

## **Viking Wind Farm, Shetland**

### **Objection on Behalf of Sustainable Shetland**

## **Environmental Statement – Review of Landscape & Visual Impact Methodology**

### **Introduction**

#### **1.0 Review Scope**

This report outlines the findings of an initial review of the Environmental Statement landscape and visual impact assessment methodology in the context of current guidance (and in particular the 'Landscape Sensitivity and Capacity Study for Wind Farm Development on the Shetland Islands - 2009 and Guidelines for Landscape and Visual Impact Assessment - 2002').

The review was undertaken following a visit to the site and its environs as well as the majority of Environmental Statement viewpoints (viewpoints on Fetlar, Papa Stour, Out Skerries and Noss were not visited due to ferry timetable constraints).

### **Environmental Statement**

#### **2.0 Design**

##### **2.1 Constraints and Requirements**

ES Appendix 4.7, paragraph 1.2 sets out the constraints upon and requirements of the proposed wind farm development. These are summarised as land ownership, wind resource, slope gradients, turbine separation and number of turbines. The first four are generic constraints that would apply to any wind farm development whilst the last constraint is a requirement specific to this proposal.

##### **2.2 Number of Turbines**

ES Appendix 4.7, paragraph 1.2.1(e) explains that the number of proposed turbines is determined by '*...the requirement to construct and*

*operate a sub sea cable to export power to the mainland'*. Paragraph 1.2.1 (e) also states that *'...an ongoing aim was to maximise the number of turbines to maximise the economic benefit of the project'*. Therefore the scale of the wind farm is predicated upon the minimum number of turbines required to make an interconnector cable financially viable and is not determined by the viability of wind power generation without an interconnector cable or the capacity of the landscape to accommodate wind farm development or the acceptability of visual impacts upon residents and visitors.

The ES landscape and visual assessment seeks to justify a set minimum number of turbines rather than determine an appropriate number in terms of landscape and visual impact.

## **2.3 Environmental Factors**

### **2.3.1 Initial Landscape Constraints**

ES Appendix 4.7, paragraph 1.2.2(a) states: *'The review of landscape value and scenic quality led to an evaluation of landscape sensitivity to wind farm development.'* This exercise has been subsequently undertaken independently and more comprehensively by the 'Landscape Sensitivity and Capacity Study for Wind Farm Development on The Shetlands Islands'. The conclusions of this report should therefore take precedent (see section 7).

### **2.3.2 Initial Visual Constraints**

ES Appendix 4.7, paragraph 1.2.2(a) states: *'In order to mitigate potential impacts upon visual receptors, wherever possible the foreground screening effect of local topography and ridge-lines was utilised in order to either eliminate or reduce views of turbines.'* This paragraph also concedes that: *'Unfortunately due to the local juxtaposition of settlement and topography it was not always possible to achieve this objective...'* In other words the developer was not prepared to omit turbines where this would have reduced the overall number below the threshold required to make the interconnector cable viable.

The following constraining principles were also applied to the scheme design:

- *'To create a more cohesive design, turbines were clustered in groups, but avoided situations where individual turbines combined visually to create a seemingly solid mass from certain viewpoints; and the layout also attempted to avoid outlying individual turbines;*
- *Valleys and valley sideslopes were avoided and turbine groups were positioned in order to reflect the form of the local landscape; in the case of Mid-Kame Ridge, providing a strong composition reflecting the linearity of this feature;*
- *Existing access tracks were utilised as appropriate and elsewhere they were utilised as appropriate and elsewhere they were generally positioned to follow contours and avoid valley sideslopes and steep gradients;*
- *Borrow pits were sited wherever possible in locations which avoid or minimise intervisibility with receptors and are to be reinstated using existing peat topsoil and associated native seed-bank which will be allowed to naturally regenerate.*

The effect of clustering the turbines in groups has been to create six geographically separate and distinct wind farms. This has implications for the assessment of cumulative impacts.

The case of the Mid Kame Ridge is described in the second principle as '*a strong composition reflecting the linearity of the feature*'. It could also be described as an overly strong composition that is seen as a serried rank of turbines from either side and a seemingly solid mass when viewed 'end on'. It would therefore be contrary to the first principle.

The width, gradients and engineered alignments of wind farm construction access tracks seldom coincide with those of existing tracks and will result in significant modification. In this instance visual impact will also be increased as a consequence of displaced peat and the white bleached colour and reflective quality of the underlying rock.

The fourth principle commits to the reinstatement of borrow pits using existing peat topsoil and the associated seed-bank. The '*peat topsoil*' will need to be stored which in turn will increase the overall area of disturbance.

## 2.4 The Design Process

ES Appendix 4.7, paragraph 1.3.1 states: 'A *phased approach* was adopted for the design process, with each successive phase adding a greater degree of refinement.' The phases are as follows;

1. Technical factors
2. Macro landscape and visual constraints
3. Macro Red Throated Diver constraints
4. Key viewpoint optimisation
5. Micro constraints
6. Tracks
7. Additional Infrastructure
8. Final Review and Ground Truthing

The outcome of this exercise has been to concentrate turbines into distinct groups and reduce the overall number from 167 to 150. The significance of these changes is illustrated by a series of wireframes from key viewpoints.

### 2.4.1 Key Viewpoint Optimisation

ES Figures 4.7.11 to 4.7.16 illustrate before and after optimisation wireframes of the proposed wind farm.

Figure 4.7.11 illustrates the landscape and visual optimisation from ES viewpoint 6 at Lunna House. There is little apparent change apart from a slight reduction in the prominence of turbines in the centre of the view. The optimisation exercise would therefore have no overall effect on the significance of impacts. It should be noted that the position of Viewpoint 1 Lunna House differs between that used for the viewpoint optimisation and the photomontages.

Figure 4.7.12 illustrates the landscape and visual optimisation from ES viewpoint 14 at Voe. The effect is to create clusters of turbines as set out in the first design principle. However this has the effect of making the Mid Kame Ridge group of turbines more prominent as a '*seemingly solid mass*' which is in contradiction with the first principle. The optimisation exercise

would therefore not reduce the overall significance of impacts but would increase the significance of impacts of the turbines on the Mid Kame Ridge.

Figure 4.7.13 illustrates the landscape and visual optimisation from ES viewpoint 2 at Aith. There is little apparent change apart from the prominence of a single turbine to the right of the view and the repositioning other turbines. The optimisation exercise would therefore have no overall effect on the significance of impacts.

Figure 4.7.14 illustrates the landscape and visual optimisation from ES viewpoint 22 at Brae. There is little apparent change apart from the repositioning of turbines to the right of the view. The optimisation exercise would therefore have no overall effect on the significance of impacts.

Figure 4.7.15 illustrates the landscape and visual optimisation from ES viewpoint 41 at Laxo. There is little apparent change apart from the repositioning of turbines from the left of the view and an increase in the density of turbines in the centre and right of the view. The increase in density of turbines is such that a '*seemingly solid mass*' would be created that is in contradiction with the first design principle. The optimisation exercise would therefore not reduce the overall significance of impacts but would increase the significance of impacts to the centre and right of the view.

Figure 4.7.15 illustrates the landscape and visual optimisation from ES viewpoint 3 at Weisdale. There is little apparent change apart from a reduction in the number of turbines within the centre of the view and the uniform spacing of the turbines on the Mid Kame Ridge into a serried rank. The optimisation exercise would therefore not reduce the overall significance of impacts but would increase the significance of impacts of the turbines on the Mid Kame Ridge.

## 2.5 Design Summary

Issues arising from the design process can be summarised as follows;

- Turbine numbers are determined by the minimum required for the viability of an interconnector cable rather than the capacity of the landscape or the degree of visual impact;

- The clustering of turbines has created six distinct and geographically separate groups that should be assessed as separate wind farms;
- The turbines on the Mid Kame Ridge form a 'seemingly solid mass' when viewed from some orientations and are therefore in contradiction with the first ES design principle;
- The use of existing tracks will not reduce impacts;
- Reinstatement using existing peat topsoil does not take account of the impacts of storage; and
- The Key Viewpoint Optimisation exercise does not reduce the significance of overall impacts.

### **3.0 Viewpoints**

#### **3.1 Selection**

The ES viewpoints were selected in consultation with SNH and SIC and were agreed in autumn 2007. It should be noted however that it is incumbent upon the developer to add additional viewpoints if it becomes apparent during the ES process that the originally agreed ES viewpoints are found to be not fully representative.

Appendix 9.2-1 Viewpoint Selection Criteria paragraph 1.3 quotes '*Visual Representation of Windfarms, Good Practice Guidance*' that a viewpoint should be '*...a place from where a view is gained and represents specific conditions or viewers (visual receptors).*' The ES viewpoints should therefore represent all types of viewer subject to potential impact.

#### **3.2 Omissions**

The reasons for the selection of the 43 ES viewpoints are set out in Table 1: Finalised List of Viewpoints.

ES figure 19.2 - Walking and Cycling Routes identifies the North Sea Cycle Route, local cycle routes, walking routes and viewpoints. ES Figure 9.2.12 illustrates visual impact significance along for road, ferry route and walking route receptors. These illustrate some important receptors of impact that are not represented by ES viewpoints.

##### **3.2.1 North Sea Cycle Route**

The North Sea Cycle Route has been developed by an international partnership between Belgium, the Netherlands, Germany, Denmark, Sweden, Norway, England and Scotland. The aim is to create a backbone for cycle tourism around the North Sea. It is the world's longest cycle route at over 6000 km. The section within the Shetland Islands links Sumburgh with Lerwick and has a northerly loop via the A971, B9071, A970, B9076, A968, B9071, B9075 and A970. The majority of the northern loop is in close proximity to the proposed wind farm and although ES viewpoints 2, 9, 14, 22, 29, 33, 40, and 43 coincidentally coincide with the route, it is not cited as a reason for selection in Table 1. However, the route has been assessed for the significance of impacts on road users in Figure 9.2.12.

### **3.2.2 National Cycle Route**

The whole of the North Sea Cycle Route coincides with National Cycle Route 1 however National Cycle route 1 is more extensive. National Cycle route 1 is not shown on Figure 19.2 and it is not cited as a reason for selection in Table 1. However, the route has been assessed for the significance of impacts on road users in Figure 9.2.12.

### **3.2.3 Local Cycle Routes**

ES Figure 19.2 lacks clarity and the information source is unattributed however it would appear that the local cycle routes are taken from 'Cycling in Shetland – A Guide to Twenty Cycle Routes' published by Shetland Islands Tourism (as the route numbers tally). Whilst ES viewpoints coincidentally coincide with the majority of routes none are cited as a reason for selection in Table 1. It should be noted that the majority of roads in Shetland are suitable for cycling and some routes such as the Effirrh/Easter Skeld/West Houlland route (which includes an NSA) are not represented by an ES viewpoint.

### **3.2.4 Walking Routes**

Likewise it would appear that the walking routes are taken from 'Walking in Shetland - A Guide to Twenty Walks' published by Shetland Islands Tourism (as the route numbers tally). None of these routes are represented by an ES viewpoint (apart from the town walk in Lerwick) and none are cited as a reason for selection in Table 1. The majority of walking routes

have been assessed for the significance of impacts on users in ES Figure 9.2.12. However, walk numbers 17 Whalsay and 18 North Nesting have been omitted when both would be subject to significant impacts.

The only walking route cited as a reason for selection is the Burn of Lunklet. Whilst not included in the Walking in Shetland leaflet or shown on ES Figure 19.2 it is identified in the Shetland Core Paths Plan. Other Core Paths include; Hill of Sound, Sand Water, The Dud at Aith, Loch of Hellister, Strom Ness, Ness of Clousta to Vementry, Ling Ness, Loch of Voe, Clett Head, Lunna Ness, Muckle Roe, Brae and Ness of Hillswick. None of these routes are represented by an ES viewpoint and none are cited as a reason for selection in Table 1. Some of the Core Paths are identified as Walking Routes on ES Figure 9.2.12: FP1, FP2, FP3, FP4, FP11, FP14, FP17 and FP20 and these are assessed for significance. It is of note that FP11 Hill of Sound is identified as being subject to substantial impacts yet is not represented by an ES viewpoint. It is also of note that whilst the Burn of Lunklet is represented by an ES viewpoint the walking route along the burn and up onto the hills is not identified and assessed for significance in ES Figure 9.2.12.

The Westside Shetland Heritage & Culture leaflet published by the Shetland Amenity Trust states that *'a path leads up the Burn of Lunklet to the waterfall and on to some exhilarating hill-walking with wonderful views of the Westside's lochs, hills, islands and voes'*. It also has a picture of the Burn of Lunklet waterfall. This view would have wind turbines as a backdrop on completion of the proposed wind farm.

### **3.2.5 Ferry Routes**

It is of note that ES Figure 9.2.12 identifies four ferry routes (Yell, Unst, Whalsay, and Out Skerries) that would be subject to moderate, moderate substantial or substantial impacts, none of which are represented by an ES viewpoint. The only ferry point represented by an ES viewpoint is the Northlink Ferry which is subject to negligible impacts.

### **3.2.6 Viewpoints**

Five 'viewpoints' are identified in ES Figure 19.2: Scalla Field Hill, Hill of Sound, Wormadale Hill, Weisdale Mill and WW2 Watch Tower Hill of Kirkward. The source of these 'viewpoints' is not attributed. Only

Wormadale Hill (from the road rather than the hill top) and Weisdale Mill (from a nearby lay-by rather than the Mill) are represented by ES viewpoints and only the Wormadale viewpoint is cited as a reason for selection in Table 1.

'Viewpoints' are also identified on the series of Shetland Heritage & Culture leaflets published by the Shetland Amenity Trust.

The Nesting, Lunnasting & Delting leaflet identifies viewpoints at: Hill of Kirkward, Vidlin, Setter Scord, Hill of Lee, South Town (Muckle Roe), Busta Junction Brae and Firth Ness. Only Vidlin and Busta Junction Brae are represented by ES viewpoints and the only ES viewpoint cited as a reason for selection in Table 1 is Busta Junction Brae.

The Central Mainland leaflet identifies viewpoints at: Hill of Sound, Heglister, Wormadale, Dales Voe, Scord of Scalloway, Gallows Hill, Burland (plus three others on West Burra) and East Burra. Only Heglister, Wormadale Hill and Scord of Scalloway are represented by ES viewpoints and the only ES viewpoints cited as a reason for selection in Table 1 are Wormadale Hill and Scord of Scalloway.

The Westside leaflet identifies viewpoints at: Westerwick, Twatt, Simli Field, Sandness Hill, Snarra Ness and Braga Ness. None are represented by an ES viewpoint.

### **3.3 Summary of ES Viewpoints**

Issues arising from the selection of viewpoints can be summarised as follows;

- Promoted cycle routes are not cited as a reason for ES viewpoint selection (but are coincidentally represented by a number of viewpoints). However, roads used by cycle routes are assessed for visual impact significance. The lack of ES viewpoints from the cycle route on Muckle Roe and the B9071 (although not a promoted route) are of particular concern;
- Promoted walking routes are not represented by ES viewpoints (with the exception of the Burn of Lunklet). However, walking routes are assessed for visual impact significance with the exception of promoted walks at Whalsay and North Nesting and many Core Paths (including the Burn of Lunklet walk and the Sand Water walk).

The poor selection of the Burn of Lunklet viewpoint, the lack of assessment of the some key walks (particularly where the Burn of Lunklet walk extends onto the hills occupied by the proposed wind farm), and the lack of ES viewpoints on the Hill of Sound walk, the Muckle Roe walk, the North Nesting walk and the Sand Water walk (all of which are subject to significant impacts) are of particular concern.

- Ferry routes are not represented by ES viewpoints (with the exception of the North Link Ferry which is not subject to significant impact). However, ferry routes are assessed for visual impact significance. The lack of ES viewpoints from the Yell, Unst, Whalsay and Out Skerries ferries (all of which are subject to significant impacts) is of particular concern.
- Promoted viewpoints are not fully represented by ES viewpoints. The lack of ES viewpoints at Scalla Field Hill, Hill of Sound, Hill of Kirkward, Neap, Muckle Roe, Gonfirth and Vementry are of particular concern.

## **4.0 Visualisation**

### **4.1 Photomontage Field of View**

The photomontages are limited to a 90° field of view (with the exception of ES viewpoint 28 that has two visualisations giving a total of 180° field of view). The photomontages should include as many additional fields of view as are required to illustrate the full extent of the wind farm. A 180° field of view is therefore required for ES viewpoints 1, 2, 3, 6, 11, 15, 22, 34, 39 and 41. A 270° field of view is required for ES viewpoints 13, 14 and 40 and a full 360° field of view is required for ES viewpoint 28.

For each ES viewpoint there should also be an enlarged extract of the principal orientation with a 44.7° field of view giving an A3 representation of the actual view when held at 50cm.

### **4.1 Turbine Representation**

The turbines are properly represented facing the viewer however in some instances the colour contrast is understated. An example is Figure 9.3.3b ES viewpoint 3 where the turbines to the left of the image are seen in

greater contrast to those on the Mid Kame Ridge. This understates the impact of these turbines when compared to the accompanying wireframe.

Likewise the turbines illustrated in Figure 9.3.40b are obscured by low cloud. Whilst this is no doubt an attempt to illustrate the turbines in the prevailing conditions when the photograph was taken, actually the photograph should have been retaken on a clearer day. This again understates the impact of the turbines on the Mid Kame Ridge.

## **4.2 Track Representation**

There would appear to be a representation of an access track to the right hand side of Figure 9.3.1b. If so, the visual impact would be greater as the track would be wider and there would be associated disturbance to either side. The turning/laydown area adjacent to the foreground turbine would also be apparent.

There would also appear to be rather crude representations of access tracks and borrow pits in Figure 9.3.11b ES viewpoint 11, Figure 9.3.12b ES viewpoint 12, Figure 9.3.14b ES viewpoint 14, Figure 9.3.18b, 9.3.39b ES viewpoint 39 and Figure 9.3.41b ES viewpoint 43. The hardstanding/turning areas associated with the turbines are also not shown.

## **4.3 Visualisation Summary**

Issues arising from the visualisations can be summarised as follows;

- The impact of the proposed wind farm is understated as the full field of view is not illustrated for fourteen of the ES viewpoints,
- The impact of the proposed wind turbines is understated as inappropriate colour contrast is used in some instances (particularly for the Mid Kame Ridge turbines); and
- The impact of the access tracks (and associated hard standings) is understated as they are poorly represented.

## **5.0 Landscape Impact**

### **5.1 Landscape Capacity**

A landscape capacity assessment has been undertaken (following the completion of the ES) by the 'Landscape Sensitivity and Capacity Study for Wind Farm Development on The Shetlands Islands' published in March 2009 by the Shetlands Islands Council. The conclusions of this report should take precedent over the ES, as it is an independent and more comprehensive exercise (see section 7).

## **6.0 Visual Impact**

### **6.1 Receptor sensitivity**

The significance of visual impact is assessed on the basis of the sensitivity of the receptor (the people subject to impact) and the magnitude of change (the scale of the development within the view). The criteria used to assess sensitivity and magnitude of change are therefore critical to the validity of an assessment of significance. Whilst the ES criteria used for the assessment of magnitude of change are reasonable those used to assess sensitivity are less so.

Firstly the ES states that the criteria are adapted from the Guidelines for Landscape Visual Impact (GLVIA) published by the Landscape Institute. Paragraph 7.31 of the GLVIA states that *'The sensitivity of visual receptors and views will be dependent upon:*

- *the location and context of the viewpoint;*
- *the expectations and occupation or activity of the receptor;*
- *the importance of the view (which may be determined with respect to its popularity or numbers of people, its appearance in guidebooks, on tourist maps, and in the facilities provided for its enjoyment and reference to it in literature or art);*

Paragraph 7.32 of the GLVIA states that *'The most sensitive receptors may include:*

- *users of all outdoor recreational facilities including public rights of way, whose attention or interest may be focused on the landscape;*
- *communities where the development results in changes in the landscape setting or valued views enjoyed by the community;*
- *occupiers of residential properties with views affected by the development.*

*Other receptors include:*

- *people engaged in outdoor sport or recreation (other than appreciation of the landscape, as in landscapes of acknowledged importance or value);*
- *people travelling through or past the affected landscape in cars, on trains or other transport routes;*
- *people at their place of work.'*

In the ES the sensitivity is ranked as follows:

#### *High Sensitivity*

- *Dwellings where the changed landscape is an important element in the view; and*
- *walking routes, and vantage points where the changed landscape is an important element in the view.*

#### *Medium Sensitivity*

- *Dwellings where the changed landscape is a less important element in the view;*
- *Walking routes and vantage points where the changed landscape is a less important element in the view;*
- *Roads where the changed landscape is an important element in the view; and*
- *Farm buildings not used as dwellings and industrial buildings where the changed landscape is an important element in the view.*

#### *Low Sensitivity*

- *Dwellings where the changed landscape is an unimportant element in the view;*
- *Walking routes and vantage points where the changed landscape is an unimportant element in the view;*
- *Roads where the changed landscape is a less important element in the view; and*
- *Farm buildings not used as dwellings and industrial buildings where the changed landscape is a less important element in the view.*

The definitions of the ES criteria refer to dwellings, routes, roads, buildings etc. This is a common error when assessing sensitivity. Sensitivity relates to residents within the whole of their property (including garden ground, access driveways etc) not just the dwelling itself, users of roads rather than the roads themselves (users would include tourists in cars or on cycles and local residents travelling to and from their dwelling - both of high sensitivity) and walkers rather than walking routes.

The ES criteria also refer to the changed landscape as an important element of the view. This confuses magnitude of change with sensitivity as sensitivity is solely concerned with the importance of the view not whether the changed landscape is an important element of the view. These errors in the ES methodology will have the effect of falsely reducing the sensitivity of receptors and the consequential level of significance.

A more appropriate ranking for sensitivity would be as follows:

#### High Sensitivity

- occupants of residential properties;
- members of communities with highly valued settings or views;
- local and tourist users of walking routes;
- local and tourist users of cycle routes;
- tourist users of road routes;
- tourist users of ferry routes;
- users of fishing lochs and burns; and
- viewers from promoted viewpoints.

#### Medium Sensitivity

- outdoor agricultural workers;
- members of communities with moderately valued settings or views;

- users of outdoor sport and recreation facilities;
- local users of road routes; and
- local users of ferry routes.

#### Low Sensitivity

- workers within commercial properties or other places of work;
- members of communities with low valued settings or views;
- commercial and commuter users of road routes; and
- commercial and commuter users of ferry routes.

## 6.2 Visual Impact Significance

The ES sets the threshold of significance at moderate. Table 9.4 Summary of Visual Impacts confirms the following numbers of receptors subject to significant impacts (operation):

- Viewpoints 20
- Buildings 939
- Roads 11
- Ferries 4
- Walks 4

The number of ES viewpoints subject to significant impacts is nearly half the number assessed. This is despite the understatement of sensitivity and the lack of representation for some key viewpoints. If sensitivity were properly assessed and further viewpoints were included then the proportion of viewers at viewpoints subject to significant impacts would be substantially greater.

The number of buildings subject to significant impacts is nearly a third of the number assessed. This is despite the understatement of sensitivity. If sensitivity were properly assessed the proportion of residents and users of buildings subject to significant impacts would be substantially greater.

The number of roads subject to significant impacts is over a third of the number assessed. This is despite the understatement of sensitivity. If sensitivity were properly assessed the proportion of road users subject to significant impacts would be substantially greater.

The number of ferry routes subject to significant impacts is half of the number assessed. This is despite the understatement of sensitivity. If

sensitivity were properly assessed the proportion of ferry users subject to significant impacts would be substantially greater.

The number of walking routes subject to significant impacts is a fifth of the number assessed. This is despite the understatement of sensitivity and the lack of representation of some key walking routes. If sensitivity is properly assessed and further walking routes were included then the proportion of walkers subject to significant impacts would be substantially greater.

### **6.3 Cumulative Impact**

The ES confines its assessment of cumulative impacts to the proposed wind farm (assessed as a single unit) and the operational wind farm at Burradale, the proposed wind farm at Cullivoe and the Converter station.

However, the key viewpoint optimisation exercise undertaken as part of the design process promoted the clustering of turbines into groups. This has resulted in the creation of six geographically separate and distinct wind farm units. This has implications for the assessment of cumulative impacts.

It is acknowledged in the 'Landscape Sensitivity and Capacity Study for Wind Farm Development on The Shetlands Islands' paragraph 6.5 that scheme design should: *'Be aware of potential cumulative effects when designing wind farm developments, or when designing distinct groups of turbines within a larger wind farm.'* Paragraph 6.21 outlines factors to consider in interpreting the results of the cumulative visual assessment and includes: *'the relationship and compatibility of design and scale of wind farm developments (or several distinct groups of turbines within an overall larger wind farm development), including the number, size and design of turbines'*. Finally in paragraph 6.16 the study defines cumulative effects as those that; *'occur where the observer is aware of more than one wind farm, within a single view (combined effects), in different views from the same location (successive effects) or when seen sequentially when moving through a landscape.'*

Many of the ES viewpoints will be subject to the combined and/or successive cumulative effects of distinct groups of turbines within the proposed wind farm.

There will also be significant cumulative sequential effects along the A 968 (Hillside – Unst), A970 (Hillswick/Isbister – Lerwick/Sumburgh), A971 (Tingwall – Walls/Sandness), B9071 (Easter Skeld - Vidlin), B9075 (Weisdale - Laxo) and B9076 (Sullom Voe – Brae).

These cumulative effects have not been assessed in the ES and the seven cumulative ES viewpoints used in the ES would be insufficient to adequately assess cumulative impacts.

#### **6.4 Mitigation**

The three principles of mitigation discussed in the ES are prevention, reduction and offsetting. In the GLVIA the principles are avoidance, reduction, remediation and compensation. The ES claims that layout design has prevented adverse impacts however in reality the significance of impacts has neither been reduced nor avoided. The reconfiguration of the turbine positions would appear to have minimal effects and has reinforced the serried rank of turbines along the Mid Kame ridge. Under offsetting the ES offers planting proposals as mitigation. The ES concedes that this would be dependent upon the cooperation of landowners and tenants. The ES offers woodland screen planting (that would provide a screen within 10 to 15 years). These generic statements betray a lack of understanding of the prevalence of woodland in Shetland as well as the prevailing growing conditions. It is unrealistic to expect an effective screen to be provided in 10 to 15 years.

#### **6.5 Visual Impact Summary**

Issues arising from the visual impact can be summarised as follows;

- The ES assessment of visual impact significance cannot be relied upon as the methodology for assessing sensitivity is flawed. The ES methodology understates the level of sensitivity and the consequential impact significance.
- The ES assessment of cumulative impact is flawed as the proposed wind farm should be assessed as six separate wind farms (in accordance with the recommendations of 'Landscape Sensitivity and Capacity Study for Wind Farm Development on the Shetland Islands'). The ES methodology therefore understates the significance of cumulative impacts.

- The number of cumulative viewpoints is insufficient to properly assess cumulative impact.
- The ES overstates the benefits of mitigation arising from the reconfiguration of turbines and potential woodland screen planting.

## **Landscape Sensitivity and Capacity Study for Wind Farm Development on the Shetland Islands**

### **7.0 Policy Context**

Paragraph 1.1 of 'Landscape Sensitivity and Capacity Study for Wind Farm Development on the Shetland Islands' (hereafter referred to as the study) sets out the policy context for the study.

### **7.1 Evaluation of Landscape Character Areas and Their Sensitivity**

The various landscape character areas (LCAs) are identified in the 'Shetland Islands Landscape Assessment' published by Scottish Natural Heritage. The study assesses the sensitivity of each LCA to wind farm development. The following are those that are directly impacted upon by the proposed development.

#### **7.1.1 A2. East and West Kames**

Paragraph 4.11 states: *'This landscape is large scale with simple skylines, a range of man-made features and frequent movement, lending it a lower degree of sensitivity.'*

*The presence of existing man-made influences e.g. roads / quarrying allows scope for wind farm development in association with the existing areas of development and concentrated settlements in adjacent landscapes. However, the effect of wind farm development on undeveloped areas, the inland valleys and smaller settlements should be considered in terms of scale and siting of turbines. Set turbines back from the edges of the hills, where they will not be intervisible with the inland valleys of Kergord and Pettadale, will reduce effects within adjacent landscapes (D4).'*

The proposed wind farm is contrary to this advice as the turbines will be intervisible with the valleys of Kergord and Pettadale.

### **7.1.2 D4. Peatland and Moorland Inland Valleys**

Paragraph 4.57 states: *This landscape is of medium scale with a concave landform and simple predictable skylines, formed by the distinctive West and East Kames which are part of adjacent upland LCA's (A2), and Mid Kame, which lies within LCA D4. Prominent movement (in Pettadale), the presence of existing vertical features and relative absence of settlement lend this area a moderate sensitivity.'*

The ES assesses this LCA as low to medium sensitivity. This understatement of sensitivity has influenced the assessment of landscape impact significance.

## **7.2 Evaluation of Visual Compartments**

This section of the study identifies a number of visual compartments which consider groups of LCA's across which there is a broad degree of intervisibility. The visual compartments are evaluated in terms of sensitivity, capacity, typology and landscape guidance.

### **7.2.1 Sensitivity**

The assessment of sensitivity draws upon the assessment of sensitivity of the constituent LCAs and intervisibility with an NSA.

### **7.2.2 Capacity**

Capacity is described in paragraph 5.4 of the study as being: *'affected not only by the location and extent of areas of lower and moderate sensitivity, but by the size of the LCA, and visual compartment, current levels of development, and by other factors, including technical feasibility, which are not considered in this report. It is important to recognise that the thresholds (or tipping points) between levels of landscape change, and therefore the landscape capacity of an area for development, before each threshold is reached, will depend upon the nature of each individual landscape and specific proposals in every case.'*

Paragraph 5.4 concludes that: *'The assumption made in this study is one whereby it is taken that change will be best accommodated in areas of lower sensitivity, and that areas of higher sensitivity, particularly areas which are designated, should be conserved. Areas of moderate*

*sensitivity are generally taken to have capacity to accommodate some change.'*

Paragraph 5.6 confirms that: *'Capacity refers to the maximum extent of development...'*

### 7.2.3 Typology

Paragraph 5.6 also confirms that: *'...typology refers to the likely appropriate nature of each individual development.'*

Paragraph 2.13 confirms that typology definitions: *'can be given either by considering the number of turbines or by reference to installed capacity, as in SPP6. In this report the following terms are used, broadly with reference to both criteria.'*

- A. **Single turbine to a small group** – a development of 1 turbine to a group of up to about 6 turbines, or with an installed capacity of less than 20MW
- B. **Medium group** – a development of approximately 7-12 turbines, and/or with an installed capacity of up to 20MW
- C. **Medium-large group** – a development of approximately 13-25 turbines, and/or with an installed capacity of 20-50MW
- D. **Large-very large group** – a large development of approximately 25 or more turbines and/or an installed capacity in excess of 50MW

### 7.2.4 Landscape Guidance

Paragraph 5.7 of the study states: *'Guidance is provided to help direct development to the most appropriate locations, in landscape and visual terms, and should be read in conjunction with the guidance notes in Table 5.2.'*

The guidance notes in Table 5.2 are as follows:

- '1 *Locate developments in areas of large scale landscape and in association with existing activity or development (e.g. quarries, roads and existing sources of movement in the landscape).*
- 2 *Respect sensitive skylines; consider setting back turbines from ridges or ensure that wind farm layout enhances the skyline, providing a focal point / lending a strong composition.*

- 3 *Consider landform and topography when developing wind farm proposals of more than one turbine. Layout to reflect the shape of the landform, to optimise screening opportunities and to avoid visual confusion.*
- 4 *Locate away from steep valley sides and areas that form a discreet foreground within key views.*
- 5 *Locate wind farm developments away from the most remote and undisturbed areas.*
- 6 *Avoid areas of fragile vegetation (deep peat, blanket bog) which are difficult to restore.*
- 7 *Protect sensitive habitats and areas of natural heritage or conservation importance.*
- 8 *Consider views from public viewpoints and residential areas. Aim to achieve good composition from key viewpoints and to reduce the occurrence of very close views from residential properties.*
- 9 *Minimise adverse effects on the setting of smaller or dispersed traditional settlements.*
- 10 *Avoid areas of scenic importance and limit visual effects on such areas, using ridge lines and topography to contain views.*
- 11 *Respect the context of historic features and valued landscape components. Promote restoration where necessary.*
- 12 *Consider the composition of views from main road corridors and national cycle routes.*
- 13 *Ensure development contributes positively to the visitor potential of the area.*
- 14 *Minimise the effects of accompanying infrastructure and ancillary development by making use of existing tracks for the access tracks, burying cabling underground, careful location and screening of ancillary buildings or use of existing buildings.*
- 15 *Avoid incompatibility of design between developments in adjacent visual compartments, where these are intervisible.'*

The following visual compartments are those that include the relevant parts of LCAs A2 and D4.

### **7.2.5 H. Sullom Voe (A2)**

Sensitivity – moderate

Capacity – several small wind farms or one medium large wind farm

Typology – A, B or C

Landscape Guidance – 1, 2 and 12

26 or 29 turbines are proposed, dependent upon the detailed positioning of the visual compartment boundary. This exceeds the medium large wind farm with approximately 13 to 25 turbines recommended by the study.

The proposed wind farm is in conflict with landscape guidance note 2 as turbines are not set back from ridges.

### **7.2.6 J. West Kame (A2)**

Sensitivity – moderate / Low.

Capacity – several small wind farms or one medium large wind farm

Typology – A, B or C

Landscape Guidance – 2, 3, 6, 8, 9, 10, 11, 12 14 and 15

31 or 45 turbines are proposed, dependent upon the detailed positioning of the visual compartment boundary. This exceeds the medium large wind farm with approximately 13 to 25 turbines recommended by the study.

The proposed wind farm is in conflict with the study landscape guidance note 2 as turbines to the north of the visual compartment are not set back from ridges, 6 as proposed turbines do not avoid fragile peat vegetation, 8 as proposed turbines are within 2km of residential properties, 9 as the proposed wind farm does not minimise effects on the setting of Aith or

other dispersed settlements along the B9071 and 15 as the layout design of the wind farm is incompatible with that on Mid Kame Ridge.

### **7.2.7 K. Lunnasting, North Nesting, Whalsay and Out Skerries (A2 & D4)**

Sensitivity – moderate

Capacity – several small wind farms or one medium large wind farm

Typology – A, B or C

Landscape Guidance – 1, 2, 3, 6, 9, 11, 12 and 15

30 or 49 turbines are proposed, dependent upon the detailed positioning of the visual compartment boundary. This exceeds the medium large wind farm with approximately 13 to 25 turbines recommended by the study.

The proposed wind farm is in conflict with the study landscape guidance note 2 as turbines as turbines to the south of the visual compartment are not set back from ridges, 6 as proposed turbines do not avoid fragile peat vegetation, 9 as the proposed wind farm does not minimise effects on the setting of Voe and 15 as the layout design of the wind farm is incompatible with that on Mid Kame Ridge.

### **7.2.8 M. Mid Kame and Whiteness (A2 & D4)**

Sensitivity – moderate / high

Capacity – a small wind farm

Typology – A

Landscape Guidance – 1, 2, 3, 4, 6, 8, 9, 10, 11, 12 and 15

11 or 29 turbines are proposed, dependent upon the detailed positioning of the visual compartment boundary. This exceeds the one small wind farm with up to 6 turbines recommended by the study.

The proposed wind farm is in conflict with the study landscape guidance note 2 as turbines as turbines are not set back from ridge, 6 as proposed turbines do not avoid fragile peat vegetation, 8 as good composition is

not achieved from residential areas of Voe and as proposed turbines are within 2km of residential properties, 9 as the proposed wind farm does not minimise effects on the setting of Voe and 15 as the layout design of the wind farm is incompatible with that of the East and West Kames.

### **7.2.9 N. Central Mainland - East (A2 & D4)**

Sensitivity – moderate

Capacity – several small wind farms or one medium large wind farm

Typology – A or B

Landscape Guidance – 1, 2, 3, 6, 8, 9, 11, 12, 13 and 15

20 turbines are proposed, dependent upon the detailed positioning of the visual compartment boundary. This exceeds the medium wind farm with approximately 7 to 12 turbines recommended by the study.

The proposed wind farm is in conflict with the study landscape guidance note 2 as turbines as turbines to the south of the visual compartment are not set back from ridges, 6 as proposed turbines do not avoid fragile peat vegetation, 8 as proposed turbines are within 2km of residential properties, 9 as the proposed wind farm does not minimise effects on the setting of Voe and 15 as the layout design of the wind farm is incompatible with that on Mid Kame Ridge.

## 7.3 Landscape Locational Design Guidance

### 7.3.1 Key Principles

Paragraph 6.2 states that: *'The size and modern appearance of wind turbines means that all wind farm developments will result in some degree of landscape and visual effects. It is, however, possible to minimise the scale of these effects by careful consideration of:*

- *The sensitivity of existing landscapes, and their ability to accommodate appropriately sited and designed wind farm developments without significantly altering their landscape character;*
- *Patterns of intervisibility and key views and viewpoints;*
- *The design of wind farm developments so that they respond to the nature of the landscape and are carefully composed key views.*

*Design principles include:*

- *Avoidance of groups of overlapping turbines which can lead to visual confusion, and an inconsistent turbine density in the landscape;*
- *Avoidance of the incidence of outlying turbines, which appear remote from the rest of the group, or which are separated from the main development area;*
- *Avoidance of significant or discordant irregularity in turbine positioning, both horizontally and vertically, so that turbine spacings appear balanced;*
- *Where larger groups of turbines are proposed, aim to achieve a relatively compact clustered development, to limit the extent of effects upon the wider landscape and views, provide a clear and coherent image, and give the appearance of development which is composed and designed, rather than scattered through the landscape;*
- *Ensure compatibility of design and balance between intervisible wind farm developments or between different groups or clusters of turbines which make up a*

*larger development, thereby reducing cumulative effects.'*

The proposed wind farm is contrary to these principles as:

- the landscape is not able to accommodate the proposed wind farm without significantly altering the landscape character;
- the selection of viewpoints is not comprehensive;
- groups of overlapping turbines lead to visual confusion (particularly on the Mid Kame Ridge). There is also an inconsistency in density between turbine groups;
- the scale of the wind farm and the dispersed groups of turbines does not give a clear or coherent image from many views; and
- the design of the Mid Kame Ridge is not compatible with other turbine groups.

### **7.3.2 Cumulative Assessment**

Paragraph 6.21 sets out: *'Factors to consider in interpreting the results of the cumulative visual assessment...'* This includes:

- *'The relationship and compatibility of design and scale of wind farm developments (or several distinct groups of turbines within an overall larger wind farm development), including the number, size and design of turbines'*

The ES is in contradiction with this factor as it does not consider the cumulative impact of the distinct groups of turbines within the proposed wind farm.

### **7.4 Landscape Capacity Study Summary**

Issues arising from the landscape capacity study can be summarised as follows;

- The proposed wind farm is contrary to the study recommendation regarding turbine intervisibility with the valleys of Kergord and Pettadale.

- Based on the study assessment of the sensitivity of LCA 4 the ES understates sensitivity and the consequential landscape impact significance of the proposed wind farm.
- The proposed wind farm has more turbines than the maximum number recommended by the study for all five of the relevant visual compartments.
- The proposed wind farm is in conflict with landscape guidance note 2 as turbines are not set back from ridges, 6 as turbines do not avoid fragile peat vegetation, 8 as good composition is not achieved from residential areas and as proposed turbines are within 2km of residential properties, 9 as the proposed wind farm does not minimise effects on the setting of smaller and dispersed communities and 15 as the layout design of Mid Kame is incompatible with that of the East and West Kames.
- The proposed wind farm is incompatible with study design principles as it will significantly alter the landscape character, the selection of viewpoints is not comprehensive, overlapping turbines and inconsistency in density between turbine groups leads to visual confusion, the scale of the wind farm and the dispersed groups of turbines creates an incoherent image from many views and the design of the Mid Kame Ridge is not compatible with other turbine groups.
- The ES does not consider the cumulative impact of the distinct groups of turbines within the proposed wind farm.

## **Conclusion**

### **8.0 Summary of Review**

An initial review of the Environmental Statement methodology in the context of current guidance has revealed a number of deficiencies that call into question the conclusions of the ES landscape and visual impact assessment.

These deficiencies relate to the design process, the selection of viewpoints, the visualisations, the assessment of visual impact and the assessment of landscape impact (with particular reference to the

'Landscape Sensitivity and Capacity Study for Wind Farm Development on the Shetland Islands').

Issues arising from the Environmental Statement can be summarised as follows;

- An overriding concern is that the number of turbines proposed has been dictated by the minimum required for the viability of an interconnector cable rather than landscape and visual capacity.
- The design process has led to the creation of six distinct and geographically separate groups of turbines that should be assessed as separate wind farms. Also, the design process has not led to a reduction in the significance of impacts (particularly for the turbines on the Mid Kame Ridge).
- The impact of access track construction (and associated peat displacement) is not adequately addressed either in the ES assessment or the visualisations.
- The viewpoints selected do not adequately represent key receptors of impact including users of promoted walks, users of ferry routes and viewers at promoted viewpoints.
- The visualisations understate the impact of the proposed wind farm as many do not include the full field of view affected and others understate the impact of the turbines (particularly those on the Mid Kame Ridge).
- The ES assessment of visual impact significance cannot be relied upon as the methodology for assessing sensitivity is flawed. The ES methodology understates the level of sensitivity and the consequential impact significance.
- The ES overstates the benefits of mitigation arising from the reconfiguration of turbines and potential woodland screen planting.

Issues arising from the Environmental Statement with particular regard to the landscape capacity study can be summarised as follows;

- The proposed wind farm is contrary to the study recommendation regarding turbine intervisibility.
- The ES understates the sensitivity of Landscape Character Area 4 (when compared to the capacity study assessment) and the consequential landscape impact significance.

- The wind farm proposes more turbines than the maximum number recommended by the study for all five of the relevant visual compartments.
- The proposed wind farm is in conflict with landscape guidance notes.
- The proposed wind farm is incompatible with some of the capacity study design principles.
- The ES does not consider the cumulative impact of the distinct groups of turbines within the proposed wind farm.

## **9.0 Conclusion**

The premise that a minimum number of turbines are required to make the project viable undermines the site selection and design process. Furthermore, the inadequacy of the viewpoints and visualisations as well as an understatement of both landscape and visual sensitivity means that the Environmental Statement assessments fail a basic objectivity test.

The deficiencies of the landscape and visual impact section of the Environmental Statement are such that the ES conclusions cannot be relied upon.