

Blueskin Energy Wind Cluster Porteous Hill

Landscape Assessment

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2015



view to Porteous Hill from the Waikouaiti-Waitati Road (State Highway 1)

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1. INTRODUCTION

The Blueskin Energy Project proposes 3 wind turbines on Porteous Hill which lies seaward of The Kilmog section of the Waikouaiti-Waitati Road, State Highway 1, in the Dunedin District.

This wind cluster project is a local initiative with the primary purpose of enabling an energy resilient, efficient, and healthy community. The Blueskin Resilient Communities Trust, via Blueskin Energy Ltd, commissioned Lucas Associates to prepare an assessment of the potential landscape and visual effects of the cluster proposal.

Considering the hill site above the Karitāne – Waitati coastline, several scales of assessment are addressed. The broad scale addresses Porteous Hill within the Waikouaiti to Heyward Point coastal landscape. A more local scale addresses the site within the hills adjoining the highway corridor.

2. PROPOSAL

A 24 ha site on the grazed summit to Porteous Hill is proposed to contain the cluster of 3 wind turbines with each comprising:

- a foundation, largely buried;
- a tapered tubular tower around 50 to 60 m high;
- a nacelle atop the tower, housing the controls, generator and rotor shaft; and,
- a three-bladed rotor, with blades around 30 m long.

Specific design and dimensions of the turbines are yet to be finalised, thus a 'cluster envelope' is sought to contain the 3 identical turbines. The full height from ground level to rotor tip will be between 80 and 102 m. Placement will be refined in response to the final turbine choice.

The Gamesa G58 turbine design has been modelled in photomontages, with a 58m rotor diameter, hub height of 55 m, and a full height to rotor tip of 83 m.



Gamesa G58

3. METHODOLOGY

- Site visit to turbine locations and the context landscape.
- Review the proposal and supporting information.
- Explore the bio-physical, associative and perceptual character of the site and its landscape context.
- Provide advice regarding alternative turbine designs.
- Review documentation, policies and plans.
- Receive and review indicative visual simulations¹.
- Assess potential effects.
- Draft the assessment.

4. LOCATION

- The cluster site is on Porteous Hill, north of Blueskin Bay above the Waikouaiti Coast of Otago. The site is some 2.5 km from the Evansdale-Warrington shore of Blueskin Bay and from the Warrington-Ōmimi open coast below (map attachments **location**, pages 2 -3).
- Porteous Hill is located 25 km north of Dunedin, north of Evansdale, the hill lying seaward, above State Highway 1 (SH1) up through The Kilmog (Kirimoko). From SH1, the site is accessed from Porteous Road at around 380 m asl. (map attachments pages 4 – 6).
- From Evansdale, the Coast Road and the Main Trunk Rail pass around the lower slopes of Porteous Hill via Warrington (Ōkāhau) and Ōmimi. Porteous Hill thus lies between the 3 routes, with the state highway below to the west and the coast road and main trunk line below to the east.
- The site involves 24 ha on the grazed hill summit that reaches to 401 m asl..

5. PLANNING STATUS

Located within the Rural Zone in the operative Dunedin City Plan (DCP), the wind cluster, a community support activity, would be a discretionary activity as per Rule 6.5.6 (ii). However some of the windfarm site the Rural Zone is overlain by a Landscape Management Area, the North Coast Coastal Landscape Preservation Area (CLPA), where, as per Rule 14.6.3 (b) (ii), the erection of the windfarm structures is a restricted discretionary activity. In the CLPA the Council's discretion is restricted to the visual impact arising from the activity on the landscape character and quality of its setting (map attachments **panorama 3**, pages 4 -5).

¹ Refer explanation **Appendix 1** re method for preparing the indicative simulations. The location of the towers is approximate only and the application is for a development envelope rather than precise locations.

6. LAND TYPING

Above the coast from Brinns Point south to Blueskin Bay there is a series of volcanic knolls amidst slumping mudstone country, including:

- Guilds Hill (291 m)
- Hammond Hill (438 m)
- Porteous Hill (401 m)

(map attachment **geology**, page 7; photo attachment **panorama 1**, page 2)

The wind cluster site is located on Porteous Hill, north of Dunedin above Blueskin Bay - the locale where the Otago coast kicks out east around the Otago Harbour crater lands (map attachment **location**, page 2).

Volcanic formations provide the landform character that largely defines the coastal Dunedin District. Dunedin city, the Otago Harbour basin and enclosing Peninsula occupy the eroded Dunedin Volcano. Beyond, the landscape is punctuated by remnant volcanic landforms from different eras of activity that formed the Dunedin Volcanic Complex more than 10 million years ago.

The group of knolls between Waitati (Waitete) and Karitāne are basalt intrusions into a raised section of the Otago peneplain, predominantly schist, and overlying sandstone. These volcanic necks protruded up through the sandstone layer. Whilst worn down over more than 10 million years, and clothed in wind-blown loess, they remain clearly evident today. In particular, Porteous Hill above Warrington, Hammond Hill next and highest, with Guilds Hill and another above Seacliff, and one fingering out forming Brinns Point (Te Awa Koeo) and Green Point (Te Awa Kai Pawa) (map attachment **geology**, page 7).

Porteous Hill is part of a complex of volcanic necks that protrude through the slumping deposition lands of the inland hills between Warrington and Karitane. The loess-covered basaltic necks protrude through the mudstone and earthflow topography.

Porteous Hill involves rolling loess-mantled olivine basalt, surrounded by colluvial slopes of breccia extending eastwards to the coast. To the north the taller Hammond Hill involves steep basalt bedrock. Guilds Hill protrudes through the mudstone lands below (map attachments **landform components**, pages 8 – 11).



a volcanic neck or plug

The form of the volcanic necks, or plugs, in the Blueskin-Karitāne complex are much more gentle and subtle than this “textbook” character. Set back in the inland hills, Porteous Hill and these other basalt domes are also very different from the “front stage” headland domes beyond Blueskin Bay, including Doctors Point and Potato Point.

The robustness of the necks is demonstrated with their smooth loess covered summits. The surrounding deposition lands in contrast display erosion patterning from slumping. Together the solid volcanic necks amidst slumped lands provide a complex land surface character.

Cueing to the dome below and their volcanic origin, lichen-covered basalt rocks protrude and are scattered on and around the crests and flanks, and moved aside for cultivation. (photo attachments **panoramas 4-5**, page 6).

7. COASTAL LANDSCAPE

The Porteous Hill cluster site is on a grazed hill above the Ōmimi to Blueskin Bay (Okahau) coast. For the waters and shores of Te Tai o Arai-te-uru, the Otago coast, from Brinns Point around to Heyward Point, Porteous Hill contributes to the inland hill backdrop forming a skyline landform.

Blueskin Bay is at the coastal pivot point from the more north-south coast to Waikouaiti, and the more east-west coast to Heyward Point. East from Blueskin Bay, knolls and ridges lead down to the coastal interface around Doctors Point, Potato Point, Purehurehu and Heyward Point. The knolls and ridges finger out northwards and seawards, with embayments between, the largest being Pūrākaunui Inlet. The knoll and ridge landforms from Blueskin Bay to Heyward Point, including tiny Mapoutahi and Mopanui high above, are all outer features of the Dunedin crater basin that encircles Otago Harbour (Ōtākou) (map attachments **location**, pages 2 -3).

One of a series of successive volcanic knolls north of Blueskin Bay, Porteous Hill extends above the coast of Ōmimi, Warrington and Evansdale to make an important visual contribution to the Waitati-Karitāne coastal landscape. Porteous Hill is variously viewed from the coastal lands, such as from around Seacliff, Warrington, Waitati (Waitete) and Pūrākaunui.

From less than a kilometre inland on the Coast Road at Seacliff, and close alongside the railway line, there are inland views across lower slope farmland to the open pastoral summit of Porteous Hill. The hill has a gentle rolling silhouette and the regenerating forest of Slaughterhouse Bush is visible on the mid- to upper slopes exhibiting high naturalness (photo attachment **viewpoint 4**, page 14).

Porteous Hill forms the backdrop to Warrington. From close below, the hill summit above appears quite flat. The hill silhouette is visually disrupted by old shelterbelts on the upper slopes. Views from the coast over the settlement are to lower slope shrubland and a scatter of plantings and houses on and above the slumped slopes below open grassed upper slopes to the summit (photo attachment **viewpoint 5**, page 16).

From around Blueskin Bay, Porteous Hill reads as a more domesticated rural landscape, with a plethora of plantings plus a scatter of houses on the complex slumped country.

Shelterbelts intrude into the skyline of the hill. The hill does not display a “clean” silhouette nor appear dominantly natural. Viewed across Blueskin Bay from Waitati Bridge, the hill reads as a place long modified for occupation (photo **viewpoint 6**, page 18).

Buildings are tucked in generally coastwards, or within concavities in the complex hill slopes above, or in niches created through shelter plantings and more intensive production on better soils. The open summit and rock promontories are visible above farm plantings.

Whilst Porteous Hill forms the skyline as experienced from around Blueskin Bay, the landcover mosaic and the gentle hill outline merging into adjoining terrain mean that it is not a simple visual symbol; not a simple signature image or signature landmark.

The coastal promontories east of Blueskin Bay provide for direct outlook to the Warrington - Ōmimi coast and Porteous Hill above. Between Doctors Point and Potato Point, the view from Pūrākaunui Mouth over Mapoutahi to Porteous Hill is a very important attribute of the coastal experience. The more simple gentle knoll landform is clearly viewed above the complex and steeper country below. Shelter plantings on upper pastoral slopes signal a working landscape across the summit. Farm nodes and isolated houses are scattered and tucked around the hill slopes up to around 350 m asl. Shelter and amenity plantings plus pockets of native cover intermingle. This landcover mosaic is more concentrated in the slopes to the southeast. Predominantly pastoral with scattered scrub patches, the slopes toward Ōmimi read as less cluttered and having greater naturalness. Overall viewed from Pūrākaunui Mouth, Porteous Hill has moderate naturalness. (photo attachment, **base photo for simulation 7**, page 19).

The slopes above the Waitati – Heyward coast provide important views across Warrington and Blueskin Bay to an array of coastal and inland hills including Porteous Hill. With elevation, the open summit of Porteous Hill is more on display and the knoll form flattens. From upper to lower slope the mosaic of buildings, farm shelter and other plantings is displayed. The denser mosaic is particularly evident on more southern slopes. The shelterbelts on the upper slopes intrude on natural patterning and limit the naturalness experienced. Viewed from Blueskin Road above Don’s Creek, the more open summit is evident and less clutter interferes, providing more visual prominence to the summit landform (photo attachment, **base photo for simulation 8**, page 20).

Considering the coastal context, a fine-grained lived in and worked landscape clothes the slopes to Porteous Hill and other associated lands. The coastal landscape is very much a working landscape and a very lived in place. Natural slopes and regenerating native cover contribute importantly to the matrix to the evident working and living elements.

The native forest has been cleared. Overlain on the complex landform, a pattern of roads, paddocks, farm nodes and plantings transformed the landscape more than a century ago. Much of the hill slopes display traditional farmland patterning. It is very obviously a working landscape with a scale to which people easily relate and understand.

On steeper and more broken slopes, regenerating native forest and shrubland are clearly evident. Small holdings are evident nestled amongst native cover particularly toward the south. However overall there is no clear patterning that responds to the natural landform underlay. Pasture predominates in the mid and upper slopes. Existing forest and shelter blocks not particularly responsive to natural landform patterning, they are more utilitarian,

responding to tenure and paddock patterns. The very traditional farming character displayed, and the scale of it in relation to the underlying landform pattern, result in a landscape with considerable visual interest.

It is very obviously a place to knuckle down and work with what you have. Structures are erected in sunny and sheltered niches. Shelter plantings cue to liveability. The traditional low key farming character complements and is complemented by the resilient non-farming community of the area responding to local natural attributes.

The landscape is a clear record of people's activity, of direct responses to the character of the land when applying pastoral farming techniques. The mundane of shelter belts, of woodlots, of pasture and fences, of sheds and houses nestled in the lee of macrocarpa and pine. Together the individual and mundane elements create a landscape mosaic, a character from the patterning applied across the hill slopes.

Excepting for the slopes toward Blueskin Bay, the utilitarian farm patterning of the slopes does not extend onto the Porteous summit. The summit landform is entirely pastoral. The main flanks still read as dominantly farmed, with lifestyle lots interspersed and more concentrated on lower slopes.

8. HIGHWAY CORRIDOR

Approaching from Waitati, alongside the Blueskin Bay shore, Porteous Hill is some 6 km ahead and clothed with a land use mosaic including forestry on the western slopes right up to the summit lands. The highway carves through the mudstone landscape inland of the plug landforms. From Evansdale, SH1 climbs steeply northwards amidst the knoll cluster Kirimoko, passing between Kilmog Hill (234 m.) and Porteous Hill (map attachment **location** page 3).

Travelling from the north, south of Merton, SH1 climbs through the hill complex. From the highway, the complex terrain and the tree cover limit views of Porteous Hill. The hill-top site is some 700 m to 1 km seaward of this Waitati – Waikouaiti Road. Near the Pryde Road intersection there is a valued glimpse of the hill. (photo attachment **viewpoint 1**. Page 8

9. WIND CLUSTER EFFECTS

As noted in section 2. above, the wind cluster will involve 3 mid-size turbines in a group on the gentle summit of Porteous Hill. The site is within the Rural Zone and extends into the Coastal Landscape Preservation Area (CLPA). Effects on natural character, landscape, visual and amenity are addressed as per Part 2, the 4th Schedule and the District Plan. The proposal is assessed in terms of its effects on the coastal environment, the CLPA specifically, and, the assessment matters for the Rural Zone.

Considering Part 2 matters, the cluster is assessed within the broad coastal environment as per s6(a), 7(c) and 7(j) and NZCPS Policies 6 and 13.

The proposal for a 3-turbine wind cluster on Porteous Hill is assessed with regard to the Rural Zone provisions, the Coastal Landscape Preservation Area provisions, and Part 2 matters.

10. RURAL ZONE

VISUAL IMPACT

As per 6.7.13, the assessment considers the wind cluster in terms of:

- (i) *The Visual Impact arising from an activity on the character of the*
 - *Rural Landscape,*
 - *Visual Amenity and*
 - *Significant Views.*

Rural Landscape

As identified above, the rural landscape of the hill slopes that form the context for the wind cluster activity is an intricate working landscape involving complex volcanic and depositional landforms mostly pasture clad along with regenerating vegetation patches, interspersed with myriad buildings and plantings. The Porteous summit lands are largely open, pastoral and uncluttered.

Existing structures are mostly limited to small farm buildings and a scatter of houses up the slopes none of which extend onto the summit. Only fencing and wind speed testing masts disrupt the pastoral summit. Below, with the pastoral cover interspersed with occasional rows and blocks of shelter and timber trees, and native regeneration particularly on steeper and unstable slopes, the wind cluster would be a novel introduction to this largely utilitarian rural landscape. The turbine structures would contribute an additional utilitarian element to the complex land use mosaic that has emerged through several centuries of activity. Seeing a small cluster of sustainable energy producing structures would read as compatible with what could be considered a low input, sustainable farm and lifestyle context.

With tens of turbines, the installation would read as a generation facility for areas beyond. With a solitary turbine only, it would read as associated with just the immediate properties. But with the three mid-scale turbines proposed, located on a central summit, the generation structures will read as servicing the working and living landscape of the coastal district of and around Blueskin Bay.

The rotor structures on slim towers projecting above the land, will read as separate from the farming activity on the hill summit, and separate from the woodlots and revegetation around below. Houses are located downslope and the community wind generation facility variously visible above will read as an integral component servicing surrounding properties.

The visual impact of the cluster on the character of the rural landscape is assessed to not be an adverse effect, but to contribute to the legible and no-nonsense land cover and land use of the character of the hill and surrounding slopes. Any adverse effects on rural character are assessed as negligible.

Visual Amenity

Porteous Hill contributes important visual amenity to the coastal landscape and also to the inland hills and highway corridor. When visible, the addition of the turbines will change the visual character of Porteous Hill.

For neighbours within 1.5 km of the turbines, such as down Pryde Road, along the highway, on Porteous Road and Reservoir Road (see **house sites**, map attachment 13), from most of these eight houses, the turbines will not be visible. From the red-roofed 2197 Waikouaiti-Waitati Road (SH1), the turbines will be viewed 1 km away (photo attachment **panorama 2**, page 3).

With the considerable tree cover on the slopes below the site, and the highway close alongside the hillslope, viewed from the highway the turbines will be glimpsed only briefly on the hill summit a kilometre distant. Turbines will be visible from the highway for a kilometre length between the Pullar and Pryde Road intersections. Elsewhere it is likely only blade tips will be visible above the trees. They will be a surprise, as seeing wind turbines from state highway 1 is currently a rare site. Having a brief view of just one to three mid-size turbine structures is likely to be perceived as a rather boutique situation, in contrast to the few large commercial energy installations elsewhere in New Zealand visible from the highway, such as in the Manawatu.

For many people driving by, a glimpse of a turbine, such as from the Pryde Road corner where the closest turbine is less than a kilometre away, will be of interest (photo attachment **simulation 1**, page 9). It is assessed that any turbine sighting would not be a distraction or disruption, but a largely positive effect, adding interest to the visual landscape.

Where the cluster is viewed from coastal slopes the open uncluttered hill summit, such as is viewed from the north toward Hammond Hill, any visible turbines will appear as significant sculptural installations. They will markedly contrast with any existing structures, such as the power lines, fencing, sheds, and occasional house present. Each mounted above a tall slim tower, the triple blade turbines appearing to turn smoothly and slowly, will appear as graceful sculptural structures on the gentle hill summit quite separate from other structures.

From the north, the sample view from Pryde Road (photo attachment **simulation 2**, page 11) shows turbines 2 and 3 less than a kilometre distant. The turbines will thus appear quite close. Located up on the gentle summit, the bases of the turbines will not be visible, so they are set back and will protrude gracefully to hover over the hilltop.

With just 3 turbines spaced on the summit, they will rarely be seen overlapping. When blades from two machines appear to cross or overlap they are a less graceful and create more visually disconcerting action, particularly when turning at differing speeds, not synchronised. Observed on Porteous Hill turning well apart, quite individually, and with no base clutter or disturbance visible, even at such proximity each turbine will have a graceful presence.

Viewed from the north, such as from Church Road, the turbines would be more than 2 km distant located above the variously vegetated northern slopes to Porteous Hill, the turbines

protruding above the summit would contribute to the complexity of the working landscape. With lower sections of towers screened, and blades to 30 m long the apparent scale of the turbines will not be very dissimilar to that of the pine trees below. (photo attachment **simulation 3**, page 13)

The fineness of the structures, the visual balance found in a stationary or rotating 3-blade form, and, the apparent simplicity of the installation, are anticipated will result in perception of the cluster as a sculptural presence for many viewers, a positive presence.

For some people who have a strong attachment to the natural hill silhouette, the addition of the 3 turbines projecting above may be disruptive, particularly initially. As research elsewhere has shown, for people with initial apprehension, their perception frequently adjusts quite rapidly to finding the structures not or less visually disruptive.

From the Coast Road and rail line near Seacliff, looking inland across the regenerating hill slopes topped by Porteous Hill, the turbines would be around 3 km away (photo attachment **simulation 4**, page 15). The tantalising coastal environs seaward, the complex terrain and landcover inland and hence interruptions to inland hill views, plus the distance to the turbines means that the structures will typically be a minor component of the visual landscape. Except in certain conditions when slow turning blades 'catch the light', the turbines would have an insignificant presence from around the Seacliff area.

From the south-west coast below the site, around Warrington, the complexity of the earthflow and mudstone topography (map attachment **land typing**, page 11), woody vegetation (map attachment **vegetation**, page 12), and sporadic buildings, allows the turbines set back over the summit to integrate into the overall landscape complexity (photo attachment **simulation 5**, page 17). Set back over the brow, behind shelter belts on the skyline, the turbines' visual scale will be appropriate. The turbines will contribute appropriately to the complex visual amenity.

From the coast south of Blueskin Bay through to Hayward Point, Porteous Hill forms the skyline some 6 to 10 kilometres away. Standing on that open summit, the turbines will be variously visible, particularly when backlit. With the group of three turbines viewed as well spaced, such as from Puraukaunui (photo attachment **simulation 7**, page 19), they will appear a graceful and elegant group.

From some angles, such as from Waitati Bridge (photo attachment **simulation 6**, page 18) and higher up on Blueskin Road (photo attachment **simulation 8**, page 20), turbine 1 may appear in front of turbine 2. When their six turning blades are evident, un-synchronised and over-lapping, that would produce a less elegant or graceful aesthetic. However any visual irritation from the lack of synchronisation will be significantly mitigated by viewing distance. Also, the final placement of the turbines may not involve this overlap.

Perception is affected by the relationship to the installation. Whereas an external corporate's installation is more likely seen as intrusive, as a community installation, the cluster will likely be seen with pride. Overall, the effects of the turbine cluster on visual amenity are assessed to be predominantly positive. Any adverse visual effects are assessed will be of only minor

significance due to the complexity of the landscape context experienced and to local ownership of the project.

Significant Views

- (ii) *The potential effect of structures on significant views from **public viewpoints**, including visibility from State Highway 1.*

As noted above (section 8), there will be brief and partial views of the wind cluster from State Highway 1, the Waikouaiti-Waitati Road.

State Highway 1 carves up through the mudstone country alongside Kilmog Hill. It passes west of Porteous and Hammond Hills. The highway is beside the Porteous Hill slopes. From the road boundary there is substantial tree cover, including pine, macrocarpa and eucalypts.

For the length of highway between Pullar and Pryde Roads there is a clear view to the turbines a kilometre away. The turbine views will be framed by shelter and timber trees. (**simulation 1**, photo attachment 7). Elsewhere on the highway there will be only glimpses of blade tips above trees.

Considering views from the Coast Road and Rail, as evident in the topographic map (map attachment page 3), land typing (map attachments pages 10 - 11) and the sample photo (**Viewpoint 4**, photo attachment page 14), the routes are along low on the rolling broken slopes that are topped by the Porteous Hill summit. The turbines will poke above the summit as shown in the graphic from Ōmimi (map attachment page 10; **simulation 4** photo attachment page 15). The coastal focus, the steep broken terrain above, the woody vegetation along the roadside and slopes above, and, the 3 km distance to the partially visible turbines, means the structures will not be particularly prominent. The natural regenerating vegetation on the hill slopes, including Slaughterhouse Bush, may be perceived as contributing ecosystem services on this broken country. The turbines above may also be perceived as a positive contribution to a sustainable landscape.

There are many other public views of the wind cluster, including the minor roads around the coastal hills, the beaches, and from out on the waters. Views from local roads and shores were considered but no boat trip was undertaken for the field work. A few sample viewpoints from minor roads have been provided with indicative simulations – for example, from Pryde Road and Church Road in the north, Waitati Bridge in the south and Blueskin Road above almost 9 km from the site (photo attachments pages 10 – 13, and pages 18 – 20).

From the north, where topography and tree cover allows, a view toward the Porteous Hill summit, the wind cluster will be viewed from lengths of the roads to the north – Pryde Road, Church Road and Russell Road.

From the highway, Pryde Road heads briefly coastwards between Porteous and Hammond Hills. Viewed directly from Pryde Road, the turbines less than a kilometre away will be a substantial presence (**simulation 2**, photo attachment page 11). Here at the highest point on Pryde Road, at the entrance to Scurr Quarry, this road provides the most direct public view

to Turbine 2 just 860 m away, with Turbine 3 set back further and Turbine 1 over the summit in this indicative layout, . This is a narrow, winding gravel road less than 2 kilometres long that services several properties including the quarry. With the clear view to the uncluttered open summit, the effect of turbines on the road corner view from Pryde Road is assessed to be significant, although it is brief and has a small viewing audience. Whilst not “a numbers game”, from the brevity of this public view for drivers, and the low public viewing audience, I assess that overall the effects are not significantly adverse.

Whilst unclear in the simulations, and the siting variations with the envelope approach, the bases of turbines will not be visible from around the landscape except when actually standing up on Porteous Hill or up on Hammond Hill.

Further east on the coastal slopes, Church Road connects State Highway 1 with the Coast Road below at Ōmimi. Viewed from Church Road the turbines will be over 2 km distant. Turbines 2 and 3 will be clearly visible, with Turbine 1 set back to likely be only visible in part (**simulation 3**, photo attachment 13). In certain light, when backlit or when slow turning blades ‘catch the light’, the front 2 structures will be particularly visible. The hill slopes below are a mix of more utilitarian and more natural character. The turbines will add an elegance and dynamism. Turbines would refresh this landscape, continuing the long tradition of sustainable production and working with nature.

Viewed from the many public places further to the south and south-west, from sea level to elevated hill sites up to around 400 m asl the cluster will appear on the skyline to Porteous Hill (**simulations 5 – 8**, photo attachment pages 17 – 20).

From the very popular Warrington Beach and associated coastal waters, there are views to the Porteous Hill summit. This is an important location for public views. Views north and northwest are of the coastal hills. The Porteous Hill summit is viewed at least 2.5 km away above the broken hill slopes. The blades of the 3 turbines will likely be visible hovering above the pine shelterbelts on the upper slope (**simulation 5**, photo attachment 17). Warrington is more a dispersed than a confined settlement. Hence the lived in landscape of these coastal slopes, with buildings and shelterbelts scattered from near sea level up to above 300 m asl, has resulted in a complex mosaic across the broken terrain. Due to the visual complexity and the shelterbelts across the skyline, the partly visible turbine structures will not be particularly prominent. They are assessed to not have significant adverse effects on the important Warrington views.

From the Blueskin Bay coast at Waitati Bridge, and around Doctors Point and Pūrākaunui, the turbines will be more than 5 km distant. As shown in the images (**simulation 6 - 7**, photo attachments 18 -19) which seek to catch the turbines at their most visible such as when backlit in the mid-day sun or highlighted by low evening light, the structures will be displayed variously on the skyline. Under these light effects, the structures would appear more prominently than at other times. At greater than 5 km distance, along with the frequent coastal haze, the turbines will seldom be as prominent as in the simulations. When on display, they will appear very elegant structures standing lightly on the land and not disruptive of the important views of the coastal hills.

From higher on the slopes to the south, such as on Blueskin Road above Dons Creek at almost 300 m asl., viewing across the bay and beyond the coastal hills, the Otago hinterland comes into view (**simulation 8**, photo attachment 20). A number of roads and reserves extend higher, and viewed from these the hinterland is of increasing prominence with the coastal hills overviewed and appearing to flatten. From the sample public viewpoint above Dons Creek, the turbines in silhouette on the summit almost 9 km away will occasionally be quite visually distinctive such as when they 'catch the light'. At other times they will be scarcely evident.

For the distant views from the southern hill slopes, a wide panorama of coastal and inland Otago is enjoyed. The slopes to Porteous Hill with their dense mosaic of utilitarian plantings and houses across the complex topography allows for the small group of turbines to appear as a logical component of this landscape. When evident, providing a light punctuation of that hill, the structures will contribute to landmark and orientation value. Their apparent lightness, their elegant fineness, and being limited to only 3 identical structures, means they will not have adverse effects on the significant panoramic views.

(iii) The effect of an activity on the open amenity of the rural area.

A suite of coastal hills between the Waikouaiti River and Blueskin Bay comprise the rural area of interest. Porteous Hill is the southernmost hill in the group. With an uncluttered pastoral summit, Porteous Hill contributes important open amenity to the area. The addition of the wind cluster activity on the hill will change the character of the summit.

Whilst the summit is very open and pastoral, the topographically complex hill slopes support a mosaic of plantings, regeneration, farm and residential activity. As the context to the hill summit, the complex land use and land cover on the hill slopes affects the character of the summit. The land use mosaic that is displayed represents more than a century of farming with lifestyle activity subsequently inter-meshing. The mix of rural activity reads as long-integrated and in balance with the land.

Introducing the rotating structures will draw attention to Porteous Hill. With the fineness of the structures, being only three turbines in number, and, with their bases not visible, the slim towers supporting the rotating blades will be observed as sitting lightly in the land. They are not anticipated to disrupt the open amenity of the rural landscape that is enjoyed. Instead the small turbine cluster would read as contributing to the intermeshing of sustainable production and living character. The open summit provides an opportunity for sustainable energy production with farm production continuing undisrupted beneath.

The effect of the wind cluster on the open amenity of this rural area is assessed as predominantly positive and that any perceived negative effects would be negligible.

11. Coastal Landscape Protection Area (CLPA)

Considered under section 6.7, the proposal needs to be assessed with respect to cumulative effect regarding the Landscape Management Area, for the 'site' laps into the North Coast CLPA (Coastal Landscape Preservation Area) (map attachments pages 4 - 5). However turbines are expected to be located inland of the CLPA.

As the application 'site' extends into the CLPA, consideration has been given to potential effects. For the CLPA, the Council's discretion is restricted to the visual impact arising from the activity on the landscape character and quality of its setting. These aspects have been considered elsewhere in this assessment, and neither significant adverse visual effect on the landscape character, nor on the quality of the setting, have been identified. Specifically considering their potential cumulative effect, no adverse cumulative effects have been identified that would result from this combined community installation.

12. Assessment Matters

As per District Plan 14.7, the proposal is addressed with regard to:

1. Visibility
2. Adverse effects
3. Sympathetic siting and design
4. Landscape features and Characteristics
5. Compatibility of Scale and Character.

14.7.1 Visibility

The effects of the visibility of the proposed activity or development from the main public viewpoints.

The effects of the visibility of the wind cluster on main public viewpoints have been addressed above (in Significant Views). Views from State Highway 1 (Waikouaiti – Waitati Road) inland of the cluster, from the Coast Road and Railway Line down on the lower slopes seaward, and, from the foreshore, has been addressed along with other public roads. The turbines have been identified as being visible from a considerable spread of public viewpoints. Publicly they will be most visually prominent where viewed from a very minor road, Pryde Road, to the north of the site, but also for a 1 km length of State Highway 1 from Porteous Road to Pryde Road. The highway view to the turbines will be mostly framed by roadside and paddock trees (**simulation 1**, photo attachment page 9). Viewed from the Coast Road and the Rail route, the turbines are set back on the summit some 3 km distant and will not be the focus of coastal travel. Particularly from Blueskin Bay eastward, foreshore views to Porteous Hill being at least 5 km distant, the structures will not be visually prominent. However in certain light they will be clearly evident. Viewed above the complex coastal slopes with dispersed housing and vegetation, views of the turbines will not be significantly adverse (**simulations 6 – 7**, photo attachment pages 18 - 19).

14.7.2 Adverse Effects

The extent to which any adverse effects on the landscape can be avoided, remedied or mitigated.

Any adverse effects identified have been assessed as negligible due to the avoidance and mitigation that has been undertaken in the design process. Cluster location is a key aspect. Five alternate sites were assessed by the community before Porteous Hill was selected (**alternative sites considered**, map attachment page 14). Whilst a central location, the complex terrain and landscape context allow the structures to be visually absorbed. As a

community facility, the visible central location is assessed to contribute to on-going community “ownership” of the venture and hence to positive effects.

Mitigation of landscape and visual effects has been undertaken through design of the cluster. Whilst having four turbines was explored, for an improved aesthetic the turbines are limited to three, which provides a visually balanced number. Arrangement of the three turbines in a triangle on the summit provides for a pleasing aesthetic.

Turbine design also provides mitigation. The three turbines are identical and rather than the two-blade machines initially considered, use of longer three-blade turbines is important in achieving a graceful appearance when still, and especially when rotating.

Mid-size turbine scale, with a tower of around 50 – 60m height, fits well with local tree cover and landforms, as the towers will not particularly dominate.

The cluster proponents have consulted with tangata whenua, and it is appropriate that site installation works for the turbines follow appropriate tikanga.

14.7.3 Sympathetic Siting and Design

The extent to which the activity or development is sympathetic to the forms, character and scale of the landscape in its siting and design.

The turbine siting, form, scale and finish contribute to the cluster achieving aesthetic coherence. These are described above.

Located on a hill summit typically viewed in silhouette, it is important the surface finish to the turbines is sky-related. A light grey colour finish is appropriate.

Considering the permitted baseline for farm and shelter plantings and their potential for visual disruption, the wind cluster will have much lesser visual effect.

Positioned on the hill summit, with the machines perched high on slim towers, the turbines do not disrupt the hill form. The scale of the structures is neither too large nor too diminutive, but complements the hill scale and associated tree cover. The character and scale of the structures are such that they stand respectfully apart and complement the hill but do not confuse, compete or diminish it.

I assess as appropriate a design involving 3 identical, 3-blade, light-toned, mid-size turbines located to form a triangle. The cluster siting and design is assessed as entirely sympathetic to the forms, character, and scale of the Porteous Hill landscape.

14.7.4 Landscape Features and Characteristics

The extent to which the activity or development impacts upon the important landscape features and characteristics to be protected, preserved or conserved (identified in part 14.5 of this section) within the relevant landscape management area.

In the North Coast CLPA (map attachments pages 4 – 5), Porteous and Hammond Hills form the elevated inland boundary to the coast between Puketeraki and Blueskin Bay. Porteous Hill forms an important landscape characteristic of this length of coastal hills. The wind cluster activity or development is assessed will not adversely impact on any important landscape features that are to be protected, preserved or conserved.

14.7.5 Compatibility of Scale and Character

The extent to which the activity or development is compatible with its landscape setting in terms of its scale and character.

The landscape setting has been assessed in terms of its scale and character. As addressed above, the community's wind cluster activity/development has been assessed as being entirely compatible with the landscape in terms of its scale and character.

15. COASTAL ENVIRONMENT

Addressing the preservation of natural character and its protection from inappropriate use, as per RMA s.6(a) and NZCPS Policy 13, the natural character and effects of the wind cluster on that natural character have been assessed. Similarly, in the District Plan's Coastal Zone, protection of the natural character of coastal landscapes is a key objective and structures are a restricted discretionary activity.

Land typing has been undertaken and natural character addressed with regard to the abiotic, biotic and experiential attributes. The coastal slopes involve a series of volcanic necks protruding through deposition lands (map attachment pages 7 – 11). The Porteous Hill volcanic complex extends almost to the shore (map attachment page 11). An assortment of shelter plantings are scattered across the pastoral slopes, plus regenerating shrubland including Slaughterhouse Bush. The mid and lower slopes in particular are dotted with residential activity. The hill is perceived as clothed in a residential /lifestyle/farm landcover and landuse mosaic.

Due to the mosaic of buildings and plantings, the site and coastal slopes to Porteous Hill are assessed to have neither outstanding nor high natural character as per 13(1)(a) and (c).

In considering effects on the coastal environment, Policy 6 (1)(a) recognises energy generation activity that is “*important to the social, economic and cultural well-being*” of people and the community. The wind cluster project is supported by this policy.

SUMMARY

Fine poles supporting the elegant rotor structures above allow the integrity of the landform to be retained. But the three turbines will introduce a new aspect to this landscape. The transparency and elegance of the structures, with just three forming a complementary group, would be an elegant and meaningful addition to this landscape. The cluster will not conflict

with the traditional landscape patterning, but complement it. Landscape integrity is maintained with this proposal, and much more so than for activities such as a quarry or forestry block.

The patterning of buildings and trees across the coastal slopes does not occur across the Porteous Hill summit. The summit has only the access road and fencing. The hill landform will not be interfered with, and any earthworks will be on gentle terrain which will be regraded and grassed to restore the character.

Three identical turbines with a maximum blade tip height up to around 100 metres are to be located within the site envelope. Considering the Rural Zone of the Dunedin City District Plan, their visual effects have been assessed to be minor. Views from only one house are toward the cluster. The Pryde Road houses located about a half kilometre north and downslope from the site are oriented north away from the site with shelter plantings behind. The cluster will result in predominantly positive landscape and visual effects due to the sculptural landmark character and associative value as a sustainable community project.

The cluster will not significantly adversely affect the North Coast CLPA (Coastal Landscape Preservation Area) which extends onto the site.

Considering landscape and visual effects, and effects on natural character, the cluster is assessed as appropriate.

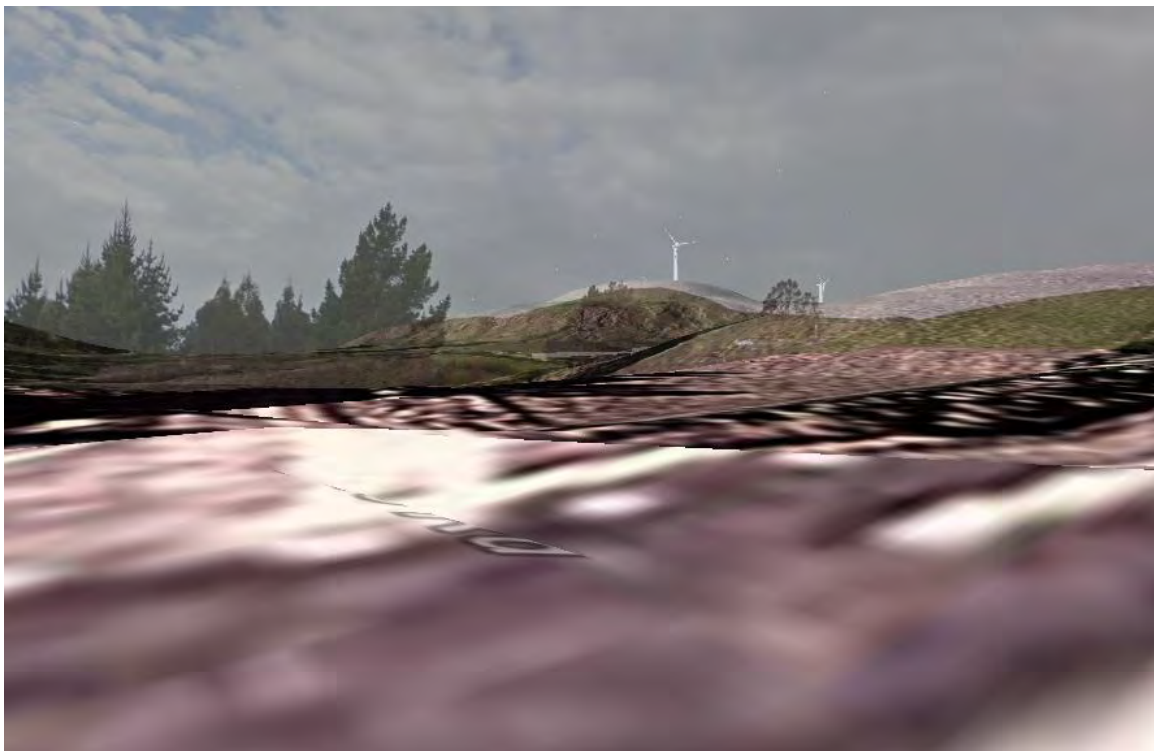
Di Lucas BSc, MLA, Fellow NZILA



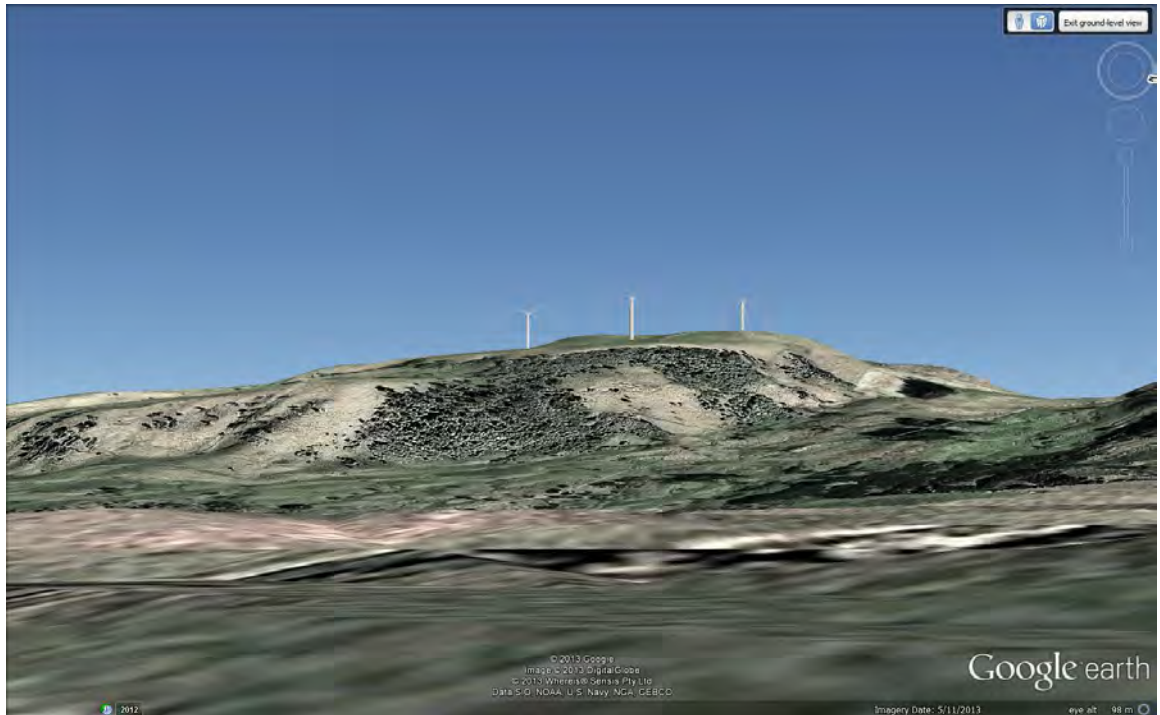
Appendix 1

Process of developing the simulations

1. Conor Cody (formally of Garrad Hassan) built a Google model of the wind farm with 55 metre towers (to hub height) on Google Earth. He was not certain that the coordinates were correctly transposed (perhaps 50m south of where they should be), but the model allowed us to visualise the wind farm in 3D. It also allowed us to view the google simulation using 'street view'. This is a view from the junction between Pryde road and highway 1 created this way.



2. Richard Hemi in the surveying department at the University of Otago took photos we had taken from various locations around the site, and did using street view and Conor's simulation, created digital perspectives from the photo vantage points. For example in the image below Richard has created a perspective of the wind farm from Coast Road. Note that as Conor had noted, there are some issues with placement of the turbines. Turbine 1 (at the far left of the image) is well down from the apex of Porteous Hill, which is its designed location, while turbine 3 (the middle turbine in the image) is situated a little down the flank of Porteous Hill, rather than on its top.



3. Luke Johnston at Brand-Aid used photos of the Mt Stuart wind turbines taken with a 50mm lens and placed them in the photos of the landscape (taken on a 50mm lens), ensuring the towers were scaled to the digital perspective height, using the perspectives developed by Richard Hemi. These final images are the final simulations that have been used for the Landscape Assessment, and some photos were redone to ensure greater visibility.

Notes

- This is not the formal photo montage process, but has been done to give a rough idea rather than a precise picture
- The turbines are not accurately placed within the development envelope and are in fact often as much as 50 metres downhill of what is intended to be actual placement.

Appendix 3 photo attachments