turbine platforms<sup>626</sup>;
- (5) Fill sites for excess earth from platforms for turbines and cranes, substation yards, borrow areas, roads, sediment ponds, temporary laydown areas and offices, and batching plants;
- (6) Roads
  - 150 km internal roads including Pylon and Reservoir Roads<sup>627</sup>;
  - Old Dunstan Road;
  - temporary haulage tracks 3 metres wide<sup>628</sup>;
- (7) Transmission lines being:
  - transmission line (buried); and

<sup>623</sup> AEE Volume 1, para 5.7.

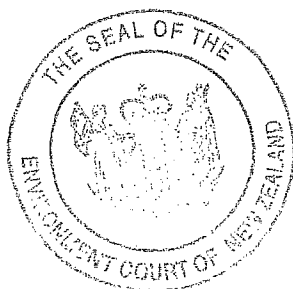
<sup>624</sup> Mr P Rough, evidence-in-chief para 205(j) [Environment Court document 3].

<sup>625</sup> AEE Volume 2, Appendix B para 4.2.9.

<sup>626</sup> AEE Volume 2, Appendix B para 4.1.1.

<sup>627</sup> Mr A J Coulman, evidence-in-chief para 9.2 [Environment Court document 30].

<sup>628</sup> Mr A J Coulman, rebuttal evidence para 5.3 [Environment Court document 30].



- poles or lattice tower foundations for transmission lines and connection to Roxburgh-Three Mile Hill line;
- (8) Temporary office facilities workshop, stores, and laydown areas;
- (9) Stockpile areas<sup>629</sup>;
- (10) Batching plant facilities;
- (11) Three meteorological monitoring masts<sup>630</sup>;
- (12) Erosion control for the sediment detention basins, and sediment control measures.

In total that will cause about 70 hectares of earthworks per year for five years, a total of about 350 hectares<sup>631</sup> (and more along Old Dunstan Road outside the Central Otago District). Meridian proposes to take substantial steps to remedy the revegetation disturbance and loss.

#### 5.5.2 Remedial work

[387] Dr Lloyd described the main purpose of revegetation on the site as to establish a ground cover as quickly as possible to avoid or reduce potential sedimentation and visual effects<sup>632</sup>:

Revegetation at Project Hayes does not have the goal of returning affected vegetation to its condition prior to wind farm construction. Indeed over most of the site landowners have sought that pasture vegetation be re-established. The land owners of Rocklands expressed a wish to include tussocks in some revegetation areas but even then it is not to return the vegetation to pre-construction condition.

The CEMP document<sup>633</sup> identified a seed mix (50% dogtail, 35% brown top, 15% white clover) for hydro-seeding and drilling which supports this view. Hydro-seeding germination of 85% after one month and, for drilling, a uniform cover of 85% after six weeks<sup>634</sup> were suggested targets. Cross-examined Dr Bartlett said there was no

<sup>629</sup> Mr A J Coulman, rebuttal evidence para 6.1 [Environment Court document 30].

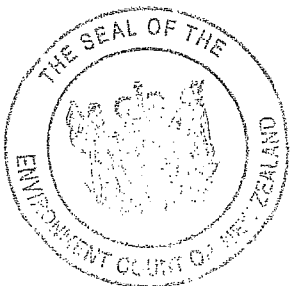
<sup>630</sup> AEE Volume 2, Appendix B para 4.2.12.

<sup>631</sup> Dr A F Mark, transcript (2009), p. 2952.

<sup>632</sup> Dr K M Lloyd, rebuttal evidence para 2.1 [Environment Court document 35A].

<sup>633</sup> AEE Volume 2 para 4.6.1.

<sup>634</sup> AEE Volume 2 para 4.6.2.





provision being made to add native plant seeds to the seed mix. In any event Dr Lloyd agreed with Professor Mark that sowing with tussock seeding would be problematic<sup>635</sup>.

[388] We were given evidence on rehabilitation at other wind sites and we have described our observations of White Hills, Te Apiti and Makara. Generally both shaping and revegetation had been successfully achieved in all cases using exotic pasture grass (with some tussock at White Hill). Pastured rehabilitated sites were particularly effective at Te Apiti. A number of witnesses pointed out that altitude, climatic conditions and the natural vegetation on the Lammermoor site is different to the other sites.

[389] Dr Lloyd has carried out revegetation trials for Meridian with the co-operation of the landowners. Trials were carried out on the Rocklands Station at about 870 masl and Lammermoor Station at about 940 masl. Both presented a range of aspect, slope and soil fertility underpinned by different farming practices. Planting was carried out in November and February. The sites were prepared to mimic disturbance that will occur within the proposed development. Stock was excluded. Plot trials were replicated at the two locations. Two exotic grass mixes – one high producing and one low – were applied by drilling. A control plot was left as bare ground. A tussock transfer trial was also included on the Rocklands site. While Dr Lloyd described in his evidence<sup>636</sup> how each plot was subject to a conventional lime and fertiliser regime prior to establishment of treatments, in a later report he stated<sup>637</sup> that “No lime or fertilizer was applied to any of the experimental plots or trial fill sites ...”. We are left uncertain whether fertiliser was applied or not – our inspection suggested not.

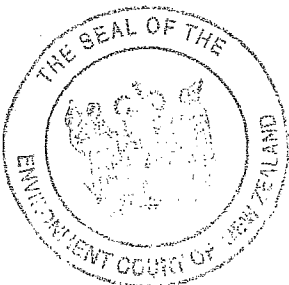
[390] We visited the revegetation trials in February 2009 and, concerned with what we saw, requested an updating report through counsel. In fact, Dr Lloyd appears to have already carried out further analysis because we quickly received (in March 2009) his report<sup>638</sup> “Revegetation trials at the 'Project Hayes' wind farm site, Lammermoor Range, Otago Report No 2149”. Both the MESI and Mr Douglas objected to this becoming

<sup>635</sup> Dr K M Lloyd, rebuttal evidence para 2.6 [Environment Court document 35A].

<sup>636</sup> Dr K M Lloyd, evidence-in-chief para 9.3 [Environment Court document 35].

<sup>637</sup> Dr K M Lloyd, Report No. 2149 [Environment Court document 96].

<sup>638</sup> Dr K M Lloyd, Report No. 2149 [Environment Court document 96].



evidence unless a letter from Dr Mark<sup>639</sup> (for MESI) and a statement from Mr Douglas himself were also considered. None of those documents were the subject of cross-examination or submissions. However, because Dr Lloyd's report and Dr Mark's letter are from acknowledged experts we consider we should receive these documents as relevant and therefore appropriate under section 276(1)(a) and (2) of the RMA. We enter Mr Douglas' statement as a courtesy and as a record of his submission as to the outcome.

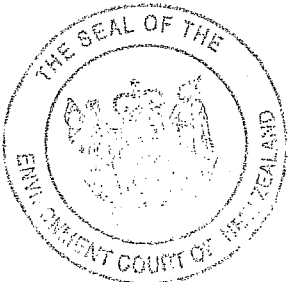
[391] Dr Lloyd's initial findings were included in his evidence but we refer to the most recent analysis. He described how in February 2009 – 15 months and a winter after his previous inspection:

- bare ground was more frequent in control subplots indicating seed sowing and tussock planting treatments had some positive effect on plant cover, although he did also note that after 15 months the difference in bare ground between the control and treated subplots was no longer significant;
- seed sowing treatments were associated with a lower frequency of bare ground than tussock planting;
- low producing pasture treatment had lower frequency of bare ground and this was associated with higher species richness in the seed mix;
- there were no significant differences between replicate trial plots at each of the two sites indicating that the findings are robust to small variations in landform, slope and aspect;
- hare and rabbit browsing was partly responsible for some bare ground;
- direct transferred snow tussock had a survival rate of 95% with only a small difference between tussock planted in November and February;
- occasional small live tussock were found in subplots where they had not been planted.

His description of the extent of bare ground was that<sup>640</sup>:

<sup>639</sup> Dr A F Mark, letter dated 8 April 2009 attached to Memorandum of Counsel for MESI [Environment Court document 97].

<sup>640</sup> Dr K M Lloyd, Report No. 2149 para 6.2 [Environment Court document 96].



The combination of more productive soils and exclusion of stock resulted in establishment of a dense ground cover in sowed treatments at Lammermoor site after 1.25 years, but bare ground was still relatively frequent at the Rocklands site.

Dr Mark was concerned that Dr Lloyd's methodology was:

... seriously flawed, particularly the assessment of bare ground on the basis of even one live plant in a 10 x 10 cm 'sub-square' .... Such an assessment must seriously under-estimate the real areal extent of bare ground in the results, as presented in the Wildland report.

We assume that the real intent of his first sentence is that it should read as if qualified as follows "... so that if one lone plant was found the 100 cm<sup>2</sup> was not described as 'bare ground'". We have to say that confirms our impression on our site visit which is that most of the trials contained a worrying area of bare ground.

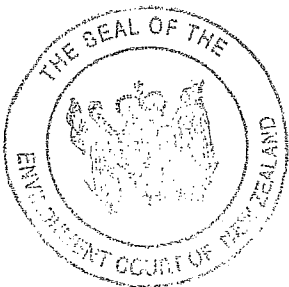
[392] Dr Lloyd's March 2009 conclusion succinctly included his conclusions from the trials<sup>641</sup>:

Diverse seed mixtures are more likely to result in a rapid attainment of a dense vegetation cover. Naturally invading pastoral weeds, such as mouse ear hawkweed and sheep's sorrel, will also enhance the speed of revegetation. Soil fertility appears to be a major constraint to plant growth within the wind farm envelope, meaning that lime and fertiliser should be applied to post construction revegetation landforms before seed sowing. Revegetation at the site is constrained by hare and rabbit browsing in addition to soil fertility. Control of hares and rabbits will be required to maximise the speed at which dense vegetation cover is attained on revegetation sites. Rabbits and/or hares strongly browsed palatable plant species at the Rocklands site. It is particularly important to minimise such browsing in the early stages of plant growth (i.e. for the first two growing seasons) because, with a short growing season, early loss of plant foliage is likely to result in a persistent reduction of plant cover.

Dr Lloyd also recommended that stock be excluded from revegetating<sup>642</sup> areas for at least one year and preferably two growing seasons after seed sowing. He stressed that low soil fertility affected plant growth and vegetation frequency. Although Dr Lloyd said that the application of fertiliser will be required to achieve rapid growth at some

<sup>641</sup> Dr K M Lloyd, Report No. 2149 para 6.2 [Environment Court document 96].

<sup>642</sup> Dr K M Lloyd, Report No. 2149 para 6.5 [Environment Court document 96].



sites<sup>643</sup>, Dr Bartlett cautioned against the use of fertiliser in gully fill areas to avoid the potential nutrient enrichment of wetlands<sup>644</sup>.

[393] Dr Lloyd's trials demonstrate that with sufficient management, which would need to include variable seed species mixes supplemented by the invasion of other species including weeds, the addition of fertiliser, stock exclusion and hare/rabbit control, revegetation of some sort will be possible at this elevation, although it may take two or more growing seasons to achieve sufficient cover to "reduce potential sedimentation and visual effects"<sup>645</sup> of the earthworks. We predict that it is more likely than not that there will be increased cover of weeds based on our inspection and on Dr Mark's comment<sup>646</sup> that:

One serious trend in the records [for the trial sites] ... is the much increased cover of the weeds *Hieracium pilosella* (mouse-eared hawkweed), *Rumex acetosella* (sheep sorrel) and *Hypochaeris radicata* (catsear) none of which were in the seed mix, and the equally strong decrease in the favoured species ... perennial ryegrass ... and clovers.

Whether the necessary management efforts are possible across such a large site or at the high level and speed of cover the CEMP indicates is required, is not clear. Despite the positive trials of transplanted tussock there is no suggestion that wide scale tussock transference will take place. Where tussocks are to be included Dr Lloyd was of the opinion that tussock vegetation rehabilitated this way will have a closer resemblance to tussock growing in pasture than to the existing tussock grassland plant community<sup>647</sup>.

### 5.5.3 Conclusions on revegetation

[394] In order for revegetation to be successful it would be necessary that stock be excluded over an expansive area and we had little evidence on how that was to be achieved, nor on how rabbits and hares would be controlled.

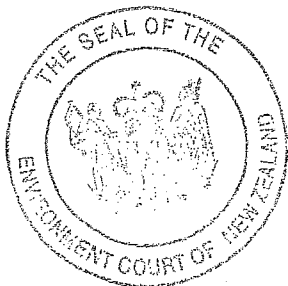
<sup>643</sup> Dr K M Lloyd, Report No. 2149 para 5.1 [Environment Court document 96].

<sup>644</sup> Dr R M Bartlett, evidence-in-chief para 8.3 [Environment Court document 60].

<sup>645</sup> Dr K M Lloyd, rebuttal evidence para 2.1 [Environment Court document 35A].

<sup>646</sup> Dr A F Mark, letter dated 8 April 2009 [Environment Court document 97].

<sup>647</sup> Dr K M Lloyd, evidence-in-chief para 8.3 [Environment Court document 35].



[395] Rapid cover is an aim of the revegetation proposal. We find that the field trials demonstrated that cover could be achieved through species diversity in the environs and seed mix, but that it would not be rapid. Pasture weeds such as hawkweed and sheep sorrel spread rapidly on disturbed ground so they would be a necessary evil for sediment entrapment and site rehabilitation. The consequence is that for revegetated sites the spread of weeds is an outcome. This may lead to further ploughing as we were told that was the preferred *Hieracium* control of at least one farmer. That in itself is of concern because ploughing, we heard, is the most disruptive practice for tussock grassland integrity as it lowered species diversity. Other parts of the operative district plan recognise that: ploughing previously uncultivated land is a controlled activity above 900 metres. That control does not apply to ancillary works for an energy development facility under Part 13 despite the fact that the wind farm may open 350 hectares of such land to future ploughing.

[396] We predict that revegetated sites will likely be dominated by exotic weeds and will have lower indigenous species diversity. This effect will be long term because of the future management problems it will present at the site's elevation above 900 metres.

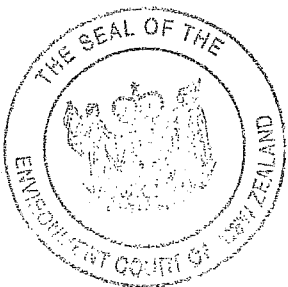
## 5.6 Ecological effects – fauna

### 5.6.1 Birds

[397] Dr Seaton, the falcon expert called by Meridian, identified three potential effects of wind farms on New Zealand falcon:

- disturbance
- displacement
- collision mortality.

He considered that disturbance to falcon was more likely to occur during construction than in operation of a wind farm because there will be earthmoving by heavy equipment. However, in his opinion, falcons are not as sensitive to disturbance during breeding as



other species. His research<sup>648</sup> showed that if large mechanical operations in plantation forests are excluded from a circle with a 200 metre radius from a nest during breeding then nest failure is avoided. He considered a similar setback would avoid nest disturbance on the Meridian site. Once erected he considered the productivity of the falcons would not be affected by operation of the turbines<sup>649</sup>.

[398] In Dr Seaton's opinion falcon are unlikely to be displaced from hunting activity during construction of a wind farm because they are bold hunters<sup>650</sup> not easily frightened off by human activity. He referred specifically to a report on falcons at the White Hill site in central Southland<sup>651</sup> which showed that falcons continued to use the site during both construction and operation.

[399] Dr Seaton wrote that<sup>652</sup>:

The key factor in establishing collision risk is whether a bird will develop avoidance behaviour. The data required to definitely establish this is lacking for falcon in New Zealand. Studies of birds approaching wind turbines in the USA, show that most birds pass over or through wind turbine blades, avoiding collision (Sterner et al. 2007). Nevertheless, each different bird species has unique behavioural characteristics which affect the risk posed by turbine strike and these have not been assessed in New Zealand. Accordingly, although it is generally accepted that falcons being highly manoeuvrable, intelligent and likely to learn to avoid and modify flight behaviour around turbines further research in New Zealand is required prior to reaching such a definite conclusion. As a result, it is not possible at this time to fully determine if falcons develop avoidance behaviours and research at active wind farms is required to establish this.

He described the work of Dr Fox<sup>653</sup> as showing that most of the falcon's searching strategies involve searching below 40 metres (the height of the proposed lower turbine blade). The exception is a 'soaring/prospecting' technique which usually occurs 50 to 200 metres above ground level. That is of relevance because the 'rotor swept' area on

<sup>648</sup> Dr R Seaton, evidence-in-chief para 5.3 [Environment Court document 55] referring to Dr R Seaton 'The ecological requirements of New Zealand falcon in plantation forests'. Ph.D. thesis, Massey University Palmerston North, 126 pp.

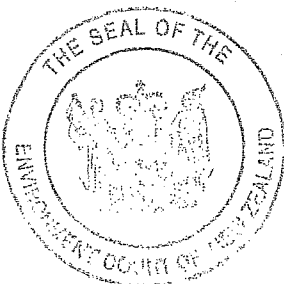
<sup>649</sup> Dr R Seaton, evidence-in-chief para 5.4 [Environment Court document 55].

<sup>650</sup> Dr R Seaton, evidence-in-chief para 5.6 [Environment Court document 55].

<sup>651</sup> Boffa Miskell (D008) 'White Hill windfarm falcon monitoring', Report prepared for Meridian ... 10 pp.

<sup>652</sup> Dr R Seaton, evidence-in-chief para 5.13 [Environment Court document 55].

<sup>653</sup> Dr N Fox (1977) 'The biology of the New Zealand falcon', Ph.D. thesis, Canterbury University Christchurch 418 pp.



the Meridian site is 40 to 160 metres above ground<sup>654</sup>, and<sup>655</sup> “Dr Fox observed the [soaring/prospecting] technique being employed in 27.4% of all searches”.

[400] Attached to Dr Seaton’s evidence was a review by Dr R Powlesland<sup>656</sup> of literature about overseas onshore wind farms. The author noted that “as far as I am aware there has been no report of carcass searches made at New Zealand wind farms using a scientifically robust methodology or any reports or published papers detailing the effect of habitat loss or disturbance on bird populations at NZ wind farms”. He concluded that there were major gaps in New Zealand knowledge with regards to impacts of birds on wind farms<sup>657</sup>. We have found the review useful background. A number of issues raised are relevant to the Lammermoor site.

[401] Dr Powlesland’s review also states that the data suggests that physical features on the landscape may influence bird movement and behavior<sup>658</sup>. Thus the placement of turbines close to a prominent feature such as the Logan Burn Reservoir may influence the number of birds moving through a wind farm particularly migrants and wetland species. That is relevant because Meridian’s AEE stated that the proposed farm is not on a migratory path but does raise the possibility that waterfowl may travel between the Serpentine Flats and the Logan Burn Reservoir<sup>659</sup>. This of course means that the birds would have to traverse the wind farm which is on a direct flight path between these two water bodies, and raises the possibility of collisions. Overseas research suggests that most collisions involve single birds and most occur when there are poor flight and visibility conditions<sup>660</sup>. Lit turbines can attract birds especially in conditions of poor visibility<sup>661</sup>. We had evidence that poor visibility conditions are part of the climatic environment at this elevation and that some turbines will be night lit to comply with Civil Aviation requirements.

<sup>654</sup> Dr R Seaton, evidence-in-chief para 5.12 [Environment Court document 55].

<sup>655</sup> Dr R Seaton, evidence-in-chief para 5.12 [Environment Court document 55].

<sup>656</sup> Exhibit 55.1 Department of Conservation publication Impacts of wind farms on birds: a review, R Powlesland, 2009.

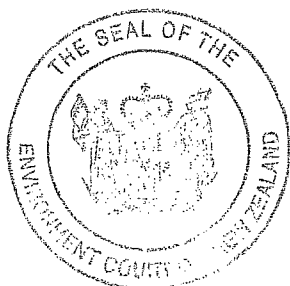
<sup>657</sup> Exhibit 55.1 Department of Conservation publication Impacts of wind farms on birds: a review, R Powlesland, 2009, s.8.

<sup>658</sup> Exhibit 55.1 Department of Conservation publication Impacts of wind farms on birds: a review, Ralph Powlesland, 2009, s. 2.5.

<sup>659</sup> AEE Volume, Tab E para 5.4.1.

<sup>660</sup> Exhibit 55.1 Department of Conservation publication Impacts of wind farms on birds: a review, Ralph Powlesland, 2009, s. 3.

<sup>661</sup> Exhibit 55.1 Department of Conservation publication Impacts of wind farms on birds: a review, Ralph Powlesland, 2009, s. 2.3.2.



[402] Structures associated with wind farms following construction have also been responsible for avian fatalities<sup>662</sup>. These include overhead wires (power transmission and distribution lines), guy wires, lighting and insulated electrical equipment and meteorological masts. Data suggests that several groups of birds appear to be susceptible to collision with wires, most notably waterfowl, shore birds and raptors although waterfowl and shore birds avoid turbines.

[403] Arising from the research Dr Powlesland wrote that when considering potential impacts it is important to consider the average effect of each turbine and the cumulative effect of the total number of turbines and associated structures and even the cumulative impacts of other wind farms in the range of a bird population, particularly when rare or threatened species are concerned<sup>663</sup>. The report cautions against discounting small numbers as even relatively small increases in mortality rates may be significant for the populations of some birds especially long-lived species with low annual productivity and slow maturity. The cumulative mortality from multiple wind farms may also contribute to population declines in susceptible species. Increases in mortality greater than .5% could have serious population impacts<sup>664</sup>.

[404] We had no evidence to inform us on potential cumulative effects on birds. Until further research is carried out we have concerns that the assessment of risk at this stage is inadequate for us to adduce the effects of this wind farm for the species relying on the wind farm site and adjacent water bodies and their vicinities. Dr Seaton also proposed amendments to the proposed conditions of consent to assist in mitigation and monitoring of effects of the wind farm. He agreed that, during monitoring, all falcons in and around the site would need to be fitted with radio transmitters<sup>665</sup>. The mitigation included predator control<sup>666</sup> (on or off-site depending on the effect to be mitigated). We

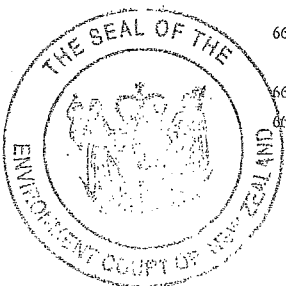
<sup>662</sup> Exhibit 55.1 Department of Conservation publication Impacts of wind farms on birds: a review, Ralph Powlesland, 2009, s. 2.4.

<sup>663</sup> Exhibit 55.1 Department of Conservation publication Impacts of wind farms on birds: a review, Ralph Powlesland, 2009, s. 2.1.

<sup>664</sup> Exhibit 55.1 Department of Conservation publication Impacts of wind farms on birds: a review, Ralph Powlesland, 2009, s. 4.

<sup>665</sup> Transcript (2009), p. 2341.

<sup>666</sup> Dr R Seaton, evidence-in-chief para 8.2 [Environment Court document 55].





consider that a useful suggestion. In the end Dr Seaton thought the proposed research and predation control outweighed the negatives for New Zealand falcons.

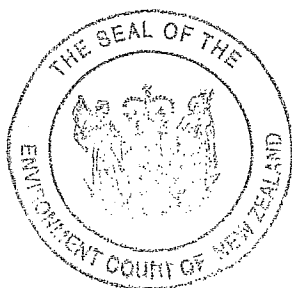
#### 5.6.2 Invertebrates

[405] Dr Mitchell and Mr Patrick in their caucus report agreed on the invertebrate values to be protected and also that it is feasible to work around the adverse effects of wind farm development so that existing invertebrate values would persist during the life of the wind farm. They differed as to how this should be done. Dr Mitchell felt the conditions imposed by the Councils were sufficient while Mr Patrick felt additional measures were required.

[406] Section 2.8.2 of this decision sets out the facts regarding invertebrates in the vicinity of and in the project area and concludes that the area is ecologically significant under the rarity and distinctiveness criterion. It thus requires protection both during the construction phase and throughout the operating life of the wind farm. In this we are heartened by Mr Patrick's observation that<sup>667</sup>:

Given the large area, and mostly uniform semi-natural vegetation cover of the proposed project area, sustainability of the current insect fauna is reasonably assured under the current extensive pastoralism ...

– although he qualified that in the next sentence: “The challenge is to allow this fauna, which is well documented, to survive another layer of change”. Mr Patrick<sup>668</sup> noted that with appropriate management both during construction and the on-going operation of the proposed wind farm, these entomological and ecological values can be retained, with detrimental effects minimised. But we understand that conclusion to be based on two assumptions (which may not hold). The first is that the revegetation would return the tussock grasslands to a similar condition to the current state; and secondly that all fill would be taken offsite.



<sup>667</sup> Mr G H Patrick, evidence-in-chief para 3.15 [Environment Court document 84].

<sup>668</sup> Mr G H Patrick, evidence-in-chief para 3.16 [Environment Court document 84].

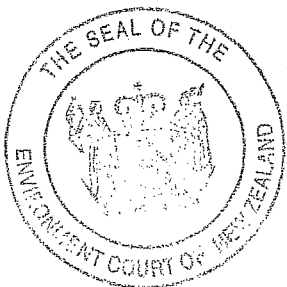
[407] Construction of the wind farm will result in earthworks disturbing vegetation and invertebrate habitat over an area of some 350 hectares which is approximately 3.8% of the site. Construction will take place over five years and thus only a portion of the 346 hectares will be disturbed at any one time. Approximate locations for turbine sites and disposal sites have been identified with the understanding that final locations will be determined only after ecological and hydrological investigations have been undertaken. The site is etched with waterways so we see this as important and thus endorse Condition 23 of the CODC consent which requires the SEMP's controlling areas to be disturbed, disposal areas and soil stock pile areas all to be prepared with the assistance of personnel with expertise in hydrology and ecology.

[408] We acknowledge that there are mitigating and avoiding factors in relation to invertebrate habitat, particularly:

- the small areas, compared to the site area, which will not be rehabilitated including turbine sites, substations, access ways and transmission towers;
- the spatial configuration of the turbines;
- the flexibility that will have been exercised in selecting turbine and disposal site locations; and
- the continued existence, over more than 90% of the site, of the existing vegetation cover and pasture which Mr Patrick believes will reasonably assure the sustainability of the invertebrates currently on the site.

Further, following each phase of construction disturbed areas and disposal sites will be revegetated in accord with CODC Conditions 25 to 27. These require a SEMP and monitoring of its implementation by a suitably qualified person. However, even with that supervision we have found that most of the revegetated areas are likely not to replicate the current habitat but to change into a weed and exotic pasture mix with fewer indigenous species of flora and, we suspect, fauna.

[409] We now turn to some matters that were discussed by the witnesses as possibly requiring further conditions in addition to those imposed by the CODC:



- (1) Ecological supervision of works on the site. The CODC consent conditions require ecologists to be involved in the development and implementation of the CEMP and the SEMP. We believe this is sufficient.
- (2) Avoidance of the northern and eastern parts of the site. Mr Patrick was not clear as to the extent of the area he wished to be protected nor were any focussed arguments advanced in its favour. We doubt if avoidance of the suggested area is necessary to ensure sustainability of the invertebrate communities. We note that Meridian is to set aside 95 hectares in the Logan Burn gorge as a reserve. Further, Dr Mitchell supported Mr Patrick to the extent that he agreed<sup>669</sup> with the suggestion that important sites in these areas should be identified to see if they could be avoided. We consider a pre-commissioning report should be required by condition.
- (3) Monitoring of key native insects. Mr Patrick suggested this be undertaken post-construction to ensure the most significant aspects of the insect fauna are retained. Dr Mitchell acknowledged<sup>670</sup> that:

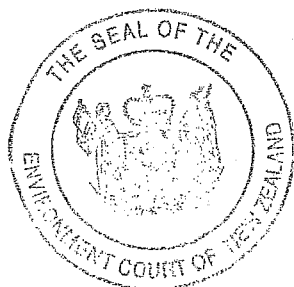
More studies are needed to be able to infer terrestrial invertebrate diversity response to management intensity as the factors conferring resilience to degrading forces, such as exotic species invasions, are unknown.

It is not clear to us how monitoring *per se* would achieve this, but hope the SEMP would be sufficiently flexible to allow action to be taken. We consider a post-construction monitoring condition should be added.

- (4) All surplus soil should be taken off site. We have discussed this and rejected it in the section on erosion and sedimentation issues.
- (5) Mitigation should include the cessation of grazing. Mr Patrick commented<sup>671</sup> that:

With the elimination of domestic grazing animals, the grasslands shrublands and inter-tussock communities of Te Papanui Conservation Park have flourished as they would in the proposed wind farm site ... with retirement from grazing of sheep and cattle.

We discuss the difficulties of fencing later in this chapter.



<sup>669</sup> Dr R A Mitchell, rebuttal evidence para 9 [Environment Court document 56A].  
<sup>670</sup> Dr R A Mitchell, evidence-in-chief para 16 [Environment Court document 56].  
<sup>671</sup> Mr G H Patrick, evidence-in-chief para 3.7 [Environment Court document 84].

- (6) Revegetation be with a suitable local native seed mix. We cannot impose this on land not owned by Meridian. Further, we believe the required supervision of rehabilitation by suitably qualified people will ensure appropriate plant mixtures are used to achieve revegetation (if only with weeds and exotic pasture in the slightly longer term – but that is all the district plan seems to require once land has been disturbed).

[410] We find that the conditions imposed by the CODC, modified as suggested above, have a medium likelihood of being sufficient to protect the invertebrate values identified on and around the wind farm site. We are not happy with that finding because a probability of between 33% and 67% seems to create a high risk for endemic fauna. However, the evidence satisfied us no further.

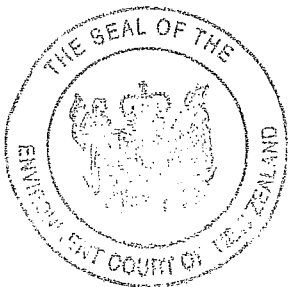
### 5.6.3 Lizards

[411] Mr Jewell carefully considered possible effects of construction and operation of the proposed wind farm on the lizard population within the project envelope<sup>672</sup>. He concluded that:

... the effect of Project Hayes on the lizard fauna will be negligible/less than minor as the overall proportion of disturbance to lizard habitat ... will be small and localised ... the wind farm development will not compromise the viability or conservation status of any lizard species at any level ...

That reasoning was not challenged by any party although Mr Patrick<sup>673</sup> suggested further monitoring of *Oligosoma inconspicuum* be undertaken “to ensure the survival of key known populations”. Mr Jewell saw no need for such monitoring.

[412] Conditions were imposed by the earlier hearing with respect to lizards and their habitat. CODC condition 52 requires buffer zones around rock habitats and condition 53 provides for the implementation of a lizard rescue and relocation plan should that prove necessary. The Court endorses these conditions but considers a further fuller



<sup>672</sup>

Mr T R Jewell, evidence-in-chief section 4 [Environment Court document 50].

<sup>673</sup>

Mr G H Patrick, evidence-in-chief section 4 [Environment Court document 84].

study will be necessary prior to implementation of any consent in order to gain more information about the distribution and abundance of the various lizard species.

#### 5.6.4 Fish

[413] Section 2.8.4 records the status of existing fish populations in and around the site and identifies potential threats to these ecosystems generated by the proposed wind farm. We now consider each of these potential threats.

##### *Sediment loads, unusual/infrequent loads*

[414] We discussed sedimentation in rivers earlier in this decision and accepted Dr Allibone's conclusion that high sediment input events into the Taieri River system rarely have impacts on its aquatic ecology. Such impacts occur naturally and with the sediment control devices planned for the project any additional sediment input arising from construction or maintenance activities will be minor. We note Mr Dale's comment<sup>674</sup> that the effect of proposed works with appropriate sediment management on the Logan Burn and Sutton Stream would be less than minor.

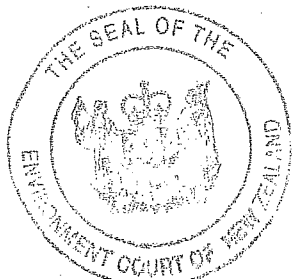
[415] Mr Dale drew our attention to the particular threat of sedimentation to flathead galaxias. This, he averred, highlighted the need for extremely effective sediment management techniques. In reliance on Dr Allibone's view that<sup>675</sup> flathead galaxias spawning sites are not vulnerable to siltation as they lay their eggs on the underside of large rocks in riffle areas, we predict that through the SEMP system which is to be informed by appropriate experts that the streams in which flathead galaxias have been found will be adequately protected.

##### *Vehicle contamination*

[416] The suite of consents granted by the ORC contains conditions to ensure there is no contamination of waterways by vehicles or heavy machinery brought onto the site. These include the ability to construct culverts at stream crossings (Consent No. 2006.483), the requirement to water blast all earthmoving machinery before it enters the site, cleaning with chemicals to kill didymo if the machinery has worked in waterways and a prohibition on washing machinery in water courses. Fuel spill is a possible

<sup>674</sup> Mr M J Dale, evidence-in-chief para 16 [Environment Court document 63].

<sup>675</sup> Mr M J Dale, evidence-in-chief para 7.8 [Environment Court document 63].



contamination associated with vehicles. Refuelling is to be done by trained operators and in the vicinity of the work sites and no refuelling is to be done in stream beds. The majority of work sites are away from streams. Thus the likelihood of a spill occurring and then entering a waterway is remote.

[417] The CEMP and SEMP process, which includes certification by the ORC, will provide the necessary control on vehicle movement and maintenance on site. We see no reason to impose further controls.

*Pest species introduction*

[418] We have recorded in section 2.8.4 that the most significant threat to the non-migratory galaxiids is introduced predators. Trout are one such species. The ORC conditions of consent require that where culverts or other stream crossings are constructed they shall be impassable to trout if trout occur below but not above the crossing. This will ensure continuance of the present condition in the trout-free area. Other possible 'pests' that may be introduced include other salmonids and didymo. The latter may occur by way of vehicles as discussed above and by careless fisher folk about which we can do nothing. Salmonids could be introduced as below.

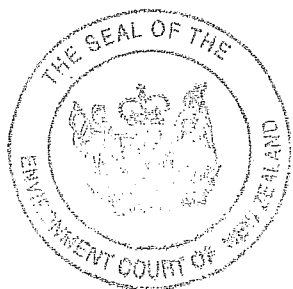
[419] A possible source of pest species not present on site is the water supply. At the time of the hearing the location of this supply had not been identified and no water permits had been applied for. If the supply is from on-site there should be no problem. However, Mr Dale<sup>676</sup> noted that there may well be difficulties with this since the Taieri catchment is substantially over-allocated. If it is a surface source off-site the possibility of fish or eggs being brought onto the site exists. A condition to ensure this does not happen will need to be imposed.

*Loss of habitat including spawning grounds*

[420] Meridian holds consents from the ORC to undertake work and erect structures in the beds of streams (Consent No. 2006.483) and to deposit fill material which may enter water courses (Consent No. 2006.484). These activities have the potential to reduce habitat for fish. They have to be undertaken within the strictures of the CEMP and the

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<sup>676</sup> Mr M J Dale, evidence-in-chief paragraphs 30 and 31 [Environment Court document 63].



SEMPs which are to be developed with input from suitable experts and then are subject to approval by the ORC. We have confidence in this process.

[421] We note the ORC conditions require that where in conjunction with the DOC, Otago Conservancy, there are any actual or potential adverse effects on spawning of trout or galaxiids the proposed work shall not take place during the spawning season. We see this as appropriate and sufficient to protect the fish habitat.

#### *Water take*

[422] We have no information as to any proposed water take from the site. Water permits have not been applied for. When they are applied for will be the appropriate time to consider any possible adverse effects.

#### *Summary in relation to fish*

[423] We find that, with the Councils' conditions supplemented as indicated above, any adverse effects of construction and operation of the wind farm on fish are likely to be less than minor.

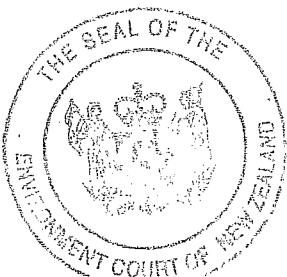
## **5.7 Landscape and visual effects**

### **5.7.1 Introduction**

[424] Possibly the most important single question in these proceedings is the effect of the proposed wind farm on the landscape in which the Meridian site is set. We now examine how the expert witnesses have assessed the effects of the proposed wind farm on the three sets of landscape considerations identified in Chapter 3.0 (The law):

- the physical components;
- the perceptions of the landscape;
- the values of the landscape especially its naturalness.

Another standard method of assessing effects relies on 'visual absorption capacity' studies. Mr Brown's analysis of the Meridian site in those terms is discussed below.



### 5.7.2 Effects on the physical components of the landscape

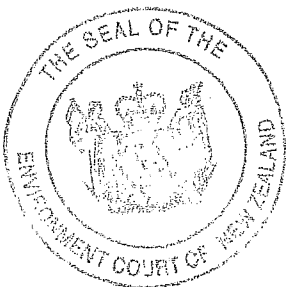
[425] At its most basic the Meridian proposal's effect on the landscape can be summarised as the construction and operation of up to 176 turbines, each up to 160 metres high to the tip of an upright rotor<sup>677</sup>, over a total footprint of 135 km<sup>2</sup> (including the peripheral land within the site and the Logan Burn Gorge which is straddled by the wind farm<sup>678</sup>). The construction and operation will also have some effects on the topography of the landscape in the form of new roads, although these will be reduced in width after construction and the sides will be reinstated, there will be cuttings on some slopes, especially at the top of the scarp on the northwestern side of the site (above Serpentine Flat), and some other effects on the vegetation and ecology of the landscape.

[426] Turning to consider the effects at or near ground level: in relation to vegetation we agree with Ms Steven<sup>679</sup> that Mr Rough may well have over-estimated how well tussock rehabilitation of worked areas will succeed. While we have found on the basis of Dr Lloyd's evidence that the platforms and spoil disposal areas will revegetate adequately to avoid erosion problems, what they will revegetate with is another question. Dr Mark was very dubious about restoration of tussocks if they are to be grazed<sup>680</sup> within one year of the earthworks' completion. Revegetation along the road lines appears especially difficult because for revegetation, especially in exotic grasses, to be successful stock need to be kept out<sup>681</sup>, and it is difficult to see how that can be done over the whole Meridian site without affecting farming operations substantially. On the other hand, Ms Steven and Mr Espie may have overstated the adverse effects on vegetation if stock are excluded for sufficiently long. We return to this issue below.

[427] Most of the other potential effects of the wind farm were discussed in the context of perceptions of changes in the landscape or its naturalness, so we return to the issue under those headings.

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<sup>677</sup> In contrast the existing power pylons along Pylon Road are up to 45 metres in height.  
<sup>678</sup> The smaller footprint (i.e. without those areas) is 92 km<sup>2</sup>.  
<sup>679</sup> Ms E A Steven, rebuttal evidence para 101 [Environment Court document 9A].  
<sup>680</sup> Transcript (2009), p. 2972.  
<sup>681</sup> Transcript (2009), p. 2972.





### 5.7.3 Effects on perceptions of the wind farm : methods

#### *Selection of viewpoints*

[428] Mr Rough described how some viewpoints were selected under his instruction and that of Meridian, and others were identified as representative of areas of community and recreational importance. He then had photo-simulations prepared by the firm of another witness, Mr T G Coggan, and we discuss those shortly.

[429] For her part Ms Steven described<sup>682</sup> how she had travelled around the area '... to determine just how extensive views of the wind farm might be'. She itemised<sup>683</sup> the distant viewpoints and then concluded<sup>684</sup>:

... that the wind farm will be visible from a very large number of viewpoints and I think it is likely to have a substantial effect on the perceptions of the Central Otago landscape because of this. Essentially, it will introduce large scale industrial characteristic into a mountain range and basin landscape that is at present free of such features.

She continued<sup>685</sup>:

Generally it is true that with distance visual effects are reduced, but the advantage of distance is not so applicable with a project of this scale, type and location. In respect of distant views toward the range, it occupies a very sensitive location. It may not be the highest or most dramatic part of the overall range, but it is still important skyline in my view.

#### *Photo simulations of the proposed wind farm*

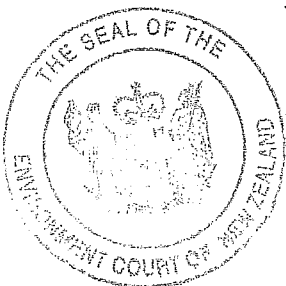
[430] To assist us assess the visual and landscape effects of the Meridian proposal, we were presented with three sets of computer-generated simulations of the project. For Meridian Mr Coggan, a computer simulation expert, presented two sets of 'Truescape' simulations. In addition to a disk with a drive-through/fly-through along the Old Dunstan Road from east to west, he produced a series of 'photographs' from viewpoints around the site. Those viewpoints were chosen by Mr P Rough, the landscape architect called for Meridian. Mr Coggan explained that the simulations were designed to capture the dimensions of the average human view, i.e. 126° in width and 56° in height.

<sup>682</sup> Ms E A Steven, evidence-in-chief para 27.3 [Environment Court document 9].

<sup>683</sup> Ms E A Steven, evidence-in-chief para 27.4 [Environment Court document 9].

<sup>684</sup> Ms E A Steven, evidence-in-chief para 27.6 [Environment Court document 9].

<sup>685</sup> Ms E A Steven, evidence-in-chief para 27.7 [Environment Court document 9].



Mr Coggan's photographs were very large – some of the panoramas were two metres long. He explained that they were reproduced that size because when viewed “at arm's length”<sup>686</sup> that was as close as he could make the simulation to the experience a viewer would have in reality.

[431] We should record that there were a number of aspects of the wind farm which were not shown on the first set of Truescape simulations:

- the cuttings on the re-aligned Old Dunstan Road;
- the cuttings for the turbine platforms;
- any borrow pits;
- the spill areas;
- any unsuccessful revegetation areas;
- any changes in vegetation patterns arising from revegetation in grasses different from the surrounding area.

[432] Study of the simulations produced by Mr Coggan shows that depending on various factors (distance of the proposed turbines from the viewpoint, time of day, cloud cover, atmospheric conditions) the visibility of the proposed turbines varies greatly. So we infer that in the photographs where the turbines are seen very clearly, they may not in fact be seen at all, and vice versa. Also, and Mr Coggan accepted<sup>687</sup> this, the eye sees more detail in reality than his simulations can show, and our site comparisons of his photographs with the actual view confirmed that to be true.

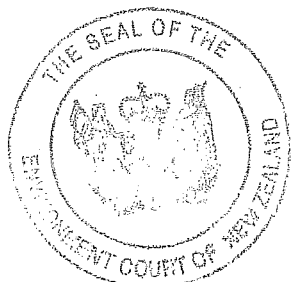
[433] To help us assess the accuracy of its simulations Meridian gave us, with the agreement of all parties, a large Truescape photo-simulation of the operating White Hill wind farm viewed from the Mossburn rugby ground in Southland. Having carefully compared the photo-simulation with the constructed wind farm the Court makes the following observations as a result of our field inspection:

<sup>686</sup>

Mr T G Coggan, evidence-in-chief Appendix A, para 3.1 [Environment Court document 2].

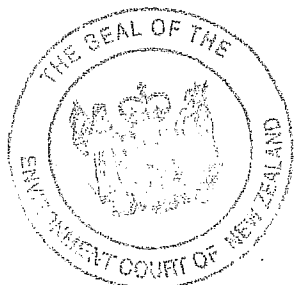
<sup>687</sup>

Transcript (2009), p. 47.



- (1) evaluation of the photo-simulations depended on the individual. Although in general agreement, members of the Court differed over the degree to which photo-simulations represented reality;
- (2) even when viewed at the correct distance (a long arm's length) the White Hill photo-simulation, we agreed, seemed to reduce the scale of the landscape. Thus both the hills on which the turbines were placed and the turbines themselves appeared larger in reality than in the simulations;
- (3) one member of the Court thought the scale discrepancy was of the order of 50%. Other members did not think the discrepancy was nearly as large being content to say it was discernible;
- (4) conditions were cloudy during the Court's visit in contrast to the conditions under which the Truescape photos were taken. Members agreed that even under the cloudy conditions the turbines seemed to be more visible in reality than in the photo-simulation;
- (5) objects on the edges of the photo-simulations appeared increased in size with respect to those in the centre.

[434] Similarly, on our comparison of the photographed simulations<sup>688</sup> under the 'True View 2' program on the Meridian site we found that the transmission towers of the Roxburgh-Three Mile Hill line could be seen from each point the Court visited. The towers always appeared more visible in reality than in the photo-simulations. Further, at photo point 109 (the roadside rock) members measured the arc subtended by two objects (rocks) in the photo-simulation and the arc subtended the same two objects in reality. For objects near the centre of the image the arcs were very similar both in the horizontal and vertical directions. This suggests a true representation has been achieved at or near the centre of the image. However, one member of the Court still perceived the simulated objects to be much smaller than the real objects. We conclude the interpretation of the images becomes a matter of one's perception rather than the physics involved.



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<sup>688</sup>

Exhibit 83.2.

[435] The outcome of our reflections on the Truescape photo-simulation is thus a split decision. One member feels the images need to be discounted as being too seductive. They 'look' accurate even if demonstrably they are not especially towards the edges. Despite Mr Coggan's assurances as to the accuracy of the photographs, Mr Rough agreed<sup>689</sup> that the second set of simulations (designed to help assess the accumulative effects of development with the Mahinerangi project) were distorted at the sides where objects tend to be stretched. The other three members accept the images as acceptable representations of a possible reality at least in the centre of the images.

[436] As for identifying the conditions when turbines are most visible Mr Rough considered those to be when turbines are backlit and the sky is clear<sup>690</sup>. We agree with that, but from our experience consider that another situation is equally or more important : when turbines are front-lit with dark cloud behind. We are rather surprised that Mr Rough has not considered that situation since it may (for all we know) occur as frequently as Mr Rough's clear sky scenario.

[437] We conclude that, when looking at the simulations, the observer should always bear in mind:

- (a) they should be looked at from the correct distance (i.e. one arm's length from the image<sup>691</sup>);
- (b) that the detail in the landscape is always clearer than a photograph of the same conditions<sup>692</sup>;
- (c) that conditions in the simulations which make the turbines difficult to see, or conversely which highlight them, are both possible so that conditions which are not shown always need to be considered;
- (d) objects on the edges are larger than in reality;
- (e) objects in reality are seen in three dimensions, not two.

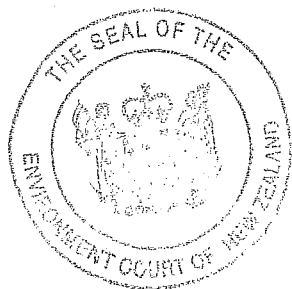
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<sup>689</sup> Transcript, p. 2293.

<sup>690</sup> Mr P Rough, evidence-in-chief para 278 [Environment Court document 3].

<sup>691</sup> Mr T G Coggan, evidence-in-chief para 3.2 [Environment Court document 2].

<sup>692</sup> Mr P Rough, evidence-in-chief para 209 [Environment Court document 3].



[438] For the Societies, Mr G van Maren produced an equivalent set of 27 ‘stills’ of the completed project and a video connecting them with a simulated fly-through of the site and surrounding area. Mr van Maren’s simulation used a ‘K2Vi’ model which he accepted was not so accurate with its colours as the Truescape model. In our experience of the stills it also has unfocussed foregrounds which reduce the illusion of realism quite substantially. Ms Steven relied<sup>693</sup> to some extent on Mr G van Maren’s computer modelling which we accept as a result of Meridian’s evidence and cross-examination may overstate the distant visibility somewhat. But we do not think that vitiates Ms Steven’s conclusions substantially. We do prefer Mr Coggan’s simulations.

*Scales for assessing visual effects*

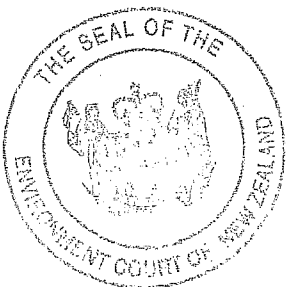
[439] Mr Rough produced<sup>694</sup> a table which had been developed by another well-known landscape architect, Mr Allan Rackham (based on Mr Rackham’s assessment of the Meridian wind farm at Te Apiti on the northern side of the Manawatu Gorge for turbines which have a height to the top of the rotor of 110 metres). It is:

**Table: Visual Impacts in Relation to Viewing Distance**

Less than 1 km turbines tend to dominate the landscape and the potential for visual effects is substantial.
At 1-3 km turbines are highly prominent and the potential for visual effects is substantial.
At 3-6 km while still prominent and a distinctive feature in the landscape, the potential for visual effects is moderate.
At 10 km while turbines are distinguishable the wind farm becomes a minor feature in the wider landscape and the potential for visual effects is negligible.
At 25 km+ turbines and an entire wind farm become difficult to distinguish and a minor feature in the wider landscape so visual effects are not an issue.

Magnitude	Definition
Dominant	The feature has a defining influence on the view and is a focus in the view.
Prominent	The feature is clearly visible in the view and forms an important but not defining element of the view.
Present	The feature is neither dominant nor prominent but is visible in the view.
Negligible	The feature is visible but may go unnoticed as a minor element in the view, or is not visible.

We are puzzled by the change of terminology in the ‘Magnitude’ definitions. The first two defined terms ‘dominant’ and ‘prominent’ refer to the presence of turbines in the



<sup>693</sup> Ms E A Steven, evidence-in-chief para 27.3 [Environment Court document 9].

<sup>694</sup> Mr P Rough, evidence-in-chief para 174 [Environment Court document 3].

landscape. The third term 'present' is not descriptive in any meaningful way, and the fourth term 'negligible' refers not to the presence of turbines but to their 'potential for visual effects'. The scale for visual effects seems to move from a high of 'substantial', down through 'moderate' to 'negligible' to 'non-existent'. We respectfully find that the table is neither consistent nor scientific in its approach to categorising the visual effects of wind turbines as a function of distance.

[440] For his part, Mr Rough, after giving that table, immediately acknowledged that it could only be of partial assistance in regard to the Meridian project because the turbines proposed on the Lammermoor will be up to 160 metres high (to the top of the rotor arc) – that is nearly half as high again as the Te Apiti turbines and rotors. Nor did he make any allowance for the very different topography and vegetation of the Lammermoor site compared with Te Apiti. Further, after stating the categories Mr Rough is not consistent in his use of them, so we are left baffled by why he introduced them at all.

#### 5.7.4 Assessment of effects on the landscape from the viewpoints

##### *Distant views*

[441] We find that views from more than 30 kilometres away – e.g. from Ranfurly – are very likely to be negligible in almost all circumstances<sup>695</sup>. On this we prefer the evidence of Mr Rough to that of Ms Steven<sup>696</sup>.

##### *Clarks Junction area*

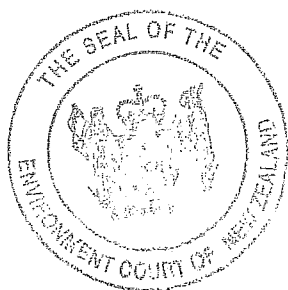
[442] Clarks Junction is where State Highway 87 from Dunedin and Mosgiel turns north towards Middlemarch and the Old Dunstan Road starts its trek directly towards the scarp above Sutton Stream. From a point 3.4 kilometres southeast of Clarks Junction parts of the wind farm will be visible at a range of 27 kilometres (or more). At this point the landscape is typical working countryside – green fenced paddocks on rolling countryside with shelterbelts of pines and conifers as conspicuous features<sup>697</sup>. The skyline is the long, 'almost flat horizon'<sup>698</sup> of the Rock and Pillar, Lammermoor and Lammerlaw Ranges. Features that stand out are the pylons of the existing Roxburgh-

<sup>695</sup> Mr P Rough, evidence-in-chief paragraphs 219, 261 and 261 [Environment Court document 3].

<sup>696</sup> Ms E A Steven, rebuttal evidence para 62 [Environment Court document 9A].

<sup>697</sup> Mr P Rough, evidence-in-chief para 221 [Environment Court document 3].

<sup>698</sup> Mr P Rough, evidence-in-chief para 221 [Environment Court document 3].



Three Mile Hill transmission line. In Mr Rough's opinion<sup>699</sup> "the wind farm's effect on visual amenity values will be slight" when viewed from this area. In contrast Ms Steven was of the opinion that<sup>700</sup>:

The skyline would appear to literally bristle with turbines especially when back lit. The existing pylons, which can be picked out at this distance, virtually disappear relative to the turbines. Whilst not dominant scale-wise, the turbines would stand out and attract attention because of their sky line location, and unnatural vertical form and motion.

Cross-examined by Mr Beatson<sup>701</sup> she conceded that it would be about one-third of the skyline as seen by the observer. In her opinion the effects would be more than 'slight'<sup>702</sup>. Mr Rough also assessed as 'slight'<sup>703</sup> the effect on views further north on the road towards Middlemarch.

[443] Coming a little closer to the wind farm: from Clarks Junction the Old Dunstan Road leads generally northwest towards the ranges across open green, largely tree-less farmland<sup>704</sup>. The turbines of the wind farm will be visible on the skyline (with the closest turbines nearly 22 kilometres away<sup>705</sup>). Mr Rough considered that, especially when backlit<sup>706</sup> in the afternoon, the turbines would be more obvious. In Mr Rough's opinion the wind farm "... will not appear as a dominant or even prominent feature"<sup>707</sup> from his photopoint 2 which is 2.29 kilometres west of Clarks Junction<sup>708</sup>. In Ms Steven's opinion<sup>709</sup>:

The sense of anticipation of experiencing a remote upland natural landscape would be significantly diminished, and this is the only experience of its kind in Central Otago.

After crossing Deep Stream the wind farm will not be visible because it is hidden by the eastern scarp of the ranges looming up in front of the observer.

<sup>699</sup> Mr P Rough, evidence-in-chief para 223 [Environment Court document 3].  
<sup>700</sup> Ms E A Steven, rebuttal evidence para 66 [Environment Court document 9A].  
<sup>701</sup> Transcript (2008), p. 557.  
<sup>702</sup> Ms E A Steven, rebuttal evidence para 64 [Environment Court document 9A].  
<sup>703</sup> Mr P Rough, evidence-in-chief para 224 [Environment Court document 3].  
<sup>704</sup> Mr P Rough, evidence-in-chief para 229 [Environment Court document 3].  
<sup>705</sup> Mr P Rough, evidence-in-chief para 230 [Environment Court document 3].  
<sup>706</sup> Mr P Rough, evidence-in-chief para 230 [Environment Court document 3].  
<sup>707</sup> Mr P Rough, evidence-in-chief para 232 [Environment Court document 3].  
<sup>708</sup> Mr P Rough, evidence-in-chief para 231 [Environment Court document 3].  
<sup>709</sup> Ms E A Steven, rebuttal evidence para 68 [Environment Court document 9A].



*Eastern side of Lammermoor (within Dunedin City)*

[444] After climbing the scarp on the eastern side of the ranges the now metalled – often sparsely – and much rougher Old Dunstan Road turns northeast (at the un-signposted junction with the Pylon Road) to skirt what was the Great Moss Swamp and is now the Logan Burn reservoir. From most places along the Old Dunstan Road as it runs north across the peneplain the wind farm will be visible.

- Old Dunstan Road – eastern side of Logan Burn Reservoir

[445] Of a viewpoint<sup>710</sup> on the eastern side of, and above, the Logan Burn reservoir Mr Rough wrote<sup>711</sup> “... the landscape is characteristically high country – the scale is grand, open and expansive and tussock grassland appears to be the dominant land cover”. Turbines will be obvious through one quarter of the “... 360° panoramas that are afforded from the Old Dunstan Road in the high plateau”<sup>712</sup>. The closest turbines would be 5.18 kilometres away and three substations (and some service roads) would be visible. In Mr Rough’s opinion the wind farm will be a prominent feature in the landscape but will not dominate it<sup>713</sup>. Further, “... the landscape’s fundamentally rural character will remain”<sup>714</sup> but the effect of the wind farm will be ‘substantial’<sup>715</sup> on visual amenity values.

[446] In contrast Ms Steven’s view was that<sup>716</sup>:

... the wind farm would not be a subordinate element; it would be seen as a major intrusion and distraction due to its obviously unnatural hi-tech rotating forms. It would compete for and win visual attention over the reservoir and wider tussock landscape.

<sup>710</sup> Mr P Rough’s photopoint 3.

<sup>711</sup> Mr P Rough, evidence-in-chief para 233 [Environment Court document 3].

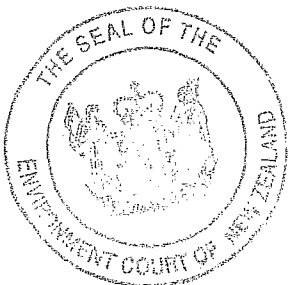
<sup>712</sup> Mr P Rough, evidence-in-chief para 234 [Environment Court document 3].

<sup>713</sup> Mr P Rough, evidence-in-chief para 235 [Environment Court document 3].

<sup>714</sup> Mr P Rough, evidence-in-chief para 235 [Environment Court document 3].

<sup>715</sup> Mr P Rough, evidence-in-chief para 235 [Environment Court document 3].

<sup>716</sup> Ms E A Steven, rebuttal evidence para 71 [Environment Court document 9A].





She pointed out<sup>717</sup> that “similar effects ... would be experienced from many places within the wander-at-will Stonehurst Conservation Area”. Further, because parts of the Stonehurst Conservation Area are higher (up to 1100 masl)<sup>718</sup>:

... more of the internal roading, substations, turbine construction sites and disposal areas would potentially be visible. This would have considerable adverse effect on the panoramic experience of natural landscape enjoyed at present.

• Near Logan Burn Reservoir<sup>719</sup>

[447]. From the Old Dunstan Road there is a well-formed metal road – Reservoir Road – leading down to the lake edge and the dam on the Logan Burn. As Mr Rough fairly observed “Many people ... would not be aware that the reservoir is an artificial body of water and some would no doubt assume that it is a natural high country lake”. There is a boat-launching ramp at the end of the road, and another vehicle track leads 600 metres south along the edge of the lake providing access at various points. Mr Rough’s photopoint 4 is on that vehicle track and the nearest turbines are 1.44 kilometres away and above the viewer<sup>720</sup>. Mr Rough assessed the effect of the proposed wind farm from here as follows<sup>721</sup>:

The closest turbines will, because of their prominence, have a substantial effect on amenity values in the proximity of the reservoir dam but despite the turbines’ presence the reservoir will remain the dominant feature in the scene. The overall view from the simulation viewpoint is very expansive and the sense of openness continues considerably to the left and out of the picture. In the simulation (and in preceding ones) the turbines appear to “sit” on the landscape rather than in it and in doing so allow the essential rural character of the landscape to prevail.

Ms Steven doubted<sup>722</sup> that the turbines would have “a subordinate position” and we tend to agree.

<sup>717</sup> Ms E A Steven, rebuttal evidence para 73 [Environment Court document 9A].  
<sup>718</sup> Ms E A Steven, rebuttal evidence para 73 [Environment Court document 9A].  
<sup>719</sup> Mr P Rough’s photopoint 4.  
<sup>720</sup> Mr P Rough, evidence-in-chief para 237 [Environment Court document 3].  
<sup>721</sup> Mr P Rough, evidence-in-chief para 239 [Environment Court document 3].  
<sup>722</sup> Ms E A Steven, rebuttal evidence para 74 [Environment Court document 9A].



- Rock outcrop by Old Dunstan Road<sup>723</sup>

[448] 1.5 kilometres north of the junction with Reservoir Road the Old Dunstan Road rises to pass by a rock outcrop (one of the few near the road) which is in fact within the Stonehurst Conservation Area<sup>724</sup>. From the top of the rock about 100 turbines are likely to be visible over a 120° arc, the closest 0.9 kilometres away, and the farthest 16 kilometres<sup>725</sup>. Other visible features of the wind farm are likely to be<sup>726</sup>:

- sections of internal access roads;
- monopoles supporting internal power transmission lines;
- two substations.

Mr Rough's opinion was that from here the wind farm would be a dominant feature in the landscape<sup>727</sup>. He then wrote that its overall effect would be substantial when looking to the west. Ms Steven agreed<sup>728</sup>.

*Old Dunstan Road within Central Otago district*

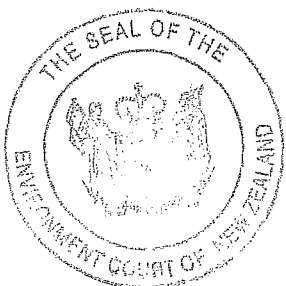
- Old Dunstan Road, near McPhees Creek<sup>729</sup>

[449] About one kilometre north of the previous photopoint, Mr Rough assessed the wind farm as having a 'substantial effect [on] visual amenity values'<sup>730</sup> from this vicinity and Ms Steven agreed<sup>731</sup>.

- Old Dunstan Road, near Turbine V3Z3<sup>732</sup>

[450] Mr Rough assessed the potential effects of the wind farm at the point where the Old Dunstan Road dives down the scarp into the Taieri River Valley at Paerau. He described this locality as follows<sup>733</sup>:

<sup>723</sup> Mr P Rough's photopoint 5.  
<sup>724</sup> Mr P Rough's photopoint 13.  
<sup>725</sup> Mr P Rough, evidence-in-chief para 242 [Environment Court document 3].  
<sup>726</sup> Mr P Rough, evidence-in-chief para 242 [Environment Court document 3].  
<sup>727</sup> Mr P Rough, evidence-in-chief para 243 [Environment Court document 3].  
<sup>728</sup> Ms E A Steven, rebuttal evidence para 76 [Environment Court document 9A].  
<sup>729</sup> Mr P Rough's photopoint 17.  
<sup>730</sup> Mr P Rough, evidence-in-chief para 248 [Environment Court document 3].  
<sup>731</sup> Ms E A Steven, rebuttal evidence para 77 [Environment Court document 9A].  
<sup>732</sup> Mr P Rough's photopoint 13.  
<sup>733</sup> Mr P Rough, evidence-in-chief para 254 [Environment Court document 3].



Adjacent to a 4.8 km long section of the road the five closest turbines will be potentially within 60 m to 375 m from the road. Turbine V3Z3 will be the closest turbine to the road and the photo-simulation from Photo-point 13 conveys a view from a position on the road, 120 m north of the turbine.

Looking south from Mr Rough's viewpoint 13 other turbines will be substantially visible, as will two access roads<sup>734</sup>. In his opinion<sup>735</sup>:

The turbines, especially [V3Z3] closest to Old Dunstan Road, will be a strong visual focus and will have a very substantial effect on visual amenity values

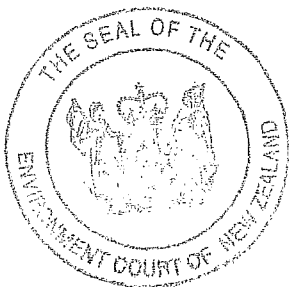
– and that is from inside a vehicle. From outside, he opined that<sup>736</sup>:

From beyond the confines of a vehicle turbine V3Z3 will assume greater dominance as the full height of its tower and moving rotor will be manifest. While the structure may offend some people others can be expected to be curious and interested to experience a wind turbine at close quarters following their being gradually acquainted with the wind farm from considerable distances when approaching the site by road from either the north or the south.

[451] Ms Steven wrote<sup>737</sup>:

... Whilst it is true some people may be able to satisfy their curiosity over the turbines, others will be shocked to find how enormous they really are, as well as seeing the scale of roading required – which will be bigger than the firebreaks already next to the road, including batters and water tables. Such roading would obliterate the existing 3-4m wide grass and dirt 4WD tracks. The cumulative effect with the firebreak would be heavy, on what is one of the most visually attractive parts of the journey and the first experience of expansive snow tussock grassland on reaching the summit coming from the west, where rock tors are the biggest sky line feature.

<sup>734</sup> Mr P Rough, evidence-in-chief para 255 [Environment Court document 3].  
<sup>735</sup> Mr P Rough, evidence-in-chief para 256 [Environment Court document 3].  
<sup>736</sup> Mr P Rough, evidence-in-chief para 257 [Environment Court document 3].  
<sup>737</sup> Ms E A Steven, rebuttal evidence para 81 [Environment Court document 9A].



- Old Dunstan Road, 2.97 kilometres uphill from Paerau<sup>738</sup>

[452] This viewpoint towards the top of the 300 metre vertical ascent from Paerau contains nine turbines with the closest 690 metres away<sup>739</sup>. As Mr Rough pointed out, from this section of the road views – at least to the south and east – tend to be restricted by the topography, which is varied – rock outcrops and bumps in the land, the winding road, scattered areas of tussock<sup>740</sup> amongst the grass and *Hieracium*. In his view<sup>741</sup>:

The turbines, however, will be very prominent and will become dominant elements in the landscape when viewed at such close quarters and, although only a few turbines will be seen, collectively they will have a very substantial effect on visual amenity values. Despite this, the turbines will mostly appear to be breaking the skyline and thus appear to be sitting on the landscape rather than in it. This factor, combined with the individual turbines being set generally well apart from each other will allow the landscape to retain its rural character. [Our emphasis.]

We will discuss shortly Mr Rough's analysis of the site in terms of its 'rural character'.

*Styx-Patearoa Road and its continuation, Upper Taieri Paerau Road*

- Near Styx Creek<sup>742</sup>

[453] The Styx-Patearoa Road rises through a fretted landscape and into the Styx area at the bottom end of the uppermost Taieri scroll plain. From here about four kilometres north of Paerau the first views of the wind farm will be seen if built as proposed. Twenty-one further turbines will be visible near Old Dunstan Road<sup>743</sup>. More will be visible on the skyline and the scarp-face to the south. Mr Rough considered<sup>744</sup> that in the area "the wind farm will be a prominent and distinct feature in the landscape" but that "the rural character will prevail"<sup>745</sup>. Ms Steven again considered he had understated it. She wrote<sup>746</sup>:

<sup>738</sup> Mr P Rough's photopoint 7.

<sup>739</sup> Mr P Rough, evidence-in-chief para 259 [Environment Court document 3].

<sup>740</sup> Mr P Rough, evidence-in-chief para 260 [Environment Court document 3].

<sup>741</sup> Mr P Rough, evidence-in-chief para 260 [Environment Court document 3].

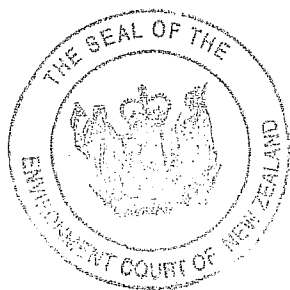
<sup>742</sup> Mr P Rough's photopoint 6.

<sup>743</sup> Mr P Rough, evidence-in-chief para 269 [Environment Court document 3].

<sup>744</sup> Mr P Rough, evidence-in-chief para 270 [Environment Court document 3].

<sup>745</sup> Mr P Rough, evidence-in-chief para 271 [Environment Court document 3].

<sup>746</sup> Ms E A Steven, rebuttal evidence para 84 [environment Court document 9A].



The degree of incongruity of the wind farm elements and its scale can only make it dominant and attention-grabbing. I expect that there would be a substantial adverse effect on the perceived natural character of the landscape, and the level of visual amenity would decline accordingly.

- Upper Taieri Paerau Road

[454] The Styx Patearoa Road terminates at Paerau by the heritage Styx Hotel and Jail. Ms Steven considered the turbines would be visible from the school and would have substantial effects on the visual amenity of the views from these buildings<sup>747</sup>. From here the Old Dunstan Road climbs the scarp as already discussed. The main road continues up the eastern side of the valley as the Upper Taieri Paerau Road for about 15 kilometres. There are four dwellings at intervals along this road, one of which is connected to the Paerau School. From the school the rotors of three turbines will be visible<sup>748</sup> at a distance of about 1.6 kilometres. The moving rotors will be “a strong visual focus and will have a substantial effect on the visual amenity of the school”<sup>749</sup>.

*Serpentine Flat*

[455] On the northwestern side of the uppermost Taieri scroll plain (where the river winds sinuously) is the Serpentine Flat. The scroll plain itself is described as an ‘area of outstanding value’ in the district plan. Along the far side of the valley from the wind farm is the Linnburn Runs Road. The river and its wide margins are within a straight-sided reserve. Outside the reserve the plain is intensively farmed. It is covered in exotic grasses in large paddocks with exotic shelterbelts running in lines across the valley.

- Junction of Linnburn Runs Road and Deep Creek Road<sup>750</sup>

[456] From this intersection the western edge of the Lammermoor is visible about 300 metres above the valley floor. If the wind farm is built ‘numerous’<sup>751</sup> turbines will be seen along and above that skyline over a distance of about 20 kilometres. Some sections of access roads will be visible<sup>752</sup>. The closest turbine will be 5.45 kilometres

<sup>747</sup> Ms E A Steven, rebuttal evidence para 86 [Environment Court document 9A].

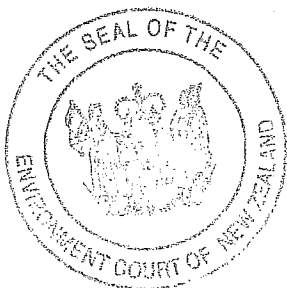
<sup>748</sup> Mr P Rough, evidence-in-chief para 272 [Environment Court document 3].

<sup>749</sup> Mr P Rough, evidence-in-chief para 272 [Environment Court document 3].

<sup>750</sup> Mr P Rough’s photopoint 8.

<sup>751</sup> Mr P Rough, evidence-in-chief para 275 [Environment Court document 4].

<sup>752</sup> Mr P Rough, evidence-in-chief para 275 [Environment Court document 4].



from this viewpoint<sup>753</sup>. The views from Linnburn Runs Road are of particular concern to farmers and others who reside here.

[457] Mr Rough assessed that the proposed wind farm will be<sup>754</sup> “a very prominent and distinctive feature”, with which Ms Steven agreed. He continued<sup>755</sup>:

It will, however, not be the dominant feature. The Lammermoor Range and the prominent foreground farmland will continue to be the most prominent features in the landscape and, following construction of the wind farm, the rural character of the scene will prevail.

When Mr Marquet (for local residents) asked him in cross-examination whether it would be ‘an energy production landscape’ he answered that ‘... the rural character is still the predominant character of the landscape’<sup>756</sup>. His evidence-in-chief summarised the effect of the wind farm as having<sup>757</sup> “a substantial effect on visual amenity values”.

[458] Mr E Laurenson and Mr I Manson, both landowners on the western side of the Paerau Valley, gave evidence on visual effects. Mr Laurenson stated<sup>758</sup> “that the visual impact will never go away”, while Mr Manson wrote<sup>759</sup>:

As is the case with farming, we spend our lives outside and with the way our property is oriented and the sheer scale of the project there is nowhere on Riverview [the Manson property] that the massive turbines won[']t be the dominant feature.

There is no doubt the proposed wind farm will have a significant visual effect on these landowners and on others who choose to fish or recreate in the Paerau Valley.

<sup>753</sup> Mr P Rough, evidence-in-chief para 275 [Environment Court document 4].

<sup>754</sup> Mr P Rough, evidence-in-chief para 276 [Environment Court document 4].

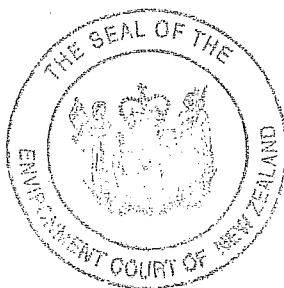
<sup>755</sup> Mr P Rough, evidence-in-chief para 276 [Environment Court document 4].

<sup>756</sup> Transcript (2008), p. 154.

<sup>757</sup> Mr P Rough, evidence-in-chief para 277 [Environment Court document 4].

<sup>758</sup> Mr E Laurenson, evidence-in-chief para 18 [Environment Court document 19].

<sup>759</sup> Mr I Manson, evidence-in-chief para 3.1 [Environment Court document 20].



- Middle of Serpentine Flat

[459] From the middle of Serpentine Flat (near the Taieri River) Mr Rough considered<sup>760</sup> that fewer turbines would be visible but they would be closer (about three kilometres) so the effect from here would also be substantial.

*Old Dunstan Road (Rough Ridge)*

[460] Across the Serpentine Flat the line of the Old Dunstan Road has been lost, or at least it was not identified for us. The route picks up again from the foot of the Linnburn Runs Road and then climbs in a southwesterly direction over the flank of South Rough Ridge Hill, thence over Rough Ridge to the Poolburn reservoir and then down into Ida Valley.

[461] The wind farm will not be visible<sup>761</sup> from most of the northern part of the Old Dunstan Road because views are generally blocked by South Rough Ridge Hill. Views will be limited to the lower slopes of that especially when climbing from below since the view will be at about 45° to the direction of travel. From these slopes<sup>762</sup> Mr Rough assessed the wind farm as “a reasonably prominent and distinct feature in the wider landscape”. Again we note the ambivalence in Mr Rough’s evidence about what he means by landscape. For her part Ms Steven assessed the effects as a very dominant element of the landscape<sup>763</sup>.

[462] However, we consider her statement that<sup>764</sup>:

Travelling east, the site is in direct view emphasizing the adverse effect

– as rather an over-simplification since the Old Dunstan Road from where the Meridian site is visible runs mainly northeast-southwest so the occupants of a car are not looking towards the Meridian site which is nearly 90° to the right of their general course. However, if one stops a vehicle and looks east then her statement is correct.

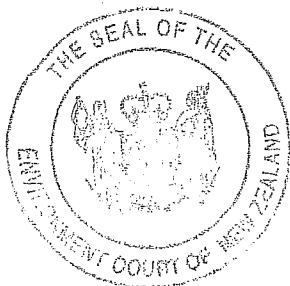
<sup>760</sup> Mr P Rough, evidence-in-chief para 277 [Environment Court document 4].

<sup>761</sup> Mr P Rough, evidence-in-chief para 280 [Environment Court document 4].

<sup>762</sup> Mr P Rough’s photopoint 9.

<sup>763</sup> Ms E A Steven, rebuttal evidence para 89 [Environment Court document 9A].

<sup>764</sup> Ms E A Steven, rebuttal evidence para 90 [Environment Court document 9A].



*Serpentine Scenic Reserve*

[463] This reserve contains 750 hectares at the southern end of South Rough Ridge Hill. The vegetation of the reserve is principally snow tussock, in which are set two areas of old gold diggings and the old Serpentine Church built out of local schist. The wind farm will not be visible from the church, but from higher points in the reserve and contiguous areas it will be visible. In Mr Rough's opinion<sup>765</sup> the wind farm will have a 'slight to moderate effect on visual amenity values'. Ms Steven generally agreed<sup>766</sup>.

*Southern end of the Meridian site*

- Pylon Road

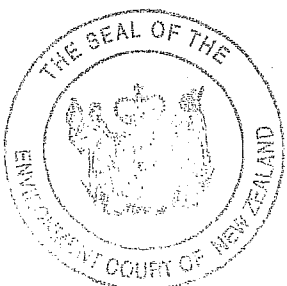
[464] There are public access easements by foot or bike over this road<sup>767</sup>. We were given no assessment of the effect of the wind farm on the visual amenity from this road by Mr Rough, but as stated above, Ms Steven considered the impact was incompatible<sup>768</sup>.

- Taieri Rapids Scenic Reserve

[465] Again Mr Rough made no assessment from here, and Ms Steven's opinion was that the wind farm was incompatible with views from here (although that opinion was reached before Meridian volunteered to move the closest turbine).

*Te Papanui Conservation Park*

[466] The Lammermoor Range is partly within the Te Papanui Conservation Park. A rough 4WD track runs north-south along its broad crest. This can be accessed from either on the Old Dunstan Road or from roads up the Lammerlaw Range to the south. The general trend of the Lammermoor Range is to dip downhill north towards the Meridian site from the high point known as 'Lammermoor' (1160 masl) at the junction of the Lammerlaw and Lammermoor Ranges. From the Conservation Park boundary the



<sup>765</sup> Mr P Rough, evidence-in-chief para 284 [Environment Court document 4].  
<sup>766</sup> Ms E A Steven, rebuttal evidence para 91 [Environment Court document 9A].  
<sup>767</sup> Mr R J Greenaway, evidence-in-chief page 6 [Environment Court document 59].  
<sup>768</sup> Ms E A Steven, evidence-in-chief para 23.28 [Environment Court document 9].



nearest turbine would be four kilometres away<sup>769</sup>. From a musterer's hut<sup>770</sup> on that boundary Mr Rough wrote that turbines would be 'clearly visible spread out along the crest'<sup>771</sup> of the Lammermoor. He assessed the wind farm would be a 'prominent and distinctive feature on the skyline'<sup>772</sup> but the landscape would remain 'fundamentally rural'<sup>773</sup>. Ms Steven agreed with the first of those opinions<sup>774</sup> but added<sup>775</sup>:

Given the expectation of the landscape experience of Te Papanui (which extends beyond its boundaries to other parts of the summit landscape, much of which is also conservation area or is assessed to warrant proposal as such) is remote and highly natural character, the presence of the wind farm would be a very significant detracting element in my view. It would fundamentally alter the existing extensive pastoral/conservation land character of the summit landscape.

### *Rock and Pillar Range*

[467] The highest block mountain range within eastern Central Otago is the Rock and Pillar Range. A large part of the crest and eastern scarp of this range is within a Conservation Park. We earlier described the recreational use of this area.

- McPhees Rock (1310 masl)<sup>776</sup>

[468] The wind farm site is overlooked from much of the southern part of the Rock and Pillar Range. From McPhees Rock the nearest turbine will be 2.22 kilometres away and numerous turbines will be visible<sup>777</sup>. However the turbines will not be on the skyline<sup>778</sup>; all will be viewed against a backdrop of tussock grass. Three substations will be visible – most obviously the Styx substation which is only one kilometre from the Old Dunstan Road – as will sections of several access roads. Mr Rough assessed the wind farm as having a moderate effect<sup>779</sup> on visual amenity values. That caused a stronger reaction from Ms Steven<sup>780</sup>:

<sup>769</sup> Mr P Rough, evidence-in-chief para 286 [Environment Court document 4].

<sup>770</sup> Mr P Rough's photopoint 10.

<sup>771</sup> Mr P Rough, evidence-in-chief para 286 [Environment Court document 4].

<sup>772</sup> Mr P Rough, evidence-in-chief para 287 [Environment Court document 4].

<sup>773</sup> Mr P Rough, evidence-in-chief para 287 [Environment Court document 4].

<sup>774</sup> Ms E A Steven, rebuttal evidence para 92 [Environment Court document 9A].

<sup>775</sup> Ms E A Steven, rebuttal evidence para 92 [Environment Court document 9A].

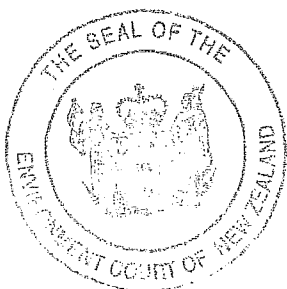
<sup>776</sup> Mr P Rough's photopoint 11.

<sup>777</sup> Mr P Rough, evidence-in-chief para 290 [Environment Court document 4].

<sup>778</sup> Mr P Rough, evidence-in-chief para 291 [Environment Court document 4].

<sup>779</sup> Mr P Rough, evidence-in-chief para 292 [Environment Court document 4].

<sup>780</sup> Ms E A Steven, rebuttal evidence paragraphs 93 and 94 [Environment Court document 9A].



There would be a very substantial effect on the perception of natural character, and a change from pastoral rural to industrial rural – in an area where remote and expansive natural landscape is the expectation. The wide spacing of the turbines is of little relevance to the overall effect. From these elevated positions, parts of the access roading and other earthworks would be visible, degrading the coherence of the landscape, as they will remain permanent visual scars marked by a change in vegetation cover.

The rotating motion and vertical unnatural form of the turbines would ensure they remain the constant focus of visual attention.

Mr Espie was critical of Mr Rough's evidence, writing that<sup>781</sup>:

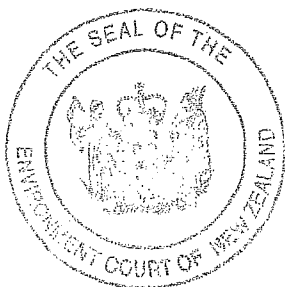
It appears that 'substantial' is the strongest adjective that Mr Rough has in his arsenal. In fact 'very substantial' occurs at least once. Further 'substantial' is the highest word for visual effects in the table Mr Rough was basing his analysis on.

#### 5.7.5 Mitigation of effects on the landscape

[469] Mr Rough listed a number of steps that he believes will mitigate against some of the visual effects of the development on the landscape. They are in three categories relating first to turbine design and layout features; next, changes to the landform due to the on-site earthworks; and lastly the rehabilitation of the site's vegetation.

#### *Turbine design*

[470] It was Mr Rough's view that the blade glint of the turbines would be diminished by the painting of the structure and blades in a light grey<sup>782</sup>. We accept that to be very likely. He also believed this colour would mitigate the visual impact of the turbines when viewed against the sky. We viewed the Truescape time-lapse video that usefully compressed the varying light conditions over a day to show a range of effects on the visibility of the turbines. As a result we would qualify Mr Rough's assessment to say that a light grey colour reduces visibility in some light conditions. On the video we viewed, taken from Linnburn Runs Road – this effect was achieved for a few hours when the sun passed in front of the turbines (mid to late afternoon from that viewpoint).



<sup>781</sup> Mr B Espie, evidence 9 May 2008 para 4.14 [Environment Court document 21].

<sup>782</sup> Mr P Rough, evidence-in-chief para 205(e) [Environment Court document 3].

[471] Mr Rough viewed the turbines as elegant and visually cohesive structures. We agree that for some viewers this would be so. All the members of the Court consider they have elegant, kinetic sculptural qualities and that cumulatively all the turbines in a wind farm are often both spectacular and dynamic.

[472] The placement of turbines on ridges and their separation by landform was said by Mr Rough to be a design feature that would help retain the open character of the landscape<sup>783</sup>. We accept that is so to a considerable extent although we find that principally the sites were chosen on the ridges (where the bedrock is relatively shallow<sup>784</sup>) and gentle terrain for geotechnical considerations<sup>785</sup>. Ms Steven was of the view that because the landscape is so open inserting tall vertical elements into a dominantly horizontal landscape will increase their prominence<sup>786</sup>. That factor too will come into play.

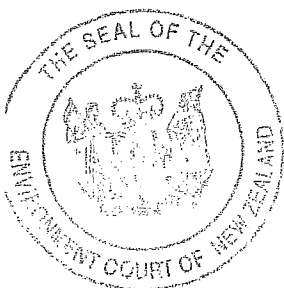
*Other infrastructure*

[473] Transmission cables which cannot be accommodated underground will be sited so as to obscure them from the skyline, masking them from the ODR and the Taieri River Valley where practical<sup>787</sup>. Under-grounding cables is appropriate mitigation. While the masking which is included in the above-ground approach is laudable we are not sure how this is to be achieved.

[474] The proposed Styx substation has been moved to avoid visual effects from Old Dunstan Road<sup>788</sup>. We agree that this would be an effective mitigation of visual effects arising from the substation on views from Old Dunstan Road.

[475] Mr Rough wrote that disposal sites and other temporary sites such as batching plants and laydown areas would be reshaped to conform to the existing topography and

<sup>783</sup> Mr P Rough, evidence-in-chief para 205(f) [Environment Court document 3].  
<sup>784</sup> Mr A J Coulman, evidence-in-chief para 3.11 [Environment Court document 30].  
<sup>785</sup> Mr A J Coulman, evidence-in-chief para 3.7 [Environment Court document 30].  
<sup>786</sup> Ms E A Steven, evidence-in-chief para 27.8 [Environment Court document 9].  
<sup>787</sup> Mr A J Coulman, evidence-in-chief para 9.15 [Environment Court document 30].  
<sup>788</sup> Mr P Rough, evidence-in-chief para 205(j) [Environment Court document 3].



would result in mitigation of the visual effects of the earthworks across the site. He concludes there will be no long-term visual impact from disposal sites. As long as consent conditions require this, we accept that earthworks will result in a less than minor visual effect on landforms from disposal and temporarily used sites. Similarly, Mr Rough believed that battering cut slopes and revegetation would mitigate the visual effects of turbine platforms. We find that because they are required for the on-going maintenance of the turbine infrastructure the turbine platforms cannot be reshaped, although they will be reduced in size once the turbines are installed. The mitigation proffered will have little effect on the visual landscape effects of 176 turbine platforms.

[476] Mr Coulman stated that wherever practical cuttings will be treated to blend back into the landscape by revegetation (which we deal with next) and the rounding of berms where road cuttings are significant<sup>789</sup>. The outcome at the White Hill wind farm can be seen in Photo 9 of Mr Coulman's rebuttal evidence. We find that the substantial visual effect of earthworks allied to roading was not mitigated very much at White Hill. Mr Coulman also envisaged that base course matched from site<sup>790</sup> will mitigate the visual effects of widening. We agree that the visual attenuation of road surfacing by the use of local aggregate will mitigate visual effects of widening and should form part of the conditions. Where seal has been necessary for steepness it can be removed<sup>791</sup>. We agree but make no direction as to conditions as this may be a safety issue for the Council.

[477] Ms Steven regarded the use of existing farm tracks as helpful in diminishing the total fresh roading footprint across the landscape.

#### *Revegetation*

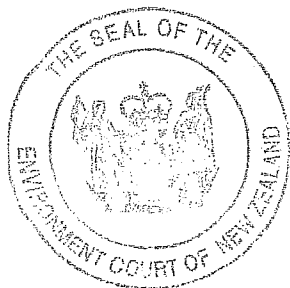
[478] In response to a request from the Court Mr Coulman supplied a list of all elements of disturbance that would require revegetation<sup>792</sup>. Using upper bound estimates for the volume of earthworks as set out in the Construction Effects Report he then calculated the projected area to be revegetated as 240 hectares which is

<sup>789</sup> Mr A J Coulman, evidence-in-chief para 9.10 [Environment Court document 30].

<sup>790</sup> Mr A J Coulman, evidence-in-chief Appendix 4 para 5 [Environment Court document 30].

<sup>791</sup> Mr A J Coulman, evidence-in-chief Appendix 4 para 14 [Environment Court document 30].

<sup>792</sup> Mr A J Coulman, supplementary statement of evidence 8 August 2008 [Environment Court document 30B].



approximately 2.6% of the core site area<sup>793</sup>. With a five year construction period this means some 48 hectares will require revegetating each year.

[479] We find that there are at least four scenarios for the site and its landscape setting arising out of the relationship between the wind farm and pastoral farming while revegetation is being given a chance to succeed. They are to operate:

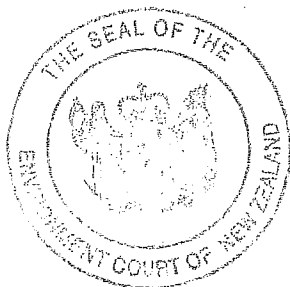
- (1) the wind farm only, i.e. to exclude all stock for at least five years;
- (2) (at the other extreme) wind farm plus normal stocking patterns. This seems to be a recipe for *Hieracium* spread unless there is regular exotic seed application and high fertiliser application;
- (3) a modified version of (2) whereby the regime depends on the landowner's preference, e.g. the Meridian land is closed to farming, but others are open;
- (4) the fourth scenario is to fence off all road margins and turbine and other earthworked sites until revegetation is complete. We consider this is a substantial imposition on any consent-holder because there are 150 kilometres of internal roads and 176 turbines. If the perimeter of a turbine site is 90 metres then the minimum length of fences needed just for roads and turbines is:

$$\begin{array}{rcl}
 150 \text{ km} \times 2 & = & 300 \text{ km (roads)} \\
 90 \text{ metres} \times 176 & = & \underline{16} \text{ km (turbines)} \\
 & & 316 \text{ km}
 \end{array}$$

The effect of those fences and the different vegetation patterns on either side of the fence on the landscape is likely to be more than minor.

A fifth scenario would be to completely close any block being rehabilitated until complete and to find alternative grazing elsewhere, but our understanding is that is inconsistent with Meridian's licences from the landowners.

<sup>793</sup> Note that this differs from the 350 hectares put to Dr Mark by Mr Rennie (see section 5.5.1 above). 350 hectares is the approximate area of earthworks, 240 hectares is the approximate area to be revegetated, i.e. excluding those areas that will not be revegetated – road surfaces, turbine platforms, substations.



[480] Ms Steven believed the revegetated areas would present a contrast to the surrounding landscape. We agree that at the time of year when the pasture is green in the relatively small areas of pasture that is likely to be so. It will also present a contrasting texture to the surrounding land differentiating it from the tussock grassland. It will establish a visual perception of a more rural and managed landscape with a higher level of weed penetration. This was apparent in the trial plots and outcomes and we confirm that this was also our impression from our site visit.

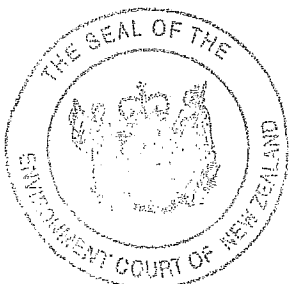
[481] We find that revegetation will not mitigate the visual effects of earthworks across the site. Indeed it seems likely that it will draw attention to them.

#### 5.7.6 Accumulative effects

[482] We have described how the hearing was further adjourned so that the Court could hear evidence about any impact of a wind farm at Mahinerangi on this proposal. At the 2009 resumption of the hearing Meridian produced some new photosimulations<sup>794</sup> of the area. These included those views in which both a Meridian wind farm and a Mahinerangi wind farm, 15 kilometres apart at the closest points and with some 28 kilometres between their centroids, could both be seen.

[483] There is some doubt as to whether Mahinerangi will proceed. Mr Gleadow said in answer to Mr Todd that TrustPower had been quoted in the media as stating that "... under the present policy settings [it] may well not construct Mahinerangi". That is of course hearsay, and we do not know what current settings are of concern to them. Further, it has taken us so long to finalise this decision that more recent media reports suggest that Mahinerangi is likely to proceed. We make no finding either way: as we stated (in Chapter 3.0) if Mahinerangi proceeds then the Meridian project may cause accumulative effects, and if it does not then the Mahinerangi site may be an alternative which we should consider.

[484] Two key landscape witnesses discussed the accumulative effects. Following what is becoming an increasingly standardised methodology for wind farms they



<sup>794</sup> Mr C G Coggan, part of his evidence-in-chief [Environment Court document 49].

identified three different ways in which the two wind farms (if both are built) might be experienced. Ms Steven identified these as<sup>795</sup>:

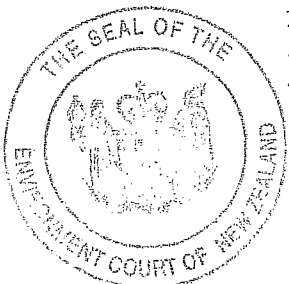
- **Simultaneous visibility** – both facilities are seen in the same view
- **Successive visibility** – both facilities are seen from the same viewpoint but not in the same view (ie, the head has to turn and eyes focus on another part of the landscape in order to see both facilities)
- **Sequential visibility** – the facilities are seen one after the other as one moves through the landscape.

[485] Mr Rough considered<sup>796</sup> there were nine general locations from which both wind farms would be ‘theoretically’<sup>797</sup> visible simultaneously. Some we will not consider further: the first is Flagstaff Hill, northwest of Dunedin, which is in a band a minimum of 30 kilometres from the Mahinerangi site and 40 kilometres from the Lammermoor site; another is on Eldorado track near Mahinerangi but this is largely inaccessible to the public so we regard it as unimportant; and the third is on the summit of the Rock and Pillar Range beyond McPhees Rock. We consider that is covered adequately in any discussion of views from McPhees Rock.

[486] The accumulative visual effects of the simultaneous, successive or sequential views from the other viewpoints where these would occur Mr Rough assessed as follows:

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<sup>795</sup> Ms E A Steven, further evidence (November 2008) para 18 [Environment Court document 75].  
<sup>796</sup> Mr P Rough, further evidence-in-chief para 27 [Environment Court document 52].  
<sup>797</sup> Mr P Rough, further evidence-in-chief para 27 [Environment Court document 52].



<u>Location</u>	<u>Mr Rough's accumulative effects</u>
(a) Intersection SH 87/Mahinerangi Road	Negligible <sup>798</sup>
(b) Mahinerangi Road	Negligible <sup>799</sup>
(c) Black Rock Runs Road	Slight <sup>800</sup>
(d) SH 87 – 3.4 km south of Clarks Junction	Slight to moderate <sup>801</sup>
(e) SH 87 – 7.9 km north of Clarks Junction	Slight to moderate <sup>802</sup>
(f) Old Dunstan Road – 2.29 km northwest of Clarks Junction	Slight <sup>803</sup>
(g) Old Dunstan Road – east of Logan Burn reservoir	Slight to moderate <sup>804</sup>
(h) Old Dunstan Road – roadside rock outcrop	Slight <sup>805</sup>
(i) Near McPhees Rock (Rock and Pillar Range)	Slight <sup>806</sup>
(j) Te Papanui Conservation Park – information area	Slight to moderate <sup>807</sup>
(k) Te Papanui Conservation Park – Ailsa Cra[i]g	Moderate <sup>808</sup>

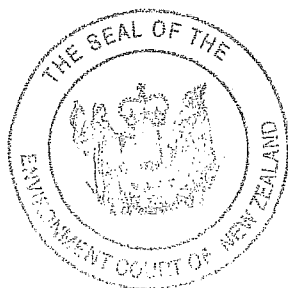
[487] Mr Rough's opinion was that<sup>809</sup>:

... cumulative visual effects (whether they be *combined*, *succession* or *sequential*), resulting from the two wind farms, will range from being negligible to moderate, but overall they will be slight and, from a landscape and visual perspective, not unacceptable.

[488] The overall issue is whether Mr Rough properly assessed the cumulative effects of the proposed wind farm. Ms Steven wrote<sup>810</sup>:

I find that the cumulative effect of all the roading changes, earthworks and turbines and other structures as one moves through this upland tussock landscape has also not been adequately addressed. Each visual impact description is largely related only to the view in the photosimulation. A more realistic approach would have been to consider the effects in terms of the various ways the existing landscape is experienced, for example, thinking of the whole

798 Mr P Rough, further evidence-in-chief para 36 [Environment Court document 52].  
799 Mr P Rough, further evidence-in-chief para 39 [Environment Court document 52].  
800 Mr P Rough, further evidence-in-chief para 41 [Environment Court document 52].  
801 Mr P Rough, further evidence-in-chief para 44 [Environment Court document 52].  
802 Mr P Rough, further evidence-in-chief para 46 [Environment Court document 52].  
803 Mr P Rough, further evidence-in-chief para 49 [Environment Court document 52].  
804 Mr P Rough, further evidence-in-chief para 64 [Environment Court document 52].  
805 Mr P Rough, further evidence-in-chief para 67 [Environment Court document 52].  
806 Mr P Rough, further evidence-in-chief para 69 [Environment Court document 52].  
807 Mr P Rough, further evidence-in-chief para 55 [Environment Court document 52].  
808 Mr P Rough, further evidence-in-chief para 60 [Environment Court document 52].  
809 Mr P Rough, further evidence-in-chief para 99 [Environment Court document 52].  
810 Ms E A Steven, rebuttal evidence para 102 [Environment Court document 9A].





journey along the Old Dunstan Trail from the summit of Rough Ridge to Clarks Junction and vice versa; or the journey up to Te Papanui from Outram; and imagining how those total experiences would be altered by the presence of the wind farm.

[489] Having undertaken that assessment with the help of a relatively basic DVD simulation using K2Vi software produced<sup>811</sup> by Mr van Maren, Ms Steven's assessment of the accumulative effects on the character of the landscape was<sup>812</sup>:

The two wind energy facilities significantly diminish the sense of openness and naturalness, interfere with skylines, disrupt natural quiet (and associated stillness), reduce sense of spaciousness, affect peoples['] outlook, introduce buildings of relatively huge scale exaggerated by their pale colour and motion, and during construction introduce large volumes of heavy traffic. Visual coherence is less affected although landscape is visibly 'chopped up' and segmented ...

[490] In our view the likely strength of the cumulative effects is somewhere between Mr Rough's and Ms Steven's views. We consider that the addition of the Meridian wind farm to a Mahinerangi wind farm will have a moderate adverse extra effect on the natural qualities of the landscape. Having said that, it is clearly the placement of the huge Meridian wind farm in the landscape which generates the major effects to be considered.

#### 5.7.7 Conclusions as to the values of the landscape

##### *Mr Espie's evidence*

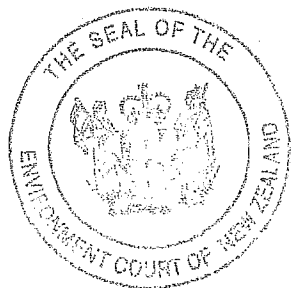
[491] Mr Espie's evidence was relatively brief, and did not take the accumulative effects of Mahinerangi into account. However, he had considered the evidence of Mr Rough, Mr Brown and Ms Steven when writing his report<sup>813</sup> for the local authorities' Commissioners. We consider he was as objective as it is possible to be in this field when he concluded<sup>814</sup> that "I do not believe that th[e] degree of effect [on the landscape] can realistically be described as minor". We do not find that affected by Mr Beatson's

<sup>811</sup> Mr G van Maren, further evidence-in-chief (November 2008) [Environment Court document 76].

<sup>812</sup> Ms E A Steven, further evidence-in-chief (November 2008) para 111 [Environment Court document 75].

<sup>813</sup> Mr B Espie, evidence (9 May 2009) para 4.16 [Environment Court document 21].

<sup>814</sup> Mr B Espie, evidence (9 May 2009) Exhibit BE2 [Environment Court document 21].



cross-examination. He also observed<sup>815</sup> that "... the existing landscape character of the site and its vicinity will change dramatically".

*Mr Rough*

[492] A persistent theme in Mr Rough's evidence was that even where the wind farm is dominant in the landscape its "rural character" would remain. That can be criticised as the wrong legal test under all of the district plan, the regional plan, and Part 2 of the Act. Further, we tend to agree with Ms Steven's observation<sup>816</sup> that Mr Rough was "... mentally separating the wind farm from other landscape elements". Earlier Ms Steven had written<sup>817</sup>:

I find it odd that Mr Rough refers to the turbines as sitting lightly upon the land allowing the existing rural landscape to flow underneath – when the NZILA definition of landscape is the "landscape reflects the cumulative effects of natural and cultural processes". Furthermore the roading and other earth disturbance will have a cumulative effect on the ground itself as will the presence of buildings and power lines.

We find that the wind farm is so large that it will have the effect of creating a new, not unattractive wind farm landscape of much less naturalness than the larger landscape the Meridian site is currently part of.

*Ms Steven*

[493] Ms Steven considered<sup>818</sup> the wind farm would be "simply incompatible"<sup>819</sup> with the qualities of high naturalness, "sense of remoteness and isolation" which she identified<sup>820</sup> as "... probably the most valued attributes" enjoyed from these viewpoints. In her opinion<sup>821</sup>:

<sup>815</sup> Mr B Espie, evidence (9 May 2009) para 4.16 [Environment Court document 21].

<sup>816</sup> Ms E A Steven, rebuttal evidence para 72 [Environment Court document 9A].

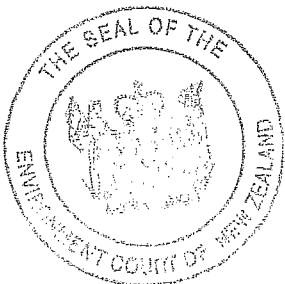
<sup>817</sup> Ms E A Steven, rebuttal evidence para 61 [Environment Court document 9A].

<sup>818</sup> Ms E A Steven, evidence-in-chief para 23.28 [Environment Court document 9].

<sup>819</sup> Ms E A Steven, evidence-in-chief para 23.28 [Environment Court document 9].

<sup>820</sup> Ms E A Steven, evidence-in-chief para 23.28 [Environment Court document 9].

<sup>821</sup> Ms E A Steven, further evidence-in-chief (November 2008) para 111 [Environment Court document 75].



... the insertion of large-scale fields of turbines into the pastoral landscape causes a fundamental shift in character from a dominantly pastoral or treed landscape to one that is overwhelmingly a 'sustainable energy' or a 'rural industrial' landscape. Landform and trees will no longer be the dominating elements. The solid pale-coloured turbines are of such a large scale and are uncharacteristically moving that they elevate their presence to a level where they become a dominant part of the landscape. They could not be said to be able to be integrated into the landscape the same way farm buildings or even pylons can.

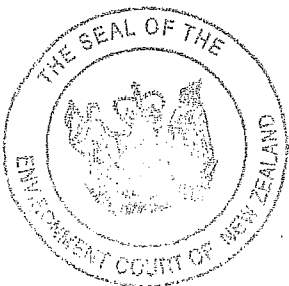
Overall we prefer Ms Steven's individual assessments to those of Mr Rough. We consider she has more accurately assessed the probable effects of the wind farm on the landscape. And we have already found that she more accurately assessed what the landscape is, its extent and its quality.

#### 5.7.8 Visual absorption capacity of the Meridian site

[494] Mr S K Brown, the other landscape expert for Meridian, approached his assessment from the other end of the telescope to Mr Rough, by taking the big picture. The implicit logic seemed to be that if the landscape, as Mr Brown defined it, is not very sensitive, then it is acceptable (in landscape terms) to site a wind farm there. Mr Brown used the 'visual absorption capacity' technique on his defined landscape. That is a two-step technique where first the "VAC" of the target landscape is assessed, and then an assessment is made of how well a proposed structure is likely to be absorbed by the landscape. Mr Brown carried out the first part of that analysis for his Lammermoor landscape (including that part within Dunedin City Council) and his conclusions as to the 'sensitivities' of the Meridian site for development are<sup>822</sup>:

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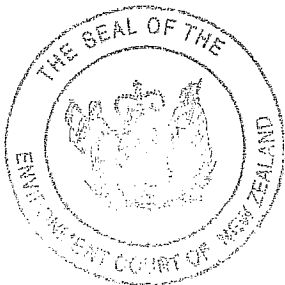
<sup>822</sup> Mr S K Brown, evidence-in-chief following para 96 [Environment Court document 4].



## SENSITIVITIES RELATED TO WIND FARM DEVELOPMENT

<i>Local Sensitivities:</i>	
<i>Major Road Corridors:</i>	Low
<i>Settlements &amp; Housing</i>	Low
<i>Otago Rail Trail:</i>	Low
<i>Outstanding Landscapes:</i>	Moderate - High
<i>Historic sites:</i>	High
<i>Visual Absorption Capability:</i> <i>(Ratings are expressed in relation to Sensitivity ie. High VAC = Low Sensitivity):</i>	
<i>Topography:</i>	High - Moderate
<i>Scale:</i>	Low
<i>Relative Elevation:</i>	High - Moderate
<i>Land Uses:</i>	High
<i>Complexity / Diversity:</i>	Moderate
<i>Sensitivity Rating:</i>	<b>Moderate</b>

[495] We understand Mr Brown to have analysed the Meridian site in two ways – first the sensitivity of its relationship to other qualities of the surrounding area; and secondly the capacity of the site to ‘absorb’ a wind farm. Apart from the ‘outstanding landscapes’ the district plan’s policies are silent about the ‘sensitivities’ he raised so why he called them ‘local sensitivities’ is difficult to understand. On the other hand there is some justification for considering each of these sensitivities under sections 5 to 7 of the Act, although Mr Brown did not expressly recognise the different weights to be given to the factors identified in each of these sections. For example outstanding natural landscapes and historic heritage are matters of national importance to be recognised and provided for<sup>823</sup> whereas the other matters have (at best) to be had particular regard to<sup>824</sup>. While Mr Brown may be quite correct that the Meridian site might not have any effect on the amenities of major road corridors, settlements and housing (although on this last some of the appellants would disagree in respect of their properties on Linnburn Runs Road) and the Otago Rail Trail, there is minimal or no policy justification for protecting those amenities in section 13 of the district plan. The only policy we can think of is policy 13.4.7 which requires Meridian to avoid, remedy or mitigate the “impact on communities”<sup>825</sup>.



<sup>823</sup> Section 6 of the RMA.

<sup>824</sup> Section 7 of the RMA.

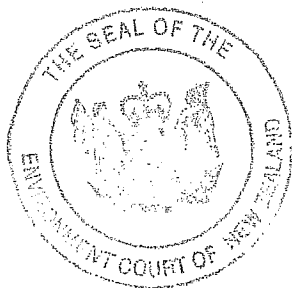
<sup>825</sup> Policy 13.4.7 [Central Otago District Plan, pp 13:7 and 13:8].

[496] As for Mr Brown's second table, of visual absorption capability, we find that difficult to understand. For a start it has to be read as a 'sensitivity' rating, so to obtain his assessment of visual absorption capacity we have to reverse each assessment. The next difficulty is with Mr Brown's topography rating. Of his three explanatory examples we would have accepted that the Lammermoor best fitted the description of having a simple planar character – which is described as less able to absorb new development. It follows from this that the landscape has a low capability of absorbing development and therefore a high sensitivity.

[497] When we examine Mr Brown's assessment of 'scale' we find that the site has a high visual absorption capacity for that heading which must be intended to mean that the wind farm is small in relation to the landscape. We can understand what that means if one is going to place one or two turbines within the 135 km<sup>2</sup> footprint of the entire Meridian project (including the area of the Logan Burn Gorge) but we do not understand how the scale can be high where turbines are to extend over 92 km<sup>2</sup> of that area (92/135 – about 68%). 'Scale' is a relative and confusing concept for lay people. We understand that 'large scale' means the object being considered is large in the context of the area or space being considered. 'Small scale' means the object is small in comparison with the area or space. In the landscape context this must surely compare the size or volume of the objects of concern (here, many huge turbines) with the size or volume of the area or space in which they are to be placed, ostensibly in Mr Brown's evidence the Meridian site or the landscape as he defined it.

[498] But if a site is to have a high visual absorption capacity in relation to scale the object(s) to be placed within it must surely be relatively small. Of course, compared with the area of the Meridian site each turbine is very small in area. However, it is really a combination of two factors that make up the object to be compared with the site area – the ground area (a rectangle) swept by each turbine's rotors and the fact that there are 176 turbines proposed. We find that we cannot accept Mr Brown's assessment in relation to scale.

[499] The only way we can see that Mr Brown can give a scalar visual absorption capacity as high as he does is by placing the Meridian site in a larger landscape which includes the Rock and Pillar Range to the north, the Lammermoor Range to the south,



and the Lammerlaw to the southwest. The bigger the landscape the smaller the Meridian site in comparison and hence the smaller the scale and larger the VAC. Effectively Mr Brown implicitly chose a large landscape when he stated in his conclusion<sup>826</sup>:

By contrast, Meridian Energy's Project Hayes' site is rather more recessive – both at the macro and local scales – and displays a range of attributes that make it acceptable as wind farm site.

Mr Brown's 'macro' scale is inconsistent with his own finding that the Lammermoor site – as he defines it – is, with the western scarp, a landscape in itself.

[500] We prefer the conclusion of Ms Steven on the capacity of the landscape to absorb the wind farm<sup>827</sup>:

For the applicant it is suggested that because of the scale of the landscape and its open expansive character, the wind farm could be absorbed into it. I disagree. Because the landscape is so open the wind farm would be prominent, but more significantly it inserts tall vertical elements into a dominantly horizontal landscape thus increasing prominence. I would expect absorption capacity to be higher in a more deeply dissected range and valley landscape with strong vertical components and where the terrain limits external views to a greater degree.

## 5.8 Effects on amenities

[501] There are various other aspects of wellbeing which section 7 of the RMA directs us to have particular regard to<sup>828</sup>. The Act defines<sup>829</sup> "amenity values" as "... those ... qualities of an area that contribute to people's appreciation of its pleasantness, aesthetic coherence, and cultural and recreational attributes".

[502] Mr Greenaway's conclusion in relation to the effects of the Meridian project on recreational amenity was<sup>830</sup>:

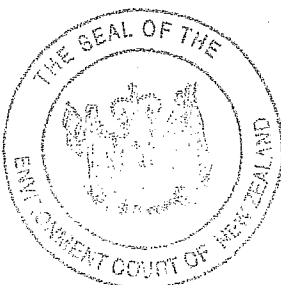
<sup>826</sup> Mr S K Brown, evidence-in-chief para 114 [Environment Court document 4].

<sup>827</sup> Ms E A Steven, evidence-in-chief para 27.8 [Environment Court document 9].

<sup>828</sup> Section 7(c) and (f) – referred to in Chapter 3.0.

<sup>829</sup> Section 2 of the RMA.

<sup>830</sup> Mr R J Greenaway, evidence-in-chief para 7.2 [Environment Court document 59].



While the total recreation days in the setting may increase (that is, there may be a case to claim a net recreation benefit, particularly with regard to tourism), a negative effect will be registered by a portion of current visitors to the area due to changes in its visual amenity qualities. Other users will perceive the presence of the wind farm as a positive. Considering the low or moderate level of use of the setting, and the fact that all current recreational activities will remain possible and retain almost all of their setting and experience characteristics, the net effect of the proposal on current recreation and tourism activities will be only minor.

We hope it is not unfair to Mr Greenaway's evidence when cross-examined on that by Mr Holm to summarise his view as being that there are not many recreational users of the Lammermoor and surrounding area and that those who do so and are offended by the wind farm could move elsewhere.

[503] Ms Kelly was critical of that evidence<sup>831</sup>:

The surrounding ROS settings will be compromised by way of aesthetics, movement, noise and light, both day and night (over-night camping), all of which will detract from the designated recreational back country/natural/remote experience. The wind farm will also have a much wider effect in terms of the adjacent uplands. At present one can see across the block mountain tops, from one to another, and find them an unsullied open, natural experience as far as one can see, which is a very long way.

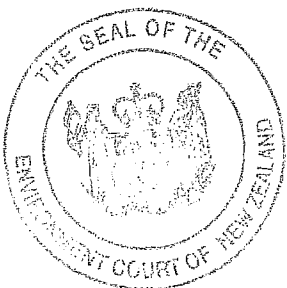
[504] Mr Brown accepted the visual aspects as significant<sup>832</sup>:

There seems little doubt that the proposal would have a significant impact upon the landscapes of the Lammermoor range and Upper Taieri Styx Valley.

On whether this challenge to the 'natural order' of the existing landscape was appropriate or not, he wrote regarding amenity<sup>833</sup>:

The essence of all amenity landscapes, however, regardless of their underlying nature.....and related audiences, is an existing landscape 'glued together' by a certain cohesion of expression and unity of elements that gives rise to it being 'pleasant' 'aesthetically' cohesive' and having cultural or recreational appeal

<sup>831</sup> Ms J A Kelly, rebuttal evidence para 148 [Environment Court document 17A].  
<sup>832</sup> Mr S K Brown, evidence-in-chief para 8 [Environment Court document 4].  
<sup>833</sup> Mr S K Brown, evidence-in-chief para 37 [Environment Court document 4].



The essence of maintaining such values is usually the retention of the status quo, or at least the maintenance of the major building blocks that contribute most to a locality's present day appearance and imagery [Our emphasis].

[505] Ms Kelly focussed the CORUF appeal specifically on the detail of amenity, highlighting the appreciation of the current amenity as a consistent theme. Ms Kelly supplied a collection of CORUF member statements to support this. The 4WD enthusiasts' club wrote of the challenges they enjoy driving the current road alignment and the added aesthetic value of the setting. They regard the upgrade of the road and the aesthetic changes as significantly altering the present experiential amenity they value<sup>834</sup>. This appeared typical of the responses gathered.

[506] We also heard from farmers in Linnburn Runs Road who will view the turbines along the ridge. They made it clear that the introduction of the turbines will affect the rural aesthetic they cherish. Mr Manson wrote<sup>835</sup>:

After being faced with the turbines all day long there will be no reprieve for us, as our house faces the site and our dominant view is the proposed site. Even in the evenings the towers navigation lights will flash destroying our night sky. Any new visitor to our house can't help but be moved and awestruck by the beauty of our view which we have always seen ourselves as very fortunate to have and will be devastated to lose.

[507] In summary we predict that the visual effects on the amenities of the residents of Linnburn Runs Road will be more than minor. The effects on the amenities of users of the Eastern Central Otago Upland Landscape will be major, although care has to be taken in respect of these to place little weight on this matter because it duplicates concern about landscape values.

[508] Mr Laurenson<sup>836</sup> and Mr Manson<sup>837</sup> also both drew our attention to possible noise effects on their amenity and on that of the Paerau School. Evidence<sup>838</sup> was prepared by a noise expert, Mr M J Hunt, for Meridian. No party wished to cross-examine Mr Hunt so it was entered into the Court record without opposition. Mr

<sup>834</sup> Ms J A Kelly, rebuttal evidence Appendix 1F(3) [Environment Court document 17A].

<sup>835</sup> Mr I Manson, evidence-in-chief para 3.2 [Environment Court document 20].

<sup>836</sup> Mr E Laurenson, evidence-in-chief para 8 [Environment Court document 19].

<sup>837</sup> Mr I Manson, evidence-in-chief paragraphs 5.1 – 5.9 [Environment Court document 20].

<sup>838</sup> Mr M J Hunt, evidence-in-chief [Environment Court document 58].





Hunt's opinion<sup>839</sup> is that noise effects from the operation of the wind farm would be no more than minor and we accept that.

## 5.9 Effects on historic heritage

### 5.9.1 Archeological heritage

[509] The evidence of Mr Petchey<sup>840</sup> was that, the Old Dunstan Road aside, the wind farm will have only a minor direct impact on known archeological sites. All known sites have been incorporated into Meridian's Planning Construction Map System, and all have been avoided apart from track crossing points over water races<sup>841</sup>. Two points have been identified where track crossings of water races will be required<sup>842</sup>. There will be damage to the water races at these points arising from the construction of the tracks. Mr Petchey stated that only a small proportion of the total length will be affected and the crossings will not affect the overall condition of the races.

[510] One turbine (WTG J4P4) will be located near to a set of sod yards and the water race from Spillers Creek to Pettigrew's/Clunie's workings<sup>843</sup>. Mr Petchey stated in evidence that this turbine will be "... the closest construction area to a significant archeological site ...". He did not say how close the turbine will be to the site. The map<sup>844</sup> entitled "Project Hayes Environment Court Appeal Reference Drawing" shows the location and identity of each turbine. It also purports to show the location of archeological sites – they are one of the labelled items in the key – but does not appear to do so. On the similar map supplied to us by Meridian for use on our first site inspection, entitled "Project Hayes Consent Hearing Reference Drawing", turbine locations and identity are shown along with archeological sites. Referring to this map, it appears that turbine J4P4 is very close to an archeological site – the 'dot' for the turbine overlaps the 'dot' for the archeological site. There appear to be another five or six sites in very close proximity of the turbine – within 200 metres of the site, as near as

<sup>839</sup> Mr M J Hunt, evidence-in-chief para 18 [Environment court document 58].

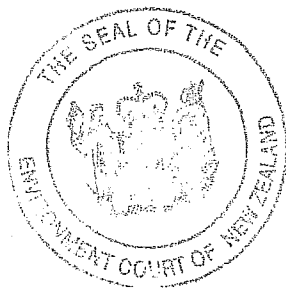
<sup>840</sup> Mr P R Petchey, evidence-in-chief para 6.2 (the second one) [Environment Court document 5].

<sup>841</sup> Mr P R Petchey, evidence-in-chief para 5.1 [Environment Court document 5].

<sup>842</sup> Mr P R Petchey, evidence-in-chief para 5.2 [Environment Court document 5].

<sup>843</sup> Mr P R Petchey, evidence-in-chief para 5.3 [Environment Court document 5].

<sup>844</sup> Exhibit 3.1.



the scale of the map and our eyesight allows us to determine. Two of these sites appear to be less than 100 metres from turbine J4P4. The 'dot' for one of these sites also overlaps the line on the map representing the road from turbine J4P4 to turbine J4Q1. Mr Petchey wrote that, "... great care will be required during construction to avoid damage to [these] sites ...". He stated that the fencing off of these sites with "warratahs and flagging tape" is required, and concluded that "... if care is taken [the turbines] will not physically affect [the sites] or their archeological values."

[511] Mr Petchey acknowledged<sup>845</sup> in cross examination that:

... some of these sites are actually really hard to see. These old stockyards beside this hut have escaped two previous archeological surveys and the landowner didn't know they were there.

Given this difficulty for the untrained eye to discern some of these sites, the topography of the wind farm site, and the ease with which vehicles can travel 'off-track', we have concerns about any site that is in near proximity to any construction site, road or track. If we decide to grant consent we may make it a condition that all known heritage sites within near proximity (perhaps 50 metres) of construction activity, roads or tracks be clearly and visibly marked and delineated 'on the ground' before construction commences, and remain so marked throughout the construction of the wind farm. CODC condition 77 currently requires that "identified archeological sites are clearly marked during construction". We would extend this for those in near proximity to construction activity that they should also be clearly and visibly delineated on the ground.

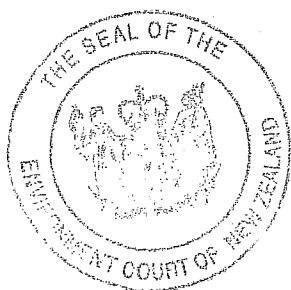
[512] Mr Petchey indicated<sup>846</sup> that there has been some discussion of fencing around the stock yards and the remnants of the hut<sup>847</sup> that Mr Rough pictured in his evidence<sup>848</sup>. From a comparison of the location of turbine J4P4 on the map referred to above, with the site of R3, H43/70 on the map attached to Mr Petchey's evidence, we suspect these are the archeological sites close to turbine J4P4 referred to above. Given the danger to this site, and the "great care" that would need to be exercised during construction, then a

<sup>845</sup> Transcript, p. 383.

<sup>846</sup> Transcript, p. 383.

<sup>847</sup> Identified by Mr Petchey as R3, H43/70, Transcript, p. 381.

<sup>848</sup> Mr P Rough, evidence-in-chief p. 22 Figure 12 [Environment Court document 3].



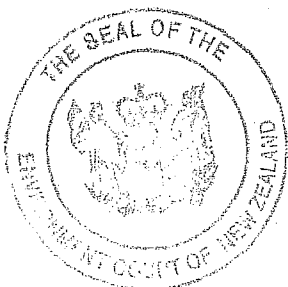
condition of any consent may be that turbine J4P4 and the road leading from it to turbine J4Q1 be located so as to give a 100 metre clearance from these sites. Given the 150 metre radius flexibility in turbine siting, this may be possible within the original envelope.

[513] Mr Petchey indicated<sup>849</sup> that the greatest danger to archeological sites on the Lammermoor is from stock. Mr Harrington, a trustee of Rocklands Station, said in answer to questions from the Court<sup>850</sup> that stock tend to gather and “tent” in areas of exotic grasses. For this reason they (Rocklands Station) have requested remediation in tussock where possible. In conjunction, these facts lead us to concerns that remediation in exotic grasses may increase the risk to nearby archeological sites by encouraging greater concentrations of stock than would normally occur. If consent is granted, it will be required that any archeological sites within 50 metres of areas remediated in exotic grasses be permanently protected from stock damage in a way that does not reduce the archeological features of the sites.

[514] We record here that Meridian have reached agreement<sup>851</sup> with the New Zealand Historic Places Trust to identify and appropriately protect any historic sites within the wind farm. In addition Meridian has agreed to:

- contribute \$20,000 towards Conservation and Management Plans;
- fence two sod yards and two chimneys to a maximum cost of \$35,000;
- contribute up to \$80,000 towards archeological reports;
- contribute up to \$32,000 towards an archeological authority under section 12 of the Historic Places Trust 1993;
- contribute \$12,000 towards research on the Old Dunstan Road.

[515] Provided the mitigation is put in place and is protected by the proposed conditions, then we agree with Mr Petchey<sup>852</sup> that the wind farm will have only a minor effect on the archeological sites of the Lammermoor. The discrete recorded sites will



<sup>849</sup> Transcript, p. 383.

<sup>850</sup> Transcript, p. 2202.

<sup>851</sup> Mr A Beatson, opening submissions (28 July 2008) para 157 [Environment Court document 23].

<sup>852</sup> Mr P R Petchey, evidence-in-chief para 6.2 [Environment Court document 5].

remain virtually unchanged and the “landscape forms and historic infrastructure that connect the sites and give them meaning will survive intact”<sup>853</sup>. The archeology of the sites will still be available and able to be interpreted in a meaningful way.

[516] It is a condition<sup>854</sup> of the consent granted by the CODC that there be an Accidental Discovery Protocol in place as part of the Construction Environmental Management Plan. Responding to Mr Douglas<sup>855</sup>, Mr Petchey was clear that this needs to be “very robust” and that Meridian “can’t afford to muck it up”. He was explicit<sup>856</sup> that the success of such a protocol “relies entirely on the company in charge having a ... willingness to follow it”. Based on his previous experience in working with Meridian, Mr Petchey was confident that Meridian would follow it and had an appropriate attitude to such protocols<sup>857</sup>. Mr Petchey accepted<sup>858</sup> that the initial discovery of a site during a construction process “usually damages it to a certain extent”, but that “nothing else happens until it is inspected”. We agree that an Accidental Discovery Protocol is needed and accept Mr Petchey’s experience that Meridian is a good corporate citizen in implementing such protocols.

#### 5.9.2 The Old Dunstan Road

[517] Mr Petchey discussed<sup>859</sup> the quandary he faced in assessing the Old Dunstan Road as an archeological or a heritage site. As an archeological site, the entire length of the road has been modified to an extent, but in total “the road remains a significant heritage feature”. He concluded that the Old Dunstan Road “retains significant heritage values, despite the incremental modifications”. The values relate to the “overall experience of the road”, not the “specific preservation of the original fabric”.

<sup>853</sup> Mr P R Petchey, evidence-in-chief para 5.23 [Environment Court document 5].

<sup>854</sup> Conditions 74-79 of Schedule One to Mr H Rennie’s submissions of 19 January 2009 [Environment Court document 44A].

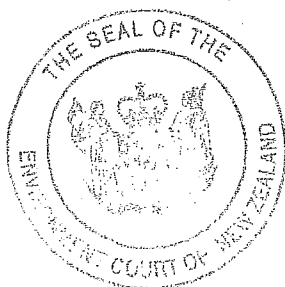
<sup>855</sup> Transcript, p. 367.

<sup>856</sup> Transcript, p. 386.

<sup>857</sup> Transcript, pp 386-388.

<sup>858</sup> Transcript, p. 389.

<sup>859</sup> Mr P Petchey, evidence-in-chief para 5.12 [Environment Court document 5].



*Changes to the fabric of the Old Dunstan Road*

[518] We understand from the engineering evidence of Mr Coulman<sup>860</sup> there will be the following modifications to the road: the widening of the road to a uniform 5 metres width, and 10 metres width on some corners, the creation of some box cuts to improve the gradient at steep points, the sealing of some of the steeper sections of the road and the improvement in the surface of the road to take the weight of the transport vehicles. Post construction the road will be rehabilitated back to a 5 metre width. Mr Coulman stated<sup>861</sup> that:

... seals will be designed to remain insitu as per the proposed conditions of consent<sup>862</sup>.

Later he stated<sup>863</sup>:

However all (tar)seal can be removed following construction.

In his rebuttal to Mr Douglas on dust issues, Mr Coulman wrote<sup>864</sup> that:

A further key mitigation strategy ... is the sealing of the access roads and Old Dunstan Road with an appropriate metallised surface...

[519] We understand that that the word "seal" is being used in two senses. We understand that all or most of the length of Old Dunstan Road will be upgraded by "sealing" with metal to provide an appropriate surface to handle the volume of traffic and the oversize traffic that will occur during construction. Some short, steeper sections of the road will be "sealed", as in tarsealed, to improve traction and reduce maintenance. Mr Coulman's statement above, in the context of the tarseal, indicates that the tarseal could be removed. Presumably the metal-seal could also be removed. However, there is no evidence that states the intention is to remove either the tarseal or the metal seal. Further, condition 65 states<sup>865</sup> that:

<sup>860</sup> Mr A J Coulman, evidence-in-chief Appendix 4 [Environment Court document 30].

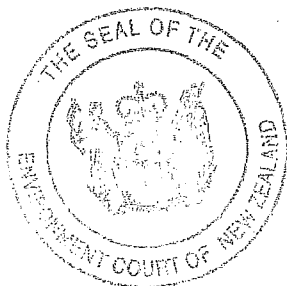
<sup>861</sup> Mr A J Coulman, evidence-in-chief Appendix 4 para 10 [Environment Court document 30].

<sup>862</sup> Condition 65, Schedule One to Mr H Rennie's submission of 19 January 2009 p. 24 [Environment Court document 44A]

<sup>863</sup> Mr A J Coulman, evidence-in-chief Appendix 4 para 14 [Environment Court document 30].

<sup>864</sup> Mr A J Coulman, rebuttal evidence para 6.1 [Environment Court document 30A].

<sup>865</sup> Schedule One to Mr H Rennie's submission of 19 January 2009 p. 24 [Environment Court document 44A]



... the proposed seal on hill sections of Old Dunstan Road shall be designed **and retained** as a permanent seal.

[Our emphasis]

[520] Mr Coulman's statements in answer to Mr Carr<sup>866</sup> indicate that the original intention of Meridian had been to remove the tarseal, but the consent conditions require that it be retained. In response to questions from the Court<sup>867</sup> Mr Coulman confirmed that the improved road surface would remain in place on Old Dunstan Road. We understand that the rehabilitation of the road will reduce the road width to a standard five metres, but will not include removing any of the metal, the tarsealing or the improvement to the quality of the road surface.

[521] Mr Coulman stated<sup>868</sup> that the intention is to use local material as the basecourse for the upgrading of Old Dunstan Road "... provided it is of adequate strength, to match the existing basecourse ... and to remain in keeping with its existing appearance". We understand that basecourse usually has a layer metal on top when forming an unsealed road. From the tenor of the evidence we assume that the intention is that the basecourse is also the top course, so the Old Dunstan Road will have local material on the visible surface as well as the underlayers, if sufficient suitable material can be found locally. The road will generally retain its present alignment.

[522] Mr Petchey noted<sup>869</sup> that the road had already been modified for its entire length and that it was the "visual condition, route and setting" that were the most important heritage values. Therefore he considered that "rehabilitation of the road back to its present appearance as far as practicable" was appropriate. He considered<sup>870</sup> that rehabilitation would return much of the road back to its present appearance. He relied<sup>871</sup> on Meridian "achiev(ing) what they assure me they (can) achieve with the rehabilitation of the road", in which case the average visitor will not be aware of the

<sup>866</sup> Transcript, p. 1320.

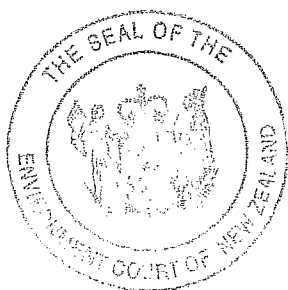
<sup>867</sup> Transcript, p. 1379.

<sup>868</sup> Mr A J Coulman, evidence-in-chief Appendix 4 para 5 [Environment Court document 30].

<sup>869</sup> Mr P R Petchey, evidence-in-chief para 5.14 [Environment Court document 5].

<sup>870</sup> Mr P R Petchey, evidence-in-chief para 5.18 [Environment Court document 5].

<sup>871</sup> Transcript, p. 375.



changes to the road. He noted<sup>872</sup> that the box cuttings would have the greatest lasting effect on the road, as they will be permanent modifications that will not be totally rehabilitated. Mr Petchey had enumerated<sup>873</sup> seven box cuttings, including one at Sutton Stream and four on the descent into the Taieri Valley. In cross examination he noted<sup>874</sup> that a bridge over Sutton Stream was under discussion, which would replace one cutting. Subsequent to Mr Petchey giving evidence, we have been advised by Mr Wilson,<sup>875</sup> that the use of a quarry in the vicinity of Clarks Junction means that no alteration to Old Dunstan Road going from the Lammermoor down into the Taieri valley will be required. Thus there will be no box cuttings on the northern end of Old Dunstan Road, and the cutting at Sutton Stream may be replaced by a bridge. Presumably the bridge will remain after construction of the wind farm is complete. Whether the bridge will have a greater or lesser impact on the heritage values of the Old Dunstan Road than the box cutting is unknown to us, and is irrelevant for present purposes anyway.

[523] Given that the tarsealed areas of the road, and the metal-sealed length of the road, will remain after construction is completed, we predict that all or most of the road will no longer "... retain essential elements of its original existence including the ... unsealed appearance" as Mr Petchey described<sup>876</sup> the current condition of the road. That is consistent with Mr Petchey's opinion<sup>877</sup> that the lasting improvement in the quality of the road surface – improving it to the point where all-year use is feasible – would "change the nature of the road". In discussion with Dr Floate<sup>878</sup>, Mr Petchey acknowledged that in a good summer rainstorm getting a vehicle stuck on the road was still possible at present. He agreed with Dr Floate<sup>879</sup> that this is one aspect in which the present day road still bears some of its original characteristics. Although not discussed further, we take from this that the improvement to the road surface, separate from its appearance, will be a further lasting change that will negatively impact on the heritage value of the road.

<sup>872</sup> Mr P R Petchey, evidence-in-chief para 5.17 [Environment Court document 5].

<sup>873</sup> Mr P R Petchey, evidence-in-chief para 5.17 [Environment Court document 5].

<sup>874</sup> Transcript, p. 375.

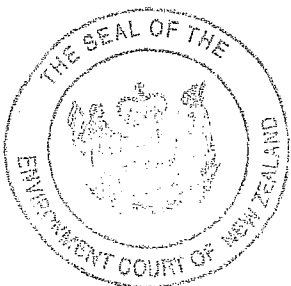
<sup>875</sup> Transcript, pp 2377-2378.

<sup>876</sup> Mr P R Petchey, evidence-in-chief para 4.19 [Environment Court document 5].

<sup>877</sup> Mr P R Petchey, evidence-in-chief para 5.16 [Environment Court document 5].

<sup>878</sup> Transcript, p. 371.

<sup>879</sup> Transcript, p. 372.

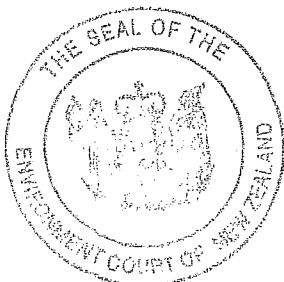


[524] We agree with Mr Petchey that the visual condition of the road is most of what the physical construction of the road contributes to the heritage value of the road. We would add to this that the road surface also adds much to the heritage experience of travelling the road, and so is important to the heritage value of the road. We conclude that the archeological significance of the Old Dunstan Road has been diluted by the modifications that have occurred over the last 140 plus years. However, the archeological significance is only one part of heritage value. Despite the dilution of the archeological significance, the appearance of the road and nature of the road surface does “retain essential elements of its original existence”, and that these contribute to the heritage experience and the heritage value of the road. The proposed modifications to the road by box cuts and/or bridging at Sutton Stream will substantially change the appearance of the road at localised points, as will localised tarsealing of the road. If the upgrading of the road surface is not done sympathetically, using locally-sourced material, this will change the appearance of the upgraded section of the road. The upgrading of the road surface from a dry season, back-country road, to an all-year round, graveled road will change the experience of travelling on the road. While these changes will be seen as positive to the travelling public, and will substantially enhance the accessibility of the Lammermoor for other activities, they will have a substantial negative impact on the heritage experience of travelling the road.

[525] We acknowledge, as Mr Petchey did<sup>880</sup>, that construction, upgrading or realignment of roads within the road reserve is a permitted activity within the Central Otago District Plan. Therefore the changes that Meridian is proposing to Old Dunstan Road, with the exception of bridging, can all occur as of right so long as they remain within the road reserve. However, absent the wind farm, we consider the likelihood of any substantial changes is very low.

*Surroundings of the Old Dunstan Road*

[526] Mr Petchey was of the view<sup>881</sup> that the loss of the heritage experience was of greater concern to submitters and objectors than potential damage to archeological values. Despite the modifications to the Old Dunstan Road, Mr Petchey stated<sup>882</sup> that



<sup>880</sup> Mr P R Petchey, evidence-in-chief para 5.13 [Environment Court document 5].

<sup>881</sup> Mr P R Petchey, evidence-in-chief para 5.9 [Environment Court document 5].

<sup>882</sup> Mr P R Petchey, evidence-in-chief para 5.21 [Environment Court document 5].



the landscape of today is the same in scale and form that the miners of the 1860s saw, and that the overall experience would probably be similar. He found the impact of the turbines on the landscape “difficult to assess”<sup>883</sup>. The “archeological landscape itself will still be able to be ‘read’ beneath the towers”<sup>884</sup>, however the visual change to the setting will be “undeniable”<sup>885</sup>. In concluding his assessment on the historic landscape, Mr Petchey wrote<sup>886</sup>:

Overall, my opinion is that the proposed windfarm will have a visual impact on the heritage landscape, particularly on views from Old Dunstan Road, but this landscape will still be able to be ‘read’ by archeologists and visitors. At a discrete archeological site level, the effects will be relatively minor...

Although he found the effects “relatively minor” at the discrete (archeological) site level, Mr Petchey does not quantify the effects at the heritage surroundings level. When asked about the ‘heritage landscape’ Mr Petchey deferred to Mr Rough, as a landscape matter<sup>887</sup>.

[527] Mr Rough did not consider himself as having “particular expertise in the study of heritage landscapes”, although he acknowledged that he has had “considerable experience” on heritage sites in multi-disciplinary teams<sup>888</sup>. He noted that this occurred in the “mid 1970s”, which we place as very early in his career, as he stated that he has been practising as a landscape architect for 34 years<sup>889</sup>, which indicates he began practising in 1974. In his brief review of the concept of ‘heritage landscapes’<sup>890</sup>, Mr Rough quoted a New Zealand Historic Places Trust briefing paper on heritage landscapes and points out that heritage landscapes are “... potentially more difficult to identify, understand, evaluate and protect”<sup>891</sup>. He then stated<sup>892</sup> that the site and potentially a wider and:

<sup>883</sup> Mr P R Petchey, evidence-in-chief para 5.23 [Environment Court document 5].

<sup>884</sup> Mr P R Petchey, evidence-in-chief para 6.5 [Environment Court document 5].

<sup>885</sup> Mr P R Petchey, evidence-in-chief para 5.24 [Environment Court document 5].

<sup>886</sup> Mr P R Petchey, evidence-in-chief para 5.25 [Environment Court document 5].

<sup>887</sup> Mr P R Petchey, evidence-in-chief para 5.19 [Environment Court document 5] and Transcript, p. 375.

<sup>888</sup> Mr P Rough, evidence-in-chief para 116 [Environment Court document 3].

<sup>889</sup> Mr P Rough, evidence-in-chief para 1 [Environment Court document 3].

<sup>890</sup> Mr P Rough, evidence-in-chief para 114 [Environment Court document 3].

<sup>891</sup> Mr P Rough, evidence-in-chief para 114 quoting from NZHTP (2003), Heritage Landscapes Think Tank, Wellington [Environment Court document 3].

<sup>892</sup> Mr P Rough, evidence-in-chief para 117 [Environment Court document 3].



very extensive area could be regarded as a heritage landscape. However ... it is very difficult to identify boundaries of what may be regarded as a heritage landscape associated with the site and/or the Old Dunstan Road.

After briefly outlining the heritage values of the Lammermoor<sup>893</sup>, Mr Rough gave his opinion<sup>894</sup> that:

the notion of the site and its vicinity being a heritage landscape is a very broad concept indeed. And ... it is somewhat difficult not to come to a conclusion that most, if not all of Central Otago has similar heritage landscape connotations. ... it is my opinion that a heritage landscape associated with the site and its vicinity is very difficult, if not impossible to define. The Old Dunstan Road is not a heritage landscape but is an historic route and (quoting Mr Petchey) "a highly significant heritage feature.

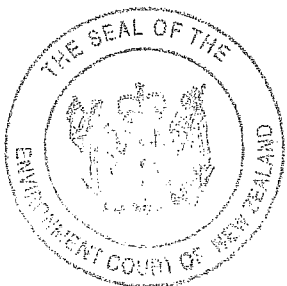
Mr Rough summarised<sup>895</sup> his discussion on the 'heritage landscape' (we prefer 'heritage surroundings') status of the area rather ambiguously as follows:

In essence ... if the site and its broad vicinity is to be regarded as a heritage landscape it is, like most landscapes, a dynamic one.

[528] Mr Rough has been careful to not directly give any opinions as to the heritage status of the Lammermoor landscape. He is clear that the Old Dunstan Road itself is a heritage feature, not a 'heritage landscape'; he indicates he has difficulty with the wind farm site and its vicinity being a heritage landscape; but he does not address whether the landscape of the Old Dunstan Road is a 'heritage landscape'. The closest he comes to expressing his opinion is a statement<sup>896</sup> that he is "... aware that the broad landscape within the site, like much of Central Otago, is likely to be part of a heritage landscape." In cross-examination<sup>897</sup> on this statement, Dr Floate asked Mr Rough:

Do you accept that you still consider it to be part of a heritage landscape?

<sup>893</sup> Mr P Rough, evidence-in-chief para 118-125 [Environment Court document 3].  
<sup>894</sup> Mr P Rough, evidence-in-chief para 126 [Environment Court document 3].  
<sup>895</sup> Mr P Rough, evidence-in-chief para 137 [Environment Court document 3].  
<sup>896</sup> Mr P Rough, evidence-in-chief para 346 [Environment Court document 3].  
<sup>897</sup> Transcript, p. 254.



To which Mr Rough replied:

That's what I've written in paragraph 346, yes. I haven't changed my opinion on that.

Despite the "yes" in that statement, we take it to mean that Mr Rough has not changed his opinion that the Lammermoor is "likely to be part of a heritage landscape". This is **not** saying that it is his opinion that it is a heritage landscape.

[529] Given his diffidence as to his experience in this area, we conclude that Mr Rough does not feel qualified to express an opinion as to whether the Old Dunstan Road, the site or the Lammermoor is a heritage landscape or part of one.

[530] Perhaps aware of the difficulties we discussed in Chapter 3.0 about use of the term "heritage landscape" Ms Steven generally uses the term "heritage setting". At the conclusion of the 'Heritage' part of her description of the Landscape Context she quoted<sup>898</sup> the Commissioners' Decision quotation of Mr McLean, a senior heritage policy advisor of the Historic Places Trust<sup>899</sup>, that the:

... isolated (landscape<sup>900</sup>) setting over the Lammermoor ... is an essential landscape context for the road.

She wrote later<sup>901</sup> that:

The protection of heritage values has moved in recent years from merely protecting artifacts and physical remains as isolated features to considering links and relationships between features and with their settings.

Ms Steven concurred with Mr McLean, whom she quotes<sup>902</sup> as holding that:

... the Lammermoor Range is an essential landscape feature of the Old Dunstan Road and is not readily separable from it and that the isolated setting is integral to its heritage.

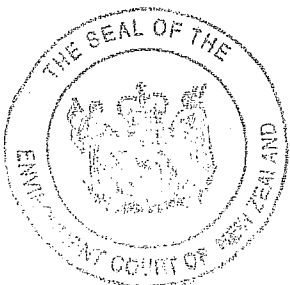
<sup>898</sup> Ms E A Steven, evidence-in-chief para 16.10 [Environment Court document 9].

<sup>899</sup> Identified at Commissioners' Decision, p. 76.

<sup>900</sup> Inserted by Ms Stevens, not in the original Commissioner's Decision.

<sup>901</sup> Ms E A Steven, evidence-in-chief para 26.4 [Environment Court document 9].

<sup>902</sup> Ms E A Steven, evidence-in-chief para 26.16 [Environment Court document 9].



[531] Mr Brown did not directly address the issue of heritage surroundings or setting, but in his assessment of the landscape values of the site and the Lammermoor<sup>903</sup> he ascribes “High – Moderate” to Heritage Associations. He echoed Mr Rough when he commented<sup>904</sup> that the historic associations of the Old Dunstan Road and the Lammermoor:

... hardly set this part of the District apart from most others...the effects identified in relation to the Project Hayes site are far from exceptional in relation to the heritage and historic sites of the District.

[532] We consider that whether other parts of Central Otago may or may not be considered as heritage ‘landscapes’ or settings (about which we express no opinion) is not relevant to determining the heritage landscape status of the Lammermoor or the Old Dunstan Road. Noting Mr Petchey’s views that:

- “The landscape that the miners of the 1860s saw would therefore have been the same in scale and form to that of today ... (and) the overall experience was probably similar ...”<sup>905</sup>;
- Travelling the Old Dunstan Road is “...the closest that you can reasonably get to experiencing that journey to the goldfields”<sup>906</sup>; and
- Despite the changes over time the Old Dunstan Road “... still retains essential elements of its original existence, including the overall setting...”<sup>907</sup>

– we conclude that there is a heritage surrounding or setting associated with the Old Dunstan Road and the Lammermoor, and that the proposed wind farm will have a significant negative impact on that heritage surrounding. We do not need to define the boundaries of the heritage surrounding precisely but state that it encompasses the area that is viewed as the high plateau of the Lammermoor is traversed via the Old Dunstan Road. As Mr Petchey stated<sup>908</sup>, the effects of the wind farm on the heritage landscape

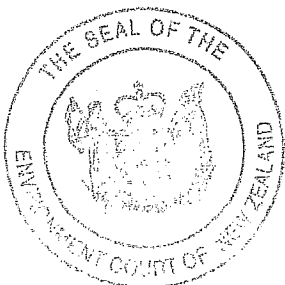
<sup>903</sup> Mr S K Brown, evidence-in-chief para 96 Table 5 [Environment Court document 4].

<sup>904</sup> Mr S K Brown, evidence-in-chief para 95 [Environment Court document 4].

<sup>905</sup> Mr P R Petchey, evidence-in-chief para 5.21 [Environment Court document 5].  
<sup>906</sup> Transcript, p. 372.

<sup>907</sup> Mr P R Petchey, evidence-in-chief para 2.19 [Environment Court document 5].

<sup>908</sup> Mr P R Petchey, evidence-in-chief para 5.24 [Environment Court document 5].



are “undeniable”, and “...the scale of the proposed (turbine) towers will make them an obvious element in the landscape”.

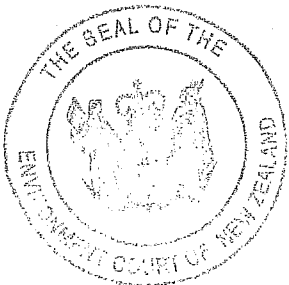
[533] Mr Petchey concluded<sup>909</sup> that:

The greatest overall impact (of the wind farm) will be on the landscape setting of the historic and archeological sites ... The visual change to the setting of this part of the Old Dunstan Road and the recorded archeological sites in the area will be obvious.

Similarly, Ms Steven put it<sup>910</sup> as follows:

... the experience associated with travelling the Old Dunstan Road will be significantly altered ... The sense of remoteness and immersion in the vast natural landscape with apparent isolation from things cultural, ... - the key elements of the experience – would vanish. This applies to the physical road experience itself and the perception of the wider heritage landscape with the road at its core. ... (the wind farm) would effectively sever the relationship with the past, reducing it to mere artifacts devoid of any contextual meaning.

We agree with both these statements and accept that the proposal will have more than minor adverse effects on the nationally important historic heritage values of the Old Dunstan Road’s surroundings.



<sup>909</sup> Mr P R Petchey, evidence-in-chief para 6.5 [Environment Court document 5].

<sup>910</sup> Ms E A Steven, evidence-in-chief para 26.8 [Environment Court document 9].

## 6.0 Efficient use of resources – attempting to quantify the costs and benefits

### 6.1 Introduction

[534] We have qualitatively assessed the possible effects of a wind farm on the Lammermoor, and the probabilities of such effects in Chapter 5.0. We now assess what quantitative evidence there is on the potential benefits and costs of the proposal.

[535] To assist the Court at the 2009 continuation of the hearing, Meridian advanced the evidence<sup>911</sup> that Dr Layton, former chief executive of NZIER, had prepared for Meridian in response to Contact Energy's abandoned appeal. Further supplementary evidence<sup>912</sup> and rebuttal evidence<sup>913</sup> from Dr Layton was also produced. This evidence, especially the Supplementary Evidence, gave us clearer statements on the benefits and costs of the Lammermoor wind farm, and attempted to place values on many of these<sup>914</sup>. Dr Layton was of the opinion that<sup>915</sup> "The economic value of a wind farm is its contribution to economic well-being in the community as a whole". He explained that this covered the net benefits – positive and negative impacts (or benefits less costs)<sup>916</sup>.

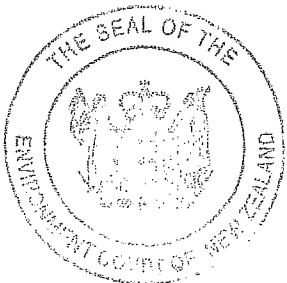
### 6.2 Benefits

#### 6.2.1 Summary of benefits

[536] We have summarised the benefits as identified by Dr Layton in the table below<sup>917</sup>:

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<sup>911</sup> Dr T B Layton, evidence-in-chief dated 29 May 2008 [Environment Court document 45].  
<sup>912</sup> Dr T B Layton, supplementary evidence dated 14 November 2008 [Environment Court document 45A].  
<sup>913</sup> Dr T B Layton, rebuttal evidence dated 16 December 2008 [Environment Court document 45A].  
<sup>914</sup> Dr T B Layton, supplementary evidence para 8 [Environment Court document 45A].  
<sup>915</sup> Dr T B Layton, supplementary evidence para 8.6 [Environment Court document 45A].  
<sup>916</sup> Dr T B Layton, supplementary evidence para 8.6-8.7 [Environment Court document 45A].  
<sup>917</sup> Dr T B Layton, supplementary evidence para 8.26, Summary table of costs and benefits [Environment Court document 45A].



Benefit Identified	Value or impact
The value of the electricity produced	\$157.3m/year
Lower priced power supply (which he clarified as "some suppression of price rises" <sup>918</sup> )	Minor impact
Avoided transmission losses on importation of power into Otago-Southland arising from a decreased need to import power into the region.	Minor impact
Improved security of supply - i.e. the reduced probability of supply disruption	Significant impact
The value of any synergies realised by Meridian by the joint operation of the wind farm with other generation assets <sup>919</sup>	Identified but not discussed or assessed
The direct and indirect benefits to the local economy from the construction and operation of the wind farm	<b>Construction:</b> \$840m and 380 jobs over 5 years; <b>Operation:</b> \$2-\$3m/year and 28-35 jobs
The development impact levy	Identified as 0.375% of capital cost
The value of reduced greenhouse gas emissions from the displacement of fossil fuels-based thermal generation	\$14.9m-\$67.6m/year

The 'minor' and 'significant' impacts were not quantified by Dr Layton.

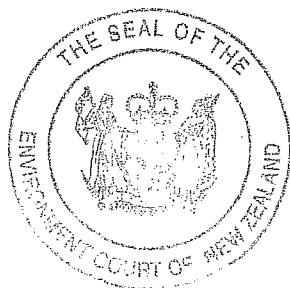
[537] Dr Layton considered that costs and benefits were best analysed on a national basis<sup>920</sup> and that transfers between New Zealanders have no net benefit and so should be excluded. On this basis the payment from Meridian to the landowners was neutral and not a benefit<sup>921</sup>. We agree that transfers between private New Zealand individuals (e.g. Meridian to the landowners) are neutral and have no net benefit. However, transfers from a private New Zealand individual (e.g. Meridian) to the public (e.g. Central Otago District Council) are not neutral and so are a benefit. The benefits of a Lammermoor wind farm are both national and regional, while the costs are also both national and regional. Thus, while we agree with Dr Layton that the cost-benefit analysis should be on a national basis, this does not ignore the regional effects, both positive and negative.

<sup>918</sup> Dr T B Layton, supplementary evidence para 8.7(b) first bullet point [Environment Court document 45A].

<sup>919</sup> Dr T B Layton, supplementary evidence para 8.7(a) [Environment Court document 45A].

<sup>920</sup> Dr T B Layton, supplementary evidence para 8.8 [Environment Court document 45A].

<sup>921</sup> Dr T B Layton, supplementary evidence para 8.10 [Environment Court document 45A].



[538] Dr Layton did not mention the community fund Mr Muldoon confirmed in cross-examination. We can only assume that he was unaware of it. From the evidence we do have of the similar funds in place for Te Apiti and White Hill and other projects<sup>922</sup>, the value is not likely to be large, probably less than \$1.6m.

#### 6.2.2 Benefits of electricity produced or contribution to Gross Domestic Product

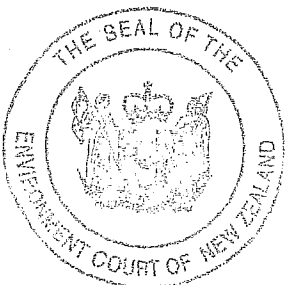
[539] Dr Layton stated that the benefit of the value of electricity produced by the Lammermoor wind farm, on the basis of a 37% capacity factor and allowing for transmission loss of 3.7% with an electricity price of \$80/MWh, was \$157.3m/year<sup>923</sup>. We have recreated his calculation as follows:

Value of Energy Output			
Nameplate capacity	MW	630	(a)
Hours per year	Hours	8760	(b)
Energy output capacity per year	GWh	5519	(c) = (a) x (b) x 10 <sup>-3</sup>
Capacity Factor		0.37	(d)
Actual expected annual energy output	GWh	2042	(e) = (c) x (d)
Transmission Loss/year @ 0.037	GWh	76	(f) = (e) x 0.037
Energy delivered to retailers/year	GWh	1966	(g) = (e) - (f)
Price of energy	\$/MWh	\$80.00	(h)
Value of energy per year	\$	\$157,300,000	(i) = (g) x (h) x 1000

We have two concerns about the accuracy of Dr Layton's calculation of \$157.3m/year as the value of the benefit to the country. These derive, first from the omission of any reference to intermediate consumption, and secondly from the price of \$80/MWh he has used.

<sup>922</sup> Transcript pp. 905 and 907.

<sup>923</sup> Dr T B Layton, supplementary evidence para 8.11 [Environment Court document 45A].





*The intermediate consumption*

[540] As to the first point, despite an allusion to the “on-going operational costs”<sup>924</sup>, Dr Layton presented the gross output (\$157.3 m/year) as the value of the benefit, with only an offset of the value of the operational labour component in his costs column<sup>925</sup>. We understand the value of production to the country (rather than to Meridian) is measured by its contribution to Gross Domestic Product (GDP), which is assessed by the value that is added in the process of production (Value Added). Value Added is the value of goods and services produced (Gross Output) less the value of goods and services consumed in the process of production (that is defined as “the intermediate consumption”). In response to questions from the Court Dr Layton initially maintained this position that \$157.3 m/year was a “value added benefit”<sup>926</sup>. After considerable questioning<sup>927</sup> by the Court Dr Layton did concede that the value added benefit to the country should be calculated net of the intermediate consumption, although he had no idea as to what the value of that intermediate consumption would be<sup>928</sup>.

[541] In fact Mr Leyland, an engineer with many years of experience in the New Zealand Electricity industry, did provide us with an estimate of “*operation and maintenance costs*” of \$26.5m/year<sup>929</sup>. This was expanded as a time series in the second line of his Exhibit 8 spreadsheet, and shows \$26.5m/year for years 1-5, \$20.8m/year for years 6-12 and \$37.8m/year for years 13-20<sup>930</sup>. Mr Leyland explained to the Court that he had derived the values based on a cost curve for maintenance sourced from a firm called PB Associates<sup>931</sup>. He stated that the curve includes only maintenance, and assumes a maintenance contract between the suppliers of the turbines and Meridian, similar to that in place for the Te Apiti wind farm<sup>932</sup>. Mr Leyland confirmed to the Court that the estimate does not include operational costs, considering

<sup>924</sup> Dr T B Layton, supplementary evidence para 8.7(a) [Environment Court document 45A].

<sup>925</sup> Dr T B Layton, supplementary evidence para 8.26 [Environment Court document 45A].

<sup>926</sup> Transcript p. 1859.

<sup>927</sup> Transcript pp. 1859-1861.

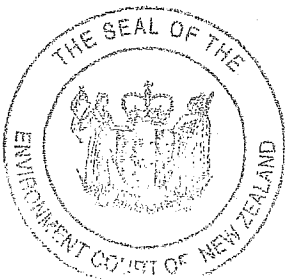
<sup>928</sup> Transcript p. 1861.

<sup>929</sup> Mr B W Leyland, evidence-in-chief para 3.6 [Environment Court document 80].

<sup>930</sup> Mr B W Leyland, evidence-in-chief Exhibit 8 [Environment Court document 80].

<sup>931</sup> Transcript p. 3132.

<sup>932</sup> Transcript p. 3131.



these as “not particularly significant” at only “one or two men (sic)...Maybe at most half a dozen”<sup>933</sup>. He stated that the estimate does not include depreciation<sup>934</sup>.

[542] Despite extensive rebuttal of Mr Leyland’s general evidence by Dr Layton<sup>935</sup>, Mr Waipara<sup>936</sup>, Mr Muldoon<sup>937</sup> and Mr Botha<sup>938</sup>, the only comments made on Mr Leyland’s maintenance costs estimates is in a single paragraph by Mr Muldoon. Mr Muldoon merely states that the metric of “\$/kW is not used (by wind turbine owners) as the likely maintenance requirements of a turbine are based on the run hours at load of a turbine”<sup>939</sup>. Mr Muldoon does not suggest that Mr Leyland’s estimates are wrong or out of order, nor does he provide any alternative estimates. In the absence of any significant criticism, the failure of Meridian to provide its own estimate must work to Meridian’s disadvantage. We accept both Mr Leyland’s estimates of the maintenance costs as broadly correct and his opinion that operational costs other than maintenance are likely to be not very significant.

[543] We conclude that the intermediate consumption of the Lammermoor wind farm will be at least the values given by Mr Leyland<sup>940</sup>. We calculate the annual average of Mr Leyland’s time series as \$29.025m. We accept \$30m/year as the estimated minimum value of intermediate consumption of the Lammermoor wind farm. Offsetting this \$30m/year intermediate consumption against the gross output of \$157m/year of Dr Layton gives the value added benefit of the electricity generated by the Lammermoor wind farm as \$127 m/year.

<sup>933</sup> Transcript p. 3132.

<sup>934</sup> Transcript p. 3132.

<sup>935</sup> Dr T B Layton, supplementary evidence paragraphs 9.10-9.14 [Environment Court document 45A].

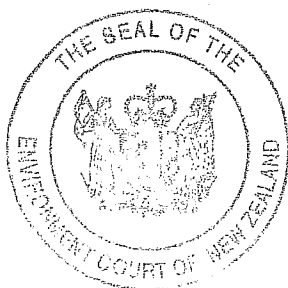
<sup>936</sup> Mr G M T P Waipara, rebuttal evidence (8 pages) [Environment Court document 25A].

<sup>937</sup> Mr A J Muldoon, rebuttal evidence pp. 1-13 [Environment Court document 26A].

<sup>938</sup> Mr P C Botha, rebuttal evidence (7 pages) [Environment Court document 27A].

<sup>939</sup> Mr A J Muldoon, rebuttal evidence para 1.11 [Environment Court document 26A].

<sup>940</sup> Mr B W Leyland, evidence-in-chief Exhibit 8 [Environment Court document 80].



*Is \$80/MWh a fair estimate of price?*

[544] Our second concern with Dr Layton's calculation of \$157m/year as the value added benefit to the country is the price of \$80/MWh he has used. The Court noticed that both in the written evidence and in cross-examination, the terms "cost", "price", and "value" were used loosely by many witnesses. Dr Layton was no exception. When questioned by the Court on one instance, he conceded that his "value" of electricity of \$75/MWh<sup>941</sup> would better be termed the "cost" of electricity,<sup>942</sup> and acknowledged that "cost" can be very different from "value"<sup>943</sup>. In determining his estimate of \$157m/year, Dr Layton stated he used "an average price of \$80/MWh"<sup>944</sup>, which he qualifies in his summary table as the "mid-point estimate"<sup>945</sup>. Our concern arises from uncertainty as to what this "price" represents. Dr Layton did not source this price in his evidence and was not asked its source in Court. An exchange with the Court where Dr Layton stated that New Zealanders pay the \$80/MWh indicated that it might be a genuine price. However Dr Layton went on to say "but I have got that against the cost of the construction"<sup>946</sup> [our emphasis], which confuses the issue again. A little later, in another answer to the Court, Dr Layton stated in relation to the \$80/MWh "That's the market price..."<sup>947</sup>. However, if New Zealanders are paying the price, that suggests the price might be the retail price, for which \$80/MWh seems too low, and the retail price would not be the correct price for the output of a generation facility.

[545] Dr Layton's \$80/MWh coincides very closely with his "conservative value" of \$75/MWh<sup>948</sup> that he conceded, in answer to the Court, was better termed "cost". It is also within the cost range of \$75-\$90/MWh that Dr Layton quotes from Connell Wagner<sup>949</sup>, and within the cost range of \$80-\$85/MWh he quotes from the Electricity Commission<sup>950</sup>. It also coincides closely with the estimates of cost used by other witnesses called by Meridian. Mr Waipara uses \$85/MWh for the "long run marginal

<sup>941</sup> Dr T B Layton, evidence-in-chief para 7.6 [Environment Court document 45].

<sup>942</sup> Transcript p. 1872.

<sup>943</sup> Transcript p. 1875. In response to "...then the value might be a lot high(er) than the cost?" Dr Layton responded: "Very High".

<sup>944</sup> Dr T B Layton, supplementary evidence para 8.11 [Environment Court document 45A].

<sup>945</sup> Dr T B Layton, supplementary evidence para 8.26 [Environment Court document 45A].

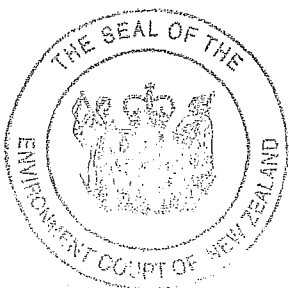
<sup>946</sup> Transcript p. 1853.

<sup>947</sup> Transcript p. 1856.

<sup>948</sup> Dr T B Layton, evidence-in-chief para 7.6 [Environment Court document 45].

<sup>949</sup> Dr T B Layton, supplementary evidence para 9.13(b) p. 32 [Environment Court document 45A].

<sup>950</sup> Dr T B Layton, supplementary evidence para 9.13(b) p. 33 [Environment Court document 45A].



cost of new generation”<sup>951</sup>. Mr Muldoon identified potential wind generation in the range of \$59/MWh to \$112/MWh, which we take to mean costs within that range<sup>952</sup>. The mid-point of this range is \$85.50/MWh<sup>953</sup>. Mr Muldoon also stated in evidence that the unit cost of electricity from the Lammermoor wind farm had been assessed at “approximately 75-80 \$/MWh”<sup>954</sup>, a figure Dr Layton stated in cross-examination that he was aware of<sup>955</sup>, and which he quoted later in his evidence<sup>956</sup>.

[546] In the extensive cross-examination, and in all the rebuttal evidence, the only negative comment about Dr Layton’s \$80/MWh was from Mr Leyland in his final paragraph of his last supplementary evidence. He held that due to the counter cyclical nature of wind and electricity prices “the actual income earned by the wind farm would be less than that calculated using an average spot price”<sup>957</sup>. Mr Leyland was not disputing \$80/MWh was the average price, but that the actual average price received for electricity from the wind farm would be lower than the average price as the wind farm would generate more during the lower priced months and less in the higher priced months.

[547] The evidence on electricity prices<sup>958</sup> does not assist in resolving our concern about the price Dr Layton used. Fortunately, exactly the same question was addressed and resolved in the recently released Waitaki decision where Meridian was again the applicant: *Lower Waitaki River Management Society Incorporated v Canterbury Regional Council*<sup>959</sup>. The Court in that case concluded that the appropriate electricity

<sup>951</sup> Mr G M T P Waipara, evidence-in-chief para 116 [Environment Court document 25].

<sup>952</sup> Mr A J Muldoon, evidence-in-chief para 4.8 [Environment Court document 26].

<sup>953</sup>  $(59 + 112) / 2 = 85.5$ .

<sup>954</sup> Mr A J Muldoon, rebuttal evidence para 1.12 [Environment Court document 26A].

<sup>955</sup> Transcript p. 1819-20.

<sup>956</sup> Dr T B Layton, supplementary evidence para 9.13(b) final bullet point, p. 33 [Environment Court document 45A].

<sup>957</sup> Mr B W Leyland, supplementary evidence 5 Feb 2009, para 10 [Environment Court document 80D].

<sup>958</sup> The NZIER report ‘Exploring Wind Hydro Correlation’ attached to Dr Layton’s supplementary evidence, the Fitch Ratings report ‘New Zealand Power and Utilities Credit Outlook 2009’ (Exhibit 80.1), the Electricity Commission report ‘Frequency Regulation Market Development’ (Exhibit 80.2) and the Electricity Commissioner’s 2008 ‘Statement of Opportunities’ all contain some electricity price information.

<sup>959</sup> *Lower Waitaki River Management Society Inc v Canterbury Regional Council*, Decision C80/2009 para 495 *et ff*.



price for use in a current cost benefit analysis should be no higher than \$70/MWh<sup>960</sup>. We are relieved to be able to adopt the same price. Using an average price of \$70/MWh in Dr Layton's formula then produces a gross output value of \$137 m/year. Subtracting intermediate consumption of \$30 m/year gives a benefit to the country of \$107 m/year. It is important to remember that this is the maximum value of the benefit of the power output to the community. It is based on the assumption that Meridian will install 176 turbines with a rated output of 3.6 MW. Meridian's application is for **up to** 176 turbines with a capacity of **up to** 3.6 MW. It may well install a lesser number and/or of a lower rating. If this eventuates, the output will be less, with a consequential reduction in the value of the benefit in terms of power output. Whether the marginal reduction in the effect on the landscape will be proportionate to the reduced output is doubtful.

#### 6.2.3 Reduced upward pressure on prices

[548] Several witnesses called by Meridian commented in their written evidence that the Lammermoor wind farm would place downward pressure on electricity prices<sup>961</sup>. When questioned on this<sup>962</sup> it was conceded that the best the Lammermoor wind farm would do is, in the words of Mr Calman for the Crown<sup>963</sup>: "help reduce upward pressure on electricity prices." Dr Layton clarified this himself when he used the phrase "some suppression of price rises"<sup>964</sup>. Dr Layton assessed that the general price effect of the Lammermoor wind farm would "probably (be) small" with a "minor impact"<sup>965</sup>.

[549] Wholesale prices are set by the highest-priced generator dispatched<sup>966</sup>. The Lammermoor wind farm therefore will have an impact on wholesale prices only when its additional generation acts to totally displace the highest priced generator such that it is not dispatched. Retail prices only relate to wholesale prices in the long term and on

<sup>960</sup> *Lower Waitaki River Management Society Inc v Canterbury Regional Council*, Decision C80/2009 para 503.

<sup>961</sup> See Mr G M T P Waipara, evidence-in-chief para 37 [Environment Court document 25], Mr A J Muldoon, rebuttal evidence para 1.37 [Environment Court document 26A], Dr T B Layton, evidence-in-chief para 8.7(b) first bullet point and para 8.26 [Environment Court document 45].

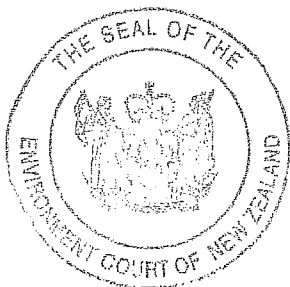
<sup>962</sup> See Transcript pp. 867-8 & 899 and Transcript p. 962.

<sup>963</sup> Mr S D C Calman, evidence-in-chief para 43 [Environment Court document 40].

<sup>964</sup> Dr T B Layton, supplementary evidence para 8.7(b) first bullet point [Environment Court document 45A].

<sup>965</sup> Dr T B Layton supplementary evidence para 8.26 [Environment Court document 45A].

<sup>966</sup> Transcript p. 867.



an average basis<sup>967</sup>. There are already wind farms operating that when combined equate to approximately half the output of the Lammermoor wind farm<sup>968</sup> and no evidence was presented to us to support a claim that these wind farms in combination had had an effect in moderating price increases. As Dr Layton acknowledged, the effect of the Lammermoor wind farm is unlikely to be different from that of any other wind farm that could be built<sup>969</sup>. Therefore we consider the likelihood of a detectable lessening of general price increases due to the output of the Lammermoor wind farm to be so low as to be insignificant. Although we acknowledge the theoretical possibility, practically it is not something that we should take account of.

[550] Dr Layton did consider there was a special case where the impact of the Lammermoor wind farm on electricity prices would be significant. This arises out of the impact of dry years in the lower South Island on the availability of energy in the area, causing a localised spike in wholesale prices, which impacts on local retail profits. Dr Layton contended that in the long run the increased dry year risk of very high wholesale prices in the Lower South Island would be passed on to local consumers in the form of higher retail prices. In Dr Layton's view the expansion of wind generation in the Lower South Island would ameliorate the dry year risk and cause "an avoidance of (price) increases to cover increasing risk of under supply"<sup>970</sup>.

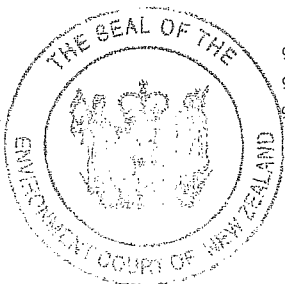
[551] We have two concerns with Dr Layton's views on this point. First, the causes of the higher lower South Island prices in May-June 2008 were not discussed in cross-examination, and Dr Layton gave no support to his contention that they were due to under supply in the Lower South Island. Our understanding of the evidence before us is that wholesale prices are a function of the highest priced dispatched generator, the transmission losses between the points of injection and the points of off-take and the extent to which any constraints are binding<sup>971</sup>. Thus the "materially higher" South Island wholesale prices that Dr Layton refers to could have been due to the constraints in

<sup>967</sup> Dr T B Layton, supplementary evidence para 8.15 [Environment Court document 45A].  
<sup>968</sup> Statement Of Opportunities ('SOO') Tables 10 & 11 (Tararua Stage 3 93 MW + Te Apiti 90 MW + Tararua Stage 1 & 2 68 MW + White Hill 58 MW = 309 MW compared to the Lammermoor wind farm 630 MW).

<sup>969</sup> Dr T B Layton, supplementary evidence para 8.12 [Environment Court document 45A].

<sup>970</sup> Dr T B Layton, evidence-in-chief paragraphs 8.13-8.15 [Environment Court document 45].

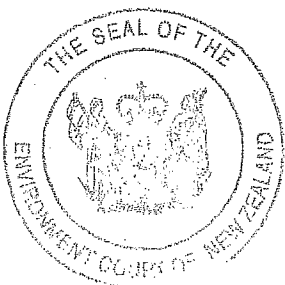
<sup>971</sup> This understanding has been garnered from several witnesses. See Mr R A Sutton, evidence-in-chief para 2.12-2.13 [Environment Court document 47] for the most succinct statement.



the grid on import into the lower South Island (and the South Island generally through the HVDC link) coming into play. This was supported by the evidence of Mr R Sutton, CEO of Orion New Zealand, when he stated<sup>972</sup>: “if there is insufficient generation in a transmission constrained region, local spot prices can rise to extremely high levels reflecting the risk of supply shortage”. The implication we take from this is that two factors are required to cause localised price spikes – insufficient local generation and constraints on the ability to import electricity into the region. The corollary of this is that there are two possible approaches – more local generation and reduction of the transmission constraints. Therefore the upgrade to the HVDC link to be completed by 2014 and the upgrade(s) to address the LSI constraints that would be required if the Lammermoor wind farm is built may ameliorate the risk of materially higher South Island prices. This would obviate price increases in Otago-Southland in excess of national price movements.

[552] Secondly, Dr Layton’s solution to higher LSI price pressures due to dry year risk was “the expansion of wind farm generation in the lower South Island”<sup>973</sup>. There are already two new wind farms consented in the lower South Island (Mahinerangi and Kaiwera Downs) which, if built, together<sup>974</sup> will add over two-thirds of the capacity that the Lammermoor wind farm will. We are doubtful that the Lammermoor wind farm will add significantly to the reduction of localised price rises in the lower South Island arising from dry year risk. We predict that the marginal effect of the Lammermoor wind farm over that of Mahinerangi and Kaiwera Downs combined on the dry-year risk price premium in the lower South Island is likely to be minimal.

[553] Given these two concerns we are reluctant to accept Dr Layton’s view that the impact of the indirect suppression of local electricity price rises by reducing the dry year risk is “likely to be appreciable” or that it will be a “significant” impact. We find that there may be some impact of this proposal on price increases through the amelioration of dry year risk in the lower South Island, but it is likely to be minimal.



<sup>972</sup> Mr R A Sutton, evidence-in-chief para 2.14 [Environment Court document 47].

<sup>973</sup> Dr T B Layton, supplementary evidence para 8.15 [Environment Court document 45A].

<sup>974</sup> There is a third very small farm already built at Teviot Bend, which we ignore here and elsewhere in these calculations as negligible in energy terms.

#### 6.2.4 Avoided transmission losses on import of electricity into Otago-Southland

[554] We accept Dr Layton's view that increased generation will reduce the need for importation of electricity into the lower South Island, and that there will be a concomitant reduction in transmission losses on inward flows of electricity. Although the actual quantum of losses is difficult to determine, as Dr Layton indicated<sup>975</sup>, we are able to estimate the maximum avoided transmission loss. Mr Stevenson has provided us with the volume of electricity imports into Otago/Southland for the years 2005-2007. The mean annual import over these three years was 360 GWh<sup>976</sup> which is less than the expected annual output of the Lammermoor wind farm of 2050 GWh. So the Meridian project could in theory result in a maximum average reduction in electricity imports into the Lower South Island of 360 GWh. At a reasonable maximum transmission loss of 10%<sup>977</sup>, this would be a loss on average of 36 GWh/year. At the Benmore average wholesale spot price of \$56.79/MWh<sup>978</sup> the reasonable maximum average value of transmission losses avoided due to the Meridian proposal would be \$2m/year. At the reasonable price of \$70 MWh we adopted earlier the figure would be \$2.5m/year. Either way, even if the maximum transmission loss on importation of electricity into the lower South Island is avoided, we are satisfied that Dr Layton is likely to be correct and that this gain is likely to be small. Therefore it has only a minor (positive) impact<sup>979</sup>.

#### 6.2.5 Improved security of supply

[555] Dr Layton stated that the extent to which the Lammermoor wind farm would improve security of supply was "not clear and...difficult to quantify"<sup>980</sup>. We agree. It is clear from Professor Strbac in cross-examination<sup>981</sup> that additional generation from whatever source that meets the technical requirements of grid connection cannot help but improve the security of supply. Professor Strbac did acknowledge in response to questions from the Court that as the level of wind penetration increases the marginal

<sup>975</sup> Dr T B Layton, supplementary evidence para 8.26 [Environment Court document 45A].

<sup>976</sup> Mr T Stevenson, evidence-in-chief para 76,  $(378 + 383 + 320) / 3 = 360.3$  [Environment Court document 73].

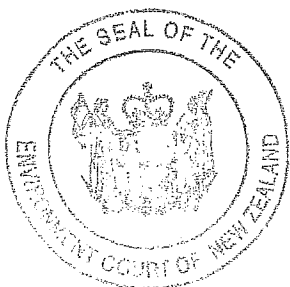
<sup>977</sup> Dr T B Layton, supplementary evidence para 8.11 [Environment Court document 45A] and Transcript, p. 1867.

<sup>978</sup> NZIER report "Exploring Hydro-Wind Correlation", 5 September 2008 attached to Dr T B Layton, supplementary evidence Table 4 p. 10 [Environment Court document 45A].

<sup>979</sup> Dr T B Layton, supplementary evidence para 8.26 [Environment Court document 45A].

<sup>980</sup> Dr T B Layton, supplementary evidence para 8.17 [Environment Court document 45A].

<sup>981</sup> Transcript p. 2006.





contribution of wind generation to security of supply will become less and will become insignificant at some point<sup>982</sup>.

[556] We agree with Dr Layton that the Lammermoor wind farm will have only a small impact on the probability of supply disruptions and that the benefit of the Lammermoor wind farm to security of supply is minor<sup>983</sup>.

#### 6.2.6 Complementarity of wind to hydro

[557] Dr Layton makes only a passing mention of this benefit, and he places it only in the context of Meridian's operations. He included<sup>984</sup> the 'benefit of any synergies' in his initial discussion of the benefits, but made no further mention of it. He did not attempt to quantify the benefit, nor did he include it in his summary table<sup>985</sup>. From the tenor of his comment, and the lack of any further reference to it, we assume that Dr Layton does not consider the complementarity of wind to hydro generation to be of any significant benefit additional to the generation of electricity assessed above. If that is Dr Layton's position, then we agree. The flexibility of hydro generation with water storage capacity already exists. Wind generators take advantage of that flexibility in requiring other generation capacity to fill the gaps in their output when the wind is not blowing. Hydro is useful in that it can adjust to short-term variations in wind output by ramping up or down very quickly. This is the flexibility of hydro generation assisting wind generation rather than a benefit arising from wind generation. When the wind is blowing through the turbines, other generators are able to store their fuel for later use, but that is true for any generation form with storage capacity, and it may well be a thermal fuel that is stored for later use.

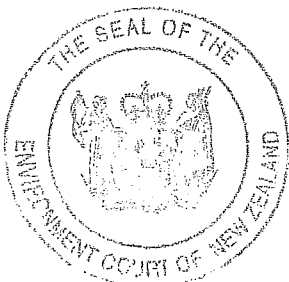
[558] We discuss some issues which are the obverse to this later under 'Costs' under the sub-headings of 'Back-up generation' and 'Frequency keeping'.

<sup>982</sup> Transcript p. 2119.

<sup>983</sup> Dr T B Layton, supplementary evidence para 8.26 [Environment Court document 45A].

<sup>984</sup> Dr T B Layton, supplementary evidence para 8.7(a) [Environment Court document 45A].

<sup>985</sup> Dr T B Layton, supplementary evidence para 8.26 [Environment Court document 45A].



6.2.7 Benefits to the economy from the construction of the wind farm

[559] Dr Layton applied multiplier analysis to the expected New Zealand component of the expected capital cost of the wind farm to calculate the expected benefit to the local economy of the construction of the wind farm as \$840m spread over the period of construction. Included in this is the expected creation of an additional 380 jobs for the period of construction. This is made up of \$400m in direct spending (20% local content of total cost of \$2b) and \$440m of indirect spending, with 200 jobs in direct construction of the wind farm (Meridian's figure) and 180 additional jobs in the region<sup>986</sup>.

[560] Multiplier analysis draws on inter-industry comparisons. An inter-industry study (or input-output study) gives the impact that additional spending by one industry has in increasing demand for the output of other industries in the economy. Increased spending by one industry requires increases in the output of other industries. These in turn require increases in the output of further industries. By aggregating the effects on the different parts of the economy, the total effect across the economy is calculated and expressed as a co-efficient. This co-efficient is the multiplier by which the impact that additional spending by one industry has across the whole economy is calculated. Dr Layton was careful to caution us in using some relevant multipliers, given the age of the data that the multiplier is derived from<sup>987</sup>. The multipliers Dr Layton has used come from a 1985 Ministry of Agriculture and Fisheries publication<sup>988</sup>, which Dr Layton acknowledged to the Court would be based on 1981 official input-output tables. He stated that there would be a margin of error given their age (up or down), but that they were the best available<sup>989</sup>. Dr Layton indicated<sup>990</sup> that economists 'downplay' the local benefits as they may replace benefits in another place, but that in the current economic climate the local benefits could have more substance. While we accept that an investment of the size of Lammermoor may have a significant regional benefit in the current economic climate, we note that Meridian has requested a 10-year implementation period, and that construction is expected to take five years. Thus, if consent is granted, construction may not begin until 2014, when economic conditions may be considerably different from now.

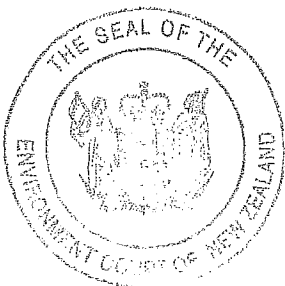
<sup>986</sup> Dr T B Layton, supplementary evidence para 8.20 [Environment Court document 45A].

<sup>987</sup> Dr T B Layton, supplementary evidence para 8.19 [Environment Court document 45A].

<sup>988</sup> Dr T B Layton, supplementary evidence page 22, footnote 20 [Environment Court document 45A].

<sup>989</sup> Transcript, p. 1887.

<sup>990</sup> Transcript, p. 1785.



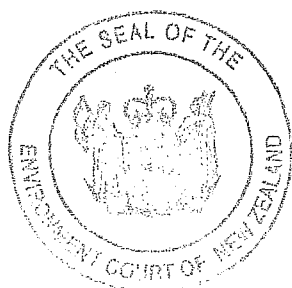
[561] The Court knows from its own experience and expertise that while New Zealand does not produce official regional inter-industry studies, national level inter-industry studies have been produced periodically, the most recent being for 1996. Various private bodies, including the NZIER, do calculate regional input-output tables and regional multipliers using the 1996 inter-industry study as a starting point. It is puzzling that Dr Layton did not refer to any of this work, including that of the NZIER, from which he had just retired as Chief Executive.

[562] Accepting the multipliers supplied by Dr Layton as the best available to us, the critical issues that determine the value of the benefit to the local economy are the total capital cost of the project and the proportion of that cost that will be spent domestically. Dr Layton uses a total cost of \$2b, of which 20% would be spent domestically. The 20% is based on "previous experience of wind farms in New Zealand", and is similar to the 25% identified by Meridian as the domestic proportion of the capital cost<sup>991</sup>. Dr Layton was firm in cross-examination that the \$2b capital cost figure he used was provided to him by Meridian<sup>992</sup>:

...I said it's Meridian Energy's, I was very careful about that.<sup>993</sup>

[563] No witness called by Meridian other than Dr Layton gave any figures for the cost of the wind farm project. This is despite Mr Leyland advancing extensive evidence as to his view of what the project might cost, and these estimates being severely criticised in rebuttal by and in cross-examination of Mr Muldoon. When directly asked for Meridian's cost estimates, Mr Muldoon was clear that Meridian do not release that information<sup>994</sup>:

MR MULDOON: With respect to how we populate a model such as this, the type of information that goes into it is extremely commercially sensitive, and the information that we disclose, for example, we have never said the cost of any of our projects and we have never disclosed our cost of capital nor the



991 Dr T B Layton, supplementary evidence para 8.20 [Environment Court document 45A].  
 992 Transcript, pp 1822, 1827-1828, 1835.  
 993 Transcript, p. 1827.  
 994 Transcript, p. 933.

assumptions which go into our economic evaluations. That's a commercial decision that's taken by our board of directors.

A similar statement was made a little later in cross-examination in regard to the earthworks costs of the wind farm<sup>995</sup>. Given the absence of any evidence from Meridian on the expected cost, we must draw what conclusions we can from the evidence that is available to us. If that works to Meridian's disadvantage in this decision the problem is of their own making.

[564] We do know from Dr Layton that the development impact levy will be calculated as 0.375% of the capital cost<sup>996</sup>. (We assume the figure of 0.365% as given by Mr Todd in his closing submissions was a simple error<sup>997</sup>.) We have not found figures for the value of the levy in evidence but counsel gave various figures:

- Mr Todd<sup>998</sup>: 'in the range of \$3-\$7.5 million';
- Mr Beatson<sup>999</sup>: 'in the vicinity of \$3.75m-\$7.5m';
- Mr Rennie<sup>1000</sup>: 'in the range of \$3.75 million to \$7 million'.

[565] One further complication is that the proposed condition<sup>1001</sup> relating to the development impact levy states that the levy is to be 0.375% of **capital value**, not capital cost<sup>1002</sup>. An advice note to the condition states:

Capital value shall be based on an internationally accepted Wind Industry index of Capital cost \$ per MW installed plant. (Capitalisation as per the condition as written.)

<sup>995</sup> Transcript, p. 936.

<sup>996</sup> Dr T B Layton, supplementary evidence para 8.26, summary table [Environment Court document 45A].

<sup>997</sup> Mr G M Todd, closing submissions for CODC para 83 [Environment Court document 85].

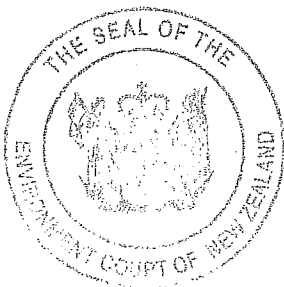
<sup>998</sup> Mr G M Todd, closing submissions for CODC para 82 [Environment Court document 85].

<sup>999</sup> Mr A Beatson, further submissions 28 July 2008, para 157(a) [Environment Court document 23].

<sup>1000</sup> Mr H Rennie QC, closing submissions 27 February 2009 para 24 [Environment Court document 93].

<sup>1001</sup> Proposed Conditions of Consent, para 83 [Environment Court document 44A].

<sup>1002</sup> Proposed Conditions of Consent, para 83, Advice Note (a) [Environment Court document 44A].

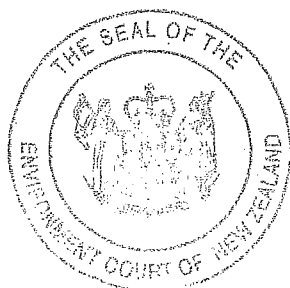


Thus the capital cost for purposes of calculating the development impact levy would not be the actual capital cost incurred by Meridian. The loose terminology used by counsel – “cost” when “value” is stipulated by the condition – is not assisted by the circularity of the wording of the condition. The condition states that the levy shall be based on “total capital value”, but the advice note states that capital value shall be determined by “capital cost”, and that capital cost shall be determined by an unspecified international index of capital cost. Thus the basis of the levy calculation will be quite independent of the actual value or cost of the wind farm on the Lammermoor. The condition states that the levy shall be calculated on the capital value “of the consented wind farm development”. Strictly speaking, the value of the “consented wind farm development” is the value of the consent before any construction has occurred – i.e. the consented but undeveloped wind farm.

[566] The advice note goes on to state:

For the avoidance of doubt, the total capital value will not include the value of any off-site works undertaken by the Consent Holder.

[567] We infer that the upgrading and restoring of Old Dunstan Road, bridging Sutton Stream, adjustments to the alignment of the corner of Riccarton Road if required and any work required at the gravel quarry in the vicinity of Clarks Junction<sup>1003</sup> are all excluded from the capital value on which the development impact levy is calculated. Further, the condition states that capital value is to be determined at the time construction activity commences. At commencement of construction activity the capital value is limited to the value of the consent without any construction, and the capital cost is unknown. As the condition is currently worded the actual amount spent by Meridian on the project may be quite different from that used in the calculation of the development impact levy. If consent is granted, we will require that this condition be redrafted to give greater clarity and to provide for the levy to be based on actual cost as constructed.



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<sup>1003</sup> Transcript, p 2302.

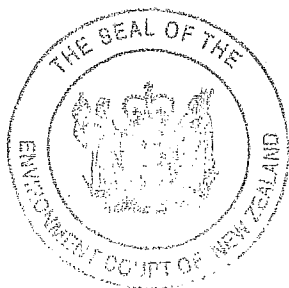
[568] Using the value of the levy as being in the range of \$3.75m-\$7.5m, and using the calculation basis of 0.375%, we calculate the cost (or value) of the wind farm as between \$1 billion and \$2 billion (plus any off-site works). This range is so wide that it may not help us greatly. However, it is worth noting that the cost of the wind farm Meridian supplied to Dr Layton was at the very maximum of the range that the development impact levy suggests. We note that Mr Leyland estimated the cost of the wind farm as between \$1.89b and \$2.2b<sup>1004</sup>. Mr Muldoon was very critical<sup>1005</sup> of the data that Mr Leyland used in making his estimates, and in the scope of those estimates.

[569] Given:

- the lack of relevance of the calculation base of the levy to the cost of the wind farm;
- the huge range of cost suggested by the range of levy value that has been put before us;
- the criticism of the inputs into, and scope of, Mr Leyland's estimates;
- the failure of Meridian to provide actual estimates of construction costs

– we find that we can place little reliance on the results of the multiplier analysis of Dr Layton. This is not a reflection on Dr Layton, but stems from the doubt we have as to the validity of his starting point of a \$2b expected cost, which he stressed was a Meridian-supplied value. If \$2b is the expected construction cost, and Meridian gave it to Dr Layton knowing that it would be revealed in evidence, Meridian should have been willing to place the figure in evidence. Given they did not do so, and noting the position Meridian takes on releasing such information, as given to us by Mr Muldoon, we have no assurance of the validity of the \$2b figure.

[570] Given the range of possible construction costs that are before us (\$1b - \$2.2b), and the caution with which we must treat the actual multipliers due to their age, we are very limited in the conclusions we can make on this aspect of Dr Layton's evidence. We conclude there is a medium likelihood that there will be benefits to the economy



<sup>1004</sup> Mr B W Leyland, evidence-in-chief para 8.1 [Environment Court document 80].

<sup>1005</sup> Mr A J Muldoon, rebuttal evidence paragraphs 1.2-1.10 [Environment Court document 26A].

resulting from the multiplier effect of spending by Meridian on regional content of the wind farm construction, that the combined value of the direct plus indirect benefits will be in the order of double the value of direct spending alone, and that the value could range from as low as \$400m to over \$800m.

#### 6.2.8 Development Impact Levy

[571] As discussed in the preceding section, Meridian will pay a Development Impact Levy of between \$3.75 and \$7m to the CODC, as provided for in policy 15.4.2 of the district plan. We were given no information as to what this will be used for, but as noted in Chapter 3.0 (The law) its possible use includes “to avoid, remedy, mitigate or compensate for adverse environmental effects on the community or any group within the community”. This is a benefit of the proposal because the transfer is from a private citizen to a public body although the size of benefit is unclear as discussed above.

[572] We are also concerned that the “adverse environmental effects” for which the Council is taking the money have not been identified. In fact Meridian’s own appeal was on precisely that point, but it has done a deal with the Council so that the Central Otago District gains \$3.75m. We do not approve of payments (possibly *ultra vires*) like this which look like they could go to a fund for distribution by Council committees to their favourite causes. Such payments (if that is how they are to be used) do not make the operation of the RMA look principled.

#### 6.2.9 Economic benefit of operation

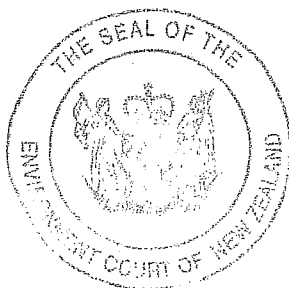
[573] Dr Layton also applied multiplier analysis to the ongoing operational expenditure of the wind farm. Using data supplied by Meridian<sup>1006</sup> Dr Layton calculated the total direct and indirect ongoing employment benefit to the region to be between \$2.24m and \$2.8m with a total employment impact of an additional 28 to 35 jobs in the region<sup>1007</sup>. As discussed above, Dr Layton did not allow for intermediate consumption. On the assumption that most of this will be spent locally (most probably by contract with the turbine supplier using locally resident staff trained by the turbine

<sup>1006</sup>

Dr T B Layton, supplementary evidence para 8.9 [Environment Court document 45A].

<sup>1007</sup>

Dr T B Layton, supplementary evidence para 8.21 [Environment Court document 45A].



supplier as indicated by Mr Leyland<sup>1008</sup>), this quantum should be included in the multiplier analysis of the ongoing benefit from operation of the wind farm. Applying Dr Layton's output multiplier to the \$30m annual value of intermediate consumption discussed earlier, we would get additional spending of a maximum of some \$33m<sup>1009</sup> giving a total spending of \$63m. However, much of the spending other than labour costs would be imported parts for the turbines which would have no direct or indirect benefit to New Zealand. The total impact of ongoing operational spending will be greater than the \$2.8m calculated by Dr Layton, but not nearly as large as the \$63m applying the multiplier to the total intermediate consumption would indicate. Using the 20% domestic content which Dr Layton applied to the construction costs, we conclude that the total impact of the operation spending will be in the order of \$12.6m.

#### 6.2.10 Reduced CO<sub>2</sub> emissions

[574] Dr Layton estimated the value of reduced greenhouse gas emissions under the Kyoto Protocol as between \$14.9m and \$67.6m per year, depending on what fuel source was displaced by the wind farm output<sup>1010</sup>. This range encompasses the \$25m per year that Dr Denne thought would be a reasonable value<sup>1011</sup>. Dr Layton used the price range of \$25-\$40/tonne of CO<sub>2</sub> equivalent<sup>1012</sup>, whereas Dr Denne used a price of \$25/tonne of CO<sub>2</sub> equivalent<sup>1013</sup>. Dr Layton used emissions factors of 380 tonnes CO<sub>2</sub> equivalent/GWh for modern gas-fired generation and 860 tonnes CO<sub>2</sub> equivalent/GWh for coal-fired generation. Dr Denne used an emissions factor of 625 tonnes CO<sub>2</sub> equivalent/GWh, as used by the Ministry for the Environment<sup>1014</sup>.

[575] Mr Carr drew our attention to the latest thinking on emissions factors promoted by the British Wind Energy Association (BWEA)<sup>1015</sup>. The BWEA is promoting the use of an average emissions factor of 430 tonnes of CO<sub>2</sub> equivalent/GWh. Dr Layton

<sup>1008</sup> Transcript, p 3131.

<sup>1009</sup> \$30m x 2.1 – \$30m.

<sup>1010</sup> Dr T B Layton, supplementary evidence para 8.22 [Environment Court document 45A].

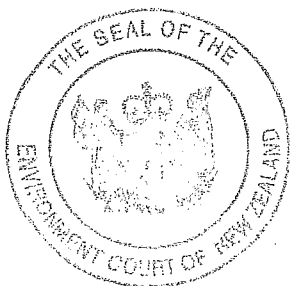
<sup>1011</sup> Transcript, pp 1237-1238.

<sup>1012</sup> Dr T B Layton, supplementary evidence para 8.22 [Environment Court document 45A].

<sup>1013</sup> Transcript, p 1237-1238.

<sup>1014</sup> Dr T Denne, evidence-in-chief para 53 [Environment Court document 29].

<sup>1015</sup> Exhibit 45.2 Article from The Telegraph dated 21 Dec 2008.





pointed out that 430 tonnes of CO<sub>2</sub> equivalent/GWh was within his range of 380-860 tonnes CO<sub>2</sub> equivalent/GWh and so did not materially change his view<sup>1016</sup>.

[576] We agree with Dr Layton<sup>1017</sup> that the relevant emissions factor depends on the type of generation plant that would be required if the wind farm was not built, and that this is unknown. Is the comparator the existing generation technology that might be displaced if the wind farm was built, or the new generation technology that would be required to meet demand if the wind farm was not built? Dr Layton suggests that it is more likely that output from the wind farm will displace thermal generation due to its higher short run marginal costs, therefore the emissions factor should be that relating to gas or coal fired generation rather than renewable generation<sup>1018</sup>. However this does not address the issue of whether it will be new technology (with low emissions) or old technology (with high emissions). Dr Layton states that his gas-fired emissions figure relates to a “modern combined cycle gas-fired plant”, while the coal-fired emissions figure he uses seems to relate to an old technology plant, given his use of 860 tonnes CO<sub>2</sub> equivalent/GWh<sup>1019</sup>.

[577] We do not have sufficient evidence to make any conclusions as to what technology would be generating if the wind farm is not built. Dr Layton’s range seems to encompass both low emission, modern gas technology and high emission, old coal technology. The range makes no allowance for any displacement of non-emitting generation, although Dr Layton does acknowledge that possibility<sup>1020</sup>. The best we can conclude is that if the wind farm is built to its largest dimension, the emissions avoided will be a maximum of 1.69m tonnes of CO<sub>2</sub> equivalent. The minimum level of emissions avoided is less than 0.75m tonnes of CO<sub>2</sub> equivalent.

[578] We do not know at what price Kyoto Units will sell. Ms Arthur in her submission of 29 Jan 2009 told us that the change in government had not changed government policy in relation to this wind farm proposal<sup>1021</sup>. She informed us that a

<sup>1016</sup> Transcript, p 1778-1779.

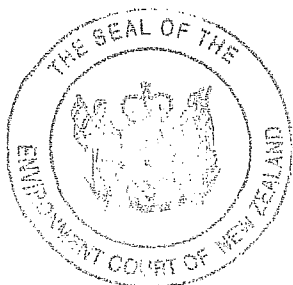
<sup>1017</sup> Dr T B Layton, supplementary evidence para 8.23 [Environment Court document 45A].

<sup>1018</sup> Dr T B Layton, supplementary evidence para 8.23 [Environment Court document 45A].

<sup>1019</sup> Dr T B Layton, supplementary evidence para 8.22 [Environment Court document 45A].

<sup>1020</sup> Dr T B Layton, supplementary evidence para 8.23 [Environment Court document 45A].

<sup>1021</sup> Ms B H Arthur, submission para 2 [Environment Court document 65].



select committee had been established to review the Emissions Trading Scheme<sup>1022</sup>. Although she did not state it, we understand that along with this review, it is government policy to delay the implementation of the Emission Trading Scheme to allow for the outcome of this review. It is with some relief that we note that the benefit to New Zealand of avoiding CO<sub>2</sub> emissions is not dependant upon the fate of the Emissions Trading Scheme (“ETS”) or a possible carbon tax. The ETS, or a carbon tax, affects the allocation of costs and benefits between emitters and non-emitters in, in our case, the electricity industry. From the evidence of Dr Denne we accept that the benefit to New Zealand as a whole flows from the Kyoto Protocol itself, not how it is implemented within New Zealand. It is the price of Kyoto Units that will determine the value of the emissions avoided, whether this be through the ETS, a carbon tax or some other mechanism.

[579] Dr Denne suggested a Kyoto Unit price of NZ\$25/tonne of CO<sub>2</sub> emissions, while Dr Layton used a price range of NZ\$20-\$40/tonne. Using Dr Layton’s minimum price with the minimum volume of emissions avoided would produce an annual value of emissions avoided of less than \$15m. Using the maximum price with the maximum volume of emissions avoided would produce an annual value of \$67.6m. Given the evidence before us we are unable to come to a more precise estimate of the value of the benefit of avoided carbon emissions that may occur as a result of a wind farm on the Lammermoor. We note that uncertainty over the price of Kyoto Units is such that the value of the benefit could conceivably lie somewhere outside this range (either above or below). However, for the purposes of our assessment we will accept the range as stated above.

[580] Mr Carr raised with Dr Layton the uncertainty surrounding the Kyoto Protocol, and hence the value of avoided carbon emissions, beyond 2012, the end of the first commitment period of the Kyoto Protocol. Dr Layton considered that the timing is “often difficult” and that “it may take a while”, but he suggested it would be “rather foolish” of New Zealand not to continue on the assumption that we would eventually get there<sup>1023</sup>. We recognise that there is uncertainty around what the value of avoided

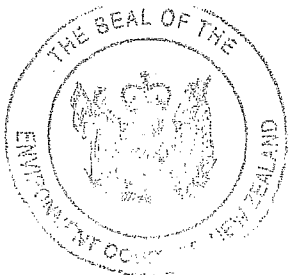
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<sup>1022</sup>

Ms B H Arthur, submission para 4 [Environment Court document 65].

<sup>1023</sup>

Transcript, p 1781.

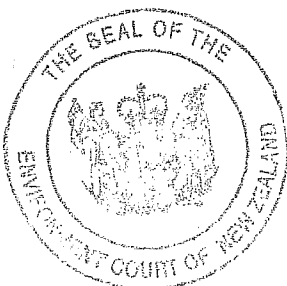


carbon emissions will be beyond 2012, but this is no different from the uncertainty around any projection into the future.

#### 6.2.11 Other benefits

[581] Mr Greenaway suggested<sup>1024</sup> that the wind farm may be a positive tourist attraction in the region, albeit not a major destination. We predict that is not likely. While wind turbines do have a sculptural element to them, and people do visit wind farms as part of a tourism activity, we do not consider that likely to occur on the Lammermoor. As Mr Greenaway wrote<sup>1025</sup>, the wind farm as a tourism product will respond to how it is promoted. We understand that there is no intention to facilitate visitors to the wind farm, that there will be no public access to the site and there will be no information area. More importantly, if visitors to Otago want to view a wind farm there will be wind farms easier to access than one on the Lammermoor. Mahinerangi and White Hill wind farms are much closer to Dunedin, and Queenstown and Invercargill respectively than the Lammermoor, and much easier to access. People wishing to visit a wind farm are more likely to visit the one closest and with easy access<sup>1026</sup>.

[582] In addition to the benefits quantified above, the court has identified a further (mixed) benefit not raised in evidence. This is the benefit of improved access to and across the Lammermoor. The upgrading of the Old Dunstan Road required for the construction of the wind farm will remain and presumably be maintained. This will improve access to and across the Lammermoor during the nine months of the year the road is open. Potentially it will make all year round access possible. This will be of benefit to those who access the Lammermoor for recreation and possibly provide a faster route from the Upper Taieri Valley to Dunedin. Winter access may enhance the recreational use of the conservation areas on the Rock and Pillar Range. Although this was not discussed in evidence it is a benefit that should be included in the cost benefit analysis.



<sup>1024</sup> Mr R J Greenaway, evidence-in-chief, para 4.40 [Environment Court document 59].

<sup>1025</sup> Mr R J Greenaway, evidence-in-chief, para 4.40 [Environment Court document 59].

<sup>1026</sup> Transcript, p. 2861.

[583] The upgrading of the existing farm tracks to all-weather roads, and the creation of an additional 50 km or so of new roads across the Lammermoor will have a beneficial effect for farming operations and any other potential users of the area. Although the roads may not be where the farmers would have placed them for their purposes they will undoubtedly improve access and enhance farming efficiency. They may enable other uses of the Lammermoor to be extended or developed under the turbines.

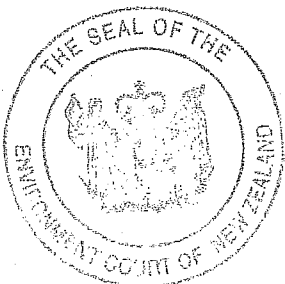
### 6.3 The costs

#### 6.3.1 Listing the possible costs

[584] Not surprisingly, the costs of a wind farm on the Lammermoor were expounded at considerable length by the various opponents of the proposal. In summary, the costs identified by the opponents of the wind farm were:

- Cost of electricity from wind
- Additional electricity system costs – frequency keeping and reserve capacity
- Additional costs in upgrading the national grid
- Additional transmission losses
- Loss of landscape values
- Loss of recreational amenity
- Loss of heritage values
- Impact on tourism activity both locally and within the Otago region
- Ecological costs to flora, fauna and water quality

[585] Prior to our procedural decision<sup>1027</sup> of 8 August 2008 requesting further evidence, we had insufficient quantification of the public costs in a way that could be assessed in the same way as the benefits have been assessed above. Further, the evidence to that date had raised further potential costs that we needed to be better informed about before we could assess their relevance and significance. We identified those as being<sup>1028</sup>:



<sup>1027</sup> *Maniototo Environmental Society Incorporated v Central Otago District Council and Otago Regional Council* Decision C89/2008.

<sup>1028</sup> Decision C88/2008, para 12.

The possible incentive in Transpower's policy of open access to the core grid to locate new generation at a distance from demand at consumers' expense, and whether this imposes an additional public cost arising from a wind farm on the Lammermoor.

and:

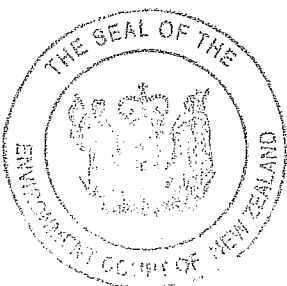
The costs associated with the risk of having too much wind generation in the Otago-Southland region and it all being affected by a lack of wind at the same time.

Subsequent to the procedural decision, we received further evidence on costs from Dr Layton, Mr Leyland, Mr Stevenson and Mr Gleadow. This was helpful in regard to the quantification of the various public costs of the Lammermoor wind farm.

#### 6.3.2 Cost of electricity from wind

[586] We heard a significant amount of evidence and vigorous cross examination on the relative costs of wind energy in general, of the output from the Lammermoor wind farm specifically, and of energy from other forms of generation generally. Messrs Muldoon, Leyland and Stevenson all gave evidence (some of it irrelevant) and were cross-examined on the topic.

[587] Fortunately we are not required to adjudicate on some of the matters that were raised by the witnesses. We are directed in section 5 of the RMA to provide for the "economic well-being" of "people and communities", through the sustainable management of "natural and physical resources" while giving appropriate regard to the issues covered in sections 6 – 8. We are not required to be concerned for the financial wellbeing of corporate entities or with their use of their financial resources. As such, we are not concerned with how much the project might cost Meridian, what the long run marginal cost to Meridian of electricity generated by the wind farm might be, or with the wisdom or otherwise of Meridian's investment decisions. As discussed in Chapter 3.0 these are matters for Meridian's Board of Directors and, in Meridian's case, ultimately the Shareholding Minister.



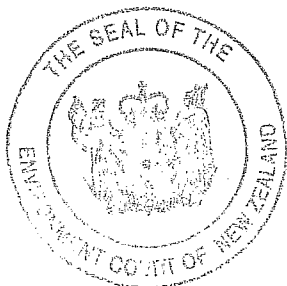
[588] The long run marginal cost of electricity produced from a wind farm on the Lammermoor could be relevant to us if it was going to impact on the economic wellbeing of New Zealanders through the price they pay for electricity. The evidence before us is clear that a wind farm is required to offer electricity into the market at a price of \$0.01/MWh under current market rules<sup>1029</sup>. As such it will not cause an increase in electricity prices.

### 6.3.3 Additional electricity system costs – frequency keeping and reserve capacity

[589] It was common ground that the inclusion of wind into the fuel source mix of the New Zealand electricity system would impose additional costs on the electricity system<sup>1030</sup>. Further, it was agreed that the additional system costs associated with wind generation were greater than those associated with thermal or hydro generation<sup>1031</sup>. What was at issue was the nature of the additional costs, the magnitude of the additional costs, and the penetration levels of wind into the New Zealand system at which they came into play.

[590] Rather different terms for the additional system costs that may occur were used by the different experts that gave evidence. Mr Leyland in his primary evidence used the terms “frequency keeping costs”<sup>1032</sup> and “back-up generation”<sup>1033</sup>. Mr Waipara used the terms “operating reserves” and “generation capacity” and equated these to Mr Leyland’s terms<sup>1034</sup>. The Strbac Report<sup>1035</sup> referred to “generation capacity and capacity costs”<sup>1036</sup>, “instantaneous reserve”, “frequency keeping reserve” and “standing reserve”<sup>1037</sup>. Dr Layton, who is an economist not an expert in generation systems uses the terms “back-up generation”<sup>1038</sup>, “frequency keeping”<sup>1039</sup> and “instantaneous

<sup>1029</sup> Dr T B Layton, supplementary evidence para 5.4 [Environment Court document 45A].  
<sup>1030</sup> Mr G M T P Waipara, rebuttal evidence para 22 [Environment Court document 25A].  
<sup>1031</sup> e.g. Dr T B Layton regarding frequency keeping costs, Transcript p 1854.  
<sup>1032</sup> Mr B W Leyland, evidence-in-chief para 3.7 [Environment Court document 80].  
<sup>1033</sup> Mr B W Leyland, evidence-in-chief para 6.0 [Environment Court document 80].  
<sup>1034</sup> Mr G M T P Waipara, rebuttal evidence paragraphs 20 and 21 [Environment Court document 25A].  
<sup>1035</sup> “The System Impacts and Costs of Integrating Wind Power in New Zealand”, Meridian Energy Limited, June 2008 (Strbac Report).  
<sup>1036</sup> Professor G Strbac, Report p. 3 paragraphs 1- 8 [Environment Court document 48].  
<sup>1037</sup> Professor G Strbac, Report paragraphs 4.8-4.16 [Environment Court document 48].  
<sup>1038</sup> Dr T B Layton, supplementary evidence para 5.1 [Environment Court document 45A].  
<sup>1039</sup> Dr T B Layton, supplementary evidence para 6.4 [Environment Court document 45A].



reserves”<sup>1040</sup> when assessing the values associated with the costs. This multiplicity of terms has not helped us. For clarity, we understand the “back-up generation” of Mr Leyland and Dr Layton to be the same as the “generation capacity” of Mr Waipara and the “generation capacity and capacity costs” of the Strbac Report. We equate Mr Leyland’s ‘frequency keeping reserves’ with Mr Waipara’s ‘operating reserves’. We understand that these terms encompass both the frequency keeping and instantaneous reserves as used by both the Strbac Report and Dr Layton, together with the Strbac Report’s standing reserve.

[591] The additional system costs that may be relevant are for:

- Back-up generation
- Frequency keeping and operating reserves

#### 6.3.4 Back-up generation

[592] The need for back-up generation to support wind energy is clearly stated in the Strbac Report, viz<sup>1041</sup>:

Wind generation is primarily an energy source with limited ability to provide reliable output at times of peak demand. This results in the need to maintain higher levels of generation capacity in the system, with additional capacity costs, in order to maintain system reliability at a desired level.

As Mr Waipara put it<sup>1042</sup>: “What happens when the wind doesn’t blow?”. At issue between the experts was what level of additional generation capacity was required to enable peak demand to be reliably met.

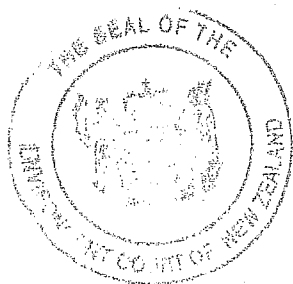
[593] Mr Leyland assessed that only 10% of the installed capacity of the wind farm would be relied upon to meet peak demand. On this basis, after allowance for the use of other system reserves at peak demand periods, he assessed that an additional generation capacity of 350 MW would be required as back-up generation capacity to the Lammermoor wind farm.<sup>1043</sup> He assumed this would only be required in the winter

<sup>1040</sup> Dr T B Layton, supplementary evidence para 6.5 [Environment Court document 45A].

<sup>1041</sup> Professor G Strbac, Report para 1.12 [Environment Court document 48].

<sup>1042</sup> Mr G M T P Waipara, rebuttal evidence para 14 [Environment Court document 25A].

<sup>1043</sup> Mr B W Leyland, evidence-in-chief para 6.1 [Environment Court document 80].



months when all available hydro capacity is often required. He assumed a 350 MW thermal plant would be required, probably an open cycle gas plant, with an operating cost of \$1100/kW, operating for 10% of the year, with a discount rate (or return on investment) of 10%<sup>1044</sup>. He assessed the cost of this back-up generation at \$30.7m/year<sup>1045</sup>.

[594] Mr Waipara was very critical of Mr Leyland's estimate of the additional generation capacity requirement associated with the wind farm proposal. He described it as "unreliable, misrepresentative and incorrect"<sup>1046</sup>, criticism he stood by during cross-examination<sup>1047</sup>. Mr Waipara regarded<sup>1048</sup> Mr Leyland's failure "to recognise that the New Zealand system has an abundance of hydro capacity that can be employed over short time horizons to manage or balance the output of a wind farm" as the "critical flaw" in Mr Leyland's analysis. Mr Waipara's thesis, relying heavily on the work embodied in the Strbac Report, was that back-up generation was not provided as back-up to a specific plant (like a wind farm) but to the generation system as a whole<sup>1049</sup>. He said that it is the "generation capacity" of the system that is the critical issue<sup>1050</sup> and continued:

New Zealand has a significant number of hydro power stations which have the ability to ramp up and down at short notice to provide both the generation capacity or back up capacity as well as operating reserves required to manage short term fluctuations in wind farm output. (This) means that the economic cost of accessing this generation capacity to balance wind power is close to zero, as the costs are already sunk. It is not until significant quantities of wind power are installed and the hydro generation stations reach the limit of their ability to firm wind power that additional generation is required to be installed and the additional system costs become material.

Mr Waipara based his statements on the 'Strbac Report'. This presents the results of work commissioned by Meridian and led by Professor G Strbac of Imperial College London.

<sup>1044</sup> Mr B W Leyland, evidence-in-chief paragraphs 6.1- 6.4 [Environment Court document 80].

<sup>1045</sup> Mr B W Leyland, evidence-in-chief Exhibit 8 [Environment Court document 80].

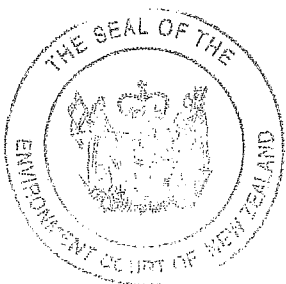
<sup>1046</sup> Mr G M T P Waipara, rebuttal evidence para 40 [Environment Court document 25A].

<sup>1047</sup> Transcript, pp 853 and 854.

<sup>1048</sup> Mr G M T P Waipara, rebuttal evidence para 35 [Environment Court document 25A].

<sup>1049</sup> Transcript, p. 854.

<sup>1050</sup> Mr G M T P Waipara, rebuttal evidence paragraphs 24-25 [Environment Court document 25A].





[595] Professor Strbac and his colleagues modelled the New Zealand electricity system for wet, dry and average hydrological conditions as determined from historical records. Plausible degrees of penetration of wind generation into the New Zealand electricity system were investigated and referred to as the 2010, 2020 and 2030 scenarios, these years being when the associated assumed wind penetration could be expected to be reached. The results for two scenarios were presented, the "Reference" scenario and the "Southland" scenario. The Reference scenario had wind generation being installed predominantly in the North Island, by a ratio of approximately 2:1. The Southland scenario had an approximately equal level of wind generation in both islands, with the South Island capacity all in Otago-Southland. Under both scenarios, wind generation reached 20% of total generation by 2030<sup>1051</sup>. The results are presented as the cost of additional capacity that results from wind generation, over above that which would be required if alternate thermal generation was installed. The costs are presented as \$ per MWh of wind generation<sup>1052</sup>.

[596] The results of the modelling show that the additional capacity cost rises as the level of wind penetration increases. The 2010 Southland projection, which simulates existing plant plus that which is committed to and will be completed by 2010, has wind generation penetration of 7% and an additional capacity cost of \$1.7-\$2.5/MWh of wind generation. The 2030 Southland projection, with wind penetration of 20% has an additional capacity cost of \$3.6-\$9.5/MWh of wind generation.

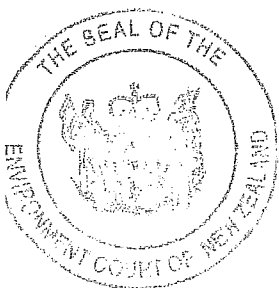
[597] The Strbac Report states, and Professor Strbac reiterated<sup>1053</sup>, that the aim of the modelling work was to derive "order of magnitude estimates of the additional system costs"<sup>1054</sup>. It was looking at the impacts of wind power in general on the New Zealand

<sup>1051</sup> Professor G Strbac, Report Table 1 p. 2 and Tables 6 and 7, pp 18-19 [Environment Court document 48].

<sup>1052</sup> Strbac Report, para 3.50.

<sup>1053</sup> Transcript, p. 1981.

<sup>1054</sup> Strbac Report, para 1.2.



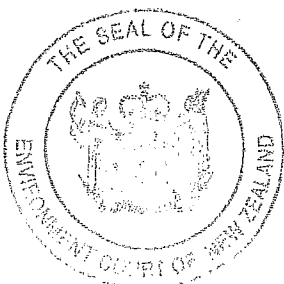
electricity system, not at the costs a specific proposal might impose on the system. We bear that in mind when we consider the apparent discrepancy between Mr Leyland's estimates, the costs indicated by the modelling and the view taken by Dr Layton. We note also that the range of costs (e.g. \$3.6-\$9.5/MWh) comes from different assumptions for the capital cost of generation. The lower figure in each range assumes an "investment cost" of \$100/kW/yr with the upper bound assuming an investment cost of \$150/kW/yr for base load thermal plant<sup>1055</sup>. We do not have enough information to know whether the costs of generation that the Strbac Report and Mr Leyland are using are consistent. Given that neither side has criticised the other on the cost of generation used, we assume there is not a material difference.

[598] Dr Layton did not allow for any additional capacity cost in his analysis of the costs of a Lammermoor wind farm. He took the view that building a wind farm on the Lammermoor does not require any additional back-up capacity to be added to the system<sup>1056</sup>:

...add(itional) wind-powered capacity cannot reduce the ability to meet current demand, even though the wind farm will not produce all the time. Therefore, there is no logical link from building a wind farm to having to build other additional capacity, in the short term.

Relying on the evidence of the Strbac Report, Professor Strbac and Mr Waipara<sup>1057</sup>, Dr Layton claimed that wind penetration is currently so low that further wind capacity would not be a "material issue" for the electricity system. When wind penetration rises such that it becomes a material issue, Dr Layton relied on the market to give the appropriate signals and incentives to deliver whatever back-up capacity is required, efficiently and at least cost to consumers<sup>1058</sup>.

[599] We accept that New Zealand's large hydro capacity gives the potential for a significant level of wind penetration at a relatively low cost. The additional generation capacity required to provide back-up generation for when the wind does not blow is low while wind penetration is low. This is predicated on the assumption that there is




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<sup>1055</sup> Strbac Report, para 3.50.  
<sup>1056</sup> Dr T B Layton, supplementary evidence para 5.2 [Environment Court document 45A].  
<sup>1057</sup> Dr T B Layton, supplementary evidence p 11 footnote 11 [Environment Court document 45A].  
<sup>1058</sup> Dr T B Layton, supplementary evidence para 5.7 [Environment Court document 45A].

sufficient capacity above the level of peak demand to allow for the wind to not blow when required and peak demand still to be met. Thus we believe the additional capacity costs will be closer to those predicted in the Strbac Report than those calculated by Mr Leyland, while wind penetration is below 20% of total generation. Once wind penetration rises to around 20% and above, we cannot state with any certainty what the additional capacity costs will be, but they may well be of the order of Mr Leyland's calculation.

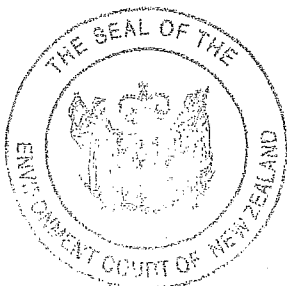
[600] We do not accept Dr Layton's evidence that, until wind penetration reaches significant levels, there are no costs of additional capacity that we need to consider in relation to the specific proposal we need to decide upon. While there may be no need to build specific additional capacity to back-up a specific wind farm, there are costs that are imposed on the system that we need to have regard to. For completeness, we note that in Dr Layton's view we only need to concern ourselves with additional system costs if, and to the extent, those costs fall on other than Meridian. If Meridian bears the costs then the costs are an internal matter to Meridian and not something we should consider<sup>1059</sup>. Dr Layton did not explicitly answer the question of who faces the costs of additional capacity. However, he concluded his discussion of additional capacity costs with the implication that they are borne by consumers<sup>1060</sup>:

Moreover, the operation of the market will continue to ensure that total electricity demand is satisfied at least overall **cost to consumers, including the provision of back-up generation capacity.**

[Our emphasis]

[601] Mr Waipara held an opposing opinion. Cross-examined by Mr Holm he said<sup>1061</sup>:

The system cost in economic terms should be quantified and then the feedback loop is that the cost of those should be allocated to the technology of the source.



<sup>1059</sup> Dr T B Layton, supplementary evidence para 6.2 [Environment Court document 45A].

<sup>1060</sup> Dr T B Layton, supplementary evidence para 5.7 [Environment Court document 45A].

<sup>1061</sup> Transcript, p. 847.

He clarified this further in response to Mr Casey QC who asked whether Meridian or any generator pays that cost. Mr Waipara responded<sup>1062</sup>:

At the moment, no, because wind is immeasurable in terms of effect but my expectation, and this might not be Meridian's, is that there will be a time – as it has with other reserve markets and ancillary services markets – where if the cost is material then they will be allocated to those who cause (it).

In answer to questions from the Court on this issue he reiterated that it was his personal view that once the costs became significant they would be allocated to those who caused them<sup>1063</sup>.

[602] We find from Mr Waipara's various comments on this issue that there is no mechanism in place at the moment by which the costs of additional capacity will be paid by the generators whose facilities create the requirement for additional capacity. Therefore we conclude that the costs of additional capacity brought about by wind generation are currently being paid by consumers and will continue to be paid by consumers for the foreseeable future. They are a cost that we are required to have regard to.

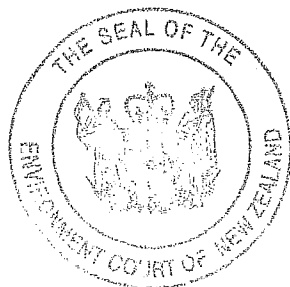
[603] It appears that Professor Strbac's 2020 Reference scenario provides the most comparable situation to that of the Lammermoor wind farm when first constructed. This scenario has a total wind capacity of 2066MW installed (12% wind penetration), with 632MW in Otago-Southland<sup>1064</sup>. This scenario has an additional capacity cost of \$3.6-\$5.5/MWh of wind generation<sup>1065</sup>. On the basis that the Lammermoor wind farm produces 2042 GWh per year, we calculate that this puts the additional capacity cost arising from the Lammermoor wind farm in the range of \$7.4-\$11.2m per year. The 2030 Southland scenario, with a total wind capacity of 3401MW, of which 1706MW are in Otago-Southland, has an additional capacity cost in the range of \$6.3-\$9.5/MWh.

<sup>1062</sup> Transcript, p. 876.

<sup>1063</sup> Transcript, pp 898-9.

<sup>1064</sup> Strbac Report Table 6, p.18.

<sup>1065</sup> Strbac Report Table 1, p 2, which is copied in Mr G M T P Waipara's rebuttal evidence para 26 [Environment Court document 25A].



We calculate the additional capacity cost under this projection to be in the range of \$12.9-\$19.4m per year.

[604] Bearing in mind that the modelling was only designed to produce an order of magnitude estimate of the costs of additional capacity required, and the uncertainty over the costs of that capacity, we conclude that the additional capacity costs imposed on the system by a Lammermoor wind farm will vary between \$7m and \$19m per year over the 20 year life of the project. This is predicated on the wind farm being completed and commissioned without delay if consent is granted. If completion and commissioning are delayed (by the 10 year window requested by Meridian), or the life of the wind farm extends beyond 20 years, and wind penetration rises above 20% of total generation, then the additional capacity costs may be much higher. They may be in the order of \$30 m per year as suggested by Mr Leyland. If we are of a mind to grant consent, this may be something that we need to consider in setting conditions on the period during which the consent must be implemented.

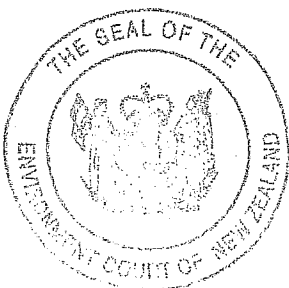
#### 6.3.5 Frequency keeping and operating reserves

[605] Although there were differences between witnesses as to what other system costs were included in the various terms being used, this is not an issue that we need to resolve. It was common ground that the other reserve costs would be substantially less than the additional capacity costs. Mr Leyland stated<sup>1066</sup>:

Although these (frequency keeping) costs are real, it is difficult to determine them with accuracy so I have allowed for them at \$5 million p.a.

This is considerably less than the \$30.7 million per year he calculated for back-up generation.

[606] Dr Layton's view was that frequency-keeping costs would fall on consumers, but that frequency keeping in the South Island was already required and any additional costs resulting from the Lammermoor wind farm would be negligible<sup>1067</sup>. Professor Strbac presented the results of the Strbac Report in putting the additional reserve costs as



<sup>1066</sup> Mr B W Leyland, evidence-in-chief para 3.10 [Environment Court document 80].

<sup>1067</sup> Dr T B Layton, supplementary evidence para 8.18 [Environment Court document 45A].

varying between \$0.19/MWh and \$2.42/MWh, depending on the scenario and level of wind penetration<sup>1068</sup>. He informed us that extreme dry conditions would lift these costs to the level of \$4.42/MWh<sup>1069</sup>. Mr Waipara did not separately discuss other reserves, but accepted the results of the Strbac report at a total level. Using the Strbac Report estimates, we calculate the additional reserve costs of the Lammermoor wind farm would vary between \$0.4m and \$5m per year, depending on the level of wind penetration and the scenario being used. In an extreme dry year these costs would be up to \$9m per year.

[607] Given the Strbac Report estimates are an “order of magnitude” estimate, we conclude that there is no significant difference between Mr Leyland’s estimate and that of the Strbac Report. Although Dr Layton may have been a little generous in assessing these costs as negligible, we accept that on their own they are not very significant. We agree with Dr Layton that these costs will fall on consumers and so are something that we need to have regard to.

#### 6.3.6 Additional costs in upgrading the national grid

[608] It was common ground, and we accept, that to realise the full benefit of a wind farm on the Lammermoor of the size proposed, an upgrade to the transmission system in the lower South Island is required. Dr Layton acknowledged (and Mr Gleadow confirmed<sup>1070</sup>) that the costs of transmission upgrades will fall on consumers, but assessed that these were likely to be modest<sup>1071</sup>.

[609] Mr Waipara assessed the costs of the possible upgrades as identified from Electricity Commission documents as \$37m (which he rounds to \$40m at times) to upgrade the Roxburgh-Livingston line and \$60m to install series capacitors on the Roxburgh-Livingston line<sup>1072</sup>. It is unclear from the evidence whether both projects are

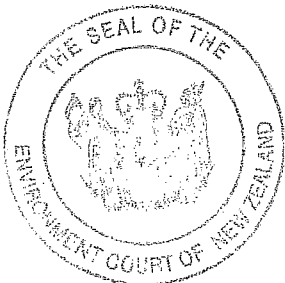
<sup>1068</sup> Professor G Strbac, evidence-in-chief para 6.4 [Environment Court document 48].

<sup>1069</sup> Professor G Strbac, evidence-in-chief para 6.5 [Environment Court document 48].

<sup>1070</sup> Transcript, p. 1665.

<sup>1071</sup> Dr T B Layton, supplementary evidence para 8.18 [Environment Court document 45A].

<sup>1072</sup> Mr G M T P Waipara, evidence-in-chief Appendix A Transmission Analysis, para 88 [Environment Court document 25].



required to accommodate both Mahinerangi and Lammermoor wind farms. At one point Mr Waipara stated<sup>1073</sup>:

With the first \$40m duplexing transmission upgrade in place I estimate that between 650-750 MW of new wind generation could be accommodated within the region.

He continued<sup>1074</sup>:

With the second series capacitor upgrade in place at an estimated cost of \$60m (i.e. with no new transmission line), I estimate that the entire combined output of Project Hayes and Mahinerangi at 830 MW could be accommodated within the region.

In response to questions from the Court Mr Waipara clarified that the \$37m upgrade would allow for the existence of the Lammermoor wind farm, but not other new generation sources in the lower South Island. The Lammermoor output would be accommodated with the \$37m upgrade but not, for example, Mahinerangi plus Lammermoor<sup>1075</sup>.

[610] The “with no new transmission line” comment by Mr Waipara<sup>1076</sup> suggests that the output of both wind farms could be accommodated by the series capacitor upgrade without the duplexing upgrade. However in his ‘Transmission Analysis Appendix’ Mr Waipara prefaces his discussion on upgrade costs by describing both upgrades as<sup>1077</sup>:

...incremental upgrades as they require alterations to existing transmission lines, **not the construction of new lines.**

(Emphasis added)

From this we conclude that adding lines (duplexing) to an existing transmission line is not a “new line”. So to accommodate more capacity than the Lammermoor wind farm output requires both the duplexing upgrade and the series capacitor upgrade (or an

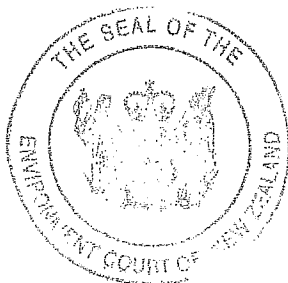
<sup>1073</sup> Mr G M T P Waipara, evidence-in-chief para 58 [Environment Court document 25].

<sup>1074</sup> Mr G M T P Waipara, evidence-in-chief para 59 [Environment Court document 25].

<sup>1075</sup> Transcript, pp 886-887 and Mr G M T P Waipara, evidence-in-chief para 58-59 [Environment Court document 25].

<sup>1076</sup> Mr G M T P Waipara, evidence-in-chief para 59 [Environment Court document 25].

<sup>1077</sup> Mr G M T P Waipara, evidence-in-chief Appendix para 87 [Environment Court document 25].



alternative), at a combined cost of \$97m (or less if there are cheaper alternatives to the series capacitor upgrade).

[611] Mr Waipara was confident the Roxburgh-Livingston upgrade would go ahead, but was less confident about the installation of series capacitors on the line. This was partly due to technology having moved on<sup>1078</sup> and partly the high cost (\$60m), which may result in some other solution being adopted<sup>1079</sup>. Mr Boyle of Transpower commented in cross-examination that Transpower were currently assessing the future transmission requirements between the Clutha and Waitaki valleys. Indications at that time were that investment would be justified. He stated in response to one question that he took no exception to Mr Waipara's analysis<sup>1080</sup>. We assume this referred to the specifics of the possible upgrades as identified by Mr Waipara, and the cost estimates Mr Waipara proposed.

[612] We understand from the evidence of Mr Boyle, that there may be an additional element of any upgrade required if the wind farm goes ahead. This is to increase the capacity of the 220/110 kV transformer at Roxburgh. The cost of this is in the region of \$4.5 m - \$5.5m. This has not been progressed to date, as there have been other, cheaper options to managing the constraint<sup>1081</sup>. We find that, to realise the benefits of the Lammermoor wind farm, an upgrade to the Roxburgh-Livingston line is likely to be required, and we accept the cost estimate of Mr Waipara of \$37m. We also accept that an increase to the capacity of the Roxburgh transformer will be required at a likely cost of \$5m. Mr Waipara was nearly certain that the upgrade will happen. He wrote that if the Lammermoor wind farm proceeds<sup>1082</sup>:

... there can be no credible expectation that these transmission upgrade projects will not be approved and implemented.

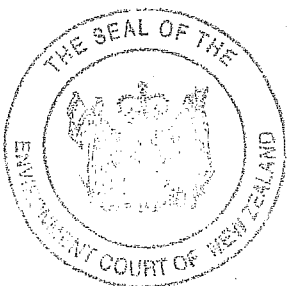
<sup>1078</sup> Transcript, p. 849.

<sup>1079</sup> Transcript, p. 886.

<sup>1080</sup> Transcript, p. 1543.

<sup>1081</sup> Mr D E Boyle, evidence-in-chief prepared by Mr T A George para 135 [Environment Court document 37A].

<sup>1082</sup> Mr G M T P Waipara, evidence-in-chief paragraphs 57 and 60(c) [Environment Court document 25].





In cross-examination he affirmed this view, although he did state that there may be alternative solutions to the \$60m capacitors<sup>1083</sup>.

[613] Mr Stevenson was not so certain. In response to questions from the Court he put the current likelihood of the upgrade proceeding at less than 50% with the Mahinerangi and Kaiwera Downs wind farms consented. Consenting the Lammermoor wind farm as well would put the likelihood 'much higher', lifting it over 50%. If any of the wind farms are actually built the upgrade becomes more certain. Mr Stevenson was reluctant to go so far as to say the upgrade would become inevitable<sup>1084</sup>.

[614] We accept that there is still uncertainty as to whether these upgrades will actually proceed. We note from the evidence of Mr Stevenson<sup>1085</sup> that Transpower is currently investigating the upgrade proposals, and expects to submit its proposals to the Electricity Commission for approval in mid-2009<sup>1086</sup>. We find, based on Mr Stevenson's evidence, that if any of the proposed wind farms are actually constructed, the upgrade becomes more likely, and, from Mr Waipara, that if the larger Lammermoor wind farm is built the upgrade is very likely to happen.

[615] We accept the views of Dr Layton and Mr Gleadow that the costs of the upgrade are very likely to be met by the consumer. They are costs that we need to have particular regard to under section 7(b) of the RMA.

[616] The Lammermoor wind farm is likely to be accumulative on the Mahinerangi and the Kaiwera Downs wind farms because they are likely to be built first. In response to questions from the Court Mr Waipara estimated that an additional 300 MW of capacity could be absorbed into the lower South Island before transmission would become a problem. He indicated that Mahinerangi (or Kaiwera) could be accommodated within this, but that the Lammermoor wind farm could not<sup>1087</sup>. Thus neither Mahinerangi or Kaiwera Downs would require the \$37m duplexing upgrade. Either one plus Lammermoor would require the duplexing plus the capacitor upgrade (or

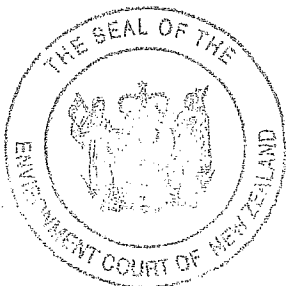
<sup>1083</sup> Transcript, p. 849.

<sup>1084</sup> Transcript (2009), p. 2927-2928.

<sup>1085</sup> Mr T Stevenson, Exhibit 73.1 [Environment Court document 73].

<sup>1086</sup> Exhibit 73.1.

<sup>1087</sup> Transcript (2009), p. 885.



its equivalent). Taking accumulative effects into account the cost of transmission upgrades of the Lammermoor wind farm will be:

- \$37m for duplexing
- plus \$4.5-\$5.5m to upgrade the Roxburgh transformer
- plus up to \$60m to install series capacitors (or some cheaper alternative) on the Roxburgh-Livingston line.

### 6.3.7 Additional transmission losses

[617] It was claimed by the opponents of the wind farm that it was “in the wrong place” in terms of transmission losses<sup>1088</sup>. It was common ground that additional generation in the Lower South Island would result in a loss of electricity due to transmission losses as it was sent north to meet the demand in the North Island. It was uncontested that the average transmission loss across the grid was 3.7%<sup>1089</sup>. In response to questions from the Court on the transmission loss between the Lower South Island and Auckland, Dr Layton accepted that 10% would be a reasonable estimate and that 5% would be a conservative estimate<sup>1090</sup>.

[618] Dr Layton’s view was that where a cost is borne by Meridian and not by external parties, we can assume that the cost is not an externality and we need not consider it<sup>1091</sup>:

If Meridian bears the costs, the Court can assume that they will be factored into its decision as to whether to invest in Project Hayes and not an externality the Court needs to consider ....

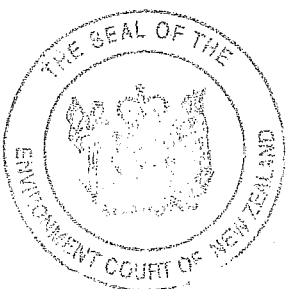
We agree with Dr Layton that if a cost is fully borne by Meridian then it is part of the financial equation that Meridian calculates in assessing whether a project is viable, and that is not of concern to us. Whether the revenue from a project is sufficient to cover the costs that Meridian will have to pay to generate that revenue is purely an internal matter for Meridian. The question for us is ‘does the cost fall fully upon Meridian? or does it fall, in part or in whole, upon the community?’. If it does fall, even in part, on

<sup>1088</sup> MES. Closing Submission para 1.4 (b) [Environment Court document 89].

<sup>1089</sup> Dr T B Layton, supplementary evidence para 8.7(b), p. 18 [Environment Court document 45A].

<sup>1090</sup> Transcript, pp 1866-1867.

<sup>1091</sup> Dr T B Layton supplementary evidence para 6.2 [Environment Court document 45A].

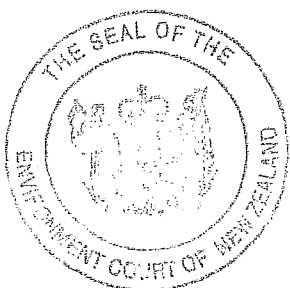


the community then we need to assess the magnitude of the cost, and include it in our consideration.

[619] Dr Layton's contention was that the dispatch decisions of the system operator take transmission losses into account in determining the least cost generation to meet demand, and therefore the electricity market imposes the cost of transmission loss onto Meridian<sup>1092</sup>. We find that the cost of transmission losses will fall on Meridian but not for the reason advanced by Dr Layton. In the dispatch decision Meridian faces only the risk that the output from the Lammermoor wind farm will not be dispatched in favour of an equally low cost generator located closer to the demand. Unless the dispatch decision actually goes against the Lammermoor output, dispatch decisions impose no costs at all on Meridian. In response to questions from the Court, Dr Layton conceded that the probability of non-dispatch of a wind generator was low<sup>1093</sup>. It will only occur when demand can be fully satisfied by generators offering their output within, at most, 10% of \$0.01/MWh which are located closer to the demand than the Lammermoor. Dr Layton conceded that the market might clear at \$0.01/MWh in the middle of the night (but not in winter), or when there was an excess of water and it had to be spilled. He thought that might be 10 to 15 percent of the time – "maybe"<sup>1094</sup>. We conclude that the probability of non-dispatch is very low. Further, non-dispatch will only occur when the wholesale price is very low – at or very close to \$0.01/MWh. If non-dispatch does occur, the cost in terms of revenue forgone is very low.

[620] We conclude, contrary to Dr Layton's assertion, that dispatch decisions do not impose the cost of the transmission loss, on the export of Lammermoor electricity northwards, on to Meridian. However, there are other reasons why Meridian would bear the cost of transmission losses. They are that Meridian:

- (a) would not be paid for the electricity that was lost in transmission; or
- (b) would receive a lower price for the electricity it supplied to the grid, other things being equal, by the extent of the transmission loss.



<sup>1092</sup> Dr T B Layton, supplementary evidence para 8.16 [Environment Court document 45A].  
<sup>1093</sup> Transcript, pp 1868-1869.  
<sup>1094</sup> Transcript, p. 1868.

However, the fungible nature of electricity, once injected into the grid, means that the destination of the Lammermoor output cannot be determined. The loss in transmission of the Lammermoor output cannot be separated from the loss across the system as a whole. It is our understanding that Meridian will receive the relevant nodal price for all the electricity they supply to the grid and thus (a) above does not apply.

[621] The wholesale price of electricity does vary across the system. This is apparent in the price data included in the NZIER report attached to Dr Layton's supplementary evidence. This shows that the mean spot price was \$56.79/MWh at Benmore, \$59.30/MWh at Haywards and \$61.49/MWh at Otahuhu over the period 1996-2008<sup>1095</sup>. The issue for us is whether these variations are due to the transmission loss across the system or something else. What determines the price differentials across the grid is, as Dr Layton put it<sup>1096</sup> "really complicated" and was the subject of an extended discussion with Dr Layton<sup>1097</sup>. At the end of that discussion the question was put directly to Dr Layton as to whether Meridian faced the direct financial cost of the transmission loss through the price they received for the electricity they supplied to the grid. Dr Layton's answer was clear: Meridian does face the financial cost of the transmission loss in terms of the lower price received in the Lower South Island compared to the North Island, and this reflects, among other things, the transmission loss across the system<sup>1098</sup>.

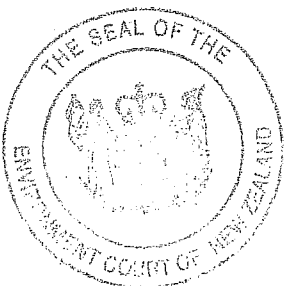
[622] We find that Meridian does face the financial cost of the transmission loss resulting from their supplying electricity "in the wrong place" in relation to the location of demand. This occurs because it receives a lower price for its injection to the grid at Roxburgh compared to the price available closer to the major points of demand. Among other system costs, this price differential encompasses the transmission loss across the system. We conclude that the cost of the transmission losses inherent in supplying electricity at Lammermoor at a considerable distance from the major demand centres is very likely to be borne fully by Meridian and therefore is not something to which we have to have regard.

<sup>1095</sup> NZIER report "Exploring Wind-Hydro Correlation", 5 September 2008 attached to Dr T B Layton, supplementary evidence Table 4, p. 10 [Environment Court document 45A].

<sup>1096</sup> Transcript, p. 1869.

<sup>1097</sup> Transcript, pp 1869-1871.

<sup>1098</sup> Transcript, pp 1871-1872.



### 6.3.8 Impacts on recreation and tourism

[623] Dr Layton acknowledged the costs of a wind farm included the displacement of recreational activities and the loss of flora, fauna, heritage sites and landscape values<sup>1099</sup>. He noted that the value of these impacts was not revealed by markets and can only be inferred indirectly by non-market valuation techniques. He acknowledged non-market valuation techniques are available and gave some examples<sup>1100</sup>. He stated that such techniques were “complex and often contentious”. Dr Layton made no attempt to utilise the non-market techniques he identified. In his evidence he stated that the relevant experts for Meridian had found the environmental effects were acceptable<sup>1101</sup>. In cross-examination he stated that he relied on those experts for his assessment that the costs in terms of recreational and landscape were acceptable<sup>1102</sup>. He admitted<sup>1103</sup> that he had made no assessment of the environmental costs of a Lammermoor wind farm, but he considered it “highly unlikely” that the environmental costs would outweigh the benefits<sup>1104</sup>. The basis for this opinion was<sup>1105</sup>:

...the magnitude of the benefits being very large and the test ... that (how much) people without transaction costs would in fact be willing to pay on an annual basis to compensate the rest of us (for) foregoing those benefits.

In response to questions from the Court he confirmed that he had not analysed the issue<sup>1106</sup>.

[624] Mr Greenaway, the recreational planner engaged by Meridian, was questioned by the Court on travel cost valuation methods. He described using the travel cost method or recreational valuation as “... challenging ...”. He raised the difficulty of identifying motivations where there are multiple access routes to a recreational area<sup>1107</sup>. He stated that a travel cost valuation could be done for the Lammermoor, but he

<sup>1099</sup> Dr T B Layton, supplementary evidence para 8.7(c) [Environment Court document 45A].

<sup>1100</sup> Dr T B Layton, supplementary evidence para 8.24 [Environment Court document 45A].

<sup>1101</sup> Dr T B Layton, supplementary evidence para 8.25 [Environment Court document 45A].

<sup>1102</sup> Transcript, pp 1771-1772.

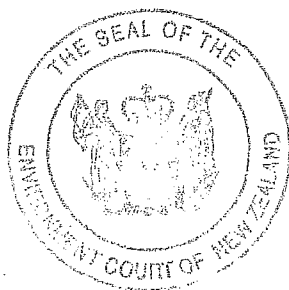
<sup>1103</sup> Transcript, p. 1979.

<sup>1104</sup> Transcript, p. 1787, repeated p. 1797.

<sup>1105</sup> Transcript, p. 1797.

<sup>1106</sup> Transcript, p. 1859.

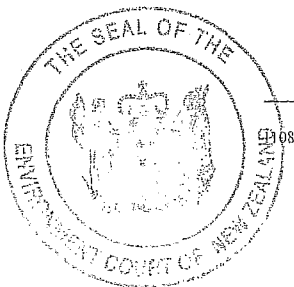
<sup>1107</sup> Transcript, p. 2472.



indicated that it would be a substantial exercise<sup>1108</sup>. Given that Dr Layton had identified that there are recognised non-market methods of placing a value on these environmental impacts, it is disappointing that Meridian's principal expert failed to utilise them. Accepting that neither Dr Layton nor Mr Greenaway may have particular expertise in such methods, Meridian could have engaged someone with appropriate expertise to provide what estimates they could using such methods.

[625] In the absence of any quantitative assessment of the costs to recreation, tourism and the environment in general we can only make a qualitative assessment based on what evidence we have available. We have some data available on the number of visitors to the area and on the relative costs of alternatives to the Lammermoor for recreation. Mr Greenaway provided data from a traffic survey in the area which was undertaken over the nine-day period 4 February –12 February in 2007 (including the Waitangi Day public holiday, which fell on a Tuesday that year). Traffic was measured at two points, Sutton Stream on the Old Dunstan Road and at the Taieri Bridge on the Patearoa–Paerau Road. The average daily traffic count recorded was 53 vehicles per day (“vpd”) and 60 vpd respectively. This includes a spike of 152 vehicles at Sutton Stream on Waitangi Day.

[626] These numbers may include some traffic that is not recreational. Vehicles using the Old Dunstan Road as the most expedient route to get to their destination, vehicles related to the agricultural activity on the Lammermoor, or conceivably vehicles related to the proposed wind farm itself may be included. We do not consider these likely to be significant. Travel on the highway network is usually both more comfortable and faster unless a point on the Old Dunstan Road itself between Clarks Junction and the Styx is the destination. Most people choosing to travel the route as a means of going beyond it, would have chosen to do so for some element of the experience of travelling the road. Our own observation during our site visit in February 2009 was that the internal farm tracks usually gave more direct access from the homesteads to the working areas of the farms. It is unlikely that there would be significant numbers of vehicles travelling Old Dunstan Road for farming purposes. As we accept that the traffic counts are at best an



indicator, the presence of a small number of non-recreational vehicles in the count is not considered significant.

[627] Mr Greenaway advised us in response to questioning that there is a standard methodology for using short duration traffic counts to derive annual total estimates of traffic, using statistical multipliers<sup>1109</sup>. However, he did not provide the results in an annualised form, nor did he supply the multipliers that would be appropriate to the Old Dunstan Road. When questioned, he advised<sup>1110</sup> that he had not instigated the traffic survey but had requested the road count data from the survey, and he indicated that he did not attempt to get the annual traffic data or the number of visitors to the area<sup>1111</sup>. He stated he did not know whether it was normal to include a public holiday in a short duration traffic count of this sort<sup>1112</sup>. We agree with Ms Kelly that this piece of research is “inadequate”<sup>1113</sup>. As such, indications derived from Mr Greenaway’s research can only be considered as a minimum.

[628] Mr Greenaway was involved in the project from late 2005<sup>1114</sup>. There was certainly time for him to request of Meridian that a fuller traffic or visitor survey be undertaken. Given the limited number of walking access points, as Mr Greenaway testified, a count of the number of vehicles accessing those access points should have been possible without difficulty. A full year assessment of the traffic on Old Dunstan Road would also have been a simple matter to obtain. Even the full year estimate based on the short duration traffic count that was undertaken would have been useful. Perhaps the reason he did not is, as he stated in response to questioning<sup>1115</sup>, that he is not “particularly fond” of travel cost methods for deriving a “definitive statement about the recreational value of the setting.”

1109 Transcript, p. 2470.

1110 Transcript, p. 2470.

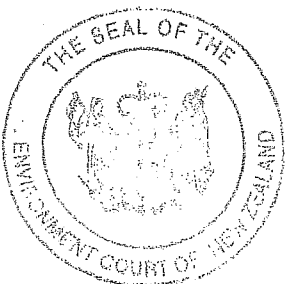
1111 Transcript, p. 2471.

1112 Transcript, p. 2471.

1113 Ms J A Kelly, rebuttal evidence 20 June 2007 para 9 [Environment Court document 17A].

1114 Transcript, p. 2468.

1115 Transcript, pp 2472-2473.



[629] Mr Greenaway stated that his evidence is based on the report he prepared for Meridian's resource consent application. He wrote that<sup>1116</sup> the object of that report included:

[To i]dentify information gaps which will be required to be filled to adequately describe the effects of the proposed scheme on recreation values.

Nowhere in his evidence does Mr Greenaway indicate that his report identified any information gaps so we conclude that he considered there were no information gaps. If so, Mr Greenaway was mistaken.

*Cost of alternative recreational venues*

[630] We need to consider the cost that current users of the area will face if they are required to go elsewhere to obtain the recreational satisfaction they currently enjoy on the Lammermoor. Dr Layton agreed that recreational costs could be assessed by the costs involved in accessing the nearest alternative recreational facility of a similar kind<sup>1117</sup>. Both Dr Layton and Mr Greenaway were of the opinion that alternative options to the Lammermoor for undertaking the same recreational activities were readily available. Mr Greenaway said<sup>1118</sup>:

Nor does the study area feature any particular natural feature or recreation opportunity that is regionally rare.

Dr Layton said<sup>1119</sup>:

The question you would ask as an economist is how unique are the recreational opportunities there, and nothing I have seen have suggested to me they are unique, which suggests the opportunity costs to them is relatively low.

[631] In his evidence, Mr Greenaway discussed the likely alternatives to the Lammermoor for those seeking a relatively remote experience. He suggested<sup>1120</sup>:

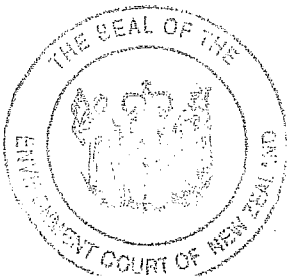
<sup>1116</sup> Mr R J Greenaway, evidence-in-chief para 1.10 [Environment Court document 59].

<sup>1117</sup> Transcript, pp 1858-1859.

<sup>1118</sup> Mr R J Greenaway, evidence-in-chief para 3.3 [Environment Court document 59].

<sup>1119</sup> Transcript p. 1798.

<sup>1120</sup> Mr R J Greenaway, evidence-in-chief para 4.33 [Environment Court document 59].





... areas such as the Poolburn Reservoir and Lake Onslow, and the likes of the Old Man Range and Garvie Mountains.

When asked in cross-examination by Mr Holm how far these alternatives were from Dunedin, Mr Greenaway conceded<sup>1121</sup> “they are all further than the stated area”.

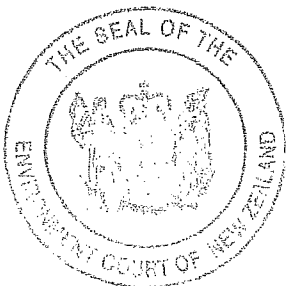
[632] In response to Ms Kelly he reiterated that the Garvie Mountains and Old Man Range were alternatives to the Rock and Pillar Range for someone seeking a remote experience<sup>1122</sup>. However, he conceded to Ms Kelly that the Garvie Mountains were “... a much further drive – a longer drive. It is a longer experience ... two to three times (longer)” because the route from Dunedin would be by way of Milton, Balclutha and Gore to Riversdale, and up the Waikaia River to Piano Flat<sup>1123</sup>.

[633] In assessing the cost the proposed wind farm will impose on recreational uses of the Lammermoor and Rock and Pillar Range, we are hampered by a paucity of information. The traffic count data provided by Mr Greenaway has very limited coverage. We identify the following recreational users that would not be included in an estimate using Mr Greenaway’s evidence:

- Those who access the area while the Old Dunstan road is closed. These will include all cross-country skiers and winter trampers;
- Those who access the Rock and Pillar Range via one of the walking access points referred to by Mr Greenaway<sup>1124</sup>;
- All who bicycle the Old Dunstan Road or travel it by other than vehicular means. This will include mountain-bikers (like Dr Nixon of the Otago Conservation Board, who has ridden his mountain bike across the Lammermoor on the Old Dunstan Road<sup>1125</sup>), those who ride the Old Dunstan Road to make a round trip of cycling the Otago Central Rail Trail, and those who cycle the road for its own sake or as part of a cycle tour. It will also

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1121 Transcript, p. 2426.  
 1122 Transcript, p. 2431.  
 1123 Transcript, p. 2430.  
 1124 Transcript, p. 2414.  
 1125 Transcript, pp 3058-3059.



include any who travel it on foot or horseback or other means to gain an appreciation of the experience of the gold diggers;

- Those crossing the Lammermoor as part of the Otago Goldfields Cavalcade.
- Those who visit Te Papanui and do not continue any further along the Old Dunstan Road.

[634] Of the points identified above we only have quantitative data on the use of the area by the Goldfields Cavalcade. We accept Dr Floate's submission that the Cavalcade averages 500 people and 300 horses travelling the gold trails of Otago for up to eight days<sup>1126</sup>. We understand from the contribution of the Otago Goldfields Trust in the evidence of Ms Kelly, that they do so in groups of up to 100 people, and that in all or most years the Old Dunstan Road is a significant part of the Cavalcade<sup>1127</sup>. We accept the evidence of Ms Kelly that, if the wind farm is built as proposed<sup>1128</sup>:

... it is unlikely that the Road would be used in future because its heritage value, and the experience of re-enacting Gold Rush travel would be lost.

We have no basis on which to determine the value of the Old Dunstan Road to the Cavalcade, and so are unable to value the impact that the loss of the heritage value of the road would have on the Cavalcade. We are also unable to estimate the value of that experience to those who participate in it.

[635] Mr Greenaway stated that the setting was "not significant" for mountain biking or horse trekking, and thus the wind farm, even during construction, would not be significant on these activities<sup>1129</sup>. Although he noted the Old Dunstan Road was "a recognised mountain biking route",<sup>1130</sup> he stated that mountain biking occurred "to a lesser extent" in what was a "low or moderate" level of recreation and tourism activity<sup>1131</sup>. Mr Greenaway presented no data on the level of mountain biking or horse

<sup>1126</sup> Dr M Floate, submission para 21 [Environment Court document 22].

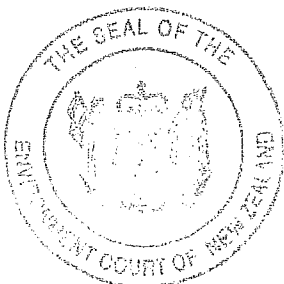
<sup>1127</sup> Ms J A Kelly, evidence-in-chief para 40 [Environment Court document 17].

<sup>1128</sup> Ms J A Kelly, evidence-in-chief para 40 [Environment Court document 17].

<sup>1129</sup> Mr R J Greenaway, evidence-in-chief para 7.3 [Environment Court document 59].

<sup>1130</sup> Mr R J Greenaway, evidence-in-chief para 2.18 [Environment Court document 59].

<sup>1131</sup> Mr R J Greenaway, evidence-in-chief para 3.7 [Environment Court document 59].



trekking (excluding the Goldfields Cavalcade) activity in the area. His quantitative data was limited to a literature search of references to the area in travel guides. He gave no evidence of any personal experience of mountain biking, yet he gave an unsourced comment on the sensitivity of the Old Dunstan Road to wet weather biking. We find his views in this respect lack support.

*Tourism in the wider region*

[636] Although not clearly argued, it was a theme of the appellants (apart from Meridian) that a Lammermoor wind farm would have an impact well beyond the immediate environs. They considered<sup>1132</sup> that this would have a detrimental impact on tourism within Central Otago that went beyond the impact on the Lammermoor and Rock and Pillar Range. The Central Otago District Council's marketing strategy of "A World of Difference"<sup>1133</sup> and "Last, Loneliest, Loveliest Land" was relied on as support for the proposition that even the Council recognised the qualities of the relevant landscape. Then as Ms Kelly stated<sup>1134</sup>:

The surrounding (recreation) settings will be compromised by way of aesthetics, movement, noise and light, both day and night, all of which will detract from the designated back country/natural/remote experience. The wind farm will also have a much wider effect in terms of the adjacent uplands.

[637] In contrast Mr Greenaway was of the opinion that the wind farm was unlikely to have any effect on the wider region – i.e. "from where the visual effects are described by Mr Rough as moderate, slight or nil". He went further and stated<sup>1135</sup>:

Future tourism and recreation development away from the Lammermoor plateau will be able to proceed with no regard for the development.

In his expert opinion the wind farm was "unlikely to have measurable negative effects" on tourism in Otago<sup>1136</sup>. He deferred to Mr Rough with respect to the more general

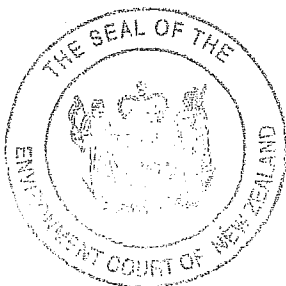
<sup>1132</sup> See Ms J A Kelly, submissions of 14 November 2008, para 9 [Environment Court document 71].

<sup>1133</sup> Exhibit 11.2.

<sup>1134</sup> Ms J A Kelly, evidence-in-chief para 148 [Environment Court document 17].

<sup>1135</sup> Mr R J Greenaway, evidence-in-chief para 4.41 [Environment Court document 59].

<sup>1136</sup> Mr R J Greenaway, evidence-in-chief para 6.16 [Environment Court document 59].



effects of the proposal on landscape<sup>1137</sup>. Mr Greenaway did not consider that the Mahinerangi wind farm was relevant to the effects on recreation of the Lammermoor wind farm<sup>1138</sup>.

[638] Mr Greenaway's reliance on the assessment of Mr Rough is misplaced. We have already found that we generally prefer the evidence in these proceedings of Ms Steven over that of Mr Rough. We find Ms Steven's assessment of the accumulative impact of a Lammermoor wind farm and of the Mahinerangi wind farm to be persuasive. It is clear from the simulation provided that when entering or leaving Central Otago on the eastern side, or when spending any time in the eastern ranges of the region, the presence of a wind farm is likely to be noticed<sup>1139</sup>. We are unable to assess how much impact this will have on tourism in the region, but we accept that the potential impact will be negative.

*Other environmental and ecological costs*

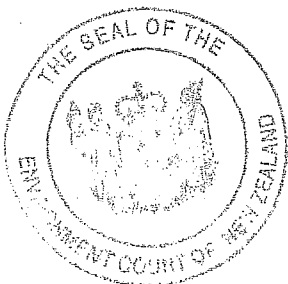
[639] The environmental costs are the major concerns for opponents of Meridian's proposal. The assessment of Meridian's experts was that these environmental costs are acceptable. The qualitative assessments by Meridian's experts should have been supported by the quantitative assessments of the costs through the methods that Dr Layton identified are available. Such estimates, and the cautions that come with them, would have been valuable to the Court. We have to weigh the quantified benefits detailed above plus any other unquantified benefits against those costs that have been quantified, together with any other costs not quantified. Some of these other costs could have been quantified but have not been.

[640] The analysis of costs and discussion above still leaves some costs to be assessed on a qualitative basis. These have been assessed in Chapter 5.0 (the Qualitative Assessment) and include the landscape and heritage values most significantly as well as impacts on the flora and fauna of the area and any degradation in the quality of the waterways either during construction or on an on-going basis.

<sup>1137</sup> Mr R J Greenaway, evidence-in-chief para 6.17 [Environment Court document 59].

<sup>1138</sup> Transcript, p. 2461.

<sup>1139</sup> Cumulative Effects simulation prepared by Mr Van Maren for Ms Steven.



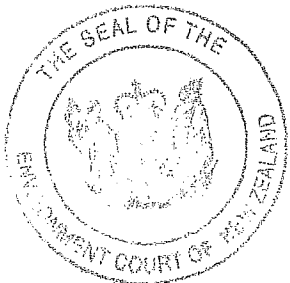
## 6.4 Summary of cost benefit analysis

### 6.4.1 Tables of benefits and costs

[641] In assessing efficiency for the purposes of section 7(b) we summarise the quantified cost-benefit analysis of the proposed Lammermoor wind farm from the previous paragraphs in three tables as follows:

TABLE 1

ONE-OFF BENEFITS	Minimum \$m	Maximum \$m	Qualitative Assessment	Who benefits or bears the cost?
Economic benefit of construction <sup>1140</sup>	400	800		NZ economy
<b>ONE-OFF COSTS<sup>1141</sup></b>				
Grid upgrade-duplexing		37		Electricity consumers
Grid upgrade-Roxburgh transformer	4.5	5.5		Electricity consumers
Grid upgrade- series capacitor		60		Electricity consumers
<b>TOTAL ONE-OFF COSTS</b>		<b>103</b>		



<sup>1140</sup> See section 6.2.7 of this decision .

<sup>1141</sup> See section 6.3.6 of this decision .

TABLE 2

ON-GOING ANNUAL BENEFITS				
Avoided transmission loss on import <sup>1142</sup>		2	Minor	Electricity consumers
Improved security of supply <sup>1143</sup>			Minor	Electricity consumers
Contribution to GDP <sup>1144</sup>		107		NZ economy
Complementarity of wind to hydro <sup>1145</sup>			None	
Economic benefit of operation <sup>1146</sup>		13		NZ economy
Reduced CO <sub>2</sub> emissions <sup>1147</sup>	15	68		NZ Government
<b>TOTAL ON-GOING BENEFITS</b>		190		
ON-GOING ANNUAL COSTS				
Additional capacity <sup>1148</sup>	7.4	19		Electricity consumers
Frequency keeping & reserves <sup>1149</sup>	0.4	5		
<b>TOTAL ON-GOING COSTS</b>	7.8	24		

TABLE 3

BENEFITS NOT QUANTIFIED (or at least not to the Environment Court)	Who benefits or bears the cost?
Improved road access to and across the Lammermoor	Public
(1) Retire from farming and fencing 95 hectares	
(2) Meridian is to pay various sums as described by Mr Beatson	
(3) Meridian to the Department of Conservation	
(4) Meridian proposes a community fund	
(5) Development Impact Levy	
COSTS NOT QUANTIFIED	Who benefits or bears the cost?
Lammermoor/Rock & Pillar Recreation via Old Dunstan Road	Public
Lammermoor/Rock & Pillar recreation during winter closure of Old Dunstan Road	Public
Recreation accessed other than via Old Dunstan Road	Public
Non-vehicular use of Old Dunstan Road	Public
Otago Goldfields Cavalcade	Public
Visitors to Te Papanui Conservation Park	Public
Regional tourism	NZ economy
COSTS NOT PRESENTLY AMENABLE TO QUANTIFICATION	
Heritage effects not included in recreation	Public
Ecological effects	Public <sup>1150</sup>
Other landscape costs not captured above	Public

<sup>1142</sup> See section 6.2.4 of this decision.

<sup>1143</sup> See section 6.2.5 of this decision.

<sup>1144</sup> See section 6.2.2 of this decision.

<sup>1145</sup> See section 6.2.6 of this decision.

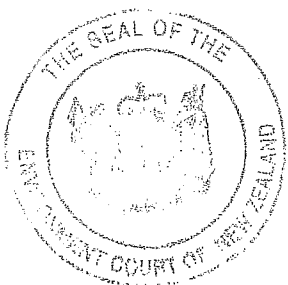
<sup>1146</sup> See section 6.2.8 of this decision.

<sup>1147</sup> See section 6.2.9 of this decision.

<sup>1148</sup> See section 6.3.4 of this decision.

<sup>1149</sup> See section 6.3.5 of this decision.

<sup>1150</sup> We note that this ignores any "intrinsic values" (section 7(d) of the RMA) of the biota in question.



The benefits outlined above are on the basis that the wind farm is constructed to the maximum number of turbines of the maximum capacity applied for. To the extent that a lesser number or a lesser capacity turbine is installed, the benefits may be less.

[642] In an extreme dry year the additional reserve costs could be as high as \$9m. The up to \$800m one-off benefit of construction needs to be treated very cautiously, given the age of the multipliers used to calculate it.

#### 6.4.2 Probabilities

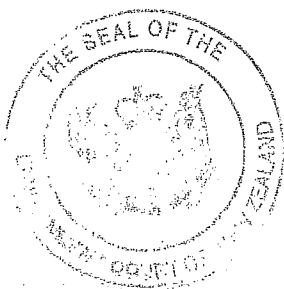
[643] In the preceding discussion on benefits and costs of the proposal we have attempted to quantify the value of the benefits and costs. In doing so we have concluded that the quantified benefits of the proposal will be up to \$190 m per year, while the costs will lie between \$8m and \$24m per year. In addition there are one-off benefits ranging from \$400m to over \$800m, and one-off costs of up to \$103m. Before drawing final conclusions we need to assess the probability of where within the ranges identified the costs and benefits will fall.

#### *One-off benefits and costs*

[644] The final value of the benefit of construction activity to the New Zealand economy will depend on the size of the multiplier effect and the value of the domestic content of construction costs. We have no reason to expect that the multiplier for non-building construction would have changed dramatically since Dr Layton's multipliers were derived, so we expect that a multiplier of around 2 is likely to be relevant. Dr Layton's 20% domestic content of total construction cost appears conservative, being less than the 25% he attributed to Meridian. Given that Mr Leyland's estimates of costs were at the upper end of the range implied by the value of the development impact levy we expect that the cost of construction will be closer to \$2b than \$1b. On the basis of these assessments we expect the value of the benefit of the construction activity to be closer to \$800m, rather than \$400m. Noting Dr Layton's comment<sup>1151</sup> that these benefits are usually 'just a transfer of resources around', and that the generation capacity that Lammermoor represents will be constructed somewhere in New Zealand, we

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<sup>1151</sup> Transcript, p. 1785.



conclude that this will be a regional benefit that would be cancelled out at the national level.

[645] The one-off costs arising from the proposal are more certain. Accepting the cost of the Roxburgh transformer upgrade will be \$5m, the only uncertainty is whether the series capacitor upgrade occurs or some cheaper solution is used. Given that the output of the proposal will require that this constraint be reduced, and there was no evidence given as to what the alternative means of alleviating the constraint might be, we expect that it will occur at a cost of \$60m. We therefore expect that the one-off costs of this proposal will be \$102m.

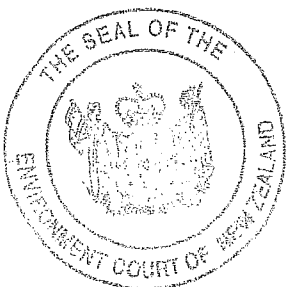
[646] There will be timing differences between the benefit being realised and the costs occurring. The wind farm construction will be spread over five years, while the transmission upgrades could be done within two years of approval<sup>1152</sup>. So simply subtracting the one-off costs from the one-off benefits to derive a net figure is not strictly correct. We were not given the net present values of these expenditures. We do not know the relative start dates of the wind farm and the grid upgrades, nor was there an agreed discount rate which we could apply. Therefore we are prevented from doing our own calculation. However, we assume that both figures are expressed as current dollar values, so we can say that if the one-off benefits and costs coincided, and were fully incurred within a year, then there would be a net one-off benefit arising from the proposal of up to \$600-\$700m.

*On-going benefits and costs*

[647] The value of the on-going benefits will depend crucially on the price of Kyoto Units. We have no evidence as to the current price of Kyoto Units and only uncertainty as to their future price path. The best expectation we have is that the price will be no more than the \$25/tonne of CO<sub>2</sub> equivalent that Dr Denne said was the figure used by the government. On this basis, using Dr Layton's expected emissions avoided figures, we expect the value of reduced CO<sub>2</sub> emissions to be about \$19m/year<sup>1153</sup>. Using the

<sup>1152</sup> Transcript, p. 885.

<sup>1153</sup> Scaling up Dr Layton's minimum value of \$15m based on a price of \$20/tonne,  $25/20 * \$15m = \$18.5m$ .





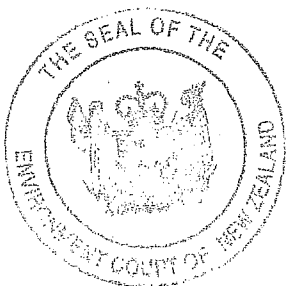
mid-point of the range of on-going costs there is a medium likelihood that the on-going costs of the wind farm will be about \$16m/year.

[648] The on-going costs and benefits have similar problems of timing that are discussed above in the context of the one-off benefits and costs, but they are likely to be even more problematic. Apart from the maintenance costs, we have no indication of the path over time of the benefits and costs, we have no certainty over the total time frame over which they would occur and no agreed discount rate that could be applied to do a net present value calculation. The best we can do is assume that the values are all in current prices and that they all occurred within the one year of operation.

#### 6.4.3 Conclusions

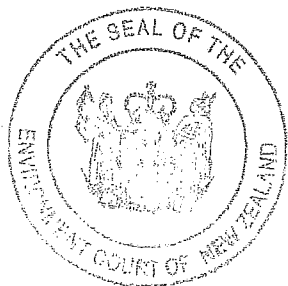
[649] In assessing the economic efficiency of the Lammermoor wind farm proposal we have quantitatively assessed the benefits identified and those costs that we have been able to. There are significant costs that we have not been able to quantitatively assess due to lack of appropriate evidence (costs in terms of recreation and tourism) and others that are less amenable to quantitative assessment (heritage and intrinsic landscape costs). The quantitative assessment that we have been able to do produces a net benefit in both one-off and on-going terms. The size of the net benefit as assessed describes in dollar terms the limits that the other costs (not assessed in dollar terms) must not exceed if there is to be an overall net benefit to the proposal. The measured net benefit of the Lammermoor wind farm, if constructed to the maximum size and output suggested, can be summarised as:

- A regional benefit from construction activity with a medium likelihood of being about \$800m (one-off), and a very likely regional benefit of about \$13m/year from on-going operation, although these have no net benefit at a national level.
- A one-off cost to the economy of upgrading the electricity grid in the lower South Island very likely to be about \$100m.
- A benefit to the economy very likely to be about \$107m/year from the generation of electricity, and from reduced CO<sub>2</sub> emissions with a medium likelihood of being about \$20m/year, for the 30-year life of the wind farm.



- A cost to the economy with a medium likelihood of about \$16m/year to accommodate the variability of wind energy.

[650] Against these measured benefits must be put the very real, but unmeasured, costs in terms of landscape, heritage and recreation and tourism that will not be remedied or mitigated. We note that the large regional benefits will be at the expense of some other region that does not gain, at this time, a large electricity construction project if Lammermoor goes ahead. The landscape, heritage and tourism costs of the project will be both national and regional. Although our cost benefit analysis is on a national basis, the regional effects are a part of this. On balance we conclude that there is a net benefit arising from the Lammermoor wind farm. However, we consider that the unmeasured costs are significant and that the size of the net benefit is not nearly as substantial as the numbers above might indicate.



**7.0 Should the power generation facility be approved under the operative district plan?**

**7.1 Introduction: achieving sustainable management of the Lammermoor's resources**

[651] In this chapter we judge whether land use consent should be granted to Meridian for a power generation facility under the operative district plan. That judgement only needs to be re-examined if we come to a provisionally different view as to whether to grant consent under the proposed plan with Plan Change 5 – see *O'Connell Construction Limited v Christchurch City Council*<sup>1154</sup> (discussed in Chapter 3.0). In the meantime the ultimate issue is whether it is appropriate to grant consent for what would be the largest wind farm in the Southern Hemisphere to be built on the very extensive upland landscape of which the Lammermoor is part. In deciding that issue section 5 of the RMA directs us to achieve 'the single broad purpose' – *McGuire v Hastings District Council*<sup>1155</sup> – of the Act. That purpose is the "sustainable management" of the relevant resources as that term is defined in section 5(2) of the RMA. Under sections 104, 104B and section 279A of the Act and possibly sections 5 to 8 also, various matters must be put in the scales for and against the proposition that the Meridian project would be sustainable management of the relevant resources. Our task now is to assess the relative weight of each of the relevant matters.

**7.2 Are the operative objectives and policies met?**

**7.2.1 Applying the code in section 13 of the operative district plan**

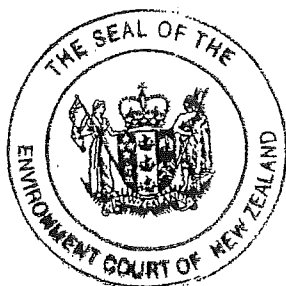
[652] We have held that section 13 is a code<sup>1156</sup> within the operative district plan. Rule 13.7.4(iii) states that a power generation facility such as the Meridian proposal is a discretionary activity. Section 13's three objectives are<sup>1157</sup>:

<sup>1154</sup> *O'Connell Construction Limited v Christchurch City Council* [2003] NZRMA 216 at [79] and [80] (HC).

<sup>1155</sup> *McGuire v Hastings District Council* [2001] NZRMA 557 at [21] (PC).

<sup>1156</sup> See Chapter 3.

<sup>1157</sup> Objectives 13.3.1 to 13.3.3 [Central Otago District Plan p.13:14].



13.3.1 Objective – Transportation Network

To enable the safe and efficient operation and development of the transportation network while ensuring that amenity values and environmental quality is maintained or enhanced.

13.3.2 Objective – Utilities

To enable the efficient operation and development of utilities while ensuring that effects on amenity, heritage, landscape values and public safety are avoided, remedied or mitigated.

13.3.3 Objective – Development of Energy Resources

In the development of energy resources, to have particular regard to the use of natural and physical resources in a manner which avoids, remedies or mitigates significant adverse effects on the environment.

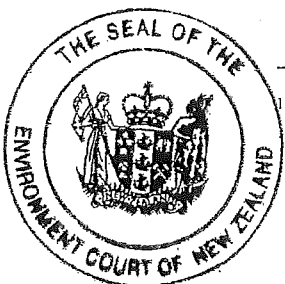
Despite the fact that the previously stated issues in Chapter 13 identify<sup>1158</sup> “[a] secure and adequate supply of energy” as important, there is no objective to that effect. The objectives only approach that issue by enabling utilities.

7.2.2 Does the proposal achieve the policies?

[653] Implementing objectives 13.3.1 to 13.3.3, policy 13.4.7 is specific to the development of power generation facilities. Although we quoted it in Chapter 3.0 (The law) we repeat the relevant paragraphs here because of their importance. The policy seeks<sup>1159</sup>:

To ensure that the development of power generation facilities avoids, remedies or mitigates:

- (a) Adverse effects on ecosystems, habitats, soils and minerals.
- ...
- (c) Adverse effects generated during the construction phase, particularly in terms of noise, lightspill, glare, vibration, dust, traffic generation and earthworks.
- [(d) Potential for the loss of or irreversible change to outstanding landscapes.]
- (e) Impacts on heritage values.
- ...
- (j) Impact on public access to and along the margins of lakes and rivers or to natural and physical features.



<sup>1158</sup> Issue 13.2.3 [Central Otago District Plan P 13:4].  
<sup>1159</sup> Central Otago District Plan, pp. 13:7 and 13:8.

We have placed paragraph (d) in square brackets because on the face of the operative district plan it is not relevant. As recorded in Chapter 3.0 the Meridian site is not within an “outstanding landscape area” as identified in the plan. We also note that policy 13.4.7 is very general in that it copies the formula in section 5(2)(c) of the RMA of avoiding, remedying or mitigating adverse effects. Unlike Part 2 of the RMA it does not contain directions similar to sections 6 to 8 of the Act. We judge that the Meridian proposal including all the proposed mitigatory and compensatory measures stated at the hearing or added by this decision achieves the relevant paragraphs of policy 13.4.7.

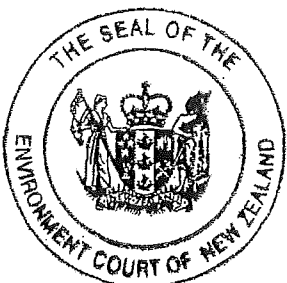
[654] We assess that policy 13.4.8 – which seeks to reduce the environmental impact of power generation – is not met because the proposal does not have a “low impact” on land above 900 metres, or on its predominant vegetation which is a significant habitat for native fauna. It is ironic that a proposal apparently designed to help reduce carbon emissions can only do so by having a large impact on the environment in which the wind farm is set.

*Positive effects of developing a wind farm*

[655] Policy 13.4.9 of the operative district plan is to encourage the use of energy efficient technology. We consider the proposal is likely to be a relatively efficient use of the wind energy resource in terms of policy 13.4.9 because the capacity factor of the wind farm is likely to approach 40% which is high by international standards.

[656] Quite apart from policy 13.4.9 we must have regard to all the ‘actual and potential effects’ of the proposed wind farm. The generic positive effects of wind farms were summarised by the Environment Court in the first reported case on a wind farm in New Zealand – *Genesis Power Limited v Franklin District Council*<sup>1160</sup> (the *Awhitu* decision) – as follows:

- (i) Electricity is a vital resource for New Zealand. There can be no sustainable management of natural and physical resources without energy, of which electricity is a major component.



<sup>1160</sup> *Genesis Power Limited v Franklin District Council* [2005] NZRMA 541 at [64].

- (ii) New Zealand needs a more diverse electricity generation base, to avoid for example over-reliance on hydro which is susceptible to dry years; in any event new large hydro options are limited.
- (iii) More thermal generation will have adverse effects, including contributing to climate change and depleting fossil fuels.
- (iv) As a matter of national energy policy set in accordance with relevant legislation, New Zealand is pursuing options for renewable energy.
- (v) Wind is a source of renewable energy which is plentiful but which is best able to be utilised only in certain locations.

[The Court then summarised the benefits of renewable energy from the Awhitu site.]

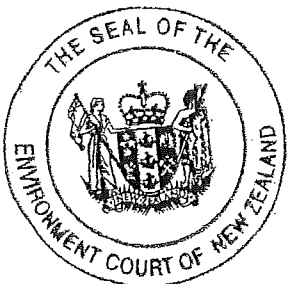
In general we agree with the five general points stated there based on the evidence of Mr Muldoon<sup>1161</sup> and others for Meridian, and find that they apply to the Meridian proposal here.

[657] In these proceedings Meridian said that the wind farm would produce enough energy to power 278,000 average homes and that the energy was renewable. We accept that. The proposal would also create jobs within the surrounding districts during the construction period which is a positive given the current depressed economic climate. However, Meridian has asked for a ten-year lapsing period within which to exercise the resource consents. The economic conditions may be different when construction actually occurs, so the extent to which the creation of jobs in the region is a positive is uncertain.

[658] Under section 104(1)(a) of the Act we have regard to all those very large positive effects in this decision even if they do not directly implement any policy in Chapter 13 of the operative district plan.

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<sup>1161</sup> Mr A J Muldoon, evidence-in-chief para 108 [Environment Court document 26].



### 7.2.3 Other rules

[659] Rule 13.7.10 for electricity reticulation is not met, since large sections of the internal overhead transmission line cross land over 900 masl and are therefore non-complying. A resource consent would be required for this.

### 7.3 **Having regard to the Otago Regional Policy Statement**

[660] We are to have regard to the Otago RPS. In Chapter 3.0 we drew attention to the relevance of the RPS land use objectives. The broader objectives are met, but we have some concerns about the lack of reference by the planning witnesses to landscape objective 5.4.3. For Meridian, its planner Mr J Kyle considered RPS objective 5.4.3 was irrelevant because Meridian's landscape witnesses considered the site is not within an outstanding natural landscape. Further, we were puzzled that Ms M E Weaver, the Manager of Consents called by the Otago Regional Council, did not draw our attention to objective 5.4.3 or the implementing policy 5.5.6, despite the fact that she stated that she set out in her evidence<sup>1162</sup>:

... the relevant provisions of the ... RPS and the Regional Water Plan in respect of the issues that the ORC must consider in assessing the ... applications [to the ORC]. Part B [of her evidence] sets out other provisions of the RPS that are relevant to all the consents that are required for the wind farm.

[661] Ms Weaver also quoted as relevant to the land use consents, the RPS objectives and policies on the 'built environment'. We agree that the wind farm will constitute a 'built environment'<sup>1163</sup> but consider those objectives and policies are largely irrelevant unless and until a wind farm is built.

[662] Having regard to Chapter 5 of the RPS, we find that the Eastern Central Otago Upland Landscape (including the Lammermoor) is not only an outstanding natural landscape within the meaning of the RPS but also meets at least two<sup>1164</sup> if not three<sup>1165</sup> of the additional criteria required in the Otago RPS policy 5.5.6. The conclusion is that



<sup>1162</sup> Ms M E Weaver, evidence-in-chief para 7 [Environment Court document 69].

<sup>1163</sup> Defined in the RPS at p. 221 as "... man-made facilities and structures ...".

<sup>1164</sup> Policy 5.5.6(a) and (b) [RPS p. 56].

<sup>1165</sup> Policy 5.5.6(c) [RPS p. 56].

the landscape should be protected, and we find that is not achieved by the Meridian proposal.

[663] In respect of the biota of the region, Chapter 10 of the RPS includes policies requiring maintenance and enhancement<sup>1166</sup> of the natural character of areas with significant indigenous vegetation and significant habitats of indigenous fauna. The explanation explicitly refers to a lizard species as an example. As we found in Chapter 5.0 we consider (and that by a majority of three to one) that Meridian has only established to a medium likelihood that the habitats of herpetofauna and/or invertebrates will be maintained and enhanced.

[664] Another 'biota' policy that is relevant but was not referred to is<sup>1167</sup>:

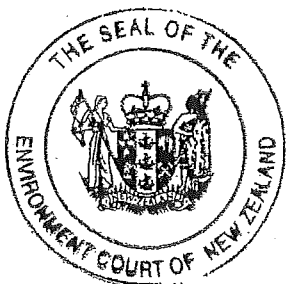
To reduce and where practicable eliminate the adverse effects of plant and animal pests on Otago's communities and natural and physical resources through:

- (a) Developing strategies to effectively manage Otago's plant and animal pests; and
- (b) Educating about the responsibilities of all parties in the management of Otago's plant and animal pests; and
- (c) Adopting the most practicable method of pest control while safeguarding the environment.

A parallel policy is to reduce<sup>1168</sup> the adverse effects of movements of undesirable new species around Otago. We were given no evidence about any strategy for dealing with *Hieracium* species (which are plant pests) or with rabbits and hares.

[665] The explanation to policy 10.5.3 states that<sup>1169</sup>:

Threats may be reduced ... by allowing natural succession, for example ... allowing vegetation to shade out weeds, for example a closed tussock cover may reduce hieracium vigour. Methods using native species may have other benefits, such as biodiversity, landscape and aesthetic benefits.



<sup>1166</sup> Objective 10.4.2 [RPS p. 139].

<sup>1167</sup> Policy 10.5.3 [RPS p. 142].

<sup>1168</sup> Policy 10.5.4.

<sup>1169</sup> RPS p. 142.



The Meridian proposal will, for quite a large area – at least 240 hectares and up to 350 hectares spread over the site envelope of 135 km<sup>2</sup> – achieve the opposite: it will open that area to weeds such as *Hieracium* and sheep sorrel. We do not consider these policies are given effect to. Meridian relied on the fact that farming is a permitted activity on the site and that replacement of tussock with exotic grasses was a natural and desirable consequence of its proposal. However, we consider it likely to very likely that weed species will come in and the land will be worse off, even if the landowners are being paid their licence fees. We find that Mr Kyle is wrong to write<sup>1170</sup> that the proposal is consistent with the biota objectives in the RPS, and it certainly does not give effect to them (which is the correct test).

[666] The objectives in respect of energy encourage the proposal<sup>1171</sup> because it uses the renewable resource of wind, and discourage it<sup>1172</sup> because the particular proposal does not, we find, adequately mitigate the adverse effects on the landscape and historic heritage. We acknowledge the often-quoted recognition in the RPS of the wind resource of Rocklands (on the Lammermoor) but give it no weight because it is not in a policy. We have recognised and taken into account the high quality (Grade II) wind resource over the Meridian site as a matter of fact. Mr J Kyle, the planner called for Meridian, wrote<sup>1173</sup> that “Renewable sources of energy are strongly promoted by the ...RPS”. We consider that is an overstatement of the objectives we identified in Chapter 3.0.

[667] Finally in respect of the Otago RPS objective 15.4 we consider that the cross-boundary issue about the status of the landscape of which the Lammermoor is part – and which crosses the boundary between the Central Otago District and the Dunedin City – has not been identified in the Central Otago District Plan let alone ‘dealt with in an efficient and effective manner’<sup>1174</sup>. The operative district plan is distinctly unneighbourly.

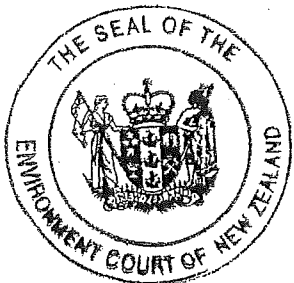
<sup>1170</sup> Mr J Kyle, evidence-in-chief para 5.6, 2nd bullet [Environment Court document 61].

<sup>1171</sup> Objective 12.4.3 [RPS p. 171].

<sup>1172</sup> Objective 12.4.1 [RPS p. 171].

<sup>1173</sup> Mr J Kyle, evidence-in-chief para 5.6, 5th bullet [Environment Court document 61].

<sup>1174</sup> Objective 15.4.1 [RPS p. 213].



[668] Reading the RPS as a whole we find there is an asymmetry between the general empowering objectives and the more specific protecting objectives. The empowering objectives promote or encourage and contain internal checks. For example:

- objective 5.4.1(a) (land use) is:  
To maintain and enhance the primary productive capacity and life-supporting capacity of land resources; ...
- objective 12.4.2 (energy) is:  
To sustainably and efficiently produce and use energy taking into account community values and expectations.
- objective 12.4.3 (energy) is simply:  
To encourage use of renewable resources to produce energy.

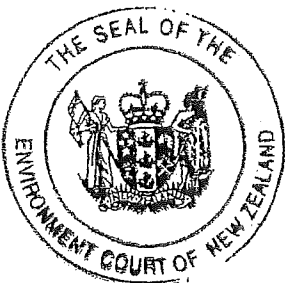
[Emphases added]

In contrast the landscape and biota objectives we identified in Chapter 3.0 are more focussed and not so heavily qualified. We judge that on the whole the more specific relevant objectives and policies in the RPS are not given effect to by the proposal, although in the end we have decided to treat the RPS as neutral on the proposal.

#### 7.4 Having regard to the local authorities' decision (section 279A of the Act)

[669] By a majority the Hearing Commissioners concluded that the Meridian proposal would be appropriate first because a wind farm is contemplated by the district plan, and because of three other 'broad factors'<sup>1175</sup>:

- The site is a modified rural working landscape in which farming activities currently occur. In this respect the site is neither culturally or environmentally pristine. A wind farm facility can operate simultaneously with the existing and future farming regime.
- The project site is comparatively remote from residences with only a small cluster of residences approximately 5km away across the scrolls along Linnburn Runs Road. It is also remote from well trafficked public viewpoints. At the same time it is not so remote that the site could be considered to have wilderness qualities.



<sup>1175</sup> Local Authority Decision p. 112.

- The site is of undisputed scale and quality in terms of the wind resource. This fact was first promoted in the 1980s by Dr Keith Dawber, a University of Otago academic and reintroduced by Meridian as part of this project. Furthermore, the site is located in close proximity to transmission facilities.

We accept the second and third bullet points with one proviso – that while the site may not have permanent wilderness qualities, the landscape may under snow qualify as a wilderness seasonally.

[670] The Commissioners also relied on the district plan’s map of the area as excluding it as an outstanding natural landscape. They did not accept evidence to the contrary. We have been persuaded both by evidence and by the inconsistencies in the district plan, and in Plan Change 5, to conclude that the Lammermoor is part of an outstanding natural landscape. We find that the site is farmed and thus can be said to be part of a rural working area. We also find that is only a part of its description. The Meridian site is also and more obviously a unit within an evocative outstanding natural landscape predominantly covered in native tussocks without trees (except for a few small totara in a gorge, a windbreak of short conifers<sup>1176</sup> above the Logan Burn Reservoir, and a plantation of – as yet – small conifers on Mt Teviot, about 15 kilometres west of the southwestern corner of the site).

[671] The Commissioners concluded that if a wind farm was not allowed on this site ‘... [we] find it hard to see where in Central Otago a wind farm’ might locate. That is despite having as evidence a report<sup>1177</sup> from the Planner for the CODC – Mr Whitney – in which he wrote<sup>1178</sup> that he considered there were potentially suitable sites “elsewhere in the Central Otago District and elsewhere in Otago including in locations south and west of the Clutha River”. We have annexed a map of New Zealand showing the extensive windy areas<sup>1179</sup>. That map shows areas near Cromwell and Alexandra which appear to have suitable wind to be a Grade I or II site. Those areas are also interesting

<sup>1176</sup> The Central Otago District Council might wish to investigate the legality of that part of the windbreak above 900 metres.

<sup>1177</sup> Mr W D Whitney, evidence dated 3 July 2008 para 60 and attachment WDW3 at para 5.3 [Environment Court document 67].

<sup>1178</sup> Mr W D Whitney, evidence dated 3 July 2008 para 60 [Environment Court document 67].  
<sup>1179</sup> Attachment “B”.



because on our observation they contain areas which are much less natural than the Eastern Central Otago Upland Landscape we have defined. Those areas are at lower altitudes with a predominant vegetation which is a mix of thyme, sweet briar, or wilding pines and, on terraces, grapes and pasture. If these areas are outstanding natural landscapes as the operative district plan suggests, then a wind farm in one of these areas might be able to provide environmental compensation in the form of weed control or management.

[672] Of more concern to us about the Commissioners' majority decision is that there appears to be an unexpressed premise that a wind farm must be remote from houses. We consider that citizens of working landscapes in rural New Zealand beyond a range of about three to five kilometres from a windy site may need to get used to the idea of a wind farm within their sight, if the site is not within an outstanding natural landscape or protected by another nationally important matter in section 6 of the RMA. In any event there is no justification for such a premise within section 13 of the district plan.

## 7.5 Other matters (section 104(1)(c) of the RMA)

### 7.5.1 The existing environment and the permitted baseline

[673] The permitted baseline<sup>1180</sup> for that part of the Rural Resource Area above 900 metres is a limited list. Several activities traditionally regarded as normal farming operations in the rural parts of New Zealand such as planting of trees or ploughing are not permitted<sup>1181</sup> as of right on much of the site. In any event the installation of the power generation facility and the earthworking activities proposed by the applicant in this case come under the chapter 13 code so the rural resource permitted baseline is irrelevant.

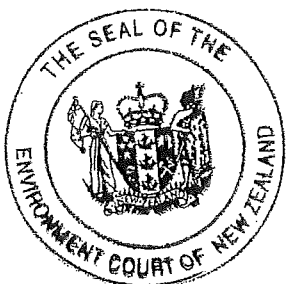
[674] In relation to the existing environment there are various suggestions<sup>1182</sup> that Meridian may have been disadvantaged because (a different division of) the Court heard and decided the smaller Mahinerangi application by TrustPower Limited first (see *Upland Landscape Protection Society v Clutha District Council*<sup>1183</sup>), even though

<sup>1180</sup> Section 104(2) of the RMA.

<sup>1181</sup> Rule 4.74(viii) (tree planting) and 4.7.6 J, K, KA and L [Central Otago District Plan p. 4:46 and 4:60 *et ff*].

<sup>1182</sup> For example, Mr Todd, submissions 16 February 2009, [Environment Court document 85].

<sup>1183</sup> *Upland Landscape Protection Society v Clutha District Council* Decision C85/2008.



TrustPower's application was lodged with the relevant local authorities later than Meridian's. We consider there is no disadvantage. First, we hope it is unnecessary to point out that this is not a "priority of hearing" case under the principle (first in time, first in right) in *Fleetwing Farms Limited v Marlborough District Council*<sup>1184</sup>. From a procedural point of view this case involves different resources within two different districts. Secondly, we consider the point is irrelevant. The possibility of generating energy from wind at Mahinerangi is, for the reasons we stated in Chapter 3.0, relevant as:

- either a part of the existing environment as it falls within the definition allowed by *Queenstown Lakes District Council v Hawthorn Estate Limited*<sup>1185</sup> (or as an accumulative effect); or
- an alternative.

[675] We hold that the existing environment must include the potential effects of a wind farm above Lake Mahinerangi. We consider the accumulative effects of adding a wind farm on the Lammermoor to those effects will be at least moderate on the heritage surroundings about the Old Dunstan Road even on the scale of the two landscapes being considered.

#### 7.5.2 Crown policies

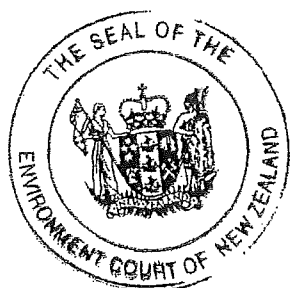
[676] Mr Parker submitted, and we accept, that we should give weight to the relevant Crown policies as 'other matters' under section 104(1)(c) of the RMA. He referred in particular to the national policy that by 2025, 90% of New Zealand's electricity generation is to be supplied by renewable resources<sup>1186</sup> (and to the role of the New Zealand Emissions Trading Scheme to encourage that). We have regard to the fact that a wind farm on the Lammermoor would make a real contribution to achieving that goal.

[677] We were also asked to give weight to the Climate Change (Emissions Trading and Renewable Preference) Bill since enacted in two parts as the Climate Change

<sup>1184</sup> *Fleetwing Farms Limited v Marlborough District Council* [1997] 3 NZLR 257; 3 ELRNZ 249; [1997] NZRMA 385.

<sup>1185</sup> *Queenstown Lakes District Council v Hawthorn Estates Limited* [2006] NZRMA 424.

<sup>1186</sup> The New Zealand Efficiency and Conservation Strategy, Mr P F Gurney, evidence-in-chief Exhibit PFG-3 [Environment Court document 39].



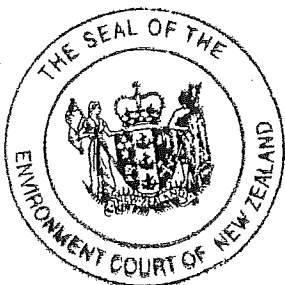
Response (Emissions Trading) Amendment Act 2008 and the Electricity Renewable Preference Amendment Act 2008. We also take judicial notice of the select committee review of the Emissions Trading Scheme (“ETS”) as enacted. The ETS is relevant in that it internalises to (relevantly) electricity generators the obligations that New Zealand has accepted by adopting the Kyoto Protocol. We have taken into account the benefits under the Kyoto Protocol of carbon emission reductions in our quantitative analysis of the costs and benefits of the proposal because that is a potential economic benefit regardless of the form of an ETS adopted by New Zealand. To give these benefits further weight under the Climate Change Response (Emissions Trading) Amendment Act 2008 would be to double count them.

[678] As we have stated earlier, it is the New Zealand Energy Strategy to 2050 (“NZES”) and the New Zealand Energy Efficiency and Conservation Strategy (“the NZEECS”) which set the renewable electricity target – that the proportion of electricity generated from renewable resources be 90% by 2025. The NZECS states that<sup>1187</sup> “To achieve this outcome requires a very high rate of investment in renewable generation”. We accept and give weight to these strategies as supporting Meridian’s proposal.

[679] We note that the New Zealand Energy Strategy also states that<sup>1188</sup>:

We [i.e. the Government] need to balance the climate change benefits of increasing renewable electricity against the potential impact on the local environment. We will support this balancing act by giving consent authorities guidance on the various trade-offs involved.

In this case neither the previous (2008) Government nor the 2009 Executive appears to have complied with its own policy. There is no evidence that either Government gave any guidance to the local authorities, nor did they call evidence before us about the trade-offs involved. The Government apparently regarded<sup>1189</sup> any issue as to the effect of the wind farm on landscape, heritage or amenities as a local issue, notwithstanding that at least two matters of national importance were raised on the evidence.



<sup>1187</sup> NZEECS p. 68, Mr P F Gurney, Exhibit PFG-4 [Environment Court document 39].  
<sup>1188</sup> NZES para 4.61 [p. 23].  
<sup>1189</sup> Mr M T Parker, submissions for the Crown para 89 [Environment Court document 36].

### 7.5.3 Crown support for Meridian's proposal

[680] In respect of the involvement by the Crown as a section 274 party Mr Parker wrote that the Crown<sup>1190</sup>:

... acknowledged that an "All of Government" submission made under s 141A(4)(c) is not to be given greater weight than any other submission. An "All of Government" submission highlights that the Crown considers the particular application is a matter which is, or is part of, a proposal of national significance, and provides a national context for the consideration of the decision maker when considering the application under s 104 of the RMA.

We are not quite sure what to make of that legal submission. We accept that an Executive 'submission' as such (i.e. under section 141A of the RMA) does not have more weight than any other. But of course submissions on resource consent applications are not normally documents that have weight, rather they confer or limit jurisdiction. We consider the Crown's involvement (duly assessed in the light of all the evidence) should be treated as an 'other matter' for the purposes of section 104(1)(c) of the Act.

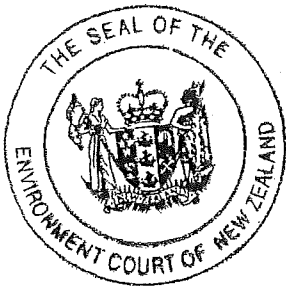
[681] The Executive's submission<sup>1191</sup> was made under section 141A(4)(c) of the RMA because the Crown regarded the following factors<sup>1192</sup> as making the Meridian proposal of national significance:

- the widespread public interest regarding its actual or likely effect on the environment;
- it involves significant use of natural and physical resources; and
- it has effects on more than one district or region, as the benefits of the proposal (such as environmental benefits associated with the increased use of renewable energy) are likely to be national in effect.

<sup>1190</sup> Mr M T Parker, submissions for the Crown para 30 [Environment Court document 36].

<sup>1191</sup> Mr M T Parker, submissions from the Crown paragraphs 28 and 29 [Environment Court document 36].

<sup>1192</sup> Out of the list in section 141B(2) of the RMA.



[682] The issues advanced by the Crown at the hearing related to sections 7(b), 7(j) and various subordinate statutory instruments and national policies. We have had regard to all those matters in previous sections of this decision.

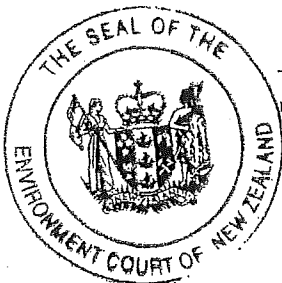
[683] We should also have regard to the agreement<sup>1193</sup> reached between the Department of Conservation (“DOC”) and Meridian. In resolving DOC’s concerns with the proposal Meridian has agreed to:

- (a) pay \$175,000 to maintain or improve public access to the Rock and Pillar Conservation Area and/or to fund research into the decline of the Eastern Falcon;
- (b) volunteer conditions on:
  - (i) woody weed control;
  - (ii) fire management;
  - (iii) accidental discovery protocols;
  - (iv) spring annuals survey;
  - (v) threatened species survey;
  - (vi) timing of construction in waterways to avoid impacts on fish;
  - (vii) avoidance of pest introduction;
  - (viii) bird strike.

We will consider these conditions if we are of a mind to grant consent. As for the payment: research into the Eastern Falcon is relevant and so has the potential to provide mitigation and/or environmental compensation for the effects of the wind farm. The \$175,000 is like Meridian’s proposed 95 hectare reserve, they each provide a small measure of environmental compensation in the event the decision is very finely balanced.

#### 7.5.4 Conduct of the appellants and supporters

[684] It is an essential part of New Zealand’s judicial system that our Courts should not be swayed by public opinions on the issues to be determined. To help Judges and



<sup>1193</sup> Exhibit 78.1.



other judicial officers the common law states that cases should not be commented on whilst they are before the Court (and *sub judice*)<sup>1194</sup>.

[685] That principle is relevant because up to and during the 2008 hearings we were concerned that some of the appellants – especially members of the Maniototo Environmental Society Incorporated – were making remarks in the media about the Meridian project which appeared to be attempts to sway public opinion against the proposal. Meridian did not complain, but we were sufficiently concerned that in an oral procedural decision<sup>1195</sup> adjourning the hearing in 2008, we reminded<sup>1196</sup> “opponents of the Meridian proposal ... [that] the ... proceedings are still being heard and therefore *sub judice*”. We then stated: “Comments on the merits of the proposal in the media should stop”.

[686] The May 2009 issue of the magazine North and South<sup>1197</sup> contains an article called ‘Wind Lyrics’ which describes itself as a photo-essay on the Maniototo “... scene of a proposal, which its critics describe as vandalism”<sup>1198</sup>. Some of the witnesses who gave evidence to us (Mr Brian Turner in particular) are then reported as saying things which should not have been published in a national magazine (or even a local newspaper) before our decision was issued. For example, Mr Turner is quoted as saying<sup>1199</sup>:

This talk that Meridian’s scheme is in the ‘national interest’ – I hate that term. I hate the cringing acquiescence people have to the ‘national interest’. What really pisses me off is that the attempt to sacrifice nature is beyond any so-called benefits.

We have taken particular care not to be influenced by such remarks. But the mere fact that so many of that type have been made during this case may lead to a *perception* that the Court can be influenced by such remarks. All parties to future proceedings are warned that they must take care not to make such statements during a hearing or before

<sup>1194</sup> Latin for ‘under a judge’.

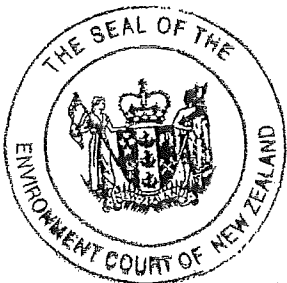
<sup>1195</sup> *Maniototo Environmental Society Incorporated v Central Otago District Council and Otago Regional Council* C89/2008.

<sup>1196</sup> *Maniototo Environmental Society Incorporated v Central Otago District Council and Otago Regional Council* C89/2008 at para [16].

<sup>1197</sup> North and South May 2009 at p. 72.

<sup>1198</sup> North and South May 2009 at p. 72.

<sup>1199</sup> North and South, May 2009, p. 72 at 78.



a decision is released. Otherwise the Environment Court may invoke its powers to deal with contempt on its own volition (without waiting for a complaint).

[687] We are aware that ordinary citizens or small local groups when taking cases against local authorities or large companies like Meridian have a number of disadvantages of lack of money, experts and lawyers (the first lack tends to imply the second two). So public advertisements soliciting funds is not inappropriate. Going beyond that and making strongly emotional pleas by words or pictures may be a contempt of Court.

[688] However, we judge that the conduct of some of the appellant's witnesses should not be a factor that weighs in our overall decision. It might be relevant on the issue of costs (as might be the two Governments' submission under section 141 of the Act).

#### 7.5.5 Reversibility

[689] Meridian's counsel Mr Beatson submitted that even if the adverse effects on the landscape were more serious than its witnesses believed (and indeed we have predicted that is likely) then in any event those adverse effects are reversible. He stated that the life of a turbine is between 30 and 35 years, and in answer to a question from the Court said<sup>1200</sup>:

I think you can fairly assume that they'll be there for at least that long, probably longer. But it's a difficult exercise and the reason I say that is because they do have to be replaced after a certain amount of useful life, and it's possible that the energy technology will have moved on during that period and it may not be economical to replace them. So I don't think we can assume that it's an open ended situation, I think it's quite a human scale situation. You know, a hundred years might not be unrealistic but I think it's getting difficult to make predictions in that timescale.

[690] However, Meridian was not prepared to put a term on the land use consents. At the most, Mr Beatson said<sup>1201</sup>:



<sup>1200</sup> Transcript (2008), p. 524.

<sup>1201</sup> Transcript (2008), p. 524. Repeated by Mr Rennie in his final submissions at para [378].

Well we would accept a condition that says “at the end of their useful life they will be removed and the site will be rehabilitated”.

Mr Rennie made a more restricted statement in his closing submissions<sup>1202</sup>:

Meridian will accept a condition that at the end of the useful life of the windfarm turbines are to be removed and the site is to be remediated.

He then went on to say<sup>1203</sup> that “one could reasonably assume a life expectancy of 30 years for the turbines that are installed”. We note that Meridian is not accepting a condition of removal and remediation after 30 years, or at the end of the life of the turbines installed, but only at the ‘end of the useful life of the **windfarm**’ (our emphasis). The end of the useful life of the wind farm could be after the turbines themselves have been replaced many times over and therefore bear no relation to the 30 years postulated as the life of a turbine.

#### 7.5.6 All or nothing?

[691] An odd feature of the way this case was presented was its ‘all or nothing’ quality on landscape issues. In most cases, cross-examination (at least) explores possibilities of limiting potential adverse effects. Mr Douglas stated in evidence<sup>1204</sup> and in his closing submissions<sup>1205</sup> that a project on a smaller scale might be acceptable. We also acknowledge there was cross-examination on mitigating effects on the dimensions and construction of Old Dunstan Road and we have had due regard to that.

[692] But no party cross-examined the witnesses of the others on the potential for reducing the scale of the proposal in the landscape. Apart from Mr Douglas’ lay suggestion the biggest move we can find is that Meridian contemplated<sup>1206</sup> (but did not offer) moving turbines further from the Old Dunstan Road at the northern end of the site but that is all. So we are not in a position to consider whether a smaller wind farm might be appropriate if we decide to cancel the Council’s decision.

<sup>1202</sup> Mr H Rennie QC, closing submissions para 378 [Environment Court document 93].

<sup>1203</sup> Mr H Rennie QC, closing submissions para 378 [Environment Court document 93].

<sup>1204</sup> Mr J W Douglas, evidence-in-chief (recreation) para 5.4 and attached map [Environment Court document 72A].

<sup>1205</sup> Mr J W Douglas, closing submissions para 6.11 [Environment Court document 91].

<sup>1206</sup> Mr H Rennie QC, closing submissions paragraphs 261 and 262 [Environment Court document 93].



## 7.6 'Subject to Part 2 ...'

### 7.6.1 Summary to this point

[693] If the matters in the previous sections of this chapter were all we had to consider we would agree with the planner<sup>1207</sup> called by the District Council, Mr D R Anderson, that we should grant consent to Meridian. However, section 104(1) of the RMA begins:

When considering an application for a resource consent and any submissions received, the consent authority must, subject to Part 2, have regard to –

...

We now consider whether we should look at Part 2 of the Act.

### 7.6.2 Should we consider the application under Part 2 of the Act?

[694] The precise location of the words in the current form of section 104(1) was substituted<sup>1208</sup> by the Resource Management Amendment Act 2003. Prior to that the words "Subject to Part 2 ..." came at the beginning of the section. Of the wording prior to 1 August 2003 the Planning Tribunal stated in *Minister of Conservation v Kapiti Coast DC*<sup>1209</sup> that the Part 2 provisions were to prevail in the event of conflict; and that the matters raised under Part 2 were to be given greater weight, or primacy, when compared with other considerations. The Tribunal also wrote<sup>1210</sup>:

It is possible that by prefacing s 104(1) with the phrase 'Subject to Part 2', Parliament intended to convey, indirectly, that it was not only the process of having regard to the various matters listed in that subsection, but also the weighing of them to make the discretionary judgment enabled by [what is now is 104B] and (c), that was to be subject to Part 2.

The authority relied on was an appeal under the Town and Country Planning Act 1977 – *Environmental Defence Society v Mangonui County Council*<sup>1211</sup> where Cooke P held that:

<sup>1207</sup> Mr D R Anderson, evidence-in-chief [Environment Court document 62].

<sup>1208</sup> Section 44 Resource Management Amendment Act 2003.

<sup>1209</sup> *Minister of Conservation v Kapiti Coast DC* (1993) 1B ELRNZ 234; [1994] NZRMA 385 (PT).

<sup>1210</sup> *Minister of Conservation v Kapiti Coast DC* (1993) 1B ELRNZ 234; [1994] NZRMA 385 (PT).

<sup>1211</sup> *Environmental Defence Society v Mangonui County Council* [1989] 3 NZLR 257 at 260; (1989) 13 NZTPA 202.



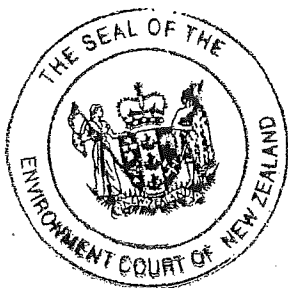
the qualification “subject to” are “a standard drafting method of making clear that the other provisions referred to are to prevail in the event of a conflict”.

We consider the removal of ‘... subject to ...’ to later in the section does not make any difference to its meaning and role, but was placed there because it is a more logical point in the sentence to introduce a qualification.

[695] As discussed in Chapters 2.0 to 5.0 the Meridian proposal does raise several matters of national importance under the RMA. In particular we have found that the Meridian site is within an outstanding natural landscape under section 6(b) of the Act. When trying to reconcile the operative district plan with Part 2 of the Act a major difficulty is that for energy developments the relevant objective<sup>1212</sup> in the district plan states that we are merely to have particular regard to avoiding remedying and mitigating significant adverse effects on the environment. Such a general objective can hardly be said to subsume section 5(2)(a) and (b) and sections 6 to 8 of the RMA within it. If an objective is intended to do so the district plan should be much more explicit about its intentions.

[696] There are at least five further factors which cumulatively determine that we should now consider sections 5 to 8 of the Act. They are, as identified in Chapter 3.0 and subsequent chapters:

- (1) the inconsistent objectives and policies in the operative district plan about landscape;
- (2) the inconsistencies in the operative district plan as to the location of outstanding natural landscapes;
- (3) the failure of the operative district plan to deal with cross territorial boundary issues;
- (4) the completely inadequate cost-benefit analysis as found in Chapter 6.0;
- (5) the requirement we identified in Chapter 3.0 to look at alternative sites under section 7(b).



<sup>1212</sup>

Objective 13.3.3 [Central Otago District Plan p. 13:4] quoted above.

We consider we should proceed to assess the proposal under sections 5 to 8 of the RMA.

We do so in three sections:

- is the proposal an efficient use of resources? (7.7)
- other matters to have particular regard to; (7.8)
- weighing all relevant matters (7.9).

## 7.7 Is the proposal an efficient use of resources?

### 7.7.1 Do the quantified benefits exceed the costs?

[697] We turn to consider the application under section 7(b) of the Act. One approach to assessing whether a proposal is sustainable management of the resources involved is to analyse whether the public benefits exceed the costs. The cost benefit analysis can only be a partial estimate because there are some values which cannot be quantified directly (for example, intrinsic values of ecosystems under section 7(d) and others which cannot be readily valued at present (e.g. landscape)). Mr Rennie QC claimed<sup>1213</sup> that after over seven weeks of hearings the Court was ‘... fully informed on all aspects of Project Hayes’. We have found that is not so. The evidence provided on the benefits and costs to recreation was inadequate and that on tourism minimal. We neither read evidence-in-chief nor heard further evidence quantifying the value of the landscape in which the proposed wind farm is to be placed, or of the costs of the project to the heritage values of the Old Dunstan Road. We have also expressed doubts about the adequacy of the evidence about roads on the site.

#### *Summary of the benefits and costs*

[698] In Chapter 6.0 we assessed the efficiency of the proposal for the purposes of section 7(b) of the Act, and summarised the quantified net benefit of the proposed Lammermoor wind farm as follows:

- A medium likelihood of a net one-off regional benefit from construction of about \$800m and a very likely one-off national cost to upgrade the grid of about \$100m;

<sup>1213</sup> Meridian’s closing submissions para 1 [Environment Court document 93].



- A very likely on-going net annual benefit from operation of about (\$107-\$16=) \$91m nationally and about \$13m regionally. In addition there is a national benefit from reduced carbon emissions with a medium likelihood of being about \$20m annually. We were not given any net present value for the ongoing values, nor the data with which to do the calculation ourselves.

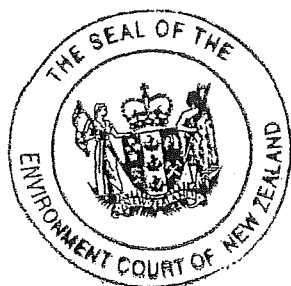
[699] There will be some unquantified or unknown benefits:

- (1) Meridian intends to retire from farming and fence 95 hectares around the part of Logan Burn Gorge within its property which its experts consider are of high ecological value. (While we agree we also bear in mind that the gorge land is under much less ecological pressure – it cannot be ploughed – so as environmental compensation it is not ‘like for like’);
- (2) Meridian is to pay various sums to protect, inform and advance the knowledge of the archeological sites on the Lammermoor as described by Mr Beatson in his opening submissions<sup>1214</sup> to the July 2008 hearing;
- (3) it will pay \$175,000 to the Department of Conservation;
- (4) Meridian proposes a community fund;
- (5) Meridian will pay a ‘Development Impact Levy’ guesstimated by Mr Rennie<sup>1215</sup> at between \$3.75 and \$7 million to be paid to the CODC;
- (6) there will be a substantial improvement to the accessibility of the Lammermoor due to the upgrading of the Old Dunstan Road, potentially to an all-year round, most weather access (the road would probably still be affected by snow for significant parts of the winter);
- (7) the upgrading of the existing ‘farm tracks’ into permanent formed roads for turbine access will be of benefit to the farming operations on the land, and potentially for access for other activities as may be allowed by the land owners.

[700] There are also unquantified costs of the project in terms of its effects on:

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<sup>1214</sup> Mr A Beatson, opening submissions (28 July 2008) para 157 [Environment Court document 23].  
<sup>1215</sup> Mr H Rennie QC, closing submissions para 24 [Environment Court document 95].



- (1) Rock and Pillar and Lammermoor Ranges recreation via Old Dunstan Road;
- (2) Otago Goldfields Cavalcade;
- (3) visitors to Te Papanui Conservation Park;
- (7) regional tourism
- (8) heritage effects not included in recreation;
- (9) ecological effects;
- (10) other landscape costs not captured above.

[701] We have already commented on the large gaps in the Court's cost-benefit analysis. We find it extraordinary that in a \$2 billion project more effort was not made by Meridian to value more of the costs and benefits much more thoroughly. It is even more remarkable that two Governments endorsed the proposal without insisting that Meridian carried out a cost-benefit analysis, or requesting Treasury to do so. We accept entirely the principle of proportionality in relation to any party's case in any proceedings – that the evidence to be called needs to be proportional to the significance and size of the issues to the applicant, the people and communities affected, and to society as a whole – but in this case Meridian is thinking big. Meridian claims that the proposed wind farm would be the largest in the Southern Hemisphere. Given that scale we would have expected proportionate evidence on what were clearly always going to be key issues – the potential adverse effects on heritage and, especially, landscape values.

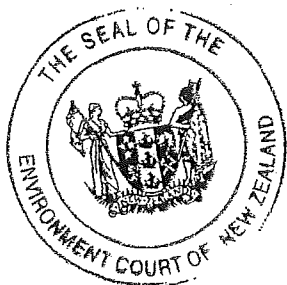
7.7.2 Alternatives: could the same output be achieved at lesser cost by using different resources?

*Should alternatives be considered?*

[702] In Chapter 3.0 (The law) we decided that in certain circumstances section 7(b) leads to a requirement to consider alternatives. After considering the submissions and cases, we held that we should follow the recent Waitaki North Bank Tunnel Concept decision<sup>1216</sup> where the Court concluded<sup>1217</sup>:

<sup>1216</sup> *Lower Waitaki River Management Society Incorporated v Canterbury Regional Council* Decision C80/2009.

<sup>1217</sup> *Lower Waitaki River Management Society Incorporated v Canterbury Regional Council* Decision C80/2009 para [201].





... that the consideration of alternative uses of resources, or the use of alternative resources to achieve the same or similar benefit, is not usually required under the RMA, and, secondly that there are at least three exceptional situations where considerations of efficiency under section 7 (b) may require consideration of alternatives. These situations are:

1. where the costs cannot be fully internalised to the consent holder;
2. where there is no competitive market for the relevant resources; or
3. where there are matters of national importance in Part 2 of the Act involved and the cost benefit analysis requires comparing measured and unmeasured benefits and costs, such that the consent authority has to rely principally on a qualitative assessment.

Although the consideration of alternatives may be required, this does not necessarily mean that alternatives should be considered in all cases. The Waitaki NBTC decision stated<sup>1218</sup> that whether and which alternatives should be considered can only be decided in the context of the specific facts of each case.

[703] Considering the extent to which the situations 1-3 above apply to a Lammermoor wind farm we find:

1. The costs in terms of landscape, heritage in respect of the Old Dunstan Road and the heritage surroundings in which it sits, and recreation and tourism have not been internalised to the consent holder. There may be some possible remedy or mitigation in respect of recreation and tourism, although none has been proposed to us. The evidence before us was that the landscape and the Old Dunstan Road heritage costs could not be remedied or mitigated. Therefore they have not been (and in respect of landscape and the heritage of the Old Dunstan Road, cannot be) internalised to the consent holder.
2. There is no competitive market for the landscape or heritage resources. The 'market' for recreation or tourism resources has not been adequately explored by the applicant. The issue of alternative recreational opportunities was mentioned in evidence and discussed (briefly) in cross-examination. The issue of tourism was barely mentioned.

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<sup>1218</sup> Decision C80/2009 para [548]



3. There are two matters of national importance involved: an outstanding natural landscape<sup>1219</sup> and historic heritage<sup>1220</sup> – which we must recognise and provide for their protection from inappropriate use and development.

We have considered whether in the interests of fairness we should hear from the parties further on the issue of categories 2 and 3 since the *Lower Waitaki* decision has only recently been issued. However, we have decided that there is no need to do so because *TV3 Network* applies – matters of national importance are raised – and we heard argument about that.

[704] We have quoted policy 13.4.8 in section 13 of the operative district plan which also suggests strongly that alternatives should be considered.

*Do alternatives exist?*

[705] The evidence is that:

- New Zealand has a widespread and rich wind resource. As Mr Botha<sup>1221</sup> put it:

New Zealand has one of the best wind resources in the world ... We are often referred to as the Saudi Arabia of the wind industry.

This can be seen in the maps included in the TTER report<sup>1222</sup>, which show extensive wind resource zones through most of the North Island and through Canterbury and Otago-Southland in the South Island;

- there is an over-abundance of possible renewable generation projects that could be used to meet New Zealand's electricity needs into the foreseeable future (through to 2025 at least). As Mr Waipara put it<sup>1223</sup>:

... there is far more generation in the planning pipeline than is actually needed.

And<sup>1224</sup>:

<sup>1219</sup> Section 6(b) of the Act.

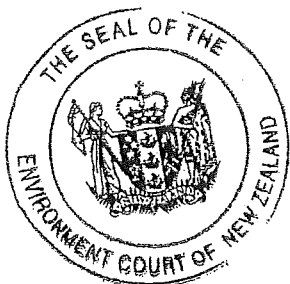
<sup>1220</sup> Section 6(f) of the Act.

<sup>1221</sup> Mr P C Botha, evidence-in-chief para 4.1 [Environment Court document 27].

<sup>1222</sup> Attachment "B" to this decision.

<sup>1223</sup> Transcript, p. 843.

<sup>1224</sup> Transcript, p. 904.



... there are a lot more generation projects going through investigation phases than is needed in the short run ...

The map provided by Mr Beatson of consented wind farms<sup>1225</sup>, shows over 1000 MW of wind farms currently under construction or consented, excluding Lammermoor (although some are still subject to appeal). Transpower's Statement of Opportunities identifies<sup>1226</sup> over 30 wind projects totaling nearly 4,000 MW as 'prospective' projects, which includes those consented or undergoing consent processes, those proposed by generators but not yet in the consenting process, and some suggested but not yet known to be being investigated by generators. Mr Muldoon stated that Meridian itself is doing investigation into wind resources at over 30 sites around the country.<sup>1227</sup> Meridian's wind regime expert, Mr Botha, agreed that<sup>1228</sup>:

... there are other areas where wind farms could be located.

[706] We conclude that there are more wind generation projects under active consideration than will be required to meet the reasonable requirements from wind generation over the next 10-plus years. We also find that there are enough wind generation projects under consideration that not all those under consideration will be required to be built. We consider that realistic alternatives to a Lammermoor wind farm do exist and should have been considered. The failure to do so will be taken into account later.

[707] This is not a case like *TV3 Network*<sup>1229</sup> where a TV repeater could potentially be simply moved to an adjacent hill where a section 6 matter of national importance was not raised. The sheer scale of the Meridian proposal means that alternatives are not so easy to come up with. However, we can take into account that the wind generation

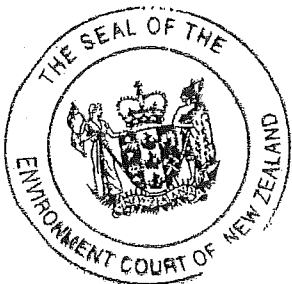
<sup>1225</sup> This was requested by the Court and supplied by Mr Beatson during the second hearing in Cromwell. It was not formally produced or given an exhibit number. It is a public document.

<sup>1226</sup> Statement of Opportunities, p. 90.

<sup>1227</sup> Transcript, p. 910.

<sup>1228</sup> Transcript, p. 1004

<sup>1229</sup> *TV3 Network Services Limited v Waikato District Council* [1997] NZRMA 539; [1998] 1 NZLR 360 (HC).



industry in New Zealand has barely progressed to its adolescence. We accept, as Mr Rennie submitted for Meridian in closing, that usable wind cannot be found just anywhere. Nevertheless New Zealand is a wind rich country and there are still many 'untapped' wind resources of specific places as shown on attachment "B".

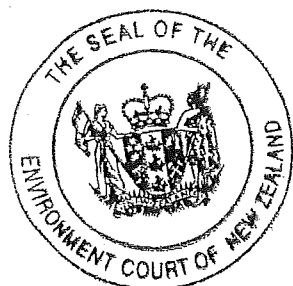
[708] Mr Brown's comparative description of the region's components was the start of an analysis of alternatives, but, as we described in Chapter 4.0, it was both too general and inaccurate for us to be able to rely on it.

[709] We consider that because the Meridian proposal affects resources of national importance, section 7(b) and the concept of stewardship under section 7(aa) suggest a wind farm on the Lammermoor should be put on hold until other wind resources with lesser potential effects on landscape and heritage have been considered. The failure to consider alternatives properly is a factor going towards turning the proposal down. The wind resource over the Lammermoor will still be there in the future if New Zealanders through their elected representatives decide to change the relevant laws and statutory instruments, or, once other wind resources have been developed it is then considered that the wind resource of the Lammermoor is still required despite its other values.

[710] Given that we are considering two matters of national importance under section 6 of the RMA, both of which will be compromised to a dramatic and extensive effect, the failure to adequately consider alternatives is a significant detriment to the applicant's case. It will be given weight in our overall consideration under section 5 of the RMA. As for the question at the beginning of this section: "Is the proposal an efficient use of resources?" – on the evidence we have to answer that we cannot answer the question.

#### 7.8 Other section 7 matters

[711] Section 7 of the Act raises matters we must have particular regard to. No issues were raised in respect of paragraph (a) Kaitiakitanga. We have considered section 7(b) in the previous section. We consider the remainder of the section 7 matters now.



*Stewardship (section 7(aa))*

[712] In Chapter 3.0 we suggested, following the approach in *Makara*<sup>1230</sup>, that the ethic of stewardship involved compromise between landowners doing what they wished with their land and a primitivist view which would suggest, in the circumstances of this case that the landscape should stay unchanged. Unfortunately it is difficult to see how that can help us in the circumstances of this case since, as we have recorded, possible compromises were not raised in the evidence or cross-examination.

[713] If the ethic of stewardship assists at all it is in the idea that turning the Meridian proposal down now maintains the landscape, heritage and other environmental values of the landscape and leaves it for future generations to review (and renew) the possibility of a wind farm on the Lammermoor.

*Maintenance and enhancement of amenity values (section 7(c))*

[714] One of Meridian's landscape experts, Mr Brown, wrote perceptively about amenity issues in wind farm cases<sup>1231</sup>:

... the concept of "amenity" is often bound up in the identification and maintenance of values that have even more to do with qualities and dynamics experienced at the local or location specific level, than "landscape". For instance, whereas the concept of landscape may pertain to a wide ranging mixture of open pasture, remnant bush, hill backdrop and farm buildings that create a certain bucolic imagery and distinctive sense of place, amenity values may relate to the outlook to a single hill, ridge, stand of trees, stream course or other feature that is of little significance to the wider community. Consequently, amenity tends to be bound up much more in locally 'known' and appreciated elements and features, and a more subtle array of landscape patterns.

In the rural domain, such values often coalesce to create the very essence of rural character, i.e. a balance of natural elements, productive uses (typically expansive as opposed to intensive) and structures, which is underpinned by the enduring dominance of non man-made elements.

Residential amenity is inevitably a core component of the amenity spectrum as it lies at the very heart of most New Zealander's quality of life. In addition to being fundamental to the lifestyles that most of us enjoy, it affects our social status and spills over into our economic well-being

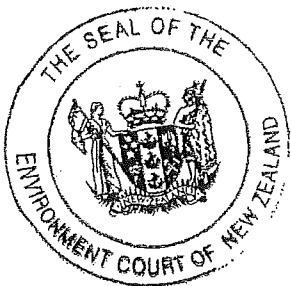
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<sup>1230</sup>

*Meridian Energy Limited v Wellington City Council* Decision W31/2007 at para [369].

<sup>1231</sup>

Mr S K Brown, evidence-in-chief paragraphs 34-36 [Environment Court document 4].



simply because houses are most New Zealander's single most important investment. In the case of New Zealand's smaller towns and settlements, but also its farming communities, such amenity often relates to the outlook or views beyond either an urban periphery or the farm yard to key natural features, such as mountain ranges, rivers, lakes and countryside. These are effectively 'borrowed' to enhance the experience of living either in such settlements or farmhouses.

[715] He then concluded on the general effect of wind farms on amenities<sup>1232</sup>:

As a result, the location of wind farms remains a perplexing issue, one that both energy suppliers, landscape architects and others responsible for resource management struggle to resolve. Wind farms located too close to areas of residential occupation and towns, like Dunedin or Alexandra, inevitably provoke concern about effects in relation to residential and rural amenity values [Section 7(c)]; whereas located in more remote areas they are almost bound to contravene district and regional policies designed to protect natural character and landscape values [Sections 6(a) and (b)]. It is therefore almost impossible to find locations for wind farms that are both sufficiently remote to minimise amenity effects, yet not too remote so as to avoid conflicting with landscape and natural character values.

While it may be impossible to find sites that do not raise those conflicts, the conflicts are not unresolvable.

[716] We have referred to six prior decisions of the Environment Court:

- the *Awhitu*<sup>1233</sup> case, south of the Manukau Heads on the west coast near Auckland;
- the *Makara*<sup>1234</sup> case on the coast west of Wellington (north of Karori light);
- the *Unison I*<sup>1235</sup> case in the hills near Titiokura Saddle in northern Hawkes Bay;
- the *Mahinerangi*<sup>1236</sup> case (17 kilometres south of the Meridian site);
- the *Motorimu*<sup>1237</sup> case in the edge of the Ruahine and Tararua Ranges;

<sup>1232</sup> Mr S K Brown, evidence-in-chief para 38 [Environment Court document 4].

<sup>1233</sup> *Genesis Power Limited v Franklin District Council* [2005] NZRMA 541.

<sup>1234</sup> *Meridian Energy Limited v Wellington City Council* Decision W31/2007.

<sup>1235</sup> *The Outstanding Landscape Protection Society Incorporated v Hastings District Council* [2008] NZRMA 8.

<sup>1236</sup> *Upland Landscape Protection Society Incorporated v Clutha District* C85/2008.

<sup>1237</sup> *Motorimu Wind Farm Limited v Palmerston North City Council* Decision W67/2008 (26 September 2008).



- the *Unison 2*<sup>1238</sup> case.

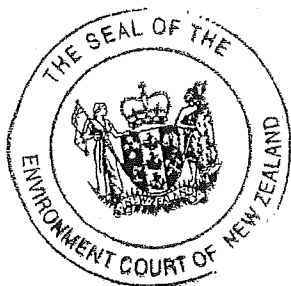
*Unison 1 and 2* were effectively about the same site (and *Motorimu* was an appeal on conditions) so four out of five wind farm proposals were granted consents by different divisions of the Court. At least at the level of the Environment Court the initial probability of resolving the conflicts in favour of wind farms is (at present) 80% even if (as in all decided cases) the case involves matters of national importance under section 6 of the RMA.

[717] We have already considered the amenity of users of the public spaces including the Old Dunstan Road above in relation to landscape and historic heritage and consider we should not double count the adverse effects we identified there.

[718] Finally, we have found there is a high probability of an adverse effect on the amenities of the residents and landowners of the Linnburn Runs Road when those effects are reasonably assessed (i.e. not as assessed by the landowners and their understandably subjective responses). We consider these adverse effects on their amenity could reasonably be offset by payments to their community out of the financial contributions which would be received by the CODC “To compensate for adverse environmental effects on ... any group within the community<sup>1239</sup>”. The small group of landowners along Linnburn Runs Road who are affected could be paid out of this levy. So this factor is potentially neutral in respect of the proposal, although we would need to find a formula in a condition which would provide some independence to the assessment of the reasonable compensation to those landowners.

*Intrinsic values of ecosystems (section 7(d))*

[719] The obverse of our predictions in Chapter 5.0 is that there is a medium likelihood that there will be some relatively slight harm to the ecosystems which contain the native fauna of the Lammermoor. This is neutral.



<sup>1238</sup> *Unison Networks Limited v Hastings District Council* Decision W11/2009 (23 February 2009).  
<sup>1239</sup> Policy 15.4.2 [Central Otago District Plan p. 15:5].

*Maintenance and enhancement of the quality of the environment (section 7(f))*

[720] To count anything here against the proposal would be double-counting, so we do not here. To a small extent some of the mitigating conditions might add to New Zealanders' knowledge about the ecosystems of the area, which we count as an equally negligible weight on the side of the proposal (effectively nil).

*Any finite characteristics of natural and physical resources (section 7(g))*

[721] We accept that preferable (Grade 1 and Grade 2<sup>1240</sup>) sites for wind farms are limited, although not necessarily in short supply. We note that the electricity transmission grid has been designed around meeting demand from hydro generation and so is not necessarily always in the right place to facilitate wind generation. There are good reasons to site a wind farm on the Lammermoor. But of course the outstanding natural landscape is even more limited in type and quality. We have found that there is only one like it (the Old Man/Old Woman Ranges). This matter is neutral or weighs slightly against the proposal.

*The effects of climate change and the benefits of renewable energy (section 7(i) and (j))*

[722] The wind farm is likely to have accumulative effects with other renewable sources of energy on meeting New Zealand's commitments under the Kyoto protocol. This is a benefit that weighs on the positive side for the Meridian proposal.

**7.9 Weighing all relevant matters****7.9.1 Appropriateness under sections 5 and 6**

[723] Turning to our judgement under section 5 of the Act it is well established that a section 6 matter does not automatically trump a proposal for development. In *New Zealand Rail v Marlborough District Council*<sup>1241</sup>, Greig J wrote:

"Inappropriate" has a wider connotation [than "unnecessary"] in the sense that in the overall scale there is likely to be a broader range of things, including developments which can be said to be inappropriate, compared to those which are said to be reasonably necessary. It is, however, a question of inappropriateness to be decided on a case by case basis in the circumstances of the particular case. It is "inappropriate" from the point of view of the preservation of natural

<sup>1240</sup> See the wind map – "Attachment B" to this decision.

<sup>1241</sup> *New Zealand Rail v Marlborough District Council* [1994] NZRMA 70 at 85 to 86.





character in order to achieve the promotion of sustainable management as a matter of national importance. It is, however, only one of the matters of national importance, and indeed other matters have to be taken into account. It is certainly not the case that [the section 6 matter] is to be achieved at all costs.

If, after weighting all relevant matters sustainable use of the relevant resources comes down on the side of the proposal then it is appropriate to grant resource consent.

[724] The general question remaining is whether the Meridian proposal is appropriate under the RMA? In answering that question we should have regard to:

- the “actual and potential effects”<sup>1242</sup> of the proposal and any other relevant effects<sup>1243</sup>;
- the provisions of the CODC District Plan
- the provisions of the proposed district plan including PC 5;
- the relevant provisions of the Otago RPS;
- the CODC decision;

– and we should apply Part 2 of the Act:

- generally (particularly section 5(2) of the Act); and
- providing for the matter of national importance in section 6(b) as both subtracted from and added to by the historic heritage component in section 6(f) of the RMA.

#### 7.9.2 The actual and potential effects

[725] We have considered the possible positive effects in Chapter 6.0 and summarised them earlier in this chapter. The adverse effects of the proposal on the ecosystems of the area we consider (by a majority) can be adequately remedied or mitigated by the conditions and/or the compensation being offered.



<sup>1242</sup> Section 104(1)(a) of the RMA.

<sup>1243</sup> Section 104(1)(b) of the RMA.

[726] The remaining large adverse effect is on the Eastern Central Otago Upland Landscape. We consider that and the effect on heritage values in 7.9.7 below.

7.9.3 The provisions of the operative district plan

[727] We held earlier in this chapter that these provisions are in favour of the Meridian proposal but because of the concerns about the plan that we have expressed we give this factor relatively little weight.

7.9.4 The provisions of the proposed district plan (PC5)

[728] We regard these provisions as neutral. At first sight these are against the proposal at least insofar as they eliminate the code for energy projects in section 13 of the operative district plan. We cannot anticipate here how the project would measure against the remainder of the deemed proposed district plan caused by PC5.

7.9.5 The provisions of the Otago Regional Policy Statement

[729] Overall, as stated earlier, we consider the RPS is neutral on the proposal.

7.9.6 The Hearing Commissioners' decision

[730] A majority of the Commissioners granted the land use consent sought under the then proposed, now operative district plan. We have already expressed some reservations over their findings and reasoning. Nor was the Hearing Commissioners' decision unanimous – the chairman, Mr J G Matthews would have refused consent principally because of its effect on the landscape.

[731] We mention one matter here because it is an example of what could cause a perception of partiality in future cases. The operative district plan provides for a development levy worth, in this case, up to \$7 million. According to policy 15.4.2 that is for a number of purposes, many of them directly environmental; in addition purpose (a) is to provide for the expansion and/or development of the recreational facilities of the district; and purpose (e) is to provide public services and facilities. We were given no evidence as to how the Central Otago District Council might propose to use its windfall. Where Hearing Commissioners are also District Councillors there is a possibility that their objectivity will be questioned in a case where such a large development levy would



result. We disregard that issue for the purpose of this proceeding and we give the majority decision a small weight on the positive side of Meridian's proposal.

7.9.7 Achieving sustainable management of the site's resources

[732] We accept that granting resource consent is likely to contribute very substantial amounts of energy to the National Grid and that is a matter of national importance according to the Crown. We give this factor substantial weight – although not as much as we would if we had been given a thorough cost benefit analysis. The other positive effects should also be given weight according to their net contributions to benefits.

[733] We have found that there is a medium likelihood that construction will cause adverse effects on the site's flora and fauna. We are left with considerable doubt about the ecological efficacy of the revegetated areas. We also have concerns that the effect on the lizards and invertebrate population is simply unknown. Meridian's proposal of land retirement in the gorge is helpful as regards protecting some pockets of native plants but it is not 'like for like' environmental compensation. As for potential gains from predator controls, we had insufficient evidence to assess the effect of changes to predator species number and abundance. We are left with the view that we are still inadequately informed on these issues. We consider they should be given a small amount of weight on the negative side of the scales (against the proposal).

*Effects on the landscape*

[734] The very large factor against the proposal is its adverse effects on the Eastern Central Otago Upland Landscape taken with its historic heritage dimensions, (the Old Dunstan Road, modified as it is, and its surroundings). This must also be given very substantial weight.

[735] Further, the site is nearly surrounded by public land, has the Old Dunstan Road running around two sides of it, and the publicly accessible Old Pylon Road running through it. Those factors also suggest quite strongly that its proposal is located inappropriately even given that the site is relatively recessive as Ms Steven<sup>1244</sup> and Mr




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<sup>1244</sup> Transcript (2008), p. 502.

Espie admitted<sup>1245</sup>. Mr Rough considered that because the site and surrounding landscape are of large scale the latter can absorb the former<sup>1246</sup>. However, we agree with Ms Steven that he is underplaying the horizontality of the landscape and the vertical, often dynamic, nature of the turbines contrasting with it.

[736] We note that one of the reasons the Crown considered the Meridian application is of national interest is because the proposed wind farm has effects on more than one district. It cited the environmental benefits – presumably referring to the 278,000 plus homes that may be powered with renewable energy by the project. The Crown did not refer to the potential adverse effects of the wind farm on the Dunedin City's 'outstanding landscape'. Yet the Meridian site is obviously in a landscape (whatever its outer bounds) which includes land within the Dunedin City. Even the Meridian witnesses Mr Brown and Mr Rough appeared to accept that.

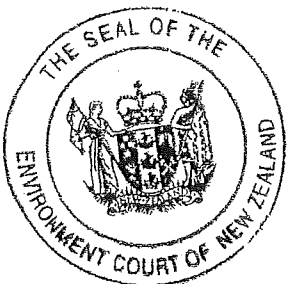
[737] We turn to the effects of the proposed wind farm on the outstanding natural landscape of which the Lammermoor is part. The presence and number of structures and other signs of human activity is a very important determinant of naturalness. Recapping: the large Eastern Central Otago Upland Landscape at present has very few structures on it. Even the Lammermoor has few obvious signs of human activity – the pylons, the two roads, farm tracks, some fence lines, a few huts (and an immobile bus) at the edge of the Logan Burn Reservoir and exotic pastured slopes on the western side. The Meridian proposal is to place 176 structures each the height of a 30-storey building on the Lammermoor. The effect of those vertical structures on a horizontal landscape (the dominant vegetation is less than one metre high) will be major. We judge that the naturalness and coherence of the landscape will be completely changed by the wind farm. What is at present one very large landscape – the Eastern Central Otago Upland Landscape – will in effect be divided into three:

- a Rock and Pillars landscape;
- a wind farm landscape on half of the Lammermoor; and

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<sup>1245</sup> Transcript (2008), p. 733.

<sup>1246</sup> Transcript (2008), p. 156.



- a Taieri headwaters landscape comprising the Te Papanui Conservation Park and the Lammerlaw Range.

[738] Meridian argued that the Lammermoor site was in a landscape that was just one of many 'block mountain' ranges in Central Otago. However, that overlooks the special feature of the Eastern Central Otago Upland Landscape: that it is not simply a block-faulted range. Ranges that fit into that category are:

- the Raggedy Range;
- the North Rough Ridge;
- the Rough Ridge;
- the Rock and Pillar Range;
- the Dunstan Range.

However, the first four of those ranges each terminates at its southern end in a high plateau not cut off by any river. The eastern and higher part of that plateau is the Eastern Central Otago Upland Landscape. It is, as we have found, differentiated from the western half of the plateau (towards Alexandra) by being higher, more homogeneously covered in tussock-dominant vegetation, and less treed and weedy. The combination of geomorphology – a block range (the Lammermoor) morphing into a wider plateau (the Lammerlaw and Lammermoor ranges) – and tussock dominant vegetation distinguish this landscape even from the adjacent landscape(s) to the west. To continue along the Old Dunstan Road after leaving the Lammermoor, the traveller crosses the Taieri Valley and then climbs onto the Rough Ridge. Although the Old Dunstan Road again reaches the same height as on the Lammermoor, the landscape is significantly different: it is still treeless, but the landform is full of rock tors and the vegetation increasingly desiccated and weed dominated (despite which it may still be outstanding).

[739] Readers familiar with the South Island high country may ask why 135 km<sup>2</sup> of a landscape containing tussock grassland should be considered for protection from a change in character in these proceedings, when there are many large areas of the same species of tussock throughout the district and further north along the eastern side of the



Southern Alps. We have thought about that carefully. The difference between this and the many other areas of tussock grassland outside National Parks and Conservation Parks is that it is within a special and different flat(ish) landscape. This plateau is nearly unique: the only other in terms of topography, scale, height and vegetation is that centred on the Old Woman Range which also happens to be in Central Otago. That aside, it is the combined effect of the presence of the dominant endemic vegetation and all the other factors we identified in Chapter 4.0 that makes the Eastern Central Otago Upland Landscape so important.

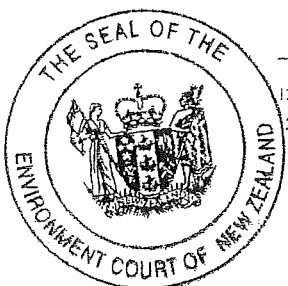
*Effects on historic heritage*

[740] We are directed by section 6(f), as a matter of national importance, to recognise and provide for the protection of historic heritage from inappropriate use and development. The history of the area we described in Chapter 2.0. In Chapter 5.0 we discussed the implications of a wind farm on the Lammermoor for the heritage that the site and the landscape contain. We found that, with some appropriate protective conditions, the archaeological artifacts of the site would be undisturbed in all but a minor degree.

[741] In relation to the claim by the appellants that the Old Dunstan Road and adjacent areas have historic heritage values, Mr Rennie submitted in closing<sup>1247</sup>:

In claiming this, the submitters do not appear to be cognisant of the Roxburgh-Three Mile Hill 220 kV power transmission line that has been constructed and that for several kilometres the transmission line is right beside Old Dunstan Road. They have also ignored the fact that Reservoir Road and a dam have been constructed and Great Moss Swamp has been flooded to create Logan Burn Reservoir; that the nature of the land cover of tussock grassland has undergone change as a result of over-sowing, fertilising and cultivation; and that the road itself has undergone very considerable changes in terms of its nature and character resulting from improvements to it over the years. They also do not address the fact that the project sits along part only of this historic route, and that large parts of the trail will be unaffected by the proposal.

[742] Mr Petchey reiterated in cross-examination what he said in his evidence, that the Old Dunstan Road is 'evocative of (the) original experience still'<sup>1248</sup> and 'is as close as



<sup>1247</sup> Mr H Rennie, closing submissions para 254 [Environment Court document 95].  
<sup>1248</sup> Transcript, p. 371.

you can reasonably get today to experiencing that long journey into the goldfields'<sup>1249</sup>. It is comparable to, but older and less engineered than, Skippers Road, being the product of an earlier period. As part of the story of the Otago goldrushes it is 'very valuable'. On the other hand he also concluded<sup>1250</sup> that the landscape will still be able to be interpreted by archaeologists and visitors, notwithstanding the visual change that will occur.

[743] Despite those matters, we found that the appearance of the Old Dunstan Road and its surface – especially the areas of bare rock – retains essential elements of its original existence and that these contribute to the heritage experience and value of the road. Resting as it does in the same landscape “that the miners of the 1860s saw ... (and of which) the overall experience (is) probably similar”<sup>1251</sup>, we concluded that the Old Dunstan Road sits within heritage surroundings that is viewed as the high plateau of the Lammermoor is traversed. We found that the upgrading of the Old Dunstan Road required for construction, and the presence of the wind farm on the landscape, will have substantial negative impacts on the heritage experience of travelling the road and of experiencing the heritage surroundings of the road. We accept that Meridian is prepared to reinstate the road to its former width and to rehabilitate the margins. But in our view that misses a substantial part of the impact on historic heritage. The value which cannot be mitigated is that the journey which the miners and other early European visitors experienced will no longer be available with anything like the same authenticity as they will gaze out across a 20 kilometre long wind farm of huge turbines.

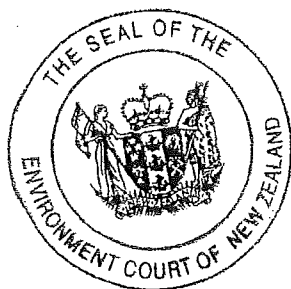
[744] We hold that the section 6(f) factor also weighs against the proposal but to a much lesser extent than the section 6(b) matter. We are very sensitive to problems of double counting here in that the substantial part of the detraction from the heritage surrounds of the Old Dunstan Road would be the wind farm which is also the major detraction from the landscape values.

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<sup>1249</sup> Transcript, p. 372.

<sup>1250</sup> Mr P R Petchey, evidence-in-chief para 5.23 [Environment Court document 5].

<sup>1251</sup> Mr P R Petchey, evidence-in-chief para 5.21 [Environment Court document 5].



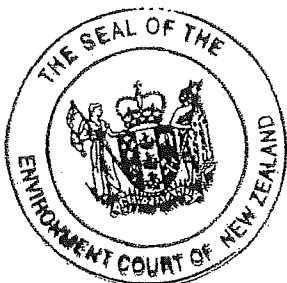
*Conclusions*

[745] The most objective way of testing whether the wind farm would be sustainable management of the Lammermoor's resources is whether it would be an efficient use of those resources under section 7(b) of the Act. On the evidence that has been presented, we find that the use of the wind resource is efficient, but consider it of at least medium likelihood that addressing the evidential deficiencies identified would lead us to conclude that a wind farm on the Lammermoor was not an efficient use and development of natural and physical resources. Further, Meridian has also failed in the backup to that, in that it has not sufficiently analysed relevant alternatives.

[746] We turn to the standard, rather more subjective, overall assessment of sustainability. We have been very careful not to be carried away with the eloquence of the wind farm's opponents. We are conscious that over time turbines in the landscape could be appreciated as positive in the same way that power lines now are. Of the latter Cilla McQueen has written<sup>1252</sup>:

...  
 North-east over trees and houses,  
 the harbour and dark blue hills  
 far and clear, pylons striding westward  
 to the power lodes of southern lakes.  
 Above us, Motupohue,  
 staunch full stop at the end of the land.

We have considered whether the opponents of the proposal are simply applying an unthinking heuristic that 'Change is bad'. But we find that despite the (often unabashed) emotivism of some of their evidence their concerns are real. They have directly raised two matters of national importance. The Lammermoor and its landscape setting are nearly unique within New Zealand. We have described how the Lammerlaw/Lammermoor/Rock and Pillar Ranges (our Eastern Central Otago Upland Landscape) form a vast high treeless plateau on the top of Otago. We find it is worthy of protection (as is the experience of the historic Old Dunstan Road that winds across



<sup>1252</sup> Ms Cilla McQueen "Kitchen Table" [[www.nzepc.auckland.ac.nz](http://www.nzepc.auckland.ac.nz)].

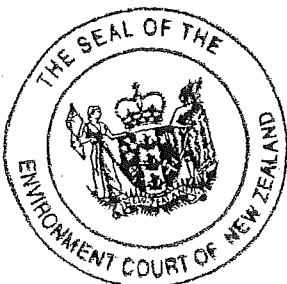


the lower Lammermoor) even against the undoubted large merits of the wind farm proposal.

[747] Meridian witnesses such as Mr Muldoon considered<sup>1253</sup> that against the 'objective' merits of the wind farm as they saw them was only a subjective assessment by the appellants and their witnesses of its alleged adverse effects on the landscape. We have two points to make about that. First we have taken the steps we have described not to be swayed by the vehemence of the opposition expressed by the appellants' members. Secondly we do not agree that the assessment of the effects of the wind farm on this particular site is a deeply subjective matter: it is still capable of being assessed reasonably. As we have tried to explain, the naturalness of landscapes is a relatively objective issue. In fact we admire all the wind farms we have seen in New Zealand both in themselves and for what they symbolise as a way of generating 'renewable' energy. None of those we have seen looks like a mistake<sup>1254</sup>.

[748] Meridian's witnesses emphasised consistently that the rural character of the site would be maintained. That is largely irrelevant under both the operative district plan and under Part 2 of the Act. Another of the features of the site that Meridian's witnesses such as Mr Brown and Mr Kyle emphasised was that the wind farm would be sufficiently remote that it would not trouble many people in their daily lives. While the residents of Linnburn Runs Road who appeared before us would complain about that, Meridian's witnesses are generally correct. Further, it is generally desirable to choose sites where complaints about adverse effects are minimised. However, where matters under section 6 of the Act are concerned care needs to be taken with that approach. If an 'out of sight, out of mind' attitude is endorsed by local authorities that may lead to a race to the mediocre, where outstanding resources are constantly having large bites taken out of them.

[749] Since the principal reasons for and against the proposal are common to the consideration under both the operative and PC5 proposed district plans we summarise them in Section 8.2 of this decision.



<sup>1253</sup> Mr A J Muldoon, evidence-in-chief para 10.10 [Environment Court document 26].

<sup>1254</sup> Although some of us might disagree about the placement of a few turbines.

[750] After adding all the matters identified (each with the weight discussed) and considering all the evidence and submissions we conclude by a majority of three to one that the scales come down on the side of refusing consent under the operative district plan because it would be inappropriate to place the huge proposed wind farm in such a nationally important natural landscape despite its very large potential contribution of energy to the National Grid.



## 8.0 Overall evaluation and outcome

### 8.1 Consent under Plan Change 5?

[751] We now have to consider whether we would grant consent to the wind farm proposal as a power generation facility under the deemed proposed plan constituted by PC5 inserted in the current district plan. The first point to note about Plan Change 5 to the Central Otago District Plan is that it proposes<sup>1255</sup> to decodify section 13 of the district plan.

[752] PC5C then proposes to amend and reorder two landscape objectives for the Rural Resource Area (which includes the Lammermoor) as follows<sup>1256</sup>:

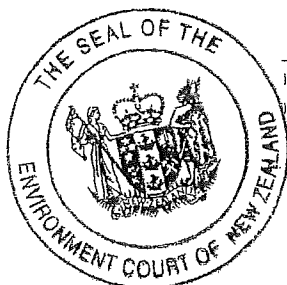
4.3.3 2 Objective – Outstanding Landscapes and Natural Features, Land Over 900 metres, and Land in the Upper Manorburn/Lake Onslow Landscape Management Area and areas of Extreme and High Sensitivity and Significant Landscape Features

To protect the Districts outstanding landscapes and natural features, land over 900 metres, and land in the Upper Manorburn/Lake Onslow Management Area (including landforms) and areas of Extreme and High sensitivity and Significant landscape features as shown on the Landscape Assessment Maps in Schedule 19.22 from the adverse effects of inappropriate subdivision, use and development.

4.3.3 3 Objective – Landscape and Amenity Values

To maintain and enhance rural amenity values created by the open space, landscape, natural character and built environment values of the District's rural environment, and to maintain the open natural character of the hills and ranges.

We are reluctant to say too much about those objectives since they may come to the Court on appeal. However, we observe that the first of those objectives appears to compound the confusion which already exists in the plan whereby outstanding natural landscapes, land over 900 metres, and land in the Upper Manorburn/Lake Onslow Management Area and (now) areas of Extreme and High Sensitivity all have the same objective: they are to be protected from the adverse effects of inappropriate



<sup>1255</sup> Plan Change 5P in PC 5 at p. 32.

<sup>1256</sup> Text to be included is double underlined and text to be deleted is struck out: PC5, pp. 6 and 7.

development, use and subdivision. We do not need to work out the consequences of that here, simply to record that it looks odd.

[753] PC5D then proposes to amend policies 4.4.1 – 4.4.6, 4.4.9 and 4.4.10 in section 4.4 of the Operative Central Otago District Plan as follows:

**4.4.6 1 Policy – Outstanding Landscapes and Natural Features, Land Over 900 metres, and Land in the Upper Manorburn/Lake Onslow Landscape Management Area and areas of Extreme and High Sensitivity and Significant Landscape Features**

To recognise the District's outstanding landscapes and natural features and land over 900 metres, and land in the Upper Manorburn/Lake Onslow Management Area and areas of Extreme and High sensitivity and Significant landscape features as shown on the Landscape Assessment Maps in Schedule 19.22 which:

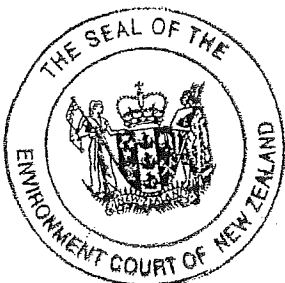
- (a) Are unique to the district, region or New Zealand; or
- (b) Are representative of a particular landform or land cover occurring in the Central Otago District or of the collective characteristics and features which give the District its particular character; or
- (c) Represent areas of cultural or historic significance in the district, region or New Zealand; or
- (d) Contain visually or scientifically outstanding geological features; or
- (e) Have characteristics of cultural, historical and spiritual value that are significant to Kai Tahu ki Otago;
- (f) Have high natural character values and high landscape quality that can be distinguished from the general landscapes of the Central Otago District

and provide protection for them from inappropriate subdivision, use and development.

**4.4.1 2 Policy – Landscape and Amenity Values**

To manage the effects of land use activities and subdivision to ensure that adverse effects on the open space, landscape, natural character and amenity values of the rural environment are avoided, remedied or mitigated through:

- (a) The design and location of structures and works, particularly in respect of the open natural character of hills and ranges, skylines, ridgelines, prominent places and natural features,
- (d) Development which is compatible with the surrounding environment including the amenity values of adjoining properties,
- (c) The ability to adequately dispose of effluent on site,
- (d) Controlling the generation of noise in back country areas,

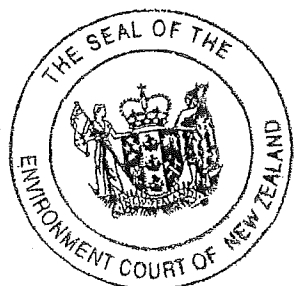


- (e) The location of tree planting, particularly in respect of landscape values, natural features and ecological values,
- (f) Controlling the spread of wilding trees.
- (g) Encouraging the location of buildings in valley floors rather than on hillsides to maintain the open natural character of hills and ranges.

[754] Those policies squarely bring in the evidence as to landscape quality we discussed in Chapter 7.0. In particular the new (double underlined) policies are relevant:

- the Meridian site is in an area of “high sensitivity” which has high natural character values and landscape quality that distinguish it from the general landscapes of the Central Otago District in that it is (literally) high and it is predominantly in tussock rather than in weeds or exotic grasses;
- the wind turbines are not placed so as to avoid adverse effects on the open natural character of the Lammermoor Range.

[755] For Meridian, its consultant planner, Mr John Kyle, considered the application of the Rural Resource objectives and policies to the proposal (albeit not in the context of a proposed district plan including PC5). In his evidence he wrote<sup>1257</sup> that Meridian’s mitigation measures “... will ensure that an appropriate level of environmental quality and amenity is maintained. This is consistent with the rural objectives and policy matters ... The wind turbines will be a new element in the landscape, however they will not significantly change its overall rural character ...”. We have difficulties with each of those three sentences. First ‘maintaining environmental quality’ (relevantly) is an oversimplification of the objectives requiring ‘maintenance and enhancement of open space, landscape, natural character ... values of the ... rural environment’. Secondly the test is not whether the application is “consistent” with the objectives and policies but whether they are achieved. Thirdly it is completely inadequate as an assessment of whether the site above 900 metres is protected to say its rural character is not significantly changed. The relevant character is the natural character. Mr Kyle has adopted the same diminishing technique as Mr Rough did, when he wrote (here and



<sup>1257</sup> Mr J Kyle, evidence-in-chief para 5.24 [Environment Court document 61].

elsewhere) of the rural character rather than about the natural character which is at least to be maintained and enhanced under the (deemed) proposed plan.

[756] While we recognise that the Meridian proposal will assist communities both inside and outside the district to provide<sup>1258</sup> for their wellbeing, we consider that the landscape and natural character values of the District's rural environment are not maintained or enhanced<sup>1259</sup>. Rather we find that about 95 km<sup>2</sup> will lose those values to a considerable extent. Similarly, we consider the proposal is so large it is inappropriate<sup>1260</sup> on land above 900 metres which is also part of an outstanding natural landscape (even if not recognised as such by the operative or proposed district plan). Nor is the open natural character of the Lammermoor Range maintained as required by the PC5 amendment to objective 4.3.3. We accept that objectives as to recreation and water resources are achieved, but we consider there is at least a medium likelihood that the life-supporting capacity of the soils of the site will not be maintained<sup>1261</sup> and that significant habitats of native lizards and invertebrates may not be protected<sup>1262</sup>. For those and the further reasons discussed in Chapter 7.0 relating to Part 2 of the Act we consider the wind farm proposal is inappropriate both under the proposed district plan (PC5) and under Part 2 of the Act.

## 8.2 Outcome

### 8.2.1 Summary on the application for a power generation facility (land use)

[757] After weighing all the relevant matters identified in earlier chapters, we judge that the Meridian project is inappropriate in the outstanding natural landscape of the Eastern Central Otago Upland Landscape and does not achieve sustainable management of the Lammermoor's resources in terms of section 5 of the Act. That is principally because the nationally important positive factors of enabling economic and social welfare by providing a very large quantity of renewable energy are outweighed by the most important adverse consequences, that:

<sup>1258</sup> Objective 4.3.1 [CODP p. 4:7].  
<sup>1259</sup> Objective 4.3.2 [CODP p. 4:7].  
<sup>1260</sup> Objective 4.3.3 [CODP p. 4:7].  
<sup>1261</sup> Objective 4.3.7 [CODP p. 4:8].  
<sup>1262</sup> Objective 4.3.8 [CODP p. 4:8].



- (1) a wind farm with a site envelope of about 135 km<sup>2</sup> with 176 turbines each up to 160 metres high spread over a length of over 20 kilometres must on most objective measures have a substantial impact on the outstanding natural landscape of the Lammermoor and the heritage surroundings of the Old Dunstan Road across it. We have found it is likely to create its own wind farm landscape, which will be within 17 kilometres of, and sometimes visible with, another (approved) wind farm (Mahinerangi);
- (2) the Eastern Central Otago Upland Landscape is one of the very few places in New Zealand where citizens can experience a wide, high peneplain under a big sky (a relatively common experience in Australia and on other continents) in a highly natural and near endemic environment that also contains a heritage trail;
- (3) wind farms are in their comparative youth in New Zealand and there may still be many potential sites which are not located in outstanding natural landscapes. We consider that it would be preferable for current wellbeing and for future generations and would give effect to the RPS if other sites were to be investigated more fully first. In the regional context it would also be preferable for the communities of Otago if sites which have a resource consent and do not affect section 6 values were implemented first – especially the Mahinerangi site;
- (4) the Meridian site is nearly surrounded by the public land we identified in Chapter 2.0, especially the Rock and Pillar Conservation Park and its recent extensions, the Logan Burn Reservoir, Te Papanui and the various Taieri River reserves, so the effect of the wind farm on landscape and amenities is even more important than it would have been if surrounded by private land;
- (5) As we have analysed in detail Meridian, the Central Otago District Council, and the Crown failed to put full evidence before the Court in respect of the efficient use of all the relevant natural and physical resources of the Lammermoor. Such an examination not only of all the benefits of the proposal (which we did receive) but also of all the costs would have further increased the objectivity of this decision, as would have an analysis of the likely benefits and costs of reasonable alternatives to the Meridian proposal.



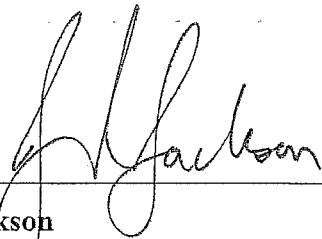
[758] Since we have judged that land use consents for a wind farm on the Lammermoor as proposed by Meridian should be refused under both the operative and proposed district plans there is no need to decide which plan should be given more weight.

#### 8.2.2 Otago Regional Council land use consents

[759] As a consequence of that judgement we hold that the various consents and permits sought from the ORC should be refused as unnecessary.

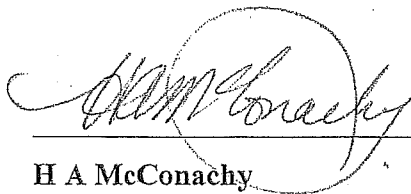
#### 8.2.3 Costs

[760] Costs should be reserved. Any application may be made within 30 days of any appeal period expiring (or after appeals are exhausted). However, our current view is that costs should lie where they fall.



J R Jackson

Environment Judge



H A McConachy

Environment Commissioner



K D F Fletcher

Deputy Environment Commissioner





**DISSENTING JUDGMENT OF COMMISSIONER SUTHERLAND**

[761] I agree with and contributed to the writing of the majority decision except for a few matters which include the outcome.

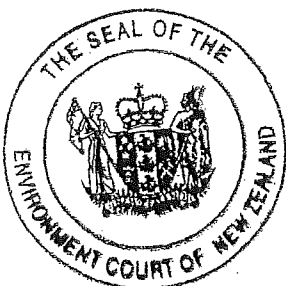
[762] The decision the Court had to make was principally a subjective one in which unquantified and unquantifiable benefits and costs played a significant role. I agree with the majority that in this regard Meridian's section 7(b) analysis is inadequate. That is disappointing because as a result the subjectivity of the decision was increased.

[763] While acknowledging this inadequacy, it is my view that the differences between both the quantifiable one-off benefits and the quantifiable on-going benefits and the corresponding costs as detailed in Chapter 6.0 of the majority decision are such as to be in Meridian's favour. Placing this alongside all the other matters identified for consideration by the Court, properly weighting each and then adding up as pluses and minuses, I come down on the side of Meridian's proposal, albeit by a small margin.

[764] I would therefore grant all the consents sought (on amended conditions) if I commanded a majority.

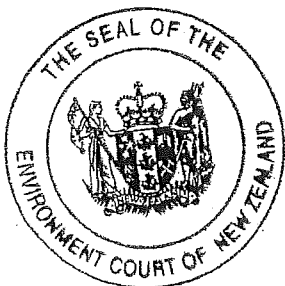
  
A J Sutherland

Environment Commissioner



**List of attachments:**

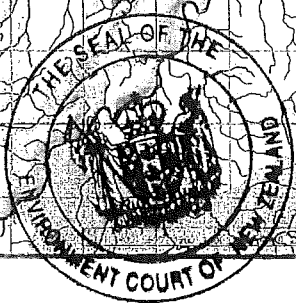
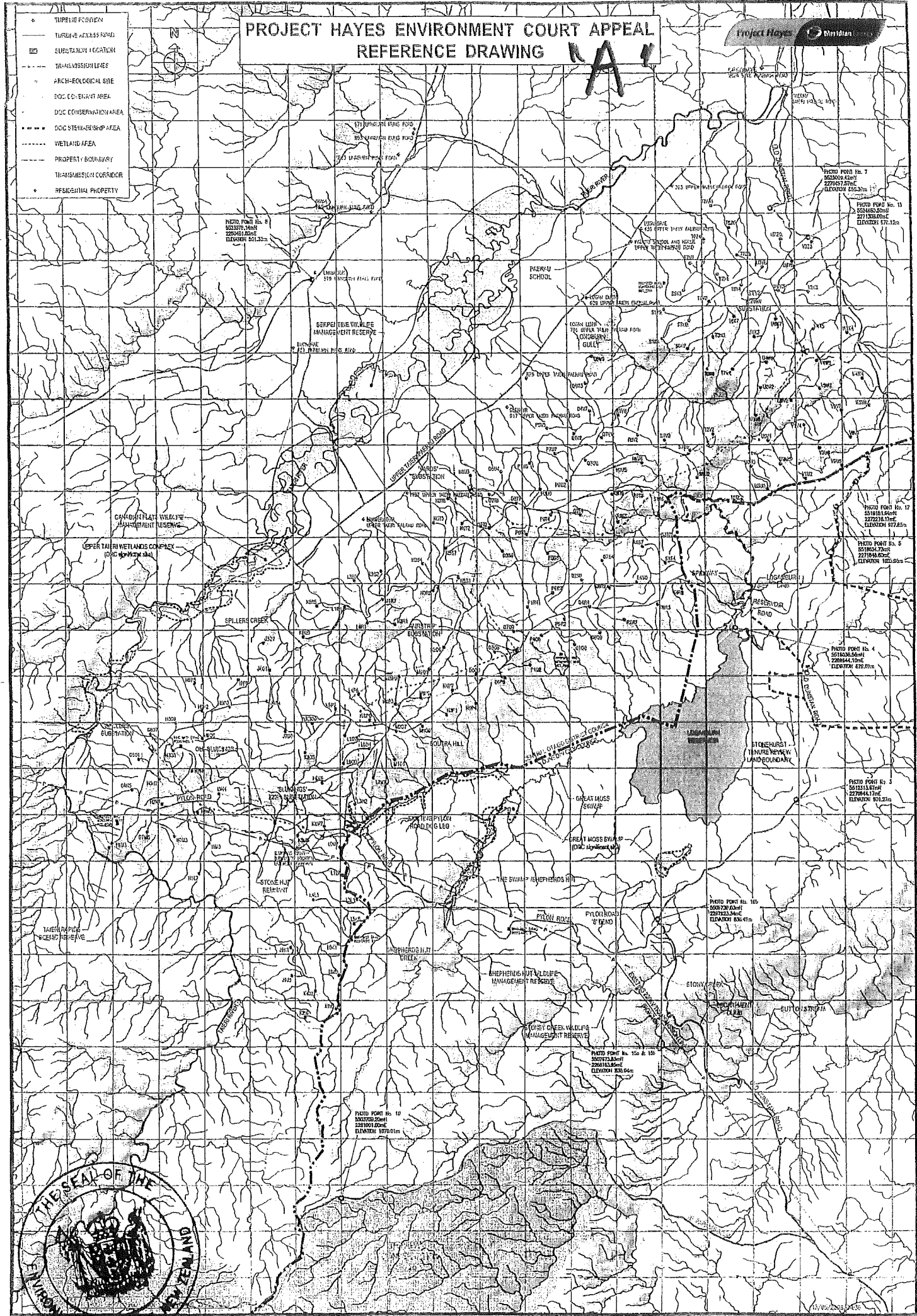
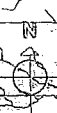
- A Application site map
- B Wind map [J C Gleadow App A affidavit 13.8.08]
- C Planning Map 70



# PROJECT HAYES ENVIRONMENT COURT APPEAL REFERENCE DRAWING



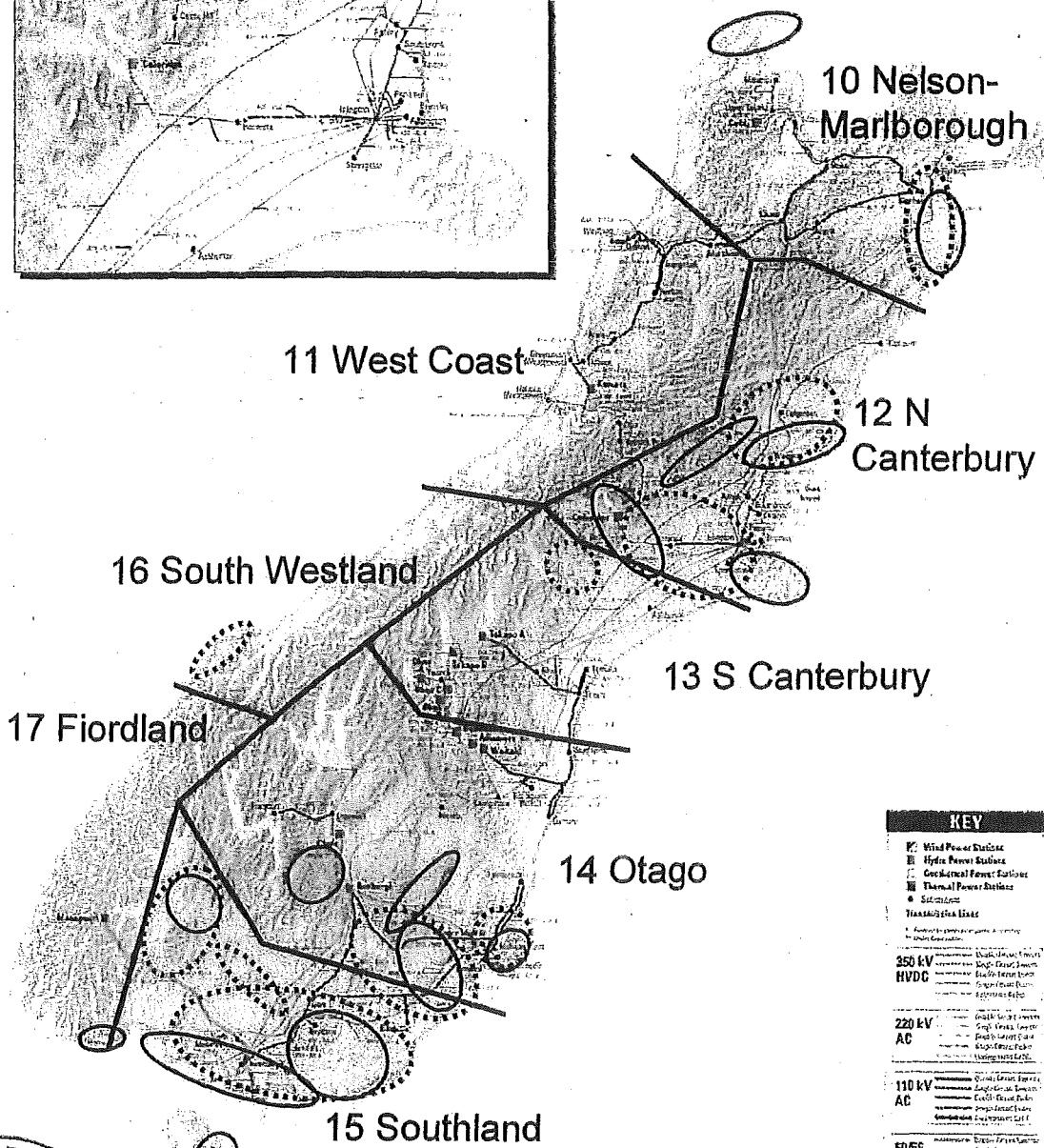
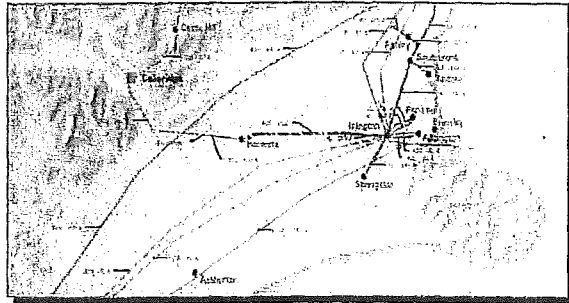
- TURBINE POSITION
- TURBINE ACCESS ROAD
- TRANSMISSION LOCATION
- TRANSMISSION LINES
- ARCH-ECOLOGICAL SITE
- DOC CO-OWNED AREA
- DOC CONSERVATION AREA
- DOC STEWARDSHIP AREA
- WETLAND AREA
- PROPERTY BOUNDARY
- TRANSMISSION CORRIDOR
- RESIDENTIAL PROPERTY



"B"

Geographic Regions and main wind resource zones – South Island

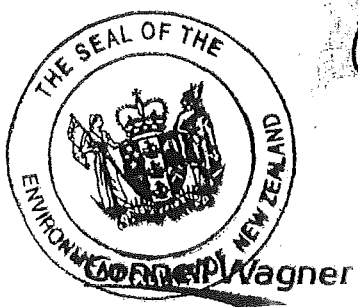
**TRANSPower**  
TRANSPower TRANSMISSION NETWORK : SOUTH ISLAND



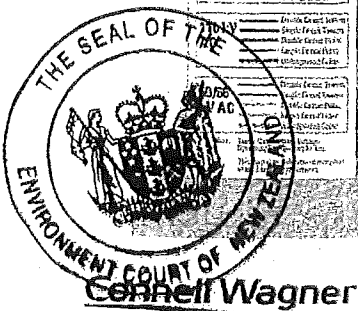
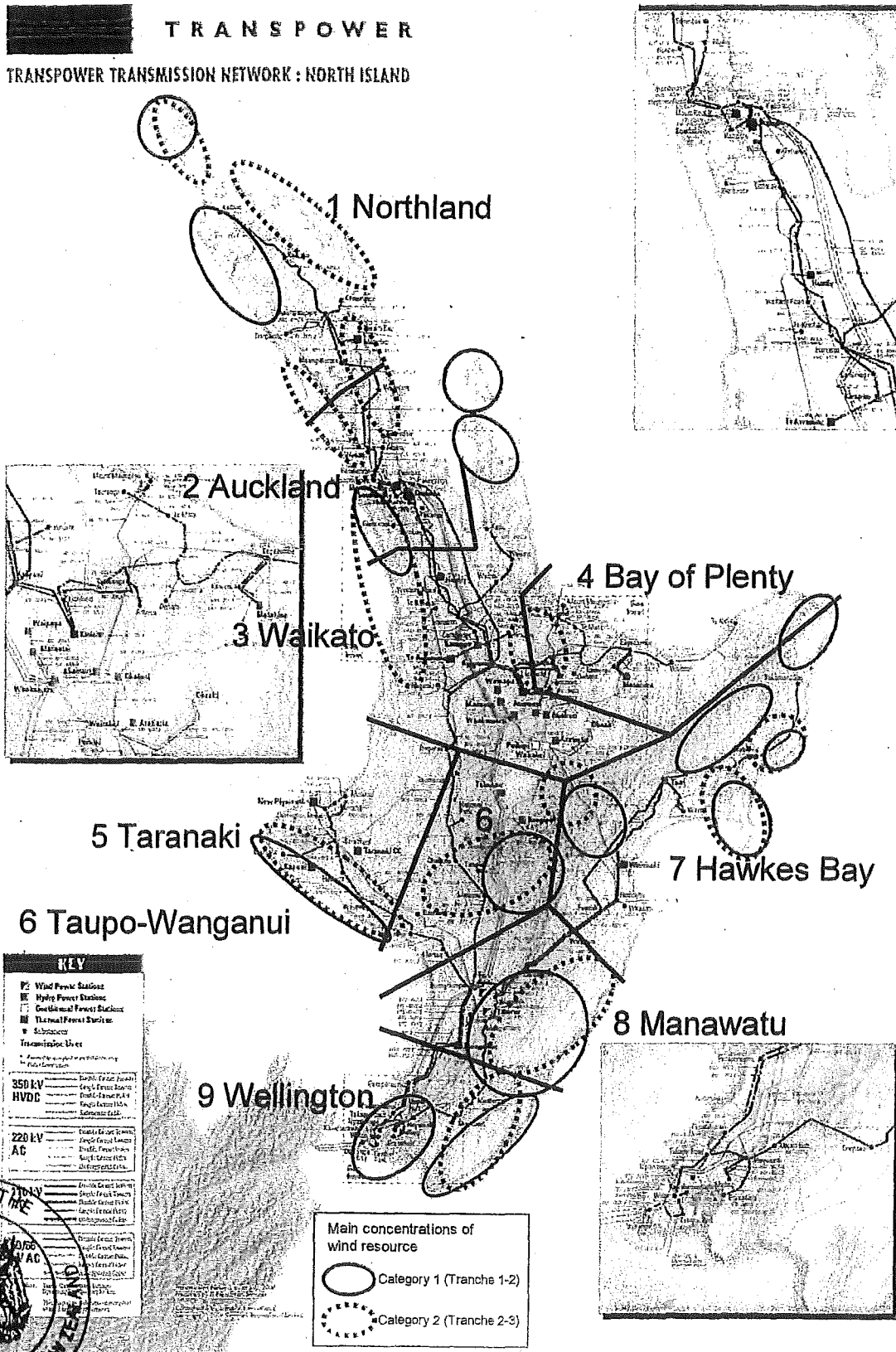
KEY	
	Wind Power Station
	Hydro Power Station
	Geothermal Power Station
	Thermal Power Station
	Substation
Transmission Lines	
	350 kV HVDC
	220 kV AC
	110 kV AC
	50/66 kV AC

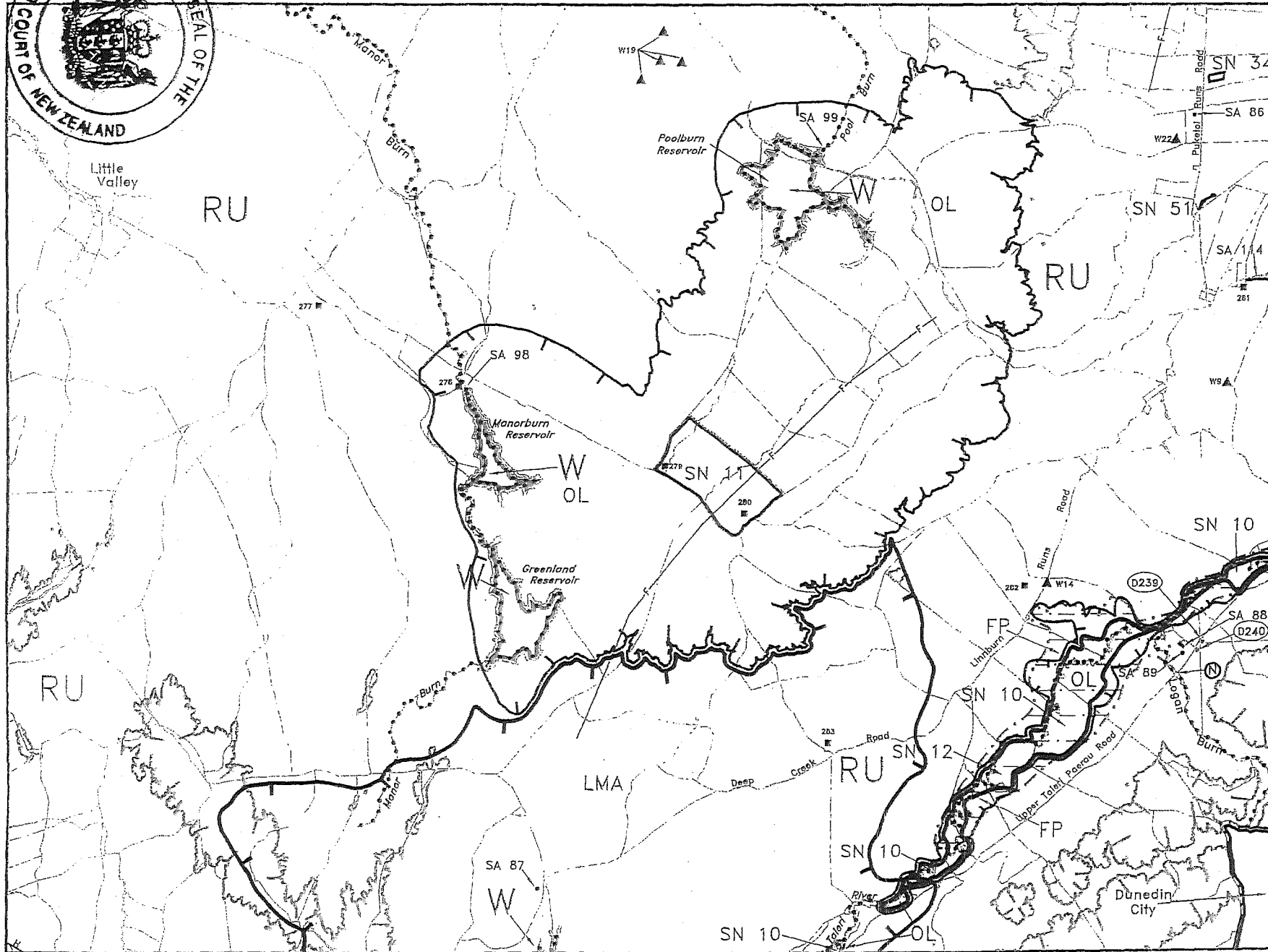
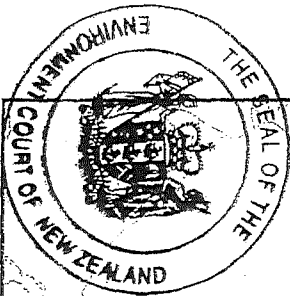
Main concentrations of wind resource

- Category 1 (Tranche 1-2)
- Category 2 (Tranche 2-3)



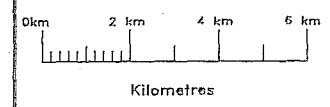
Geographic Regions and main wind resource zones – North Island





LOCATION  CENTRAL OTAGO DISTRICT	ADJOINING MAPS			
	56	57	58	59
	61	70	71	
	62		72	

Scale 1:120,000  
( at A3 )



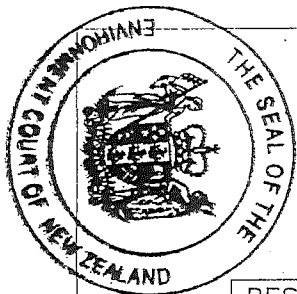
Northpoint Vertical

See LEGEND for key to map notations

Publicly Notified : 18 July 1998  
 Amended by Decisions : 1 July 2000  
 Operative Date : 1 April 2008





CENTRAL OTAGO DISTRICT PLAN

MAP 70


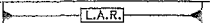
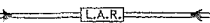
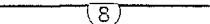
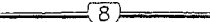


# Central Otago District Planning Maps LEGEND


## RESOURCE AREAS

-  Rural Resource Area
-  Residential Resource Area
-  Business Resource Area
-  Industrial Resource Area
-  Rural Settlements Resource Area
-  Water Surface and Margin Resource Area

## DESIGNATIONS










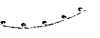

-  Designation ( Schedule 19.2 )
-  Limited Access Road (Urban Map)
-  Limited Access Road (Rural Map)
-  State Highway ( Urban Map )
-  State Highway ( Rural Map )

## SCHEDULED ACTIVITIES








-  Scheduled Activities ( Schedule 19.3 )

- NOTES
- All legal roads are deemed to be designated.
  - All designated land subject to underlying Resource Area provisions that apply where such land is to be used for a purpose other than the designated purpose.
  - Surface of any waterbody deemed to be in Water Surface and Margin Resource Area.
  - Cadastral information correct as at 1 December 2007
  - Size of symbols as shown in Legend may vary when shown on Planning Maps.
  - Cadastral information from Land Information New Zealand [LINZ] CROWN COPYRIGHT RESERVED with regard to Cadastral Information.






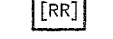
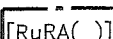
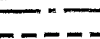









## HERITAGE VALUES

-  Heritage Precinct
-  Heritage Building, Place, Site or Object ( Schedule 19.4 )
-  Notable Tree ( Schedule 19.4 )
-  Historic Reserve ( Schedule 19.10 )
-  Area of Significant Natural Value ( Schedule 19.6.1 )
-  Additional Wetlands ( Schedule 19.6A )
-  Area of Outstanding Landscape Value ( Schedule 19.6.2 )
-  Land over 900 metres
-  Upper Manorburn / Lake Onslow Landscape Management Area
-  Esplanade Provision ( Schedule 19.9 )
-  Nohoanga ( Traditional Camping )

## HAZARDS

-  Flood prone land ( Schedule 19.11 )
-  Mined Area (Urban Maps)
-  Mined Area (Rural Maps)
-  Active Geological Fault
-  Filled Area (Including closed Landfills)
-  Area of Subsidence or Slippage
-  High Voltage Lines ( See Rule 4.7.6 A (g) )

## OTHER NOTATIONS

-  District Boundary
-  Resource Area Boundary ( Where distinction required )
-  Resource Area Boundary underlying a Designation
-  Area subject to enlarged Planning Map
-  Rural Residential ( See Rule 4.7.2 (ii) )
-  Rural Resource Area (1)-(3) ( See Rule 4.7.2 (ii) & (ia) )
-  Residential Resource Area (1)-(11) ( See Rule 7.3.3 (i)(c) )
-  Business Resource Area (1) ( See Rule 8.3.5 (i) )
-  Residential Resource Area ( See Rule 7.3.6(iii)(f)(2) - Sloping Sites )
-  Airport Protection Zone ( See Rule 4.7.6 A (i) )
-  Proposed Road Alignment
-  Actual position of formed road ( For information purposes only )
-  Road to be Stopped
-  Building Line Restriction
-  Verandah Required ( See Rule 8.3.6(iii) )
-  Building Facades ( See Rule 8.3.2 (i) )
-  Bridge

Decision No: C///97

IN THE MATTER of the Resource Management  
Act 1991

AND

IN THE MATTER of two references under  
clause 14 of the First Schedule  
to the Act

BETWEEN MARLBOROUGH RIDGE  
LIMITED

Appeals : RMA 449/96 and  
602/97

Referrer

AND

MARLBOROUGH DISTRICT  
COUNCIL

Respondent

BEFORE THE ENVIRONMENT COURT

Environment Judge J.R. Jackson (presiding)  
Ms J. Rowan  
Mr J.R. Dart

HEARING at BLENHEIM on 21, 22 and 23 July 1997

COUNSEL

Messrs A. Hearn QC, R.D. Crosby and M. Hunt for referrer  
Mr B. Dwyer for respondent

INTERIM DECISION

0. *Synopsis*

1. *Introduction*
2. *The Tourist Development (Marlborough Ridge) Resort*





3. *The Evidence*
4. *Section 74 : The relationship between the matters to be considered*
5. *Part II of the Act*
6. *Section 32*
7. *Application of section 74 in this case*
8. *Determination*

1. *Introduction*

The “Marlborough Ridge” is the eponymous referrer’s name for an outlier ridge running north-north-east from the Wither Hills and protruding into the broad plain of the Wairau Valley approximately five kilometres from Blenheim. The north-eastern toe of the ridge is a small pine-covered knoll two kilometres directly south of the Woodbourne Airfield. Closer to, the ridge is surrounded by vineyards (with famous names such as “Brancott” and “Fairhall”) to the west and north, and by a golf course and farmland to the east along Paynters Road. To the south the ridge runs up into the Wither Hills against a starkly handsome backdrop of higher hills and receding small mountains.

The referrer (called “the appellant”) owns the eastern half of the ridge to a few metres short of a high point (and trig) called Goulter Hill which is 116 m above sea level. The land proposed to be covered by the zone as notified contained 102.3694 ha. Its legal description was Part Lot 2 DP 570 Marlborough Land Registry). The appellant wished to build an ‘integrated’ resort on the land. In September 1995 it made a request to the Marlborough District Council (called “the Council”) for a plan change whereby the zoning of the land was changed from Rural 1 under the transitional district plan to a special zone (with specific rules) to be called “the Tourist Development (Marlborough Ridge Resort) Zone” (called the “TD zone”) in the transitional district plan. This request was approved by the Council and plan change 40 (“the plan change”) to give effect to it was notified.



The concept of the plan change was to allow a resort hotel to be built on the north-eastern toe of the ridge and to subdivide and develop the rest of the land in two stages. The first stage, on the lower end of the land and in a rough semicircle around the eastern and southern sides of the hotel, was to be a “cluster of hamlets” each containing a group of houses. The second stage was to be subdivision and development for “rural-residential” purposes of the balance of the land further south-west along the ridge.

The Council adopted the plan change (subject to some amendments) in part on 24 May 1996 as an “interim” decision (the subject of the first reference) and essentially the same decision as a final decision on 26 July 1996 (the subject of the second reference). We say “in part” because while the Council approved the TD zone and its rules for land to be covered by the hotel, and most of the original Stage 1 residential development, (together called “the approved Stage I”) it refused to approve the plan for the rest of the land. It is the southern one-half (by distance, not area) of the land containing about 40ha (called “the site”) which is the subject of the reference under the Resource Management Act 1991 (“the RMA”) in this case: the appellant wishes the plan change introducing the TD zone to apply to this site. The Council opposes that. No other person appeared at the hearing either in support or opposition to the proposal.

There are three uncontested aspects of the matter. The first is that the site, if rezoned and subdivided, would provide sections with spectacular views across the Wairau plains in all directions, but especially out towards Cloudy Bay, beyond which the North Island can be plainly seen. Secondly, there is no issue as to provision of services to the site if subdivided since all those costs have been internalised: the appellant has agreed to install and pay for them. Thirdly, the development has already started to the extent allowed by the Council decision. We now set out briefly how that came about.



The plan change is deemed to have been amended by the Council's decision on the date that the Council gave public notice of its decision [RMA First Schedule clause 10(3)]. We were not given that date but assume it was about 26 July 1996. But thereafter the process for plan change 40 became decidedly complicated. The usual procedure of course is that if there is a reference to the Environment Court under clause 14 of the First Schedule then the plan (change) does not become operative.

However, clause 17(2) provides that a local authority may, with the consent of the Environment Court, approve part of a plan (change) if all submissions or appeals relating to that part have been disposed of. In this case the parties apparently took the view that "part" of the plan change had been disposed of viz

- the wording of the plan change was agreed and
- there was no dispute that the plan change should apply to "the approved Stage I".

The Council formally applied to the Court for approval under clause 7(2) and on 21 February 1997 Judge Kenderdine made an order in these proceedings in these terms (called "the clause 17 consent"):

*"The part of the Tourist Development (Marlborough Ridge Resort) Zone attached to this order marked Appendix A has not been subject to any appeals as to the extent to which it has been approved by the Marlborough District Council. Accordingly, to that extent, it is approved in part and may be made operative by the Marlborough District Council with the consent of this Court.*



*An appeal to the Environment Court (RMA 602/96) remains outstanding by the zone requester, Marlborough Ridge Limited, seeking an extension of the area to be incorporated within the Tourist Development (Marlborough Ridge Resort) Zone. The Zone Statement, Concept Plans and Rules are notated where the appeal may lead to them being increased in terms of boundaries, if that appeal is allowed.” (our emphasis)*

The notations in plan change 40 (as consented to by the Court) are important because they suggest that the transitional district plan, although approved by the Council under clause 17, can still be amended by subsequently changing, inter alia, the number of sections and the concept plan. We have some doubts about the legality of that, and in the event that this appeal is successful, we would need to hear further submissions as to how to give effect to the rezoning of the site.

## **2. The Tourist Development (Marlborough Ridge Resort) zone**

2.1 It needs to be borne in mind that although we refer throughout this decision to the “plan change”, that is for convenience only, because the plan change is now part of the transitional district plan as a result of the clause 17 consent. Because the proposal is that the site join the TD zone we need to set out the relevant objectives and policies of the zone. As we do so we will identify matters which may need to be amended if the appeal is successful.

2.2 The TD zone statement explains that:

*“The zone is formulated to accommodate tourist development which can build upon, and enhance recreational, cultural and commercial opportunities in the region. It adjoins a golf club, and will provide a considerable range of outdoor and indoor sporting and recreational opportunities. It will include viticultural activity and other rural based*



*attractions. The zone is well located close to the airport, to Blenheim and to major tourist attractions and clear of land of high value for food production. In addition, the zone will provide for opportunities to live in a rural environment in a variety of property sizes and thus remove pressure from more valuable productive land" [plan change p.1] (our emphasis).*

Further on, it enlarges on the theme of residential development which is of course the important aspect of the TD zone for this appeal:

*"There is a continuing demand for people to live or to have a holiday home in a non-urban environment close to recreation and amenity space and within reasonable commuting distance. This zone provides an opportunity to accommodate demand for low density residential development in a sensitive manner and at the same time preserving natural habitats and visual amenity, and high value productive land.*

*The zone provides for rural-residential activities and subdivisions for small rural lots with an average area of approximately one hectare, although no land has been zoned specifically for these purposes." [p.1 - From here all unascrbed page references in Part 2 of this decision are to the plan change as approved by the Council in its decision].*

2.3 Given that background and while the principal objectives deal with the proposed resort, one of the objectives of the TD zone is:

*"To provide for limited comprehensive and co-ordinated medium to low density residential development to give a variety of residential and rural opportunities, lifestyle options and land uses." [Plan Change, Objective 1.2 (p.2)]*



We note that the explanation of that objective has been restated by the Council as a result of its decision so that it now explains that:

*“The scale of the development will be limited to a maximum of 103 household units and 20 self contained units associated with the resort (in addition to the hotel development) to ensure that the zone remains in scale with its rural surroundings.” (p.2)*

This was not in the original Plan Change as notified. Because it is now in the operative transitional district plan, (but subject to a ‘notation’ “Number of units affected by RMA 602/96”) if this appeal is successful as to the rezoning, that explanation will no longer be accurate. It may be that a second “TD zone” will be necessary for the appeal site.

Another objective of the TD zone is:

*“To ensure that all development is carried out in a comprehensive manner in terms of an appropriate and agreed strategy” [1.4 Objective, p.2].*

The explanation of this objective then states:

*“In order to facilitate the orderly staged development within the zone, development will be in accordance with an overall and comprehensive development concept which recognises the character and amenities of the zone and the area within which it is located and provides for a staged programme of development of residences, hotel and landscaping. The philosophy outlined within the Concept Plan provides for and enhances the amenities of the area and ameliorates any adverse effects of development.” (p.3)*



So if the appeal site is to be developed in accordance with the plan change a “concept plan” is necessary, and it should outline a landscaping philosophy.

More specifically, targeted towards residential development there is an objective:

*“To ensure that buildings and other structures erected within the Tourist Development Zone are appropriate to the area in which they are located, with regard to external appearance, design and colour.” [1.5 Objective (p.3)]*

The explanation then states:

*“Three types of homes have been provided for to cater for the permanent or semi-permanent resident and resort visitor:*

- (i) Dwellings arranged in clusters within maximum specified densities.*
- (ii) Dwelling units in duplex or single configuration, single or two storeyed, with private driveway and garage facilities and private courtyard areas.*
- (iii) Rural dwellings on sites of approximately 1 hectare in areas specified.” (p.3)*

The explanation of that objective continues with its plan - again notated - as to location and design:



*“Location of Dwellings*

*Areas appropriate for the location of residences are shown on the Concept Plan. No dwellings will be permitted outside of these areas, unless otherwise approved by the Council.*

*Covenants and Controls*

*All buildings within each particular residential area will follow a unified design theme based on the pitched roofed form and they will be sited to ensure each has a view and is closely related to the rural environment. Tree planting to integrate these buildings into their landscape setting is to be undertaken in advance of building construction. Building design will be controlled by the developer through covenants to ensure a high standard of development.” (p.4)*

The sensitivity (or “reverse sensitivity”) of the surrounding rural activities is recognised, and it is an objective of the plan change:

*“To recognise the establishment and management of activities in the zone, in that the zone is located within a rural environment, and that there are legitimate rural activities which should not thereby be restricted.” [1.8 Objective (p.5)]*

2.4 Turning to the rules we consider the following are relevant.

(1) The relevant permitted activities are described in this way:

*“The following activities are listed as permitted within the zone, provided that they conform with the Concept Plan and the development staging*





*prescribed in Rule 2.5.1 for the Tourist Development Zone and the permitted activity standards specified:*

- (a) *Single unit dwellings (1 per lot) in residential and rural residential areas defined in the Concept Plan, provided that they are constructed in accordance with the staging prescribed in the Concept Plan and Rule 2.5.1 ... ” [Rule 2.1 (p.5)]*

The concept plan is clearly of some importance, yet no satisfactory plan was produced to us. Further the notation in the approved plan change states:

*“Boundaries of concept plan subject to appeal RMA 602/96”.*

This cannot mean that we are restricted on this appeal to consider only the boundaries shown in the concept plan. But if not, how are any other amendments to the concept plan to be given effect to?

- (2) Another potential difficulty arises out of a rule [Rule 2.4 (p.8)] which makes all activities not defined as permitted, controlled or limited discretionary activities into non-complying activities. Consequently, there is some inconsistency between the rules and the explanation to objective 1.5 which contemplated “clusters” and dwelling units in duplex configurations, yet since they are not permitted activities, they appear to be non-complying.
- (3) Subdivision is a controlled activity (but again only for “single unit dwellings”) and the relevant rule gives a list of matters for the Council to consider on any subsequent application for subdivision under the TD zone rules. These are:



*“•The topography of the site, its vegetative cover, slope stability, gully erosion and the opportunity to minimise the impacts of any buildings or structures.*

- *Any effects on existing vegetation or trees.*
- *Proposals to integrate such buildings and structures into their landscape setting.*
- *The appropriateness of materials used in construction and other structures to the locality, taking into account the design criteria set out in Rule 2.5.7.” [Rule 2.2 (p.7)]*

This rule is significant for us in assessing whether the rules of the plan change will be adequate (on any application for subdivision of the site) to protect the amenities values of the surrounding area.

(4) There are some limited discretionary activities, including:

*“(b) Subdivisions which will provide lots of less than one hectare in the Rural Residential Areas, providing that Council restricts the exercise of its discretion to the location and size of the lots.*

*(c) Any subdivision or building development which is not in accordance with specified staging programme, as described in 2.5.1*

*The Council restricts the exercise of its discretion to the staging of subdivision and development.” [Rule 2.3 (p.7)]*



There may be concerns here also in respect of (to anticipate) protecting landscape amenities, because by limiting its discretion in this way the Council cannot consider, and if necessary impose conditions dealing with the matters listed in rule 2.2 for controlled activities - see (3) above.

- (5) Rule 2.5.2 as to landscaping is important. It provides:

*“A landscaping Concept Plan is included as part of the zone’s provisions. This zone landscaping will be undertaken as part of the zone development in association with roading and services development. Individual site planting does not form part of this and will be undertaken by the site owners. The zone landscaping shall be undertaken in accordance with layout and residential staging shown in the Concept Plan, and shall be completed prior to the issue, by Council, of a completion certificate under s.224(c) of the Resource Management Act for the subdivision of each stage.” [Plan Change p.8]*

Its importance is enhanced by the earlier references to a “concept plan”. Under the existing transitional district plan (as amended by the consent order adding the TD zone) the “concept plan” and the landscape plan for the hotel and Stage I of the subdivision are already set out. As we have said a mechanism may need to be found to substitute a larger replacement concept plan covering the site as well, especially if we find that the appeal should succeed but we accept Mr Hearn’s invitation to request an amended concept plan.

- (6) Rule 2.5.3 (the third “permitted activity” standard) relates to subdivision (a controlled activity). It appears to provide certain



standards but how they relate to the controlled activity standards and therefore whether they are unenforceable is uncertain.

- (7) Rule 2.5.6 is another important “permitted activity” standard - it relates to open space on the site. It states:

*“All subdivisions shall be planned, designed, constructed and maintained in accordance with the Concept Plan and prescribed standards. The specification of building site separation will provide great flexibility in the location of boundaries and in individual lot sizes. There will be many opportunities for the establishment of common open space or public open space systems, especially where opportunities are taken to group building sites. The common open space may include such areas as natural resource areas, recreation areas and farmed areas. The subdivision shall indicate the means that will be used to assure the proper permanent administration and maintenance of the common open space. Such means may include:*

- Vesting of open space in the Council if the Council is willing to accept such vesting.*
- The provisions of easements, covenants and deed restrictions binding on all purchasers of lots in the subdivision.*
- The creation of a homeowners' association or other appropriate entity to which such common open space land shall be conveyed and which will have an ample source of funds, such as annual assessments on lot owners that are liens on such lots to maintain such open space.*



- *Any other means approved by the Council that will accomplish the requirements of this rule.*” [Rule 2.5.6 (p.10)]

While we encourage the methods suggested by this rule we consider it sits uneasily in the rules, because the methods it suggests are not in fact rules [c.f. sections 32(1) and 74(1)(d)].

### 3. The Evidence

We were given the written evidence of ten witnesses for the appellant. Much of it related to the overall concept of the zone and the value of the hotel/conference centre to the Marlborough region, rather than to the specific site subject to the references. The wider evidence was useful to have as background, and indeed Mr Hearn argued that it was relevant because the hotel and conference centre depends on subdivision of the appeal site both to assist the appellants to finance the resort, and also to provide a larger customer base (in the form of residents on the appeal site) for the shops and other facilities at the resort once it is operating.

Evidence of the benefits and costs of developing Marlborough Ridge was given by Mr R.P. Donnelly, a self-employed economic consultant. His evidence, while of the kind to be encouraged because it assists the Court with its assessment under section 32 RMA, was rather misdirected in that it referred to the benefits and costs of the Marlborough Ridge development as a whole (i.e. both the site and the approved Stage 1 resort and residential development) and compared those with the benefits and costs of ‘leaving’ all the land under farming use. So while the detail of his evidence established that there were synergies by allowing fuller development of Marlborough Ridge, it was not specific enough to show what the benefits and costs of developing the site would be.



However parts of Mr Donnelly's evidence are of some use and we return to them later.

Mr J. Hudson, a landscape architect with 17 years experience, for the appellants produced a "concept plan" for the appeal site (and surrounds). He believed that with appropriate landscaping, especially by tree-planting, the amenities of the surrounding countryside could be protected. In cross-examination, Mr Dwyer for the Council asked Mr Hudson whether the development proposed for the site would not be integrated into the landscape but instead a ribbon of houses along the ridge. Mr Hudson's answer was that the ridge as a landform dictates a stop, and that it would be artificial to stop development halfway along it. He qualified that by saying that landscape conditions would need to be imposed. We agree with that assessment.

However, we do not believe that Mr Hudson's concept plan tacked on, as it appears to be, to the surveyor's unimaginative two-dimensional design, is adequate to satisfy the requirements of the plan change as to landscaping. If the appeal succeeds it would have to be on terms as to the filing of a new concept plan.

Finally for the appellant, Mr R. Stroud, a planner, gave evidence as to the desirability of the plan change in respect of the appeal site. He could see no reason to exclude the appeal site from the TD zone. One of the most significant parts of Mr Stroud's evidence was when he said that he had concerns with the concept that development on a ridgetop is inherently bad. To show us that was not so, he produced three photographs of hilltop development in southern Europe. One was of old villas interspersed with Lombardy poplars along a ridgetop road in Tuscany with a foreground of pasture. The second was of a Tuscan hilltop town (unidentified) with campaniles and other buildings clustered along the skyline. The third was of a similar hilltop town in Provence. We accept that it is



easy to be seduced by touristic photographs, but nevertheless we think Mr Stroud's point is well made that development on a low ridge such as this - set as it is against a backdrop of much higher hills and receding ranges - is not inherently harmful in its effect on visual or landscape amenities. Having said that we do bear in mind that those European landscapes are the product of slow, integrated growth over many centuries. In this case we are confronted with the prospect of mushrooming housing in contemporary New Zealand idiom.

For the Council we read and heard evidence from Mr Seed, an economist, Mr A.M. Rackham, a landscape architect, and two planners Messrs M.N. Baily and A.A. Aburn.

Mr Rackham who has 24 years experience concluded that:

*"6.4 The proposed residential development would result in 96 dwellings being constructed on, or close to, the prominent ridge. Housing would stretch along the skyline for 1.25 kilometres and would inevitably be highly visible from extensive areas to the east and north. Views from the west would be less extensive because of intervening ridges. However, where views occur, housing would be very prominent and introduce new elements into an otherwise attractive rural scene.*

*6.5 In my opinion the scale and extent of this proposal is such that it will inevitably have significant adverse effects on the rural character of the area. The present rural simplicity of a prominent downland ridge will be compromised. Housing and associated developments will be very visible and reduce the aesthetic coherence of this landscape. It will be a major departure from previous settlement patterns in the Wairau Valley and will*



*introduce a new element into an otherwise pleasant rural landscape. The Marlborough Ridge Resort to the north will have a lesser visual impact as it relates more closely to the developed country at the toe of the dry hills."*

Mr Rackham conceded that the site would not be particularly visible from State Highway 6 (Middle Renwick Road) between Blenheim and Renwick. He seemed to be mainly concerned with the views of the ridge from the rural land on either side of New Renwick Road. However, our site inspection showed that the further away from the site that viewpoints are (along New Renwick Road towards Blenheim), the more that shelterbelts and other trees increasingly intervene so that the Marlborough Ridge is less and less visible. It is significant to us that his photographs were taken from only 2 kilometres from the toe of the ridge. Mr Rackham conceded, in cross-examination, that judgment of aesthetic coherence was a highly subjective matter; that there was no community concern being expressed at the hearing about the effects on landscape; that landscape effects were only one consideration for the Court, and that they could be mitigated by appropriate tree planting.

Mr Rackham also supplemented his evidence-in-chief by commenting on Mr Stroud's European photographs. He said that there was no relationship between a Tuscan hilltop town and the Marlborough landscape, and continued "the ability to re-create that is beyond our abilities". In our view, those comments miss the point that Mr Stroud was trying to make - that urban development on a ridge-line is not inherently unattractive. In fact 'landscaping' is often a re-creation of another landscape. We know both from the evidence and our own experience that Highfield Winery some 2-3 kilometres to the west of the site has located a close replica of a Tuscan tower (the tower of Cafaggiuolo) on the toe of the next outlying ridge from the Wither Hills.





In a subtle way Mr Rackham's own evidence confirms the subjective nature of response to landscape (and the role of remembered metaphors which shape that response) when, in the passage quoted above he refers to the compromising of a prominent "downland ridge". However, there is nothing unique about a ridge covered in introduced grasses. To compare it with the "Sussex" or any other "Downs" is no more valid (or less) than Mr Stroud's comparison with a Tuscan landscape.

Mr Seed, an economist, questioned the need for funding of the resort from selling sections on the appeal site. He considered that on the figures he had (which derived from cash-flows earlier given to the Council by the appellant) the hotel/resort as a stand-alone concept (that is, without any attached subdivision) would be a viable financial venture based on a "net present value" analysis. That evidence is relevant to an issue raised in section 5(2) as to the enabling of people to provide for their economic wellbeing and we return to that issue in our evaluation later. His evidence also related to a point that is important for the appellant company - if no-one else. The directors of the company (Messrs Lofts and Bradbury) made it clear in their evidence that the more their company could make out of the subdivision, the more the appellant (rather than someone else) could invest in relation to the resort development. We infer that they will be able to retain a larger share of the equity in the resort proposal.

The appellant's witnesses had also emphasised the synergistic aspects of residential development on the appeal site. Mr Baily criticised this, saying that patronage of restaurants and bars at the resort "would be unlikely to be sufficient to support the hotel and conference centre". That overstates the point which is not that residential use will "sufficiently" support the resort, but that residential use will be one of a number of sources of cashflow (and income) for the resort.



However, Mr Baily did make a useful point when he said with houses closer to the top of the ridge or subsidiary spurs, much of the lower land will be difficult to use and offers no mitigation for density. The unfortunate consequences of allowing thin rectangular sections down steeper slopes for ridgetop roads can be seen in many towns and cities around New Zealand. The lots are usually too thin to allow ready further subdivision and so the land beyond the house is often undeveloped. To us that suggests that some early planning of sections and building sites would be useful so that further subdivision could take place if that was what the owners wanted (and the current owners had not stopped it by deed of covenant and the Council found it appropriate). We also find that at least on the eastern side of the ridge the land at the bottom of the ridge or on the flats especially if planted densely along the creek may be a useful buffer between the adjacent rural zone and the tourist resort zone. It will enhance the character of and provide protection for the creek's catchment.

Mr Baily, as had Mr Stroud, also dealt with the relevant policies in the Council's regional policy statement. We will refer to those in our assessment later.

The main focus of Mr Aburn, the Council's second planner, was on subdivision and residential development activity in the wider Blenheim/Wairau Plains sub-region. He stated that the Blenheim section of the (transitional) district plan provides for "substantial areas that are being ... subdivided" and he identified over 400 lots in the process of being subdivided in various areas on the northwest to southwest side of Blenheim, with the potential for another 1,200 lots southwest of the present built-up area. He also drew our attention to other localities on the Wairau Plains where subdivisions have been approved and not all lots sold. Based on this excess of sections Mr Aburn considered that, read together, clause 22 (of the First Schedule) and clause 1(b) of the Fourth Schedule direct that an Assessment of Effects on the Environment should have considered



“possible alternative locations”. As will be seen we consider that issue can be considered more directly by the Court under section 32.

Mr Aburn continued by saying that because “substantial investment has been, and is continuing to be made in subdivisions in these locations” and “given that sustainable management means managing the use and development of natural and physical resources etc then the additional residential lots [on the appeal site] cannot be justified on resource management grounds”.

4. *Section 74: The relationship between the matters to be considered*

4.1. Under section 74 of the Resource Management Act when deciding whether to confirm, modify or refuse the plan change we have to consider:

- the functions of a territorial authority under section 31
- the provisions of Part II
- the Council’s duty under section 32 [section 74(1)]

We note both that the other matters identified in section 74(1) and (2) are not relevant in this case and that this list of matters is not exclusive:

*Foodstuffs (Otago Southland) Properties Ltd -v- Dunedin City Council* (1993) 2 NZRMA 497 at 534. For example, other relevant matters are the regional policy statement [section 72(2)] and (in relation to a plan change) the other unamended objectives, policies and methods of the relevant plan.

As a preliminary, jurisdictional point it is clear that the rezoning and proposed uses of the land come within the Council’s functions under section 31.



4.2 Early in the hearing we became aware that this was not a case where there were sustaining or safeguarding issues under section 5(2)(a) and (b); nor were there matters of national importance under section 6 (nor Treaty of Waitangi issues under section 8). So section 7 became relatively more important to our deliberations. We saw the relationship between 'efficiency' as a substantive requirement in Part II (section 7(b)) and as a formal requirement in section 32 as potentially relevant. We asked counsel about the relationship between the use of 'enabling' in section 5, 'efficiency' in section 7 and the language of section 32, but they were unable to assist in any detail, so the following analysis is without the benefit of full submissions and therefore as tentative as a judicial decision can be.

4.3 We start with a few remarks about the role of economics in the RMA. There is a distinct thread in the RMA which takes an 'economic' approach to sustainable management of natural and physical resources. This approach derives from:

- section 5(2) - the references to 'enabling' and 'economic wellbeing';
- section 7(b) - reference to 'efficient use';
- sections 9, 13(2), 14(2) and 15(2) where the default option is that activities are allowed as of right unless a rule in a plan states otherwise; (and contrast these with
- sections 11, 12, 13(1), 14(1) and 15(1) with their 'default' requirements in which activities are unlawful unless a rule in a plan or a resource consent states otherwise)
- section 32(1)(b) - benefits and costs;
- section 32(1)(c)(ii) - effectiveness and efficiency.

Referring to some of those sections the High Court in *Machinery Movers Ltd v Auckland Regional Council* [1994] 1 NZLR 492 stated:



“The RMA explicitly recognises the importance of having environmental laws which are economically efficient” [at p.502]

In fact our isolation of the economic jargon in the RMA may lead to incorrect confinement of economic issues and principles and misunderstanding of their relevance to the RMA. If, as we understand it, economics is about the use of resources generally, [see R.A. Posner *Economic Analysis of Law* 4th Edition (1992) p.7] then resource management can be seen as a subset of economics. Bearing that in mind will prevent unnecessary debates as to whether the use of the word ‘efficiency’ in the RMA is about ‘economic’ efficiencies or some other kind. All aspects of efficiency are ‘economic’ by definition.

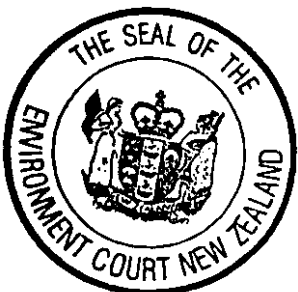
## 5. Part II of the Act

- 5.1 As we have said, in this case the most relevant part of Part II (other than section 5) is section 7. Section 7(b) requires the Court to consider ‘the efficient use of natural and physical resources’.

The Concise Oxford Dictionary (Eighth Edition) states:

*“efficient ...” means “productive with minimum waste or effort.”*

This basic definition of ‘efficient’ is certainly consistent with the purpose of the Act. Its difficulty is that it does not give any guidance as to what is ‘waste’. Nor as to how to quantify the waste so that we can ascertain what is ‘minimum’ (which introduces an interesting quantitative element to the definition). In particular many people would not recognise that the costs imposed by the RMA and plans under it are themselves ‘waste’ -



economists call them 'transaction costs' - and should be taken into account in assessing efficiency. On the other hand the general definition does show why efficiency is a qualitative goal that has been included in the RMA - most people prefer to avoid 'waste'.

- 5.2 The issue of efficiency and economic wellbeing was an issue in the *Marlborough Rail* cases (which related to appeals on resource consents, not a plan change). In the High Court (*NZ Rail v Marlborough District Council* [1994] NZRMA 70, 88) Greig J stated:

*"That economic considerations are involved is clear enough. They arise directly out of the purpose of promotion of sustainable management. Economic well-being is a factor in the definition of sustainable management in s.5(2). Economic considerations are also involved in the consideration of the efficient use and development of natural resources in s.7(b). They would also be likely considerations in regard to actual and potential effects of allowing an activity under s.104(1). But in any of these considerations it is the broad aspects of economics rather than the narrower consideration of financial viability which involves the consideration of the profitability or otherwise of a venture and the means by which it is to be accomplished. Those are matters for the applicant developer and, as the Tribunal appropriately said, for the boardroom."*

But the High Court raised, with respect, a slightly inconsistent note when it continued (p.88):

*"In this case plainly there was a considerable body of evidence given on each side as to the costs and as to the economics and the potential viability of the proposal for the reclamation and construction of all works and buildings required."*



*The contention that the Tribunal was dismissive of this economic evidence is, I think, to misunderstand what the Tribunal was doing. Clearly it considered all the evidence that was put before it but in the end it dismissed the contentions and opinions of Dr Allan and set them aside. It was not satisfied, on the evidence before it, that the apprehensions of that witness and thereby of New Zealand Rail would be realised. This was a judgment on the facts, on the weight of the evidence before it. The Tribunal took into account economic questions, as it was bound to do, in a broad sense and in a narrower sense upon the projected development itself. In the result they came to the conclusion that evidence was not 'sufficiently persuasive to justify refusing consent on economic grounds.'*" (Our emphasis).

The decision is unclear as to whether it is the broad economic aspects which are relevant, or the narrower (including viability of a project and/or the benefits to a developer). We consider both are relevant and that economic analysis may show why.

In *Imrie Family Trust v Whangarei District Council* [1994] NZRMA 453 the Planning Tribunal (as it was) stated:

*"We accept that the efficient use and development of natural and physical resources (referred to in s.7(b)) is an element of the statutory purpose of sustainable management. However we have not found language in the Act to indicate that Parliament intended territorial authorities to attempt quantitative allocation of retailing opportunities in their district plans according to an assessment of potential customer support, so as to avoid duplication of shopping, or under-utilisation of land and buildings intended for retailing. That would be approaching*



*retail licensing which, in our understanding, is not authorised by the Resource Management Act.*” (p.463).

Earlier on the same page in *Imrie* the Tribunal accepted that:

*“...although we need to consider the economic effects of the proposal on the environment, it is only to the extent that they affect the community at large, not the effects on the expectation of individual investors.”*  
(p.463).

With respect, we agree with that clear articulation of the planning principles. We raise the issue whether application of microeconomic principles would, as we believe, lead to the same conclusion. This is of more than academic interest since there is a suggestion in some cases that sectoral interests may be protected.

In *Woolworths NZ Ltd v Christchurch City* [1994] NZRMA 310 the Planning Tribunal stated (at p.321):

*“that the retail commercial sector having made investment decisions on the basis of the [city] plan is entitled to rely on those provisions.”*

That appears, with respect, to be letting in effects on trade competitors through the back door, although as the Tribunal had earlier reminded itself (p.317) those effects are irrelevant on resource consent applications (section 104(3) RMA).

Where, as in this case, there is a plan change, and section 104(3) does not apply, but section 7 and section 32 (in part) do, further examination of the





aspects of efficiency may possibly enable a simpler and more certain approach to some of these issues.

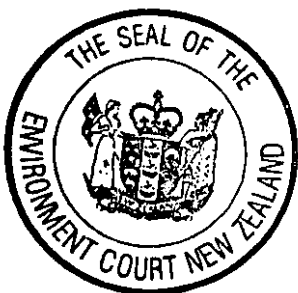
5.3 In an effort to achieve better definition of 'efficient use' we found that the High Court in a case under the Commerce Act 1986 (*Telecom Corporation of NZ Ltd v Commerce Commission* (1991) 3 NZBLQ 102, 340) has discussed 'efficiency'. It stated that:

*"We bear in mind that efficiency has three dimensions commonly referred to as allocative efficiency, production efficiency and dynamic efficiency." (at 102, 383)*

Unfortunately the decision does not define those. However in an article "Meat, Competition and Efficiency..." (1996) NZBLC 216 (also about a case under the Commerce Act 1986) Dr A.W. Maughan describes these types as follows:

- "(a) Productive efficiency - where the existing, or a higher, output of the economy is produced at a lower cost, or where a better quality good is produced at the same or lower cost.*
- (b) Allocative efficiency - in which resources are allocated to the production of goods and services that society values the most.*
- (c) Dynamic or innovative efficiency - where technological change is encouraged and productivity gains retained rather than frittered away in slackness and 'rent seeking' activities." (p.221).*

Tentatively we find these descriptions may be useful because [as (c) suggests] they also imply that activities or conduct which is the opposite of



each of those descriptions is inefficient. (We will really only be able to consider (b) in this case, because we did not hear evidence as to the others).

5.4 The potential advantages of examining ‘efficiencies’ at a slightly more technical level under section 7(b) are:

- the approach is relatively value free;
- in some cases it may allow for an objective, quantitative approach;
- it allows for an overall perspective, provided of course, that all aspects of efficiency are examined;
- it provides a useful technique for assessing objectives, policies and particularly methods under the Act; and
- it appears to be required under section 32 (see part 6 of this decision).

The potential disadvantages are that:

- it encourages expert evidence from economists - with an attendant increase in another sort of jargon;
- it produces solutions that sometimes appear counter-intuitive and therefore require considerable explanation; and
- full-blown mathematical analyses of benefits and costs are both expensive and complex.

But at least this division of the Court would, in other cases, encourage fuller evidence from economists identifying the microeconomic principles that are relevant in their opinion, and then applying them to the particular facts of the cases.

5.5 In introducing section 7(b) Parliament must be taken as considering that the advantages of ‘efficient use’ should be considered. It is the role of section 7(b) in assessing methods under the RMA which might make it a



particularly powerful tool. We add that its inclusion in section 7 (which is otherwise mainly a section dealing with substantive matters to be considered) shows that Parliament recognised (inter alia) that the substance/form distinction has a blurred edge, and wished to ensure that efficiency was recognised as a normative goal as well as a technique. As the High Court stated in *Telecom* of different legislation (the Commerce Act):

*“The more efficient use of society's resources in itself is a benefit to the public to which some weight should be given.”* (p.102,386).

Curiously, the RMA by including section 7(b) is more explicit than the Commerce Act 1986 about the social desirability of the efficient use of resources.

One consequence of this regard to efficient use is, to paraphrase and adopt a Ministry of Commerce review approved in *Telecom* (at p.102, 386), that economic efficiencies are real and promote sustainable management *“even if little or none of the benefit directly accrues to others than the owners of the business”*.

It is for this reason that we have some doubts about whether it is impermissible or irrelevant to have regard to the benefits of a proposal for its promoter, [cf *Port Marlborough, Imrie*] but that issue does not need to be decided here. Equally the effects on and of trade competitors need to be considered in respect of all dimensions of efficiency.

We now turn to consideration of the formal use of efficiency in our discussion of section 32.



6. Section 32

6.1. Role of the Environment Court under Section 32

The section 32 duty applies to the Court by virtue of section 290 which imposes the same duty on the Environment Court that the Council has: *Countdown Properties Limited v Dunedin City Council* [1994] NZRMA 145 at 176-197 (Full Court).

Some of the wording in section 32 is difficult. First, the various tests are not altogether consistent with each other, especially the alternation between 'economic' and 'planning' language. Nor do the paragraphs appear to be in the most logical order. And finally, the wording does not fit particularly comfortably with the role of the Environment Court. We turn to the tests next, but as for the Court's functions under section 32 it is clear from existing authorities that there are limitations on how the Court can approach its tasks. These are:

- (a) the Court is an appellate body which deals with (and only with) the matters referred to it under clause 14 of the First Schedule  
*Fletcher Forests v Taumarunui County Council* (1983) 11 NZTPA 233 applied in *Leith v Auckland City Council* [1995] NZRMA 400;
- (b) in particular, any issue under section 32(1) must be raised in a submission on the proposed plan (change): section 32(3) as applied in *Hodge v Christchurch City* [1996] NZRMA 127; [but see *Financial Systems Ltd v Auckland City Council* A11/97 as to whether the same result cannot be achieved by reference to Part II of the Act (in particular, we assume, section 7(b))] and



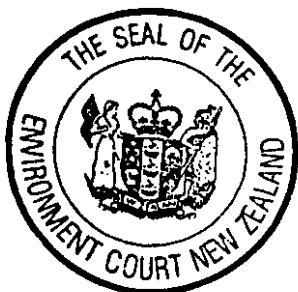
- (c) as far as the evaluating function in section 32(1)(b) is concerned:  
 “[T]he Tribunal is not itself a planning authority with executive functions...” *Waimea Residents Association v Chelsea Investments* [High Court, Wellington, M616/81 Davison CJ, 16/12/81].

We consider that while section 32(3) precludes any challenge to a plan or plan change on the grounds that “*subsection (1) of this section has not been complied with*” the reference to compliance applies to the various procedures in section 32(1)(a) and (b) rather than to the test in section 32(1)(c). A different interpretation would mean that the section 32(1)(c) test was never applied to a requested plan change. We cannot accept that Parliament intended that privately requested plan changes should not be subject to the discipline of section 32(1)(c). Our interpretation is consistent with the scheme of the Act - that the Environment Court should decide the same matters as the Council, and (so far as possible) apply the same tests as to the appropriate methods (and objectives and policies).

## 6.2 Section 32(1) Analysis

We consider that the effect of the Full Court’s interpretation in *Countdown Properties Ltd v Dunedin City Council* [1994] NZRMA 145 (the appeal from *Foodstuffs*) of the relationship between sections 32 and 74 of the Act is that section 32 provides:

- (1) methods for resolving the various matters to be considered under section 74; and
- (2) a threshold which a proposed plan or plan change or any relevant ‘challenged’ provisions in the plan must pass (this latter point tends to be overlooked).



The High Court in *Countdown* found that there are two tests for a plan change (or a new plan) under section 74: first the “rigorous” test of section 32(1)(c) and then “the broader and ultimate issue of whether it should action the change or direct the council to modify delete or insert any provision which had been referred to it.” [*Countdown* p.179]. That ultimate test merely needs to be satisfied “on balance” as opposed to the rigor of the section 32(1)(c) test.

Because there has been no challenge to the section 32(1) procedures in this case we do not have to consider section 32(1)(a) and (b), only (c).

### 6.3 Section 32(1)(c): The threshold test

Section 32(1)(c) requires Councils (and, on appeal, this Court) to be satisfied that any plan or plan change can cross a two-step threshold:

- (i) that the proposed rules are ‘necessary’ to achieve the purpose of the Act; and
- (ii) that the proposed rules in the plan (change) are the most appropriate having regard to efficiency and effectiveness “relative to other means”.

It may be more useful in the context of a plan change to start with subparagraph (ii) since it is useful first to consider what the “alternative means” are in such a case. Really the options are: the plan change, or the existing plan, or some compromise between the two. That follows from both the wording of section 32 and the numerous decisions on jurisdictional limits [the leading case is *Countdown*].



In our view both the necessity for and the appropriateness of a plan change need to be weighed against the existing plan (especially where the latter is a transitional plan) because necessity is a relative concept in this situation. A plan change only needs to be preferable in resource management terms to the existing plan to be 'necessary' and most appropriate for the purpose of the Act and thus pass the threshold test.

7. Application of Section 74 in this case

7.1 Part II - Section 7(b)

As we have said, there are no relevant matters in section 5(2)(a) or (b); nor are there matters of national importance under section 6. The most relevant parts of Part II from the Council's perspective are section 7(b) (efficient use etc) and section 7(c) (maintenance and enhancement of amenity values).

On section 7(b) Mr Dwyer for the Council, submitted:

*"In this instance it is the Council's view that the referrer's proposal had adverse effects pertaining to the following issues:*

- (i) the efficient use and development of natural and physical resources (section 7(b))."*

*"Notwithstanding the evidence of Mr Donnelly that this is purely a question of economics and best left to the market it is submitted that it is not an efficient use of the land resource of the district to allow the establishment of a satellite residential enclave of the size proposed in a situation where there is a substantial existing residential land resource available."*



...

*There is no unmet need for residential land which the applicant's proposal is intended to satisfy".*

Counsel quite rightly acknowledged that some residential development had already been allowed by the Council when it approved the TD zone for the lower end of Marlborough Ridge, a decision which weakens the Council's case. We see a further difficulty with the Council's position in the evidence of Mr Donnelly which was uncontested on these general issues. He wrote in his evidence-in-chief:

*"The economic response to these planning issues is the Council does not understand the concept of efficiency and how to promote section 7(b) and/or the enabling aspects of section 5(2). If it did it would not be so naive to think it could determine what is efficient allocation of resource use including land or that it had the ability to plan sustainable development.*

*Market forces encourage efficiency and sustainable management by encouraging resources to gravitate to their most productive use. If the Marlborough Ridge development can out bid rival uses it is indicative of it being the most productive economic use of the land and the most efficient use of natural resources as a whole. The Council's role is defining justifiable environmental standards not allocating resources. If there is no market failure there is no economic or resource management basis for encouraging sub-optimal production decisions and/or second best consumer choice.*

*In the absence of adverse environmental effects that require avoiding, remedying or mitigating, the market should decide which is the preferred*





*economic use of land both now and in the future. Where relevant to their functions resource managers should encourage the market to determine allocation issues as it is better equipped to determine the most efficient and sustainable use of land."*

We do not accept his views on what the RMA requires - that is a legal issue for us to decide, but otherwise we accept his (uncontroverted) evidence as to the operation of markets on natural and physical resources.

His answers to Mr Dwyer in cross-examination were consistent. Mr Dwyer put to him the proposition that it is not an efficient use of land to allow residential development of land when there is a body of appropriately zoned land elsewhere. He replied:

*"No, efficiency has many aspects, and we must have regard to consumer needs".*

And we infer that those "needs" do not have to be specifically identified but generally enabled from his subsequent answer:

*"From an economist's perspective I see section 7(b) as a key to achieving the enabling aspects of section 5."*

To the extent that there is a conflict between counsel's submissions and an expert witness' opinion on a matter of economic fact or principle we must prefer the latter's opinion.

As for the effect on the landscape amenity and the application of section 7(c), we deal with those next.



7.2 The threshold test: is the plan change necessary and appropriate? [section 32(1)(c)]

The arguments as to the necessity for the plan change between the parties really come down to the meaning of and weight to the matters in section 7 to which we are to have particular regard, viz:

- “ (b) *the efficient use and development of resources*  
 (c) *the maintenance and enhancement of amenity values*  
 (d) *the maintenance and enhancement of the quality of the environment*”

We start by “*having particular regard*” to the matters raised in section 7. We give the phrase “*have regard to*” the meaning discussed in *New Zealand Fishing Association v Ministry of Agriculture and Fisheries* [1988] 1 NZLR 544 (C.A.) Cooke P, quoting McGechan J in the High Court, said:

*“The phrase is ‘have regard to’ not ‘give effect to’. They may in the end be rejected, or accepted only in part. They are not, however, to be rebuffed at outset by a closed mind so as to make the statutory process some idle exercise.” [p.551]*

As to what efficiency under section 7(b) requires in this case, we accept Mr Donnelly’s evidence so far as it goes.

Paragraphs (c) and (d) in this context both come down to the effect on views and landscape. We find these issues are easy to dispose of in this particular case. It was common ground first that the smaller-scale landscape in which Marlborough Ridge will be seen is not an outstanding landscape



(under section 6(b) of the Act), and secondly that there was no expressed public concern (other than through the Council) about effect on amenities. We also take into account that the ridge has already been compromised by Stage I of the subdivision which is well underway. We are satisfied that, provided sufficient landscaping is planned and carried out, any adverse effects would be sufficiently mitigated subject to consistency with the Regional Policy Statement. The practical difficulties are how that can be done, and how it is translated into the “concept plan” contemplated by the zone rules.

As to whether rezoning the site is the most appropriate way of exercising the function of integrated management of the effects of the use and development of the land we hold that it is for the reasons set out in paragraph 7.4.

Overall we consider that the plan change passes the section 32(1)(c) threshold test as follows:

- (a) As far as the proposed residential land use is concerned, the plan change is both necessary and efficient because the possible adverse effects on the landscape can be sufficiently avoided or mitigated.
- (b) As far as the proposed subdivision rules are concerned, there are obvious advantages in the new rules. The alternative - keeping the rural subdivision rules - is less efficient than the new rules so long as all externalities (traffic, sewage, stormwater etc) issues are internalised, that is paid by the developer - which they will be under the TD rules.



### 7.3 The Regional Policy Statement

The policies in the regional policy statement broadly support the proposal. “Objective 7.1.7 - Economic Benefits” refers, under “Methods”, to:

*“...enabling appropriate type, scale and location of activities by: clustering activities with similar effects; ensuring activities reflect the character and facilities available in the communities in which they locate; promoting the creation and maintenance of buffer zones (such as stream banks and greenbelts).” [Marlborough RPS p.59]*

While we consider that the plan change does enable an appropriate type, scale and location of activities by clustering the various residential uses on the Marlborough Ridge, we are less certain that adequate buffer zones are created. We return to this issue later.

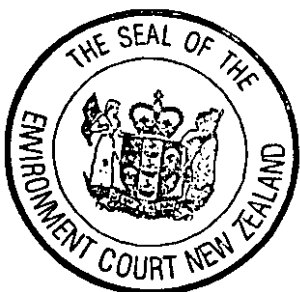
And in the section on “Protection of Visual Features” the objective expressed is:

#### *“8.1.2 Objective - Visual Character*

*The maintenance and enhancement of the visual character of indigenous, working and built landscapes.” [Marlborough RPS p.80]*

The anticipated environmental result of that objective is expressed as:

*“There is clear differentiation between landscape types shown by protection of outstanding landscaping features, and the maintenance of those criteria which define the nature and character of indigenous, working, and built landscapes.*



*The features which make the landscape special need to be recognised and protected to ensure that what we enjoy now is available for future generations to also enjoy. The diversity between and within landscapes is important to the values which we place on those landscapes. Outstanding landscapes need to be protected in a form similar to their present form, while the working and built landscapes need to accommodate and reflect the dynamics of their use and development.*” [Marlborough RPS para 8.1.8 (p.82)]

As we have said, the Council did not argue that Marlborough Ridge was in itself an ‘outstanding landscape’, and so the development of the ridge, if carefully planned with a landscape perspective, may enrich the wider landscape by adding to its diversity.

On that assumption we consider that inclusion of the deleted area is not contrary to the objective expressed (and we did not understand the Council to argue otherwise).

#### 7.4 Conclusion

We now turn to the ultimate test (*Countdown*) that on balance we must be satisfied that the plan change (rezoning) achieves the purpose of the RMA.

Section 5(1) states:

*“(1) The purpose of this Act is to promote the sustainable management of natural and physical resources.”*

and then section 5(2) gives the definition:



*“(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 wellbeing and for their health and safety while -*

- (a) Sustaining the potential of natural and physical resources (excluding minerals)*
- (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.” (Our emphasis).*

Both parties relied on the definition in section 5(2) and especially the underlined words. The appellant argued that allowing the rezoning would enable

- the appellant to provide for its economic welfare; and
- potential residents to provide for their social, economic and cultural wellbeing

The Court accepts that the development, given its proximity to the resort complex and golf course, may enable significant social and economic (even cultural) benefit to the community.

For its part the Council’s position was that community social and economic wellbeing would not be enabled because of:

- the effect on landscape and views;
- the effect on the Blenheim urban growth strategy and in particular the “oversupply” of sections on the fringes of Blenheim.



The Council's witness Mr Baily said that "any perceived benefits from the hotel and conference facility ... are not a confirmed outcome". Quite apart from the fact that that issue is only indirectly raised by this case about residential subdivision, we question whether it is the role of this Court to make judgments about social, economic or cultural wellbeing (as opposed to creating circumstances which enable that wellbeing to be created by people and communities) except possibly in the clearest cases (cf see *Countdown Properties (Northlands) Ltd v Ashburton District Council* [1996] NZRMA 337 which was more a case about not disenabling the community's centre by the grant of a resource consent). Our role as we perceive it under section 5 is to enable people to provide for that wellbeing. In other words, the scheme of the Act is to provide the 'environment' or conditions in which people can provide for their wellbeing.

We are satisfied on balance and having regard to all the relevant factors referred to in section 74 that the plan change should be allowed (applying *Elderslie Park Ltd v Timaru District Council* [1995] NZRMA 433).

8. Determination

The issue then arises as to how to give effect to the decision since we find:

- (a) that the zone statement and rules as they stand are inadequate to control development on the appeal site for the reasons stated earlier. It may even be desirable to amend the rules to provide for a "No. 2 TD zone".
- (b) that it might be fairer on the appellant if its financial contributions under the Act were in the form of land to be vested as reserve (for



example - without determining the issue - in the head of the valley leading down to the lake on Stage 1 land).

- (c) that a fuller landscape concept plan will need to be drawn up, and attached to the amended set of rules.
- (d) that the amended concept plan should deal with the matters referred to in the zone's rule 2.5.3(b) (so as not to be inconsistent with the Regional Policy Statement), specifically and by way of illustration:
- It should, to preserve natural topography, make the boundaries for allotments (especially those south of the road branch on the site) reflect and be sensitive to the contours rather than the present rectangular grid.
  - It may be useful to sketch in all lots and building platforms. Some further infill could usefully be sketched in (even though that will require a discretionary consent later) so that potential problems with access are anticipated.
  - At least some plantings on berms should be on the ridgetop - not less than 50% of the ridge line south of the road branch saddle.
  - At least two clumps of plantings should be planned for on the eastern face of the zone in prominent places.
  - Consideration should be given to placing a further woodlot on the site's high point adjacent to Goulter Hill.





- Plans should be shown for Long Paddock so that landscaping is coordinated with the lake in Stage I (outside the appeal site).
  
- There is a farm track at the northern end of the appeal site (it may in fact start on the Stage I land not subject to the site). It may be appropriate to form that as a right-of-way (easement in gross) down to and then along the eastern boundary of the land. The slopes both up and downhill could be planted (and protected by restrictive covenant) on subdivision. This would achieve various advantages:
  - (a) an interesting tree line
  - (b) a pedestrian footpath
  - (c) a useful buffer between zones along the eastern boundary.
  
- Two further rights-of-way for the public should be shown (and required on any subdivision plan):
  - (a) a footpath from the cul-de-sac to the paper road at the southern end of the site
  - (b) a footpath down the long paddock to the Stage I land and a (dead-end) connection to the boundary of the adjacent land to the west.
  
- Consideration should be given to dropping the road down the east side of the last hump in the ridge before the road branch saddle so that a more intensive residential development can be sited (if that is what a purchaser wants) on that knoll.
  
- That so far as possible within the parameters of Plan Change 40 it would be desirable to allow greater intensity of development on some sites and again, if possible, fewer or at least better bulk and location controls to maximise opportunities for imaginative residential design

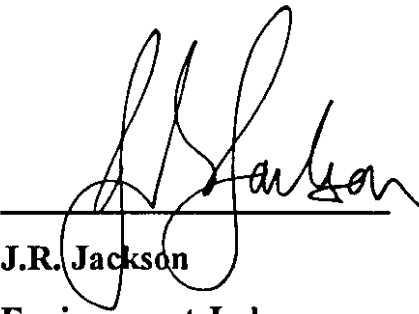


(some of the material in the rules might be left to the owners to impose by restrictive covenant).

Accordingly we further adjourn the case and invite:

- (1) Preparation of an amended concept plan and amended rules (if necessary) for the TD zone as it applies to the site.
- (2) Submissions from counsel as to the appropriate machinery for rezoning the site if the parties cannot agree on (1).

**DATED** at CHRISTCHURCH this *16<sup>th</sup>* day of October 1997.

  
\_\_\_\_\_  
J.R. Jackson  
Environment Judge



BEFORE THE ENVIRONMENT COURT

Decision No. [2014] NZEnvC 23

**IN THE MATTER** of an appeal under Clause 29(6) of the First  
Schedule of the Resource Management Act  
1991 (the Act)

**BETWEEN** MILFORD CENTRE LIMITED  
(ENV-2013-AKL-000030)

Appellant

**AND** AUCKLAND COUNCIL

Respondent

**AND** AUCKLAND TRANSPORT  
NATIONAL TRADING COMPANY  
MILFORD RESIDENTS' ASSOCIATION  
LIMITED & ORS  
CASTOR BAY RATEPAYERS' &  
RESIDENTS' ASSOCIATION  
INCORPORATED  
P CARTER  
W & P MARTIN  
W MCCANDLESS  
D OGILVIE  
M RUSELL  
C & M SANDHAM

Section 274 parties

Hearing: In Auckland, 12 - 13 and 19 - 22 November 2013

Court: Environment Judge J A Smith  
Environment Commissioner A Sutherland  
Environment Commissioner J Illingsworth

Appearances: Ms B Carruthers and Ms B Kelly for Milford Centre Limited (MCL)  
Mr B Loutit and Ms D Hartley for the Auckland Council (the  
Council)

Mr M Maclean for the Section 274 parties - Milford Residents' Association Incorporated and Ors (**the Residents**)

Ms M Batistich for Auckland Transport

Ms J van den Bergen for the National Trading Company

Mr W McCandless for himself

Mr P Carter for himself

No appearance for Castor Bay Ratepayers' & Residents' Association Incorporated

No appearance for W & P Martin

No appearance for D Ogilvie

No appearance for M Russell

No appearance for C & M Sandham

Date of Decision: 12 February 2014

Date of Issue: 12 February 2014

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**INTERIM DECISION OF THE ENVIRONMENT COURT**

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**A. The parties are to file a Joint Memorandum within 20 working days of the date of this interim decision being issued setting out with respect to the final wording of Plan Change 34, based on Annexure C:**

- a. Areas of agreement; and**
- b. Areas of remaining disagreement and reasons.**

**The Court will then consider the Joint Memorandum and decide whether to finalise the decision on the papers or issue further directions.**

**B. Any applications for costs are to be filed within 20 working days of the issuing date; any replies within a further 10 working days; final reply, 5 working days thereafter.**



## REASONS FOR DECISION

### INTRODUCTION

**What maximum building height for the Milford Centre meets the need to provide for residential intensification while maintaining amenity and visual aspects?**

[1] The Operative Plan allows a building height of 9m with a 2m variation as a discretionary activity in the Business 2 zoned application site known as the Milford Centre. Height is to be measured from the average ground level along the highest road frontage. In this case it is Milford Road along which the ground elevation (Reduced Level – RL) varies from approximately 10m to approximately 13m.<sup>1</sup> All buildings constructed to their maximum height would have the same roof elevation.

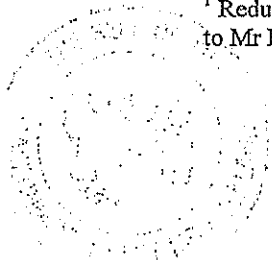
[2] We assume the average ground level along Milford Road to be at RL11.5m, and thus buildings on this road could rise to between RL20.5 and RL22.5 (with variation). Sections of Omana Road are at an elevation of RL3m, implying a building of height 17.5m could be constructed there. This amounts to some 5 storeys when one allows extra height for a retail floor and for some roof articulation.

[3] The proposed Unitary Plan (the PUP) provides for a 16.5m height, four or possibly five storeys, along Milford Road and for a 24.5m height, six to seven storeys, over the rest of the site. These values are *rolling values* and thus buildings constructed to their maximum height would mirror the ground levels.

[4] Under the PUP buildings along Milford Road could have roof elevations ranging from RL26.5m at the junction with Ihumata Road to RL29.5m at the junction with Kitchener Road. Over the rest of the site roof elevations could range from RL27.5m on Omana Road to RL37m behind the Milford Road frontage buildings.

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<sup>1</sup> Reduced Levels in this decision are derived from those shown on Drawing DP01, Rev A of Appendix A to Mr Brewer's EIC.



[5] Milford Centre Limited is seeking building provisions over the Milford Centre that maximise the potential for retail and residential activity. The issues are:

[a] To what height?

[b] Over what area or areas?

## THE APPLICATION

[6] Milford Centre Limited (MLC) applied for a Plan Change (PC34) which was heard and declined by commissioners. The essence of the change was to allow increased building heights across the Milford Town Centre.

[7] The current proposal is for the same increases in building heights but contains more extensive plan change provisions. It is proposed to allow buildings to be constructed within Building Envelopes 1 – 9 up to the reference levels and in the positions shown on Annexure A<sup>2</sup> to this decision. Envelope 9 contains the existing Milford Town Centre buildings.

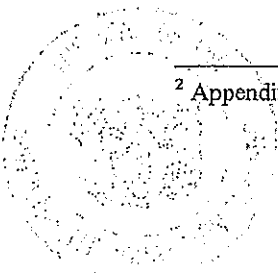
[8] This approach focuses building height into particular parts of the Centre while retaining lower heights over other areas. Envelope 1 extends upwards to RL63m allowing around 17 storeys, Envelope 5 extends up to RL59m allowing around 13 or 14 storeys and Envelope 3 extends up to RL38m allowing 8 or 9 storeys.

[9] It is the heights of these three envelopes that are the principal areas of disagreement between the parties. Heights of the other envelopes were not contested. We also understand that this means the concept of focussing height in particular areas of the centre is agreed.

[10] The applicant acknowledges that to achieve these heights, in an appropriate way, high quality design is essential. PC34 provisions are intended to achieve that outcome. Whether they do so is a matter of significant dispute between the parties.

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<sup>2</sup> Appendix 15P Milford Intensive Residential Overlay from Appendix D to Reaburn Rebuttal



### Issues on Appeal

[11] Unusually, the applicant advanced very extensive evidence (hundreds of pages) on matters that did not seem to be in contention in the hearing. The applicant filed an appeal on particular aspects of the decisions of the Commissioners.

[12] It is clear from [1.6] of the Notice of Appeal MCL did not appeal that:

- [a] Milford Town Centre was an acceptable location for growth;
- [b] MCL's approach to rezoning its site is appropriate;
- [c] The current height limits are out-of-date, and not aligned with intensification; and
- [d] The plan change provides an appropriate amount of detail and control.

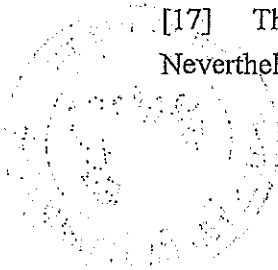
[13] Certain other matters may or may not be matters on which MCL did not seek to appeal, i.e. [1.6][n] and [o], but [1.7] notes "*MCL takes no exceptions to the finding of the panel outlined in [1.6] above.*"

[14] Whether that could pre-determine the grounds of appeal is not of particular moment before us, given that the parties subsequently held a series of caucusing meetings. We note for example that the transportation traffic engineers' caucus statement eventually, following further mediation and adjustment of the proposed plan provisions, led to a full agreement. No evidence was contested before the Court, nor did the Court have any questions relating to this matter.

[15] We note, however, that the traffic generation of 141 vehicles in the busiest hour between 7 – 9am and 4 – 6pm was based upon an agreement that this was an acceptable total number of 250 residences on the Milford Centre.

[16] Other experts then sought to resile from this limit on the number of residences on site and suggested more residences could be accommodated in the Centre.

[17] This would appear to undermine the agreement of the traffic engineers. Nevertheless, counsel for the applicant did not seek to remove this provision, and



accordingly we have assumed that the limitation on the total number of residences is still proposed and discounted the applicant's evidence to the contrary.

[18] Other joint statements were signed or were entered into as follows:

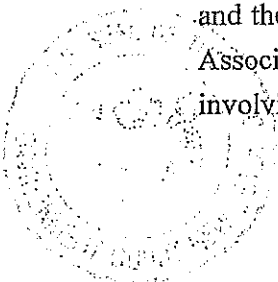
- [a] urban design;
- [b] landscape architecture;
- [c] economics/commercial space; and
- [d] planners;

[19] Annexed hereto and marked **B** are copies of the relevant caucusing statements.

[20] In addition, there was also an agreement of Statement of Issues, which noted that the key issues were:

- [a] Whether the built form provided for in the proposed PC34 is appropriate on the site, subject to the plan change given the;
  - [i] policy direction identified in the *Auckland Regional Growth Strategy*,
  - [ii] effects of Intensive Residential Development.
- [b] Whether the plan change provides adequate guidance and control at the resource consent stage; and
- [c] Whether the Plan Change satisfies the purpose of the Act.

[21] As suggested by the applicant, it appeared that the only matter for consideration before this Court was the applicant's proposed change. Comparisons would then be between the decision of the Council, which upheld the status quo and existing provisions, and the applicant's proposal. However, the Council, supported by the Milford Residents Association (MRA) and some other residents proposed a modified form of PC34 involving lower building heights for the three highest buildings within the applicant's





proposal. Extensive evidence was prepared and filed for the Council and other witnesses on this matter.

[22] On questioning from the Court, Ms Carruthers accepted that if the Court was not minded to adopt PC34, it should consider the intermediate position proposed by the Council.

[23] Mr McCandless and Mr Carter still supported the existing provisions and/or substitution by the height limits in the PUP as alternatives.

[24] The parties appear to agree that the Court is to seek the optimum planning solution among the options available.

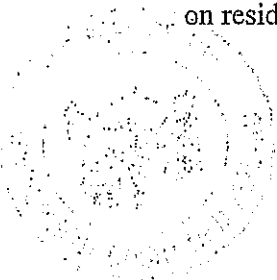
#### **The evidence provided to this Court**

[25] The Court received some 28 briefs; seven of the witnesses for the applicant filed both evidence-in-chief and rebuttal; only one provided a single statement – the traffic engineer.

[26] In over 600 pages of evidence for the applicant, that of the two urban designers totalled 177 pages: 110 pages plus 15 Appendices from Mr Munro, and a further 67 pages and two appendices from Mr McIndoe.

[27] Given that the issue of residential intensity had already been agreed, both as part of the appeal and as part of the witnessing statements, it is difficult to know why so much evidence was produced on an issue that was not relevant to the hearing. Although there were portions of this evidence that did bear relevance to the height, most appeared to be repetitious of the landscape architect's evidence in the case of Mr McIndoe, and consisted of assertions of the correctness of the applicant's building heights on the part of Mr Munro.

[28] More importantly, neither Mr Munro nor Mr McIndoe acknowledged that the appeal had been limited in the way we have described, or that there were joint witnessing statements entered into prior to the preparation of their evidence confirming agreement on residential intensity.



[29] The witnesses were given the opportunity by the Court to either retract or modify their evidence to points of relevance to the Court, but refused to do so. Given that the witnesses' evidence, particularly of Mr Munro, touched only marginally upon the issues before the Court, we consider that little if any weight should be given to this evidence, and that questions of costs be reserved in respect of the Court and parties' time involved in dealing with these irrelevant matters.

[30] Although Mr McIndoe's evidence did deal with privacy concerns, it is difficult to know what this added to the discussion of Mr Pryor. The Environment Court as a whole has discouraged the production of multiple witnesses on the same topic by the same party, and is unable to identify the failure in Mr Pryor's evidence that would lead to the production of further evidence on this same topic of privacy and visual matters by the same party.

[31] In fact, on all matters we would prefer the evidence of Mr Pryor over that of Mr Munro and Mr McIndoe.

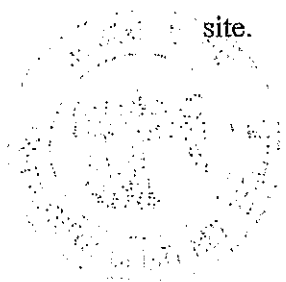
#### **What is agreed?**

[32] It is clear that residential intensification is appropriate in Milford, and that a mixed use, including residential intensification, is appropriate at the Milford Centre and on the Applicant's site.

[33] MCL do not wish to redevelop the whole site, but rather sleeve existing development by building on undeveloped portions of the site and then integrating the new buildings with existing buildings. The issue before the Court was what level of intensification is appropriate, having regard to its impact on amenity issues for nearby residents and community as a whole.

[34] All parties, with the possible exception of Mr McCandless, acknowledge the inadequacy of the current limit of 9m – 11m, but then there were differing opinions as to what increase in building height should or needs to be allowed.

[35] Mr Carter considers that the PUP provisions would be reasonable in the circumstances, but it is clear that those would allow increases in height over the entire site.



[36] The applicant's position is that, within Envelope 9 the elevation of the top of the buildings would be RL21m with building heights ranging from about 9m on Milford Road and Ihumata Road to about 18m on Omana Road.

[37] The Council, the Residents, and MCL recognise that height would be better concentrated on designated footprints. This would split up the bulking of the building. There appears to be agreement that the RL21m should apply to the balance of the site outside those footprints, namely within Envelope 9.

[38] It appears that the Council has then proceeded to seek to ameliorate impacts upon amenity, privacy and visual impact by adopting a design with the same number of apartments, but with three blocks reduced in height.

#### **Distinction between towers and blocks**

[39] We see a distinction between a tower as suggested by some witnesses, and the proposed envelopes for which the extra height is sought. A tower, we consider, is either near square or circular in plan.

[40] It is clear from examining the bulk and location diagrams that the envelopes are neither near square nor circular in plan, but are large rectangular blocks rising from various footprints throughout the site.

[41] Envelope 8 has plan dimensions of 54.5m x 23.1m and even Envelope 2 has plan dimensions of 27.9m x 21.0m. Although a tower might be built within these footprints, we have proceeded on the assumption that a building would maximise floor space within its envelope.

#### **Development Envelope for Plan Change**

[42] There was much discussion by the applicant during the hearing of towers and high-rise development on other sites with the thought that high rise towers would be erected on the subject site. However, the Plan Change actually seeks varying heights over defined footprints or within envelopes over its entire site.

[43] The majority of the site, Envelope 9, is to be limited to RL21m which is similar to that of the existing mall development over much of the site. Where there is space

available for further development, the applicant has sought varying heights for Envelopes 1 – 8 and a continuation of the RL21m elevation limit over the area currently covered by a townhouse consent soon to lapse.

[44] New construction is intended within Envelopes 5, 6, 7 and 8 on the corner of Ihumata and Milford Roads. The intention is that a new retail floor will be installed with parking and residential above. In Envelopes 1, 2, 3, 4 and 9 the intention is that portions of land which have not been constructed on will have new residential complexes built onto them, integrating with the existing mall for purposes of parking and access.

### **The Environment of Milford**

[45] It is quite clear from all the documents, including the Auckland Spatial Plan, the Unitary Plan and the current District Plan and Regional Policy Statements, that residential intensification is intended in and around Milford Town Centre.

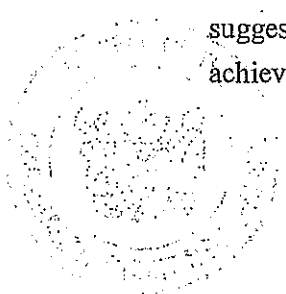
[46] For current purposes, we accept Dr Fairgray's suggestion of an area with a radius of 600m – 650m based upon the Milford Mall would be appropriate for the Town Centre. Within that, we accept that it is intended there be a significant change in the number of houses.

[47] We think that Dr Fairgray's suggestion of a further 1,500 residential units over the next 40 years is not unreasonable, although we acknowledge that the final extent of that change is not yet settled.

[48] We also consider the Dr Fairgray's evidence clearly demonstrates that such intensification could be accommodated within the existing residential areas, although involving significant change in the number of apartments per site.

[49] Currently there is an average of 1.85 dwellings per site i.e. 1,850 residential units on 1,002 sites, and intensification to the year 2041 would see around 3,350 on 1,002 sites.

[50] As part of the Town Centre, it is clear that the Business zone could accommodate some of that growth. Any proportion of that growth borne within the Business centre would reduce the average intensity required over the Residential zones to achieve the suggested increase. In practice, we suspect it would mean the target density would be achieved more quickly.



[51] Given that the Milford Town Centre represents about 1/3 of the Business land available and the largest single site, reasonable intensification within the Business zones might see in the order of 500 – 600 further houses constructed i.e. around 1/3 of the growth, which proportional share for the MCL would be between 160 and 200.

[52] Nevertheless, we accept the submissions of Mr Loutit that any reasonable contribution to residential intensification from the business zoned land would be envisaged as within the terms of the Plan. Thus intensification of 100-200 residential units in Milford Centre is consistent with the Policy Documents. A higher degree of development might still be contemplated, but the Objectives and Policies do not require, or even suggest, excessive intensification in Milford Centre

[53] We accept that any residential use in the Milford Town Centre should not compromise its primary purpose for business/retail uses. No precise information was given as to the residential yield that could be accommodated without:

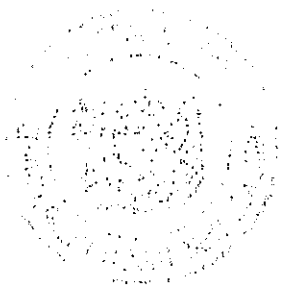
[a] Comprising retail/business uses; or

[b] Exceeding an RL21m limit on the site or RL23m as a further discretion.

[54] We acknowledge that any further buildings would need to avoid interference with the existing Mall and could only be constructed around the periphery or above it.

[55] There is already consent for 18 townhouses along Milford Road/Ihumata Road, but that consent has not been implemented and expires in February 2014. Nevertheless, houses could be built there. The Council is suggesting up to 18 could be constructed. With the addition of apartments in Blocks 2, 3, and 4 to 21m there is likely to be 100 apartments available. Mr McCandless suggested that this was a reasonable level of intensification on the site.

[56] However, we accept that the current Plan provisions were not designed with residential intensification in the Town Centre in mind, and that it was intended that buildings on this site be occupied to the maximum extent possible for retail and commercial purposes while having maximum roof elevations at or below RL21m.



[57] Although buildings on Omana Road are likely to be best suited to residential accommodation above the ground floor, we acknowledge that there would not be sufficient yield from that to categorise the site as high-density.

### **The Proposed Unitary Plan (the PUP)**

[58] The provisions of the PUP are at an early stage and are not yet in force. The PUP envisages a maximum building height on Ihumata/Milford Roads frontages on this site of 16.5m above rolling ground level and a maximum building height of 24.5m above rolling ground level for the remainder of the site.

[59] Given the desire to maintain an active commercial frontage at least on Omana Road, we suspect that the number of storeys envisaged over most of the site under the PUP is in the region of seven storeys. On Milford and Ihumata Roads the 16.5m height limit over ground level would yield close to five storeys.

[60] We note however that the PUP is at a very early stage and cannot be regarded as binding on this Court. It does generate a significantly different outcome on Omana Road to that under the current Plan, which allows up to RL17.5m by allowing up to RL31.5m (since the RL at the northern portion of Omana Road is at least 7m).

[61] However, we are able to conclude from this that Mr McCandless' suggestion of maintaining the existing height on this site to accommodate high intensity residential is not appropriate, and that some change to the height limit over part of the site is justified.

[62] We note that the majority of the site would continue to be controlled by the current provision, and thus confirm the maximum roof elevation for buildings in Envelope 9 to be RL21m. To that extent, we agree with Mr McCandless.

[63] In respect of the PUP heights sought to be in place by Mr Carter, we consider there are several problems with this argument:

- [a] Firstly, the existing mall is already in place, and the adoption of a rolling height approach would give an incongruous result. The current roof elevation of the building is a little under RL21m. The building height limit of 16.5m on Milford Road could result in a building reaching to



RL27.5m, a significant increase over current levels. Similarly, the PUP would allow a roof elevation of RL31.5m on Omana Road;

- [b] Portions of Blocks 6, 7 and 8 would be able to reach an RL of 35.5m under the PUP. Thus, we consider Mr Carter's submission essentially accords with the building heights intended for these blocks, namely: RL33m for Block 6; RL27m for Block 7; and RL33m for Block 8;
- [c] Envelopes 2 and 4 with proposed building heights of 20m and 16m respectively would also meet the PUP rolling height limits.

[64] We have concluded Mr Carter's suggestion of maintaining the heights as in the PUP should not be supported for the following reasons:

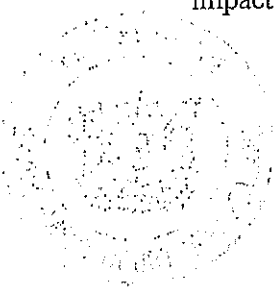
- [a] The heights at this stage have not been through any hearing process and may change as a result of that process;
- [b] Any exceedance of that height simply means that the application is considered as limited discretionary application; and
- [c] The heights in the PUP apply over the entire site, not just to the block footprints.

### **Height and Amenity**

[65] Shadowing effects were extensively investigated by the applicant and used to settle on the building heights in the proposal before us. In the applicant's view the building heights proposed create only acceptable shadowing effects.

[66] This appears to have been confirmed by other witnesses as there was no argument before us that the shadowing effects by any of the buildings at the heights proposed by the applicant, were unacceptable.

[67] We accept that with the heights proposed by the applicant, there is no significant impact from shadowing.



[68] We do however have some concerns relating to privacy, particularly that of the residents to the north and east of the site, and accept that some blocks may need to be modified in terms of height to avoid adverse impacts from this, particularly Blocks 1, 3, 5, 6, 7 and 8.

[69] These concerns were shared by all parties with disagreements evident over privacy as well as other amenity issues including over-dominance and visual intrusion, blockage of views and changes to village character. We took these to be in general terms over all aspects of amenity and visual impact. But we acknowledge the challenges identified by Mr McIndoe at [4.5] of his evidence-in-chief. We conclude that his list represents aspects of amenity that cannot fully encapsulate those issues.

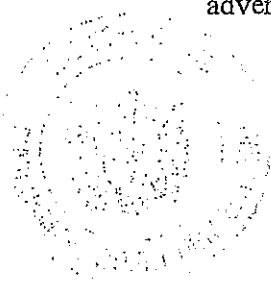
[70] Issues of amenity include concepts of reaction to, and awareness of, one's environment and of its visual coherence. Some described this as a *sense of place* or the *character of Milford*. Even for plan changes, questions of adverse effect on amenity are relevant in the broader sense. More particularly, they are relevant because of the way in which the growth issues, and in particular, questions of residential intensity, are addressed by encouraging residential intensity, provided local character and amenity is maintained or enhanced.

#### **Can impacts on amenity be addressed through design rules in a Plan?**

[71] Fundamental to the arguments for all the applicant's witnesses, including Mr Pryor, the landscape architect for the applicant, was the concept that adverse impacts upon amenity and visual matters, including overlooking, could be addressed at final design stage of the buildings.

[72] We did not understand the witnesses to be suggesting that that control was such as to be able to reduce either the bulk or the size of the development envelope or the height of the building.

[73] Nevertheless, we acknowledge that there are situations where no matter what the quality of design, the articulation of surfaces, materials, colourings adopted, the building can still be dominant, interfere with visual coherence, have adverse visual impacts and adverse impact on amenity.





[74] Mr Pryor himself acknowledged that in a number of agreed viewpoints, impacts of the applicant's envelopes ranged from low to moderate to high. His response however was to suggest that those adverse effects could be addressed by the design of the buildings. In our view, this is to assume that adverse effects of height, bulk and location permitted by the development envelope can effectively be undone at the design stage.

[75] Ms Carruthers suggested that Council could refuse consent if it considered a building too bulky or not appropriate. We conclude that the creation of an envelope at a certain height and dimensions must suggest that it is possible that some building could be constructed within those dimensions which would be acceptable.

[76] Ms Carruthers also suggested the current rules of the Plan permit an unlimited height in Takapuna subject to a limited discretionary consent. We note that Takapuna is a metropolitan centre and thus it is clear that Takapuna is intended to have high-rise development.

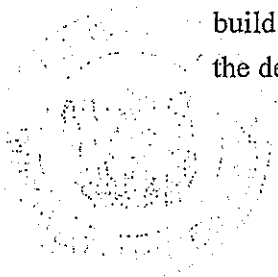
[77] Furthermore, it is not our place to judge whether provisions relating to metropolitan centres within the Plan would meet the tests of the Act. We examine the provisions before us on the basis that they relate to a Town Centre.

[78] In that regard it is particularly telling that the Council did not suggest that the *Urban Design Guidelines* and the Plan provisions suggested here would achieve outcomes of high quality design. For our part, we conclude such aspirational statements to be difficult in either articulation or quantification in any real sense.

[79] It seems to us that we must assume that a building which met the design criteria guidelines could be constructed within the envelope. The applicant has suggested one building typography that it thinks would do so.

[80] Tellingly, no party was able to point to a building which had gone through the current guideline rules and was regarded as a high quality development, with the possible exception of the Trinity Apartments in Parnell. Other examples, such as the Metropolis and the Sentinel were designed and built some time prior to those requirements.

[81] We have concluded that the development controls assume that it is possible to build a building meeting the Plan criteria within the parameters of the envelope, and that the design is essentially to mitigate adverse effects.



[82] Our view is that the development envelope itself should address questions of avoiding adverse effects from height overlooking, visual impacts, and upon amenity generally, except to the extent that those might be subject to design improvements. The MCL Proposed Change 34 wording was amended by the end of the hearing and there was agreement at a broad level, except as to heights. That wording is annexed hereto as C, and we proceed on the basis that this is the general approach subject to final agreement.

### **The Two Large Blocks**

[83] There are two key blocks on the site. Block 5 is adjacent to the new entry to the Mall from Milford Road; the other, Block 1 on Omana Road around 100m from the intersection of Omana and Kitchener Road.

[84] Firstly, we note that Ms Carruthers suggested that Block 1 would form something of an entry point to the shopping centre. With respect, this is not correct. Block 1 is sited 100m along Omana Road from Kitchener Road, and simply depicts the limit on Omana Road of the ownership of the business land of MCL. There is block of shops facing Kitchener Road.

[85] We have concluded that Block 1 does not form any marker role for MCL in demonstrating either the main entry to the mall or the centre of the town.

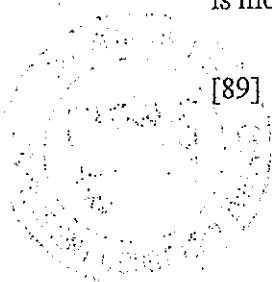
[86] On the other hand, Block 5 does approximate a marker position for the village.

### **The Height of Block 5**

[87] The MCL proposes a maximum roof elevation of RL59m while the Council proposal suggests RL45m as the maximum. The difference of 14m represents some four storeys.

[88] We have considered very carefully the evidence of the witnesses in relation to the height of these two blocks. Taking into account our view that the envelope needs to control the general mass and height of the building within it so as to avoid the majority of visual and amenity impacts, we have concluded that RL45m as suggested by the Council is more appropriate.

[89] There are several reasons why this Court reached that view, as follows:



- [a] The nearby ridge and escarpment rises to around RL35m. A 9m high building on this ridge would reach to around RL44m, an elevation similar to that suggested for Block 5;
- [b] Views from the Forrest Hill Park do not show Milford Centre, while the Hospital, Lake Pupuke and Takapuna Towers are in clear view. To have a block floating over the top of the escarpment from this viewpoint would, in our view, lead to confusion in respect of the landmarks visible from this important viewpoint;
- [c] We keep in mind the residential properties on the opposite side of Milford Road, and what is a reasonable relationship with that building height to their properties and views. We agree with Mr Brown that that is the level at which the buildings would not appear too overpowering, while still constituting a clear statement in respect of the centre itself; and
- [d] We do not consider that the height at which shadowing effects are reduced is necessarily the point at which amenity effects cease. In fact, no evidence showing a correlation between shadowing and amenity was produced to us. All experts agreed that amenity went well beyond shadowing.

### **The Height of Block 1**

[90] Block 1 constitutes a difficult proposition for the Court. On the one hand we recognise the significant visual impact this block would have on people coming to the Town Centre from the north on East Coast Road. As drivers approach the Kitchener Road intersection, they will see a large block 60m high to their left fronting onto Omana Road.

[91] Nevertheless, the view of the building would be oblique and height is not likely to be the overall impression once the overbearing and dominance is noted. That is likely to also result with a relatively low height, in the order of 30m, because of proximity to Omana Road. There are issues as to how much of the block would be constructed as residential.



[92] We note also that it was considered by some parties that the impacts on the views of those in Rangitoto and Prospect Terraces would be overpowered by the proposed buildings and in particular by the presence of a block rising to RL63m.

[93] The Mall already constitutes a large and relatively unattractive part of the views for people in this area. We think that the construction of good quality residential accommodation is likely to improve that aspect, and given that it is generally viewed from well over 100m, it is unlikely to overpower, at least with a height at less than 60m. Whilst we struggle to accept that the RL63m proposed by the applicant would not overpower these residents, we consider that the Council's proposed reduction in height to 35m serves no particular visual or amenity purpose.

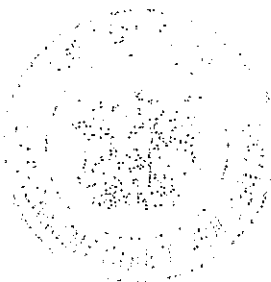
[94] Overall however, we conclude that a height of 60m has just too much impact on amenity and accordingly, the Court is reluctant to move too far away from the height of the Council of 35m. After considerable discussion, the maximum that can be agreed between the members of the Court is RL45m, the same elevation as that accepted for Block 5. The resultant building would thus be 42m in height.

[95] In reaching this maximum height, the Court's view was that the impact on the residents at Rangitoto and Prospect Terraces was less than suggested in the evidence of Mr Brown, and for the limited audience of pedestrians in the public reserve the impact was also over-estimated by the Council.

[96] Nevertheless, there was a point at which it was clear that the construction of dwellings so close to the road would begin to change the overall character of Milford and suggest a more metropolitan or central city aspect.

[97] Reaching an exact conclusion as to that range was difficult for the Court. In the end we concluded that it could go as high as Block 5, given that it would reinforce the pattern of that block and the limited and oblique views from public places. When viewed from a more distant position, it would simply appear at the same height as Block 5 and would appear more in relation to the roof of the Mall than in relation to road level.

[98] In reaching that conclusion, we also note an appropriate balance between the bulk of the other buildings and the overall height.



[99] It is not our intention to create a high-rise zone like Auckland Central or Takapuna, but rather to provide for intensification in a town centre by demarcating the difference in heights clearly.

[100] In doing so, we still recognise that there is significant room for intensification in local and suburban centres that does not achieve the type of heights that we have discussed in this case.

### **The Height of Block 3**

[101] Block 3 is a sleeve on the curve of Omana Road, opposite the Wairau Estuary and Reserve.

[102] We understood Mr Brown's concept of stepping the building as it approached Ihumata Road, but in practical terms we were not convinced that there was any dominance or overlooking from Block 3 that would significantly affect residents' amenity on Omana Road. Envelope 2 is more directly related to those properties. Block 3 has an aspect looking more over the estuary and towards the marina.

[103] The applicant's roof elevation for this building was RL38m, and that suggested by the Council was RL26.6m.

[104] Again, there was a great deal of searching by the Court to find an elevation at which all members could be satisfied that the amenity and character of Milford was retained. We did not see the introduction of a residential building of this style to a reasonable height as detracting from the character or amenity of Milford. It would simply be the point at which the building moved from representing a modern contribution to Milford to an impediment on its visual quality and amenity.

[105] In the end, our view was again different to that of Mr Brown, and we reached the conclusion that Block 3 could reach a maximum elevation of RL33m giving a building height of 28m.

### **The Heights of Envelopes 2, 4, 6, 7, 8 and 9**

[106] The applicant's proposal and the Council's proposal agreed on accepted heights for these envelopes, all of which are less than the 24.5m set out in the PUP. The MRA

supported the Council's proposal. The Court has no basis for departing from these agreed values, and thus endorses them.

*Conclusion on Heights*

[107] We acknowledge that the heights we have provided for will overall allow a greater level of residential intensity than that envisaged under the current Plan, or even under the PUP.

[108] We recognise that as a large site, there is the potential for greater integration of such construction than on smaller sites.

[109] However, the actual yield and the economy of the project cannot be the focus of the Court's consideration when it comes to height.

[110] We are satisfied that at these levels, the enabling provisions of the Act are met, and that beyond this point, controls are necessary or desirable to meet the purposes of the Council's obligations under its District Plan.

[111] We note that as a non-complying activity, excess height buildings could still be constructed if the Council or Court can be satisfied that they are warranted under the Plan.

[112] Given the Plan's push towards residential intensity, the key issue will be whether or not any higher buildings are able in their particular design to satisfy issues of amenity or visual impact.

[113] Accordingly, when the Court looks at issues under Section 32 of the Act as to which is most appropriate, it must keep in mind that which is most appropriate would be that which meets the objectives of residential intensification and of maintaining or enhancing the amenity and character of Milford.

[114] It is that balance or integration which the Court needs to achieve in this decision. In doing so, it has considered both the proposal of the applicant and that of the Council.



[115] In the end, we have decided that the modifications which it proposes (which are between the positions of the applicant and the Council) represent the optimum planning outcome in this situation.

[116] In that regard, the Court has carefully measured the costs, both in terms of the cost to the developer in having to accept lower buildings, but more particularly, the cost in planning terms in achieving the objectives of the Plan and the benefits to be achieved by maintaining and enhancing character and amenity.

[117] We note in particular that all of these blocks are ones that can be constructed without impacting the existing Mall. We note the evidence of Mr Carter that many developers are simply seeking to sleeve existing development without involving themselves in the cost and complications of higher blocks.

[118] Those decisions are entirely for the applicant, and this Court has decided this matter based upon achieving an appropriate integration of residential intensification and the maintenance and enhancement of residential amenity.

#### **Amenity and Visual in Milford**

[119] We see the environment against which this will be judged as not only the environment as it exists today, but as it will be modified by the further intensification around the Town Centre as envisaged by Dr Fairgray.

[120] For practical purposes, we can see no proper basis to draw a distinction between the environment for the purpose of resource consent and a Plan Change, and accordingly, adopt the approach of *Queenstown Lakes District Council v Hawthorn* in the Court of Appeal.<sup>3</sup> In this regard we suspect Mr Brown may have retained the existing environment in mind for residential, rather than the more intensive residential environment that will eventually predominate.

[121] In discussing the question of character, we keep in mind that Milford has a character distinct from other town centres. Although not based upon heritage or historical matters to any particular degree, there are nevertheless a number of features that mark out Milford from other areas, including:

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<sup>3</sup>[2006] NZRMA 424

- [a] Its coastal proximity;
- [b] The marina;
- [c] The Wairau Estuary;
- [d] The mix of ages of buildings and residents; and
- [e] The proximity of residential to the shopping areas.

[122] We do not see that character changing simply by intensification of residential activity, either within the existing housing around the Town Centre or by the introduction of these apartments within the Town Centre.

[123] Rather, we see the increase in Town Centre residential activity as anchoring Milford and increasing its resilience and vitality.

[124] Population increases will assist in maintaining the viability of the Town Centre and its shops and emphasise its role as a focal point for the local community.

#### **Costs and Benefits**

[125] We do not understand the costs and benefits of Section 32 of the Act to relate only to economic matters, but it is clear that a reasonable number of apartments can be constructed on this site as a result of the Court's decision. Whether this constitutes 100 or 200 apartments will depend on decisions made by the owner as to the balance between commercial, retail and residential, and the size of units. We consider that the changes that will occur to the character of Milford as a result are ones that are acceptable and overall, will reinforce the role of the Town Centre and the amenity of Milford itself.

#### **Section 290A of the Act**

[126] We have essentially reached the same decision as the Council Commissioners on the applicant's proposal for much the same reasons.

[127] The Council Commissioners had no developed alternative to consider which could have led to a different outcome as it has for our decision. We commend the



Council's leadership in developing an alternative. We have modified that with respect to the three highest buildings, but overall, we consider the Council sought an appropriate solution which the MRA was prepared to support. We generally support Annexure C, subject to heights and other changes identified.

### **The Plan Change**

[128] The applicant's plan change included a proposal that the potential for intensified residential activity in other town centres be recognised and provided for more explicitly.

[129] Such provision is already implicit, but we have seen no reason, nor received any significant evidence to convince us that there should be special provisions made in this Plan Change for other town centres.

[130] Although plan changes are one method to achieve such change, there are others. The clear preference for Council and this Court is for centre plans to be promoted and for wide consultation to reach a common view for the future of the area.

[131] We consider this to be more effective than the current approach.

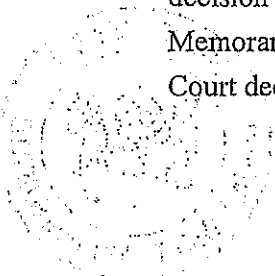
[132] Accordingly, we would not include those provisions. Given our view that we are considering now the general bulk, orientation and height issues, we consider that the extra provisions suggested by the Council are not necessary at the heights we have decided.

[133] That being the case, it appears to us that the Plan Change otherwise is generally appropriate, but needs to be reworded to make it clear its application is only to the current site.

### **OUTCOME**

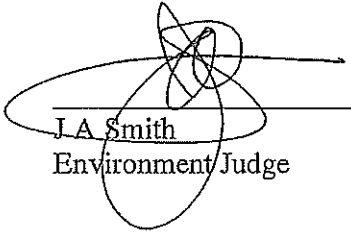
[134] Accordingly, we approve a modified Plan Change, as we have set out, in relation to heights, and changes to the Plan Change as sought by Ms Hardy in her evidence.

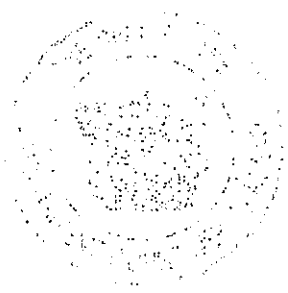
[135] Nevertheless, we wish to give the parties 20 working days from the issuing of this decision to discuss the final wording of the Plan Change, and either file a Joint Memorandum establishing agreement, or setting out the areas of difference for a final Court decision.



[136] Costs in this case are reserved. Any applications for costs are to be filed within 20 working days of the issuing date; any replies within a further 10 working days; final reply, 5 working days thereafter.

DATED at AUCKLAND this 12<sup>th</sup> day of February 2014

  
\_\_\_\_\_  
J.A. Smith  
Environment Judge



IN THE HIGH COURT OF NEW ZEALAND  
WELLINGTON REGISTRY

12/11

AP No. 169/93

2213C  
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2013  
1920

UNDER

the Resource Management Act 1991

A N D

IN THE MATTER

of an appeal under section 299 of that Act against an interim decision, and report and recommendation, of the Planning Tribunal dated 11 June 1993

BETWEEN

NEW ZEALAND RAIL LIMITED a duly incorporated company having its registered office at 4th Floor, Wellington Railway Station, Bunny Street, Wellington, transport operator

Appellant

A N D

MARLBOROUGH DISTRICT COUNCIL a territorial authority pursuant to section 37N of the Local Government Act 1974

First Respondent

A N D

PORT MARLBOROUGH NEW ZEALAND LIMITED a duly incorporated company having its registered office at 14 Auckland Street, Picton, port operator

Second Respondent

Hearing: 27, 28 and 29 September 1993

Counsel: P T Cavanagh QC and D H Jenkins for Appellant  
R D Crosby for First Respondent  
R A Fisher and M MacLean for Second Respondent  
Sally Brown for Coal Corporation of New Zealand Ltd

Judgment: 12/11/93

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JUDGMENT OF GREIG J

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This is an appeal by New Zealand Rail and a cross-appeal by Port Marlborough against the decision of the Planning Tribunal dated 11 June 1993. It concerns the proposals and plans of Port Marlborough to develop and expand the port of Picton into the neighbouring Shakespeare Bay and to construct and establish there a port facility to service the export of bulk products, including timber and coal. New Zealand Rail has opposed the proposal in its entirety throughout. It appealed to the Tribunal against the original decisions of the local authorities concerned giving approval to the development, as far as it related to the expansion of the port for the purpose of the export of timber. That appeal was disallowed by the Tribunal. The Tribunal went further than the original approvals and recommendations and allowed the appeal by Port Marlborough against the refusal at the local authority's level to approve the extension and expansion of the port as a coal export service and approved that subject to some terms. New Zealand Rail appeals against the whole of the decision of the Planning Tribunal. Port Marlborough cross-appeals against that part of the decision which determines some conditions of review which are to be contained in the latter.

The decisions given by the Tribunal were not final but comprised interim decisions subject to amendments, modifications and the settlement of the terms of conditions which were necessary to comply with the rulings and observations of the Planning Tribunal in the course of its decision. Furthermore, a part of the decision is a report pursuant to s 118 (6) of the Resource Management Act 1991 directed to the Minister of Conservation as to the recommendations made by a joint hearing committee. Nothing turns on the formal nature of the decision or the inquiry made by the Planning Tribunal or undertaken by the Planning Tribunal. It was common ground that this Court was properly seized of the issues of law raised on the appeal.

Port Marlborough is a limited liability company established under the Port Companies Act 1988. It has two shareholders, the Marlborough District Council as to 92% of the shares and the Kaikoura District Council as to 8% of the shares. Port Marlborough operates the Picton Harbour which caters for a wide range of recreational and tourism activities, and commercial fishing fleets. It also caters for bulk shipping cargoes including, particularly, outgoing cargoes of logs, sawn timber, salt, tallow, meat and coal, and incoming cargoes of cement. Most importantly, however, it is the railhead for the top of the South Island with a ferry terminal for the New Zealand Rail Service between Wellington and Picton for passengers, roll-on/roll-off cargo, stock and other general cargo. Approximately

99% of the tonnage of cargo going through the port is carried through the rail ferries.

Shakespeare Bay is adjacent to Picton Harbour, separated by a peninsula. The bay, which is said to comprise between 60 and 70 hectares, is described in the decision as something of a backwater. Upon the isthmus of the peninsula in a saddle there is a derelict freezing works. There are a few dwellings but the greater part of the area seems to be taken up by reserves and rural uses. The bay has natural deep water. The Port Marlborough proposal is to excavate the saddle on the isthmus to provide road access from the Picton Harbour to Shakespeare Bay, to reclaim an area of some 8 hectares at or near the base of the peninsula. That will, in the end, provide a total area of flat land of approximately 11.4 hectares. It is then intended to provide storage, marshalling back-up areas and other facilities for two deep water berths, one to be dedicated to the export of timber and the other for bulk products generally but in particular for coal.

To obtain the necessary approvals under the Act, Port Marlborough made application to what was then the Nelson/Marlborough Regional Council and to the Marlborough District Council for a number of resource consents. They included applications for coastal permits for the reclamation and development and for the disposal of storm-water into Shakespeare Bay. An application was made for a discharge permit to discharge contaminants to the air and land use consents for the various earthworks and land clearance and for non-complying activity. These applications were duly notified.

In the course of the procedure, beginning with these various applications, the Director-General of Conservation, acting pursuant to s 372 of the Act, issued a direction which required the activities for the two coastal permits to be treated as applications for restricted coastal activities. This transferred the decision to grant these consents to the Minister of Conservation after considering the recommendations of a committee of the Regional Council made pursuant to s 118. As a result it was decided that a joint hearing committee should deal with all the applications and in due course a public hearing was held by that joint hearing committee on 2 and 4 March 1992. Evidence and submissions from a large number of bodies and persons, who had given notice of their desire to take part in the procedure, were heard. The joint hearing committee made its recommendation to the Minister of Conservation that the two coastal permits should be granted except insofar as the consent was sought for the construction of a coal berth and

an associated mooring dolphin. Other consents, as applied for, were granted subject to detailed conditions which were then promulgated. The matter came before the Planning Tribunal by way of appeal against the grant of consents and inquiries against the recommendation of the restricted coastal activity which is treated in all respects as if it was an appeal pursuant to s 118 (6) of the Act.

The distinctive nature of the various appeals and inquiries posed some potential problem to the Planning Tribunal, but if I may say so, with respect, they decided sensibly and properly that all matters should be considered together and be reported upon in one document. As was made clear in their decision, the principal issue in the case was whether land use consent should be granted to allow the port facilities to be established.

After a number of pre-hearing conferences which assisted in clarifying the issues and the parties who remained interested in the matter, the substantive hearing before the Tribunal took place between 1 and 18 February 1993. The principal parties were all represented by counsel. The Tribunal heard detailed evidence from 39 witnesses who were subjected to cross-examination by counsel. As the Tribunal in its decision was able to say, with confidence, "... this proposal has now been the subject of close scrutiny in the course of two detailed hearings, ..." The decision of the Tribunal is set out in 203 pages and deals fully and in close detail with every issue, whether of fact or law, which had been raised before it.

The appeal and the cross-appeal are brought pursuant to s 299 of the Act. They are limited to a point or points of law and that must never be lost sight of. It is often appropriate and necessary for an understanding of the issues at law that the facts should be canvassed but the decisions on the facts are for the Tribunal and not for this Court. It is seldom the case that a decision on the facts can qualify as a question of law or a point of law. In particular, the weight to be given to the evidence is especially a matter for the Tribunal alone.

New Zealand Rail raised a number of points of appeal which, as is not unusual, became refined in the course of submission and one of the points originally raised was not pursued at all. I will deal with each of the points in order but not necessarily the order in which they were presented by Mr Cavanagh. Both the District Council and Port Marlborough opposed the appeal, supported the Tribunal's decision and made independent submissions. Coal Corporation joined

the appeal late and without opposition. It adopted the agreement and submissions of the other respondents.

The first point, as presented in Mr Cavanagh's submissions, was "whether the Planning Tribunal misdirected itself or erred in law when holding that a relevant resource management instrument for the purposes of its decision, and report to the Minister of Conservation, was the proposed Regional Coastal Plan as it existed prior to Variation 3."

It was common ground on this appeal that the Tribunal correctly dealt with all the five resource consents as integral parts of the one development, all as non-complying activities, and that the tests to be applied in respect of each are substantially the same except for two small particulars. In that event, therefore, s 105 (2) (b) of the Act applied as a threshold or a prerequisite to the Tribunal's consideration of the other matters to be considered pursuant to s 104. Sections 104 and 105 have been amended by the Resource Management Amendment Act 1993 (see ss 54 and 55 (2)) but the original versions of these sections still apply to this appeal. Section 105 (2) (b) is as follows:

- " 105. (2) A consent authority shall not grant a resource consent— ...
- (b) For a non-complying activity unless, having considered the matters set out in section 104, it is satisfied that—
- (i) Any effect on the environment (other than any effect to which subsection (2) of that section applies) will be minor; or
  - (ii) Granting the consent will not be contrary to the objectives and policies of the plan or proposed plan; .... "

The Port conceded, as clearly was the case, that the effect on the environment by the proposed development would not be minor so that the objectives and policies of the plan or proposed plan became important.

There were five planning instruments against which the applications were to be considered under this subsection. The first of these was the Marlborough Regional Planning Scheme. On the coming into force of the Act on 1 October 1991 the scheme ceased to have effect pursuant to s 366A except that pursuant to s 367 (1) in carrying out its functions under ss 30 and 31 of the

Act, a territorial authority shall have regard to its provisions. The second was the Marlborough County District Scheme and the third was the Picton Borough District Scheme Review No. 1. Those were deemed to be transitional district plans by virtue of s 373 (1) of the Act, for the Marlborough District Council and divided into the two sections. The last and most relevant to this particular point of appeal, was what was the former proposed Marlborough Sounds Maritime Planning Scheme which was being undertaken pursuant to Part V of the Town and Country Planning Act 1977. Under s 370 of the Resource Management Act that became a Proposed Regional Coastal Plan.

That scheme was publicly notified in July 1988 by the Marlborough Sounds Maritime Planning Authority. The Planning Authority was, at the time, the Marlborough Harbour Board which was the predecessor of Port Marlborough. From November 1989 until 30 June 1992 the scheme was administered by the Nelson/Marlborough Regional Council and thereafter has been administered by the Marlborough District Council. There were a number of objections made to the scheme as originally notified. Some of these objections and submissions were heard by the Planning Authority and appeals were lodged with the Planning Tribunal in some instances. In September 1991 a document described as Variation No. 3 to the proposed maritime scheme was publicly notified. The purpose of this variation was to withdraw all those parts of the scheme that were still the subject of objections that had not been heard. Among other things, parts of the scheme that were withdrawn were those parts which included proposals and policies for port development generally and particularly in relation to Shakespeare Bay. In October 1992 the Marlborough District Council, as Planning Authority, resolved, pursuant to s 104 (6) of the Town and Country Planning Act, to withdraw all proposed variations including Variation 3. By that means it purported to reintroduce into the proposed Regional Coastal Plan the proposals originally included for port development in Shakespeare Bay.

In essence, it is the appellant's contention that the Planning Authority had no jurisdiction to withdraw Variation 3 for two reasons. The first is that, in accordance with s 104 (6) of the Town and Country Planning Act, the Planning Authority's jurisdiction was limited to withdrawal of the whole of the proposed scheme and not just a part of it. The second reason is that, pursuant to Reg 48 (3) of the Town and Country Planning Regulations 1978, the variation had merged with the proposed Regional Coastal Plan. In other words Variation 3 had ceased to be an independent document and could only be withdrawn by withdrawal



of the whole of the proposed scheme or by another variation which was not the step taken.

Under Part V of the Act, after the constitution of a maritime planning area and its planning authority, a preliminary statement of intention to prepare a maritime planning scheme was to be published within six months or within such further time as the Minister might allow. Unlike District Schemes, there was no express obligation to provide and maintain a scheme. Under that part of the Act there was no power for the District Authority to withdraw a proposed scheme in its entirety. The next step was the preparation and public notification of the Draft Scheme pursuant to s 104. The scheme had to make provision for the matters referred to in the Second and Third Schedules of the Act and to be prepared in accordance with regulations. Under s 105 of the Act the provision of ss 45 to 49 of the Act were applied so far as they were applicable and with the necessary modifications. Those sections provided for submissions and objections, alterations and variations of the schemes and the way in which consideration and hearing of submissions and objections should be made and, finally, a right of appeal to the tribunal.

Section 47 (4) of the Act, dealing with variations, provided that:

" The Council may at any time before a proposed variation is approved, or (if an appeal has been lodged in respect of it) before the Tribunal has made a decision on the appeal, withdraw the proposed variation. "

Following the hearing of the submissions and objections, in accordance with the regime applicable to District Schemes and subject to any amendments required, the Planning Authority then approved the scheme and it became operative.

Section 109 provides authority or jurisdiction to alter by way of change, variation and review of any planning scheme. Subsection (4) of s 109 provides:

" All the provisions of this Part of this Act relating to the preparation and approval of maritime planning schemes shall, so far as they are applicable and with the necessary modifications, apply to every review. "

And subs (1) provides likewise in respect of any variation or change.

On a proper reading of the Act the Planning Authority had jurisdiction to change and vary and to withdraw a variation at any time. By reference, the power to withdraw a variation contained in s 47(4) was incorporated into the scheme of maritime planning and applied, expressly, pursuant to s 109 (1) and 105. The provision of s 104 (6) as to withdrawal of the whole of the scheme was an additional right or authority, a right which was not available to District Councils or other Authorities under the earlier part of the Act, whose obligation was to provide and maintain a scheme. It is not the intention of subs (6) of s 104 to limit but is to extend the jurisdiction and rights of the Maritime Planning Authority so that it could withdraw the whole of a scheme and start anew.

Regulation 48 of the Town and Country Planning Regulations 1978 provides as follows:

" 48. (1) Where the Maritime Planning Authority wishes to vary the draft maritime planning scheme or to change an operative scheme it shall, so far as it is applicable and with the necessary modifications, follow the procedure set out in regulations 46 and 47 of these regulations:

Provided that the time for receiving submissions and objections shall be not less than 6 weeks after the date of public notification.

(2) Every variation and every change shall include a report setting out the reasons for the variation or change and the likely economic, social and environmental effects. Copies of the report shall be included with the public notice and a copy of the variation or change sent to the bodies and persons referred to in regulation 46 (5) of these regulations.

(3) Every variation of a draft scheme shall be merged in and become part of the scheme as soon as the variation and the scheme are both at the same stage of preparation:

Provided that, where the variation includes a provision to be substituted for a provision in the scheme against which an objection or appeal has been lodged, that objection or appeal shall be deemed to be an objection or appeal against the variation. "

Paragraph (3) is to be compared with the corresponding regulation about the variation of district schemes, that is to say reg 28 (3). That opens with the words, "Except as expressly provided in the Act," and instead of referring to the stage of preparation speaks of the same procedural stage. The authority and effect of reg 48 is procedural but it cannot alter or amend the effect of the statute to which it is subordinate. There is nothing in the regulation which expressly provides against a withdrawal of a variation. It is implicit, so it is said, that by requiring merger then the withdrawal is no longer possible but that does not follow dramatically or logically. Although a variation has merged it can still be extracted and excised from what has gone before.

In any event the powers of regulation-making under s 175 of the Town and Country Planning Act were limited to those regulating the procedure to be adopted with respect to the preparation, recommendation, approval, variation and change of maritime planning schemes. That would not permit a regulation which provided substantively for the or against the withdrawal of a variation once made.

There was an argument as to whether, in the circumstances of this case, the scheme, as far as it had gone, and the Variation 3 were at the same stage of preparation. However I have already noted the distinction in the regulations and the reference on the one hand to the stage of preparation and the procedural stage. In Part V there is particular reference to preparation and approval in various sections, as I have already cited, and that seems to point to a particular distinction. It is not necessary to make a decision on this point but I would incline to the view that the variations and the scheme itself were at the same stage of preparation although not at the same factual procedural stage.

In the result the Authority had jurisdiction to withdraw Variation 3 and there being no further challenge to what it did that variation was properly withdrawn and the Tribunal made no error of law in considering that planning instrument in its condition with Variation 3 withdrawn, that is to say in its original terms.

The next point of appeal was whether the Planning Tribunal misdirected itself as to the interpretation of the relevant objectives and policies of the relevant plans when holding that the development was not contrary to those objectives and policies. In its decision the Tribunal, having identified the relevant

resource management instruments and dealt with the question of Variation 3, then undertook a lengthy discussion of the particular parts of those instruments and the evaluations proffered in evidence by the planning witnesses. There is a detailed comparative discussion of the evidence, in particular of Mr R D Witte, Senior Planner with the Marlborough District Council and later Senior Strategic Planner with the unitary authority on the one hand, and on the other of Mr D W Collins, Planning Consultant called by New Zealand Rail.

The Tribunal gave its summary and conclusions at p 164 to 166, referring to each of the planning instruments and coming to a conclusion as to their overall effect, concluding at p 167:

" It is our judgment that, taken overall, the relevant objectives and policies earlier discussed support such a development in this locality. Indeed, in the proposed regional coastal plan which is relevant to the land use consent because it refers specifically to port development as well as an associated reclamation, it is indicated that Shakespeare Bay might be developed to a much greater extent than Port Marlborough's present proposal. "

And concluded that the -

" ... the consent to port development ... would not be contrary to those objectives and policies. "

Mr Cavanagh, in the course of his submissions, dealt in some considerable detail with the provisions of the various resource management documents, drawing attention to various parts of them and contending for their meaning and effect. By way of submission he interpreted and demonstrated the various policies and objectives, either expressed or implied in those various documents, analysing each of them and making submissions overall about them individually and collectively. He conceded that the appellant cannot challenge the Tribunal's factual findings in themselves or any value judgment, as he put it, that the Tribunal made as a result. The way he put it, however, was that this was not a challenge on the facts or the findings on the facts, but asserted that the Tribunal had misdirected itself in its interpretation of the relevant objectives. It was the appellant's submission that a proper consideration of the totality of the objectives

and policies in the relevant resource management documents did not support the establishment of such a major project as that proposed by Port Marlborough.

It was not suggested that the Planning Tribunal had failed to have regard to any of the documents or the content or any part of the content of them. It was not contended that the Tribunal had made any error in law in construing s 105 (2) (b) (ii), or that it had incorrectly construed the words "objectives and policies" and the word "contrary", or at least there was no challenge to that. It was not suggested that this was a case of unreasonableness in the *Wednesbury* sense (*Associated Provincial Picture Houses v Wednesbury Corporation* [1948] 1 KB 223) although Mr Cavanagh did express himself in his submissions that the finding by the Tribunal was not one open to a reasonable tribunal properly directed as to the correct interpretation of the objectives and policies in the various relevant documents.

In the end what the appellant submitted was that the proposed development is contrary to the policies and objectives of the relevant resource management documents and that the Tribunal was in error in reaching the opposite conclusion. That was no more and no less than a challenge on the factual findings. It was a challenge as to the inferences and the conclusions drawn by the Planning Tribunal from the facts before it. It was for them to give the weight that they thought fit, both to the evidence that was given and to the very words and meanings of the documents before them. That they attended to the evidence and the documents is plain. That they came to conclusions upon them without error in law is equally plain.

I have myself considered the various words and documents and the tenor of the conclusions reached by the Tribunal. Among the matters that have to be borne in mind, and which I think was clearly in the minds of the Planning Tribunal, as the essential question was whether the consent to the proposed use and development was "contrary" or not to the relevant objectives and policies. The Tribunal correctly I think, with respect, accepted that that should not be restrictively defined and that it contemplated being opposed to in nature different to or opposite. The Oxford English Dictionary in its definition of "contrary" refers also to repugnant and antagonistic. The consideration of this question starts from the point that the proposal is already a non-complying activity but cannot, for that reason alone, be said to be contrary. "Contrary" therefore means something more than just non-complying.

It is relevant here to observe what was said by the Court in *Batchelor v Tauranga District Council (No. 2)* (1992) 2 NZRMA 137 at p 140:

" There are likely to be difficulties in reconciling the regime of the new Act to an operative district scheme created under and treated as a transitional plan, for plans under the new Act are intended to be different in concept and form from the old district schemes. Yet during the transitional period, the old must be treated as if it were the new. That is a necessary consequences of the statutory situation and must be dealt with in a pragmatic way. "

In my view this point is not a point of law at all but is a question of fact. Insofar as it might be described as a point of law, I am satisfied that there was ample material before the Tribunal which justified the factual finding and the conclusion that it came to, namely, that the proposal and the development was not contrary to the policies and objectives of the plans and the documents.

The next point of appeal was whether the Planning Tribunal misdirected itself in holding that the Act "does not require the proposed development to be dealt with by way of plan change procedure". This issue was a fundamental plank of New Zealand Rail's position in its opposition to the proposed development. It had submitted, as it did before the Court, that it was inappropriate that a proposal of this magnitude and nature should be advanced and concluded by way of a resource consent application as a non-complying activity. As a major development with substantial impact on Picton, Marlborough and the whole of the South Island it was said that it needed to be assessed in the context of a plan change procedure under which, in particular, the provisions of ss 74 and 32 would have been important matters for consideration and disposal.

This was dealt with at some length by the Planning Tribunal. In particular the Planning Tribunal compared the provisions which apply to the plan change procedure under the new Act with the former provisions under the Town and Country Planning Act and concluded at the top of p 458 as follows:

" Whereas under earlier legislation a disappointed developer had no recourse if consent to a specified departure was refused, unless the territorial authority was prepared to take the initiative by promoting a

scheme change. Now, if a resource consent is refused, a disappointed developer can itself take steps to have the Plan changed. This is entirely consistent with a finding that to grant a resource consent would be contrary to the relevant objectives and policies of the Plan. "

The Tribunal concluded that the Act does not exhibit a preference for plan change procedures over resource consent procedures.

I think that little assistance is to be gained in this regard from a consideration or a comparison with the previous legislation. This is new legislation which, as the full Court in *Batchelor* said, imposes a significantly different regime for the regulation of land use by territorial local authorities. The Court went on to refer to the concept of direction and control under Town and Country Planning Act and distinguished the movement towards a more permissive system of management focussed on control of the adverse effects of land use activities. The Act expresses importantly the objectives and the purposes of the Act in Part II which sets the scene overall for the construction and application of the Act.

What the appellant submitted was that, where a planning consent application will have implications of significance beyond the proposed site, the matter should be dealt with by way of plan change or review. As noted by the Tribunal and in the submissions before the Court, the Resource Management Act now authorises any person to request a change of a district plan: see s 73 (2). At the same time application for resource consent may be made in accordance with the particular procedure set out in Part VI of the Act. There is nothing in that part of the Act or elsewhere which provides any limitation but, as is crucial in this case, a resource consent application which fails to meet s 105 (2) will not be granted. Thereafter the applicant, if the matter is to be pursued, would have to proceed by way of a request for a change of the plan. That is not to say, however, that that shows any tendency to require an application for plan change in cases in which that threshold might not be passed or where, although it was passed, there could be said to be some significant impact otherwise in the scheme. The legislation authorises the distinct procedures. I agree, with respect, with the conclusions of the Tribunal.

In any event it must be recognised that in this case the proposals and the opposition to them was given a very close and detailed consideration by two tribunals over an extensive period of time. Many, if not all, of the various

considerations which would be relevant to a change of plan procedure were canvassed before the Tribunal and were considered by it. The Tribunal identified ten particular topics for discussion and consideration in the course of the decision and these were each given careful consideration. The ten topics were:

Forestry  
 The Coal Trade  
 Log Marshalling and Stevedoring  
 Coal Transportation  
 Construction of a Bund Wall and Reclamation  
 Wharf Construction  
 Visual Air Quality and Water Quality Effects  
 Shipping and Navigation  
 Tourism  
 Economics

The Tribunal correctly concluded that, although the application had not been the subject of s 32 procedures, it had not suffered as a result. Alternatives were considered, as were economic consequences. It is, I think, difficult to see what other matters or considerations could be effectively pursued simply by adopting the change of plan procedure.

The next point of appeal that I deal with, though not in the order that was presented, is whether the Planning Tribunal in holding that the provisions of Part II of the Resource Management Act are not to be given primacy when considering resource consent applications pursuant to s 104 of the Act. Section 104 sets out the matters to be considered in an application for a resource consent. Part II is particularly referred to and is one of the matters which the consenting authority should have regard to. It is referred to in subs (4) (g) which is the second last of that list, the last being any relevant regulations. That section is now made expressly subject to Part II by virtue of s 54 of the Resource Management Amendment Act 1993, but the Act must be construed for this case in its original form. It was suggested that the 1993 amendment made explicit what was previously implicit in the Act generally and in s 104 specifically. Equally, however, it may be contended that such an amendment is intended to remedy a defect in the Act and is intended to alter what was there before.



Part II of the Act sets out the purpose and the principles which include, among other things, matters of national importance and the Treaty of Waitangi. This matter was the subject of submission and it is an issue in *Batchelor's* case. At p 141 the Court said:

" In carrying out that exercise, [namely, the regard to the rules of a plan and its relevant policies or objectives], regard must also be had to the other relevant provisions of s 104, including the general purpose provision as set out in s 5. Although s 104 (4) directs the consent authority to have regard to Part II, which includes s 5, it is but one in a list of such matters and is given no special prominence. "

Citing that view the Planning Tribunal in this case noted also the distinguishable decision in *Environmental Defence Society Inc v Mangonui County Council* [1989] 3 NZLR 257 which depended upon the provisions in the Town and Country Planning Act which made the matters, to which regard was had, subject to the provisions in ss 3 and 4 of the 1977 Act which related to the matters of national importance and the general purposes of planning. Here, in the present Act as it was, in the absence of any such provision and with the provisions of Part II merely being one of a number of matters to which regard was to be had, it could not be said that any primacy was given to Part II over all the other Parts. That, I think, must follow from an ordinary reading of the Act.

Mr Cavanagh went on to submit that s 5 and the other sections in Part II set out the central theme of the Act, declaring a specific purpose and principles. This was, he argued, an unusual provision setting a statutory guide-line creating a primary goal and a basic philosophy which controlled and governed any and all exercise of functions and powers under the Act. It was said that the opening words of ss 6, 7 and 8 emphasised that imperative with the words, "In achieving the purpose of this Act, all persons exercising functions and powers under it, ... shall" recognise and provide for the matters of national importance (s 6), have particular regard to the matters in s 7 and take into account the Treaty of Waitangi (s 8).

Reliance was placed on the decision of the Court of Appeal in *Ashburton Acclimatisation Society v Federated Farmers of NZ Inc* [1988] 1 NZLR 78. That was a case under the Water and Soil Conservation Act 1967 to which was added, in an amendment in 1988, a section setting out the object of the Act.

The Court, in a judgment delivered by Cooke P, at p 87, having noted the unusual step of declaring a special object, said, at p 88:

" A statutory guide-line is thus provided; and I think that the code enacted by the Amendment Act is to be administered in its light. With all respect to the contrary arguments, to treat s 2 as surplusage or irrelevant or mere window-dressing would be, in my opinion, as cynical and unacceptable a mode of statutory interpretation as that which was rejected in *New Zealand Maori Council v Attorney-General* [1978] 1 NZLR 641. The duty of the Court must be to attach significance to and obtain help from this prominent and unusual feature of the Parliamentary enactment. "

I am told that that case was not cited to the full Court in *Batchelor*.

That case is, however, distinguishable because there there was no reference back to the object of the Act in the matters for which consideration had to be given. In this case, however, Part II is specifically referred to as one of a number of items. Whatever its importance and its guidance in the Act generally, s 104 must be taken to have deliberately brought it in as one of the matters without any indication whatsoever that it was to be given any particular primacy and, indeed, it does not even head the list let alone a section which begins with the necessity to have regard to actual and potential effects of allowing the activity. I am in respectful agreement with the view of the full Court and with that of the Tribunal in this case.

The next point was whether the Planning Tribunal misdirected itself as to the interpretation of s 6 (a) of the Act by holding that natural character of the coastal environment could justifiably be set aside in the case of a nationally suitable or fitting use or development.

The Tribunal's decision on this topic noted the wording of the present section and its difference from that of the previous corresponding section. The section now requires that persons exercising the functions and powers under the Act in relation to development shall recognise and provide for -

" 6. (a) The preservation of the natural character of the coastal environment (including the coastal

marine area), wetlands, and lakes and rivers and their margins, and the protection of them from inappropriate subdivision, use, and development: "

Section 3 of the 1977 Act set out the matters which were declared to be of national importance which shall "in particular be recognised and provided for" including, in s 3 (1) (c), "The preservation of the natural character of the coastal environment and the margins of lakes and rivers and the protection of them from unnecessary subdivision and development:". Having referred to the construction of that previous provision in *Environment Defence Society v Mangonui County Council* and after discussing the meaning of the word "appropriate" the Tribunal said, at p 465:

" Having regard to the foregoing, it is our judgment that s 6 (a) of the Act should be applied in such a way that the preservation of the natural character of the coastal environment is only to give way to suitable or fitting subdivision, use, and development. Here, of course we only have to consider development. But this does not mean to say that *any* suitable or fitting development will qualify. Although the threshold, as Mr Camp put it, may be passed earlier when considering appropriateness as distinct from need, it has to be remembered that it is appropriateness in a national context that is being considered. It is not, for example, appropriateness in either a regional or a local context. This is made clear by Somers J in the passage from his judgment in *Environmental Defence Society v Mangonui County Council* that we referred to earlier.

Consequently, the development being considered for the purposes of s 6 (a) of the Act would have to be *nationally* suitable or fitting before preservation of the natural character of the coastal environment could justifiably be set aside. "

Later the Tribunal concluded that the provision of log and coal export trade facilities in Shakespeare Bay was suitable or fitting on a national level and the setting aside of the preservation of the natural character of the bay was thus justified to the extent required by the development.

The appellant contended that s 6 and in particular para (a) must be read with reference back to s 5, the purpose and the promotion

of sustainable management of natural and physical resources. It was suggested that Parliament intended that the primary object is that the effect of any modification to natural character must be adequately mitigated wherever possible and development is to occur only where it is appropriate. It was the environment which was placed in a pre-eminent position in light of the purpose of sustainable management. Preservation of natural character must be achieved even in the case of appropriate development. As Mr Cavanagh put it, an appropriate development must require the coastal location chosen for that activity to be such that it cannot be accommodated elsewhere; its effect can be so mitigated as to minimise its impact on the natural character of that environment and that the permanent modification of a coastal environment can only be justified if the development in question has significance of national importance and the economy of the nation as a whole.

I have somewhat extensively, but I hope accurately, expressed the submissions made in this matter. I have done so because I found some difficulty in understanding precisely what the appellant's contention is, particularly as the last part of the submission that I have described appears to coincide with the tenor of the Tribunal's view that national suitability would justify the setting aside of the preservation of the natural character of a coastal environment. The recognition and provision for the preservation of the natural character of the coastal environment in the words of s 6 (a) is to achieve the purpose of the Act, that is to say to promote the sustainable management of natural and physical resources. That means that the preservation of natural character is subordinate to the primary purpose of the promotion of sustainable management. It is not an end or an objective on its own but is accessory to the principal purpose.

"The protection of them", which in its terms means and refers to the coastal environment, wetlands, lakes, rivers and their margins, the items listed, but the protection is as part of the preservation of the natural character. It is not protection of the things in themselves but insofar as they have a natural character. The national importance of preserving or protecting these things is to achieve and to promote sustainable management.

"Inappropriate" subdivision, use and development has, I think, a wider connotation than the former adjective "unnecessary". In the *Environmental*

*Defence Society v Mangonui County Council* case that expression was construed by considering "necessary" and the test therefore was whether the proposal was reasonably necessary, although that was no light one: see Cooke P at p 260 and Somers J at p 280 when he said that preservation, declared to be of national importance, is only to give way to necessary subdivision and development and to achieve that standard it must attain that level when viewed in the context of national needs.

"Inappropriate" has a wider connotation in the sense that in the overall scale there is likely to be a broader range of things, including developments which can be said to be inappropriate, compared to those which are said to be reasonably necessary. It is, however, a question of inappropriateness to be decided on a case by case basis in the circumstances of the particular case. It is "inappropriate" from the point of view of the preservation of natural character in order to achieve the promotion of sustainable management as a matter of national importance. It is, however, only one of the matters of national importance, and indeed other matters have to be taken into account. It is certainly not the case that preservation of the natural character is to be achieved at all costs. The achievement which is to be promoted is sustainable management and questions of national importance, national value and benefit, and national needs, must all play their part in the overall consideration and decision.

This part of the Act expresses in ordinary words of wide meaning the overall purpose and principles of the Act. It is not, I think, a part of the Act which should be subjected to strict rules and principles of statutory construction which aim to extract a precise and unique meaning from the words used. There is a deliberate openness about the language, its meanings and its connotations which I think is intended to allow the application of policy in a general and broad way. Indeed, it is for that purpose that the Planning Tribunal, with special expertise and skills, is established and appointed to oversee and to promote the objectives and the policies and the principles under the Act.

In the end I believe that the tenor of the appellant's submissions was to restrict the application of this principle of national importance, to put the absolute preservation of the natural character of a particular environment at the forefront and, if necessary, at the expense of everything except where it was necessary or essential to depart from it. That is not the wording of the Act or its intention. I do not think that the Tribunal erred as a matter of law. In the end it

correctly applied the principles of the Act and had regard to the various matters to which it is directed. It is the Tribunal which is entrusted to construe and to apply those principles, giving the weight that it thinks appropriate. It did so in this case and its decision is not subject to appeal as a point of law.

The next point of appeal was whether the Planning Tribunal misdirected itself or erred in law in holding that financial viability of the proposed development was not relevant to consideration of the application for resource consents or, alternatively, in failing to take into consideration the financial viability of the proposed development when considering the application for resource consents.

One of the planks of New Zealand Rail's challenge of the proposed development was a claim which it supported by evidence and cross-examination that the cost of the whole development was likely to be significantly greater than had been estimated. The result of this would mean that, in order to service the costs, port fees would have to be increased but because, for competitive reasons, it would be necessary to hold the costs to the users of the timber and coal berths the costs would therefore fall on other port users and, in particular, on New Zealand Rail as the predominant and principal user of the port.

The Tribunal was satisfied that it was feasible from an engineering point of view to construct and complete the necessary reclamation and wharf constructions. There was no suggestion that Port Marlborough would be unable to complete the works or to obtain the necessary finance for it. Thus there was no suggestion that the development would not take place for lack of funds or because of engineering or other construction difficulties. The Tribunal did express itself, however, that the port might have under-estimated the costs of achieving the results and that it would be advised to reconsider and to review its costings.

Under the heading of economics the Planning Tribunal discussed and considered the evidence of Dr R R Allan who was called as the witness by New Zealand Rail to demonstrate, from his calculations and evaluations, the thesis that New Zealand Rail might, in the end, be required to subsidise the costs of the use of the timber and coal facilities. The Tribunal noted, as they said, Dr Allan's impressive credentials in the field of transport engineering and economics and found him to be a sound, careful witness to whose opinions they paid a good deal of attention. It was noted, however, that the economic analysis depended upon the

proper calculation as to the costs and the variations which were involved in that. The Tribunal returned to this topic and, at p 172 of its decision and thereafter, said this:

" On the matter of additional port charges, which of course applies to both timber and coal, although Dr Allan presented an attractive argument to support NZ Rail's case in this regard, in the end we do not think it was sufficiently persuasive to justify refusing consent on economic grounds.

Whether increased port charges will occur depends on several variables, including importantly the final cost of the development. Then too there was no evidence about how Port Marlborough proposes to go about setting its charges for the use of these facilities, except to the extent that with regard to the log trade it intends to be competitive with the port of Nelson. However, by the time this development comes to fruition what that will mean in practical terms is unknown.

It is possible as Dr Allan demonstrated to construct a scenario from which one might conclude that NZ Rail, being the single most important port user at the present time, could face increased port charges to subsidise this development. However, again as his evidence and his cross-examination demonstrated, Dr Allan's scenario is no more than one possibility. We think too that Mr Camp made a strong point when he submitted that the financial viability of a development, as distinct from its wider economic effects, is more properly a matter for the boardroom than the courtroom. "

It was the appellant's submission that financial viability, in the words used by Mr Cavanagh, is a relevant consideration under Part II of the Act. Mr Cavanagh said if the proposal is not viable then it is in conflict with Part II. With comparative reference to the decision in *Environmental Defence Society v Mangonui County Council* it was submitted that there was an onus on an applicant to establish the economic practicability of the proposal. In the result, it was said, the evidence before the Tribunal which showed some doubts as to the costings and the possibility of increased port charges, resulting in undue charges and subsidy by New Zealand Rail, put in doubt the financial viability of the proposal. It was

submitted that the Tribunal had been dismissive of the economic topic and therefore had not taken appropriate consideration of it into account.

It was Mr Cavanagh's contention that, in order that the Court should have a proper understanding of this question, it was necessary that it should consider the evidence given by Dr Allan. To that end Mr Cavanagh applied for leave to produce, as evidence, the transcript of that part of the evidence which included Dr Allan's evidence-in-chief and his cross-examination. That application was opposed by the respondents. I rejected the application on the ground that it would not be necessary or helpful in deciding the question of law, if any, involved in this topic to read or to consider the particular evidence given in the matter. The tenor of the evidence and the material before the Tribunal was, in my view, adequately described in the Tribunal's decision.

Financial viability in those terms is not a topic or a consideration which is expressly provided for anywhere in the Act. That economic considerations are involved is clear enough. They arise directly out of the purpose of promotion of sustainable management. Economic well-being is a factor in the definition of sustainable management in s 5 (2). Economic considerations are also involved in the consideration of the efficient use and development of natural resources in s 7 (b). They would also be likely considerations in regard to actual and potential effects of allowing an activity under s 104 (1). But in any of these considerations it is the broad aspects of economics rather than the narrower consideration of financial viability which involves the consideration of the profitability or otherwise of a venture and the means by which it is to be accomplished. Those are matters for the applicant developer and, as the Tribunal appropriately said, for the boardroom. In the *Environmental Defence Society* case the particular consideration to which Mr Cavanagh referred was the absence of any evidence that the proposed development would actually take place. There was no developer, there was no evidence as to any actual development proposal or their costs. In this case plainly there was a considerable body of evidence given on each side as to the costs and as to the economics and the potential viability of the proposal for the reclamation and construction of all works and buildings required.

The contention that the Tribunal was dismissive of this economic evidence is, I think, to misunderstand what the Tribunal was doing. Clearly it considered all the evidence that was put before it but in the end it dismissed the contentions and opinions of Dr Allan and set them aside. It was not satisfied, on



the evidence before it, that the apprehensions of that witness and thereby of New Zealand Rail would be realised. This was a judgment on the facts, on the weight of the evidence before it. The Tribunal took into account economic questions, as it was bound to do, in a broad sense and in a narrower sense upon the projected development itself. In the result they came to the conclusion that that evidence was not "sufficiently persuasive to justify refusing consent on economic grounds". That does not raise a question of law but is a decision on the merits after considering the material before it. It is wrong to suggest, as Mr Cavanagh did, that the economic effects were not addressed. The Tribunal addressed the evidence and came to a conclusion contrary to that of New Zealand Rail. New Zealand Rail has no appeal in law against that finding.

The final point of appeal was directed to the Tribunal's decision upholding the appeal by Port Marlborough and granting resource consents for the provision for the coal export trade. The ground of appeal was expressed, in terms, as to misdirection by the Tribunal of the interpretation of ss 5 and 6 which enabled it to grant the resource consents. The essence of the case of the appellant on this ground was its submission that it is an inappropriate use or development of a coastal environment to impose a development of this nature and significance in circumstances where there is no evidence that the facilities will be used once built.

It was common ground that the proposed development involved reclamation which would be suitable for both the timber and coal facilities although the coal berth and its associated dolphin mooring would not be constructed until it was required. There was therefore no immediate intention to proceed with the coal terminal construction though the whole of the reclamation would take place to provide the necessary flat land for the further expansion into the coal berth. It was the contention of New Zealand Rail that if the coal was excluded the size of the reclamation could be reduced and thus the effect on the land could be reduced proportionately.

The Tribunal gave, as it did to all other aspects of the case, extensive consideration to the coal trade, describing and assessing the evidence given on each side in that regard. As the Tribunal said in its concluding paragraphs on its discussion of this evidence at p 47:

" ... we have referred at times to some of the evidence about the transportation of coal because that

evidence is relevant to the principal question here, namely whether there is sufficient justification for granting resource consents to enable a dedicated coal export berth and back-up area to be established in Shakespeare Bay. "

The Tribunal noted the submission on behalf of New Zealand Rail that this was a "straw" proposal, simply a device to enable coal exporters, principally Coal Corporation, to drive a harder bargain with New Zealand Rail for the cartage of coal by rail using the threat of a dedicated coal berth at Shakespeare Bay as a bargaining point in New Zealand Rail's need to maintain the Midland Line for the transport of coal between the West Coast and Lyttelton. The Tribunal noted, however, the evidence on the other side that, while there was no clear-cut intention as was the case with the log exporters, Coal Corporation was looking for a convenient alternative export port facility. The Tribunal concluded that it was unable to say with any degree of confidence that New Zealand Rail's view of the matter was correct. The Tribunal went on, at p 48:

" The evidence about the need for a dedicated coal berth is less convincing than the evidence about the need for additional log exporting facilities in the Picton/Shakespeare Bay area, but the reasons for this are largely to do with the uncertainties that surround future markets. This no doubt is the reason why Port Marlborough does not propose constructing a coal berth immediately, but it does not follow from this that it is unnecessary to make provision for such a facility. Whether provision should be made as a matter of overall resource management evaluation is of course another question and one that we are not attempting to answer here. On balance, we think that the case made by Port Marlborough and Coal Corp is just sufficient to justify further consideration of this part of the proposed development under later headings. "

The Tribunal returned to this topic, and having noted that it had entertained some reservations about granting consent to provide the opportunity for the coal part of the proposed development to take place, and having referred to the Midland Line as a resource for the purpose of s 5 and making a conclusion as to that, the conclusion made was, at p 172:

" ... we think that permitting provision to be made in Shakespeare Bay for a coal export trade which we also accept is important nationally, is justified. The additional environmental impacts associated with such a development over and above those that will already occur with the timber trade are not such as to warrant refusing consent on those grounds. To the extent that they are different from those arising from the timber trade, and here we are referring in particular to the matter of coal dust, we are satisfied that they can be mitigated by management practices that can be required to be put in place through the conditions of a consent.

On the matter of additional port charges, which of course applies to both timber and coal, although Dr Allan presented an attractive argument to support NZ Rail's case in this regard, in the end we do not think it was sufficiently persuasive to justify refusing consent on economic grounds. "

Once again this is a finding of fact in which the Tribunal has assessed the evidence before it and reached a conclusion in favour of the applicant and against the opposition. This is not a case where there is no evidence, although the evidence was to the effect that there would be no immediate use of the proposed facility. It was the Rail case that this was a prospective application without any real expectation of use. The Tribunal, after considering the matters put before it, concluded that was not the case but that the case made by Port Marlborough and the Coal Corporation was sufficient to justify the further consideration which the Tribunal gave to the matter. I can see no question of law in this and so it too must fail.

I turn then to the cross-appeal by the Marlborough District Council. Only one of the points raised in the notice of cross-appeal was pursued. That was against the terms of a review condition proposed by the Tribunal which it required be incorporated in each of the resource consents. This is a requisite of s 128 which provides as follows:

" 128. A consent authority may, in accordance with section 129, serve notice on a consent holder of its intention to review the conditions of a resource consent—

- (a) At any time specified for that purpose in the consent for any of the following purposes:
- (i) To deal with any adverse effect on the environment which may arise from the exercise of the consent and which it is appropriate to deal with at a later stage; or
  - (ii) To require a discharge permit holder to adopt the best practicable option to remove or reduce any adverse effect on the environment; or
  - (iii) For any other purpose specified in the consent; .... "

I omit the remaining parts of this section as being irrelevant to the question in issue here.

There had been proposed review conditions which were couched as to their relevant parts in these terms:

" 5. Review of Conditions

At any time after the first six (6) months of the exercise of any resource consents granted for the development of a port facility at Shakespeare Bay by Port Marlborough New Zealand Limited, the Marlborough District Council may review the conditions of consent(s) for any of the following purposes: ... "

The Tribunal took the view that the condition did not comply with s 128 because it did not specify a time with the precision required under the proper meaning of the Act. The Tribunal referred to a decision of the Planning Tribunal in *WP van Beek trading as Christchurch Pet Foods v Christchurch City Council*, Decision No. C 9/93, in which a review condition, pursuant to s 128, was worded as follows:

- " That the Council may review condition (ii) by giving notice of its intention so to do pursuant to section 128 of the Resource Management Act at any time within the period commencing one year after the date of this consent and expiring six months thereafter, for the purpose of ensuring that condition (ii) relating to vibration is adequate. "

The Planning Tribunal, in this case, then said:

" In our view a condition authorising a consent authority to review should contain this degree of specificity, both as to time and if possible as to purpose. "

It was then left for the parties to review and to rewrite the review conditions.

It was the contention of the District Council on its cross-appeal that the Tribunal had construed s 128 and the phrase "at any time specified for that purpose" incorrectly and that the proposed terms which referred simply to "at any time after six months" was sufficient as it specified any and every day after the expiry of that first period. It was said that, contrary to the approach required under s 5 (j) of the Acts Interpretation Act 1924 and the need to ensure the Council's power to review and monitor the construction and operation of the development on a continuing basis, the Tribunal's decision was unduly restrictive.

No other party took part in this cross-appeal, it being left entirely to the cross-appellant. There was, therefore, no contrary argument put to the Court.

In *Sharp v Amen* [1965] NZLR 760 the Court of Appeal construed the words in s 92 of the Property Law Act 1952 "a notice specifying ... a date on which the power will become exercisable" so as to require the precise time or date to be specified. As a result the notice which expressed the date as "within one calendar month from the date of the receipt of this notice by you" was insufficient. As was said in that case, the construction of a particular statute will be controlled by the text of it and its subject matter. But it cannot be said that an expression which means that every day after a particular time complies with the meaning or purpose of this statute. Review, as the word implies, requires a consideration from time to time but the parties and the persons concerned should not be subject to the daily possibility of review under this provision. I think the Tribunal was perfectly correct in requiring a specification with greater specificity than is provided for in the draft. The proposal that has been made by the Tribunal appears to provide a reasonable guide-line. It would give scope for repeated review in months or years to come.

I think care has to be taken to ensure that what is set down by this condition is not just another policing provision to ensure compliance with the

conditions and the terms of the consent granted. It is for the purpose of reconsidering the conditions of the consent to deal with matters which arise thereafter in the compliance exercise of the consented activity. It is not, I think, in place of the other provisions in the Act for the control and enforcement of the conditions of consent.

In the result, then, the appeal and the cross-appeal are dismissed.

The respondents are entitled to costs which I fix in the sum of \$5,000 for each of the first and second respondents together with reasonable travelling and accommodation expenses for counsel and all other disbursements and necessary expenses to be fixed by the Registrar. I make no order for costs in respect of Coal Corporation which took no active part in the matter.



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