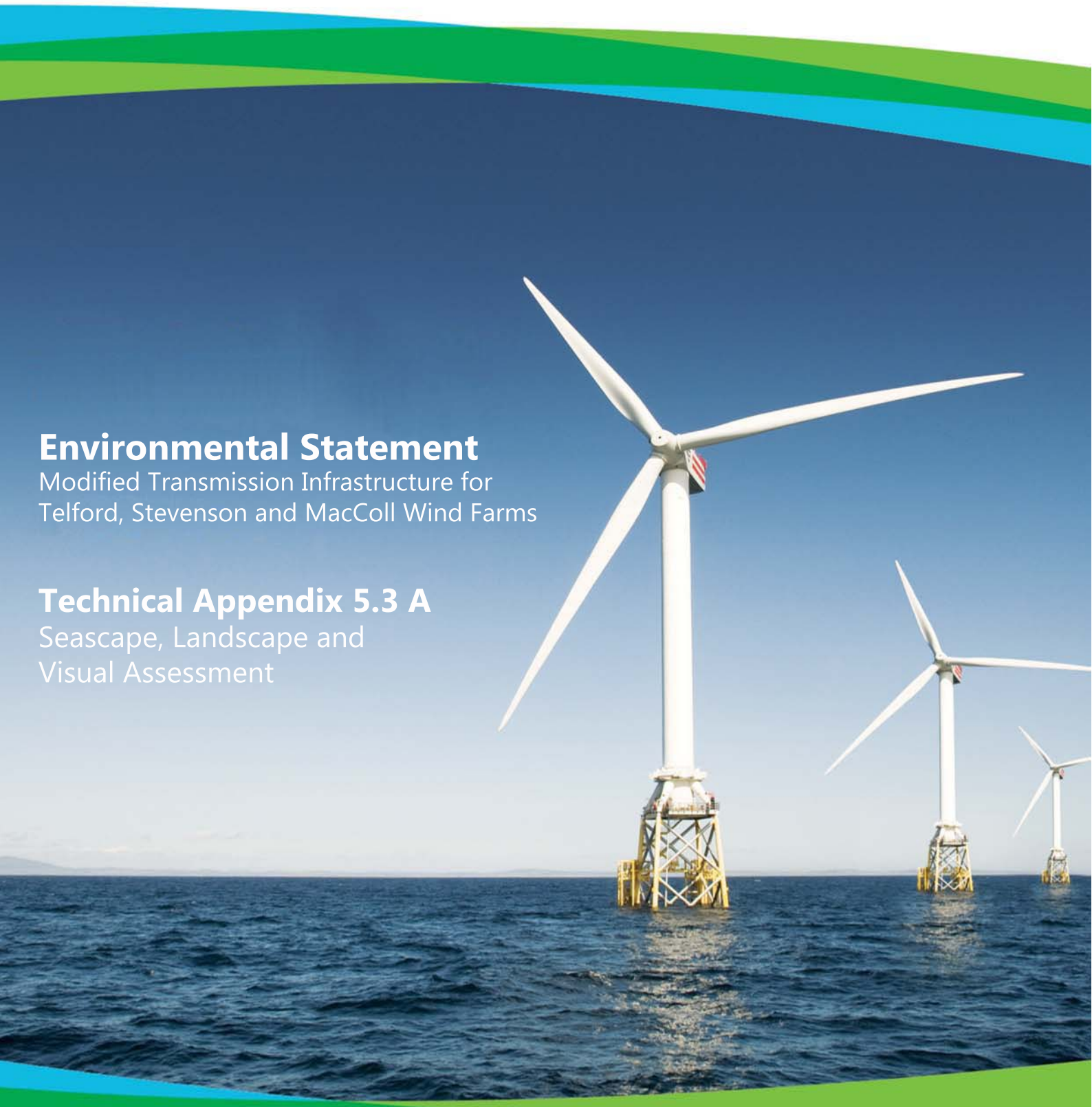
moray offshore renewables ltd

Developing Wind Energy In The Outer Moray Firth



Environmental Statement

Modified Transmission Infrastructure for
Telford, Stevenson and MacColl Wind Farms

Technical Appendix 5.3 A

Seascape, Landscape and
Visual Assessment

edp renewables

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1 Introduction

This methodology has been prepared by chartered landscape architects at Optimised Environments Ltd (OPEN) and describes in detail the methodology that has been used to carry out the Seascape, Landscape and Visual Impact Assessment (SLVIA) of the Modified Transmission Infrastructure (modified TI). The SLVIA identifies and assesses the significance of changes resulting from the modified TI on both the landscape as an environmental resource and on people's views and visual amenity. The SLVIA methodology is structured as follows:

- SLVIA baseline study;
- Types of effect;
- Significance of effects;
- Assessment of landscape effects;
- Assessment of visual effects;
- Assessment of cumulative landscape and visual effects;
- Nature of effects;
- Duration and reversibility; and
- Visual representations.

The following sources have been used in the formulation of methodology for the assessment and the presentation of visual representations:

- Guidelines for the Assessment of Landscape and Visual Impacts: Third Edition (Landscape Institute and IEMA, 2013);
- Assessing the Cumulative Impact of Onshore Wind Energy Developments (SNH, 2012);
- Advice Note 01/11 Photography and Photomontage in Landscape and Visual Impact Assessment (Landscape Institute, 2011) ;
- Landscape Character Assessment Guidance for England and Scotland (SNH and TCA 2002);
- Siting and Designing Wind farms in the Landscape: Version 2 (SNH, 2014);
- Wildness in Scotland's Countryside Policy Statement No. 02/03; (Scottish Natural Heritage 2003);
- Assessing the Impacts on Wild Land Interim Guidance Note (Scottish Natural Heritage 2007); and
- Scottish Natural Heritage (2012) published on their web-site, updated wildness mapping for the whole of Scotland (http://www.snh.gov.uk/protecting-scotlands-nature/looking-after-landscapes/landscape-policy-and-guidance/wild-land/mapping/).

The SLVIA is based on the Rochdale Envelope parameters described in Chapter 5.3.1. In compliance with EIA regulations, the likely 'worst case' scenario is assessed and illustrated in the SLVIA.

The SLVIA for the modified TI has been undertaken within a 50 km radius study area of the three consented wind farms as shown in Figure 5.3.1. The study area is not intended to provide a boundary beyond which the three consented wind farm sites

and modified TI will not be seen, but rather to define the area within which to assess the potential significant landscape and visual effects of the modified TI.

2 SLVIA Baseline Study

Introduction

The baseline study describes the existing seascape, landscape and visual environment of the sites and study area. Establishing a baseline helps to gain an understanding of what makes the seascape and landscape distinctive, its important components or characteristics, and how it is changing prior to the introduction of the modified TI. The baseline is instrumental in the identification of the seascape and landscape character receptors and visual receptors/views to be included in the assessment. The baseline seascape, landscape and visual conditions are described for the modified TI.

Seascape character is an extension of landscape character, but emphasises other elements that are slightly different or more important at the coast, when defining the character of seascape compared to landscape. Seascape is defined as 'An area of any extent or scale which includes the sea as a key feature. Seascape has physical and experiential attributes, and encompasses the interrelationship between the sea and the sky, and may include land' (SNH, 2005).

Defining the baseline character of the study area requires a specific focus on both the 'seaward' and the 'landward' elements. Landscape character contributes to seascape character and vice versa. The coastal character assessment:

- Analyses the coastal landscape; and
- Identifies its elements and experiential qualities that are distinctive and typify the place.

The emphasis placed on individual aspects of assessment varies, however, these include landform, open-ness, climate, scale, seascape, coastal and landscape character and features, marine features, aspect, visibility, designations and cumulative impacts.

A coastal character methodology, informed by those used for SNH's aquaculture studies (SNH, 2008) has been applied to identify Coastal Character Areas (CCAs) informed by, and at a scale comparable to, the existing SNH Landscape Character Assessments (LCAs) (SNH, 1997 and 1998). Although developed for aquaculture capacity studies, the methodology identifies areas of consistent coastal character with strong integrity, such as a specific bay or stretch of coast. Other desk sources, such as the Beaches of Scotland series (Countryside Commission for Scotland, 1970 and 1977) have been used to inform the basis of Coastal Character Areas, together with site specific field surveys.

The baseline seascape characterisation has been informed by SNH's Seascapes Report (SNH, 2005), which identifies national seascape types/units, although this is a

strategic assessment with general descriptions and has limitations for use with specific development proposals.

Other guidance on seascape assessment in Wales and England is relevant, particularly the Guide to Best Practice in Seascape Assessment (CCW, 2001) and Seascape and Visual Impact Report (DTI, 2005). These recommend definition of seascape units based on land/sea/headland intervisibility at local, regional, national scales, together with seascape and visual characteristics, activities, visibility and views.

The approach to seascape assessment responds to the advice on characterisation provided by SNH in their scoping opinion and consultations to date, focusing on both the 'seaward' and the 'landward' elements of the study area. The baseline assessment comprehensively reviews the coastal and seascape/landscape character using:

- Landscape character information taken from the relevant terrestrial Landscape Character Assessment (SNH national series of LCAs);
- Coastal character information based on national coastal character descriptions and relevant coastal references in the terrestrial LCA; and
- More detailed characterisation and/or subdivision of the coast into Coastal Character Areas.

The key characteristics and sensitivity of these seascape character types/units are identified, as appropriate, with respect to the modified TI.

Coastal and Seascape / Landscape Characterisation Methodology

SNHs 'Guidance on Landscape/Seascape Capacity for Aquaculture' (2008) provides a methodology for assessing the seascape capacity for aquaculture development. The methodology described has been adapted for the purpose of the SLVIA of the modified TI to define the baseline character and visual qualities of the coastal landscape/seascape. The methodology is divided into a series of broad stages, summarised in Table 1.

Table 1: Summary of Coastal Character Approach

Preliminary stage: Prepare a brief

- Define / agree the study area, development scenarios and mapping scale.

Stage One: Identify National Seascape Character Types

- Identify national level' seascape character types from SNH Seascape Study (2005); and
- National seascape types will form a framework within which these coastal character areas will 'nest'.

Stage Two: Identify Terrestrial Landscape Character Types

- Identify terrestrial landscape character types to understand coastal character and landscape types where the sea or coast provides the defining characteristics or for use in the OFTO onshore assessment.

Stage Three: Identify Coastal Character Areas

- Undertake initial site visit and desk study to identify Coastal Character Areas;
- Undertake detailed survey and analysis of relevant seascape / coastal character within each Coastal Character Area;
- Identify key characteristics, experiences, features and visual qualities;
- Identify key viewpoints and photography;
- Identify boundaries and names of Coastal Character Areas with geographical integrity; and
- Output: a map showing the Coastal Character Areas.

Stage Four: Undertake Sensitivity Analysis

- Assess the sensitivity of individual Coastal Character Areas to the modified TI; and
- Prepare explanation and justifications.

Stage Five: Undertake Impact Assessment

- Assess the magnitude of change of the modified TI on Coastal Character Areas; and
- Assess the effect of the modified TI on Coastal Character Areas by making judgements on their sensitivity and magnitude of change to the modified TI.

Preliminary Stage: Prepare a Brief

Development Scenario

The SLVIA is based on the Rochdale Envelope described in Chapter 5.3.1. In compliance with EIA regulations, the 'worst case' scenario is assessed and illustrated in the SLVIA.

Search Area

A search area has been identified to establish a reasonable study area for the SLVIA. The search area, shown in Figure 5.3.1, encompasses:

- The three consented wind farm sites and Modified OfTI;
- The adjacent Caithness, Moray and Aberdeenshire coastlines;
- The southern edge of the Orkney Isles; and
- Inland parts of Aberdeenshire covering the onshore export between Inverboyndie and the onshore substation near New Deer.

Within this search area, a SLVIA study area is defined for the Modified Offshore Transmission Infrastructure (Modified OfTI) and the Modified Onshore Transmission Infrastructure (Modified OnTI), as shown in Figure 5.3.1.

Stage One: Identify National Seascape Character Types

The baseline seascape characterisation has been informed by SNH's Seascapes Report (SNH, 2005). The study provides a 'nationwide' look at the coast. Scotland's coastline is classified into 33 'seascape units', comprising 13 'coastal character types'.

These coastal character types and seascape units establish coastal character at the national scale, valid only at the broad, strategic level. When assessing specific development proposals, a more detailed character assessment is needed. Strategically, these 'national level' coastal character types and seascape units will form a framework within which coastal character areas will 'nest'. This hierarchy of seascape character areas is illustrated in Table 2.

Stage Two: Identify Terrestrial Landscape Character Types

A review of the relevant terrestrial Landscape Character Assessments (SNH national series of LCAs) has been undertaken to help understand the physical coastal character. The coastal character assessment is best done at a scale comparable to the existing Landscape Character Assessments, and is informed by them. In order to review the coastal character, the existing SNH terrestrial LCAs covering the coastal parts of the study area are examined in conjunction with field survey and assessment. The existing terrestrial SNH character assessment for Caithness, Moray and Nairn, and Banff and Buchan cover the coastal parts of the study area (SNH, 1997 and 1998).

These LCAs provide detailed descriptions of coastal characteristics for some of the landscape types in the study area. The landscape types identified along the coast have directly informed the definition of Coastal Character Areas, where the sea or coast provide the defining characteristics, for example the 'High Cliffs and Sheltered Bays' landscape type of Caithness. Other landscape types in the study area abut the coast and are influenced by the sea, but the sea and coast do not provide the defining characteristic, for example, the 'Small Farms and Crofts' landscape type of Caithness. These landscape types have been subject to further coastal characterisation to define Coastal Character Areas within the coastal part of these landscape types. Other landscape types, located further inland, have little or no relationship with the coast, where the sea is not a characteristic element. These landscape types have not influenced the coastal characterisation and are considered separately as distinct landscape types. Terrestrial landscape character types are used to inform the assessment of the export cable routes.

Table 2: Hierarchy of Coastal Character Assessment

NATIONAL COASTAL CHARACTER TYPES
13 coastal character types based on coastal, hinterland and marine character; these occur in 33 indicative 'National' seascape units.

(Defined in the SNH Seascapes Study)

↓

COASTAL CHARACTER AREAS
Scale 1:100,000
Areas of distinct character, the primary assessment tool. Defined on the basis of:

- Physical landform, degree of enclosure or openness and an assessment of horizontal and vertical scale;
- Degree of influence of the sea and 'maritime' qualities on both landscape and coast of the area, including coastal dynamics;
- Shape, scale and degree of fragmentation of the coastline;
- Presence of human artefacts, distribution of settlement/pattern and amount of human activity;
- Landscape features, including historic features and their setting;
- Experience of the coast, landscape and seascape, including degree of remoteness and potential opportunity to appreciate wildness; and
- Visual catchment.

Stage Three: Identify Coastal Character Areas

Coastal Character Areas further subdivide the National Seascape Types into areas of consistent coastal character with a strong identity, such as a specific bay or a section of coast or loch with a similar character. The characteristics described in Table 2 are used to help identify Coastal Character Areas.

A detailed desk and field survey has been carried out to identify, analyse and present the elements of the coastal landscape which are most likely to be affected by the modified TI. Coastal Character Areas are identified as areas of distinct character at the local/regional level. This scale was considered most appropriate for the assessment given the location of the OSPs over 20 km from the coast, the area covered by development and the large size of the study area. When assessing the specific development proposals, consisting of three offshore wind farms located at long distances offshore, a coastal character at the scale comparable to the existing terrestrial LCAs was considered most suitable.

Coastal Character Areas vary in size, according to the determining characteristics of the coast. Uniform, linear coastlines tend to define larger Coastal Character Areas, while definitive enclosed bays or headland features tend to define smaller Coastal Character Areas. Coastal Character Areas embrace consistent areas of seascape, usually with a common geographic or place name, which forms the basis of the character area. They are usually a stretch of coastline with a relatively consistent overall character, or a whole island or sea loch. The key characteristics and features of the Coastal Character Areas are described based on relevant desk studies, such as

the SNH's terrestrial LCAs and field survey assessment. A checklist of issues explored to consider the key characteristics of Coastal Character Areas is outlined in Table 3.

Table 3: Coastal Character - Key Characteristics

Topic	Analysis of physical characteristics	Analysis of experiential characteristics	Judgements	Recognised values
Maritime influences	Aspect and orientation Existing marine based activities. Maritime processes and dynamics. Scale, distance and expansiveness of open sea.	Sense of space and light. Sense of exposure. Sense of containment or open-ness. Sounds associated with the sea, smell of the sea.	Unity of landscape character. Aesthetic qualities, including characteristics, experiences, and perceptions which create exceptional aesthetic quality. Assessing significance of physical characteristics. Assessing intensity and significance of experiential characteristics. Identification of dominant physical or experiential characteristics. Identification of aesthetic attributes. Determining the extent of the relevant setting for significant features and landmarks identifying relevant cultural associations with place	Landscapes and seascapes designated because of their scenic, landscape or recreational value landmarks designated because of their cultural or historic significance. Longer distance routes. Roads designated as scenic or tourist routes.
Character of coastal edge	Shape and scale of coastline. Degree of indentation and enclosure. Presence of offshore islands. Fragmentation of edge Deposition features, tidal variations, landmarks and shoreline development.	Sense of exposure. Sense of containment or open-ness.		
Character of immediate hinterland	Key elements of landscape character topography and relief vegetation pattern. Existing settlement pattern landmarks.	Sense of containment or open-ness. Presence of maritime influence.		

Topic	Analysis of physical characteristics	Analysis of experiential characteristics	Judgements	Recognised values
Wildness / isolated coast	Presence of natural processes. Presence of development/ human activity. Actual accessibility ruggedness of terrain.	Sense of naturalness perceived remoteness sense of isolation.	Intensity of sense of wildness degree of ruggedness and perceived accessibility. Degree to which natural processes dominate the experience of place.	Wild land search areas.

Stage Four: Undertake Sensitivity Analysis

The sensitivity of a Coastal Character Area is an expression of its ability to accommodate the modified TI as part of its own character or as part of the visual setting or context of the coastal character. This is dependent on the value, quality, existing character and position of the Coastal Character Area in relation to the modified TI as explained below:

- The value of the Coastal Character Area is a reflection of its importance in terms of any designations that may apply, or as a landscape/seascape resource;
- The quality of the Coastal Character Area is a reflection of its attributes, such as sense of place and scenic quality, and the extent to which attributes have remained intact;
- The existing coastal character determines the degree to which the receptor may accommodate the influence of the development; and
- The position of the Coastal Character Area in relation to the modified TI will influence its sensitivity to the change proposed and will vary according to whether they have a close/direct or distant/indirect relationship.

Levels of sensitivity – high, medium-high, medium and medium-low, low – are applied to each Landscape Type and Coastal Character Area. The sensitivity of each receptor is a product of the specific combination of value, quality and existing landscape character as evaluated for that receptor. It is not possible to provide definitions for each of the levels of sensitivity (low, medium-low, medium, medium-high and high) as the level of sensitivity of each receptor is a product of consideration of the factors specific to each receptor and the application of professional judgement. The combination of criteria and the resulting level of sensitivity are described in the evaluation of sensitivity for each receptor.

Stage Five: Undertake Impact Assessment

The significance of the effect on Coastal Character is dependent on the multiple factors considered in determining the sensitivity and the magnitude of change and by applying professional judgement to assess whether the modified TI will have an

effect that is significant or not significant. A significant effect will occur where the combination of the variables results in the modified TI having a definitive effect on the receptor, so that its landscape character is redefined by the presence of the modified TI. A not significant effect will occur where the effect of the modified TI is not definitive, and the landscape character of the receptor continues to be defined principally by its baseline characteristics. The methodology for the impact assessment for the SLVIA is described fully in Section 2.

Visual Baseline

The baseline assessment includes the identification and agreement of specific viewpoints identified during desk and field survey. Field survey was undertaken to identify and locate appropriate viewpoints for the visual assessment, and to shoot baseline photography to illustrate the existing views from viewpoints in the study area. An outline of the relevant issues considered when defining the baseline visual character is shown in Table 4.

Table 4: Methodology for Coastal/Seascape Assessment: Visual Assessment

Topic	Analysis of physical elements	Analysis of type of views	Judgements	Recognised values
Visual assessment	Presence of the coastal edge. Presence of the open sea. Focal points or features within the views. Aspect and orientation of viewpoint, character of seascape.	Overlook from settled areas. Views experienced as part of a sequence. Elevated viewpoints panoramas. Sudden revelations. Glimpse views.	Significance of views and viewpoints. Significance and dominance of compositional elements. Quality of visual composition from viewpoints. Aspect and transient qualities such as quality of light and reflectivity.	Views which contribute to the experience of a landscape or seascape designated for its scenic quality. Views to and from features designated because of their historic significance. Views from longer distance routes. Views from popular recreational areas or specific facilities.

A proposed viewpoint list, map and Zone of Theoretical Visibility (ZTV) were provided to SNH, Marine Scotland and local authorities during the consultation. Feedback on the viewpoints and format of the visualisations was provided during the consultation stages by SNH, the Highland Council and Moray Council.

3 Types of Effects

The SLVIA is intended to determine the effects that the modified TI will have on the landscape and visual resource.

Landscape Effects

The SLVIA considers the effects of the modified TI on the landscape as a resource. Landscape effects are either direct effects on the physical fabric of the site, or effects on landscape character. The assessment of landscape effects is carried out as follows:

- Assessment of physical effects: physical effects are direct effects on the physical fabric of the site, such as the removal of trees and alteration to ground cover. This category of effects is made up of landscape elements, which are the components of the landscape such as hedgerows or woodland that may be physically affected by the modified TI.
- Assessment of effects on landscape character: landscape character is the distinct and recognisable pattern of elements that occurs consistently in a particular type of landscape, and the way that this pattern is perceived. Effects on landscape character arise either through the introduction of new elements that alter this pattern of elements, or through visibility of the modified TI, which may alter the way in which the pattern of elements is perceived. This category of effects is considered in terms of landscape character receptors, which fall into two groups; landscape character types/areas and landscape designations.

Visual Effects

The SLVIA considers the effect of the modified TI on views and visual amenity. Visual effects include effects on visual receptors, i.e. groups of people that may experience an effect, and views (viewpoints). The visual assessment is carried out as follows:

- An assessment of the effects of the modified TI on views from principal visual receptors, including residents of settlements, motorists using roads, people using recreational routes, features and attractions throughout the study area (as ascertained through the baseline study); and
- An assessment of the effects of the modified TI on representative viewpoints that have been selected to assess the effect on locations relevant to these visual receptors and from specific viewpoints, chosen because they are key or promoted viewpoints in the landscape.

Cumulative Effects

Cumulative landscape and visual effects arise where the study areas for two or more developments overlap so that both are experienced at proximity where they may have a greater incremental effect, or where developments may combine to have a sequential effect, irrespective of any overlap in study areas. This means that the addition of the modified TI to a situation where other developments are apparent in the baseline landscape and visual context may result in a greater effect than where the modified TI is seen in isolation.

4 Significance of Effects

The objective in assessing the effects of the modified TI is to predict the significant effects of the modified TI on the landscape and visual resource. In accordance with the Town and Country Planning (Environmental Impact Assessment) (Scotland) Regulations 2011 and Marine Works (Environmental Impact Assessment) Regulations 2007 (the EIA Regulations), the SLVIA effects are assessed to be either significant or not significant. The SLVIA does not define levels of significance as the EIA Regulations do not provide for these.

The significance of effects is assessed through a combination of two considerations - the sensitivity to change of the landscape element, landscape character receptor or visual receptor, and the magnitude of change that will result from the modified TI.

OPEN's methodology requires the application of professional judgement in accordance with the Landscape Institute's GLVIA3. Although it is not reliant on the use of a matrix, the following matrix (Table A7.1) has been included to illustrate how combinations of the ratings for sensitivity and magnitude of change can give rise to significant effects, as well as to give an understanding of the threshold at which significant effects may arise.

Table 5: Illustrative Significance Matrix

Illustrative Matrix of Significant Effects

Magnitude **Sensitivity**	**High**	**Medium-high**	**Medium**	**Medium-low**	**Low**	**Negligible**
High	Significant	Significant	Significant	Significant or not significant	Not significant	Not significant
Medium-high	Significant	Significant	Significant or not significant	Significant or not significant	Not significant	Not significant
Medium	Significant	Significant or not significant	Significant or not significant	Not significant	Not significant	Not significant
Medium-low	Significant or not significant	Significant or not significant	Not significant	Not significant	Not significant	Not significant
Low	Significant or not significant	Not significant	Not significant	Not significant	Not significant	Not significant

Effects that are assessed within the dark grey boxes in the matrix are assessed to be significant in terms of the requirements of the EIA Regulations. Those effects that are assessed within the light grey boxes may be significant, or not significant, depending on the specific factors and effect that is assessed in respect of a particular

landscape or visual receptor. In accordance with the GLVIA3, experienced professional judgement is applied to the assessment of all effects and reasoned justification is presented in respect of the findings in each case.

5 Assessment of Landscape Effects

Landscape character is the distinct and recognisable pattern of elements that occurs consistently in a particular type of landscape, and the way that this pattern is perceived. Effects on landscape character arise either through the introduction of new elements that physically alter this pattern of elements, or through visibility of the modified TI, which may alter the way in which the pattern of elements is perceived. This category of effects is made up of physical effects and effects on landscape character (landscape character types and designated areas).

Assessment of Physical Effects

The physical effects of the modified TI are restricted to the area of the site where existing landscape elements may be changed. Physical effects are the direct effects as a result of the modified TI on the fabric of the site, such as the removal of trees and alteration to ground cover. The objective of the assessment of physical effects is to determine what the likely physical effects of the modified TI will be, which landscape elements will be affected, and whether these effects will be significant or not significant. The variables considered in the sensitivity of landscape elements and the magnitude of change that the modified TI will have on them are described below.

Sensitivity of Landscape Elements

The sensitivity of a landscape element is an expression of its value and quality, and the potential to mitigate the effect.

- The value of a landscape element is a reflection of its importance in the pattern of elements which constitute the landscape character of the area. For example, the value of woodland is likely to be increased if it provides an important component of the local landscape character. If a landscape element is particularly rare – as a remnant of an historic landscape layout for example – its value is likely to be increased;
- The quality of a landscape element is a reflection of its condition and state of repair. For example, a woodland that has been poorly managed and is in poor condition would be considered to have a reduced quality; and
- The potential for mitigation of the effect on a landscape element is a reflection of the degree to which the element can be restored, replaced or substituted. For example, it may be possible to restore ground cover following the excavation required for cable installation, and this would reduce the sensitivity of this element.

The evaluation of sensitivity is described for each receptor in the assessment. Levels of sensitivity – high, medium-high, medium, medium-low and low - are applied. The sensitivity of each receptor is a product of the specific combination of value, quality and potential for mitigation as evaluated by professional judgement.

Magnitude of Change on Landscape Elements

The magnitude of change on landscape elements is quantifiable, and is expressed in terms of the degree to which a landscape element will be removed or altered by the modified TI, the extent of existing landscape elements that will be lost and the contribution of that element to the character of the landscape. Definitions of magnitude of change are applied in order that the process of assessment is made clear. These are:

- High, where the modified TI will result in the complete removal or alteration of a key landscape element;
- Medium, where the modified TI will result in the removal of a notable part of a landscape element or a notable alteration to a key landscape element; and
- Low, where the modified TI will result in the removal of a minor part of a landscape element or a minor alteration to a key landscape element; and
- Negligible, where the modified TI will result in the removal of a negligible amount of a landscape element or is barely discernible.
- None, where the modified TI will result in no change to the landscape element.

There may also be intermediate levels of magnitude of change - medium-high and medium-low - where the change falls between two of the definitions.

Significance of Effects on Landscape Elements

The significance of the effect on landscape elements is dependent on all of the factors considered in the sensitivity of the receptor and the magnitude of change upon it, and by applying professional judgement to assess whether or not the modified TI will have an effect that is significant or not significant.
A significant effect will occur where the degree of removal or alteration of the landscape element is such that the form of the element will be redefined. If the landscape element is of a high sensitivity, a significant effect can occur with a limited degree of removal or alteration. A not significant effect will occur where the form of the landscape element is not redefined as a result of the modified TI. If the landscape element is of lower sensitivity, it may undergo a higher level of removal or alteration yet remain as a not significant effect.

Assessment of Effects on Landscape Character

The objective of the assessment of effects on landscape character is to determine what the likely effects of the modified TI will be, which landscape character receptors will be affected, and whether these effects will be significant or not significant. The methodology for the assessment of effects on landscape character involves the undertaking of a baseline study, evaluation of sensitivity, magnitude of change and an assessment of significance.

Landscape Baseline and Scope Assessment

The landscape baseline provides an understanding of the landscape in the area that may be affected – its constituent elements, its character, distinctiveness,

condition and value, and the way this varies spatially. The landscape baseline describes aspects of the landscape that may be significantly affected, as required by Schedule 4 of the Town and Country Planning (Environmental Impact Assessment) (Scotland) Regulations 2011 and Schedule 3 of the Marine Works (Environmental Impact Assessment) Regulations 2007 (together the EIA Regulations). Establishing the landscape baseline will, when reviewed alongside the description of the modified TI, form the basis for the identification and description of the landscape effects of the modified TI. The baseline description of the landscape that may be affected is primarily determined by the physical footprint of the modified TI components and their Zone of Theoretical Visibility (ZTV).

An overview of the landscape baseline is described and a scope assessment identifies landscape receptors that may experience significant effects, which require to be assessed in full. A detailed description of the baseline is provided for each landscape receptor that may experience significant effects, allowing the full baseline to be described for landscape receptors that may be significantly affected. Those receptors which are identified as not having the potential to undergo significant effects and significant cumulative effects, are not included in the subsequent detailed assessment, but are noted with reasons given for their exclusion.

The baseline study of each landscape character receptor collates and presents information relevant to the assessment drawn from a combination of desk study and field-work. The baseline study covers the following issues:

- The description of the landscape character receptor drawn from the relevant documentation such as the Landscape Character Assessment or citations in respect of landscape designations;
- A description of the landscape character receptor based on field work to determine how typical or not the landscape character receptor is in relation to documented descriptions;
- Those features and patterns of the landform, land-cover and land-use which make the landscape character receptor distinctive;
- The visual and sensory experience of the landscape and how it associates with other landscapes including in particular the landscape character receptor where the modified TI is located; and
- How change in this landscape character receptor, either through natural or human processes, is presently affecting character and how they are predicted to affect character in the future.

The landscape baseline also describes current pressures that may cause change in the landscape in the future, in particular drawing on information for wind energy and infrastructure developments that are not yet present in the landscape, but are at other stages in the planning process. Operational and under construction wind energy developments are regarded as part of the baseline landscape character of the area. Any changes resulting from the modified TI are assessed within this context in the assessment of landscape and visual effects.

Sensitivity of Landscape Character Receptors

The sensitivity of a landscape character receptor is an expression of its ability to accommodate the modified TI as part of its own character or as part of the visual setting or context of the character receptor. This is dependent on the value of the landscape receptor and its susceptibility to change.

Value of the Landscape Receptor

The value of a landscape character receptor is a reflection of the value which society attaches to that landscape. The assessment of the landscape value is classified as high, medium-high, medium, medium-low or low and the basis for this assessment is made clear using evidence and professional judgement, based on the following range of factors:

- Landscape designations: A receptor that lies within the boundary of a recognised landscape related planning designation will be of increased value, depending on the proportion of the receptor that is covered and the level of importance of the designation; international, national, regional or local. It is important to note that the absence of designations does not preclude local resource value, as an undesignated landscape character receptor may be important as a resource in the local or immediate environment, particularly when experienced in comparison with other nearby landscapes.
- Landscape quality: The quality of a landscape character receptor is a reflection of its attributes, such as scenic quality, sense of place, rarity and representativeness and the extent to which these attributes have remained intact. A landscape with consistent, intact and well-defined, distinctive attributes is generally considered to be of higher quality and, in turn, higher value, than a landscape where the introduction of inappropriate elements has detracted from its inherent attributes.
- Landscape experience: The experience of the landscape character receptor can add to its value and relates to a number of factors including the perceptual responses it evokes, the cultural associations that may exist in literature or history, or the iconic status of the landscape in its own right, the recreational value of the landscape for outdoor pursuits, and the contribution of other values relating to the nature conservation or archaeology of the area.

Susceptibility to Change

The susceptibility of a landscape character receptor to change is a reflection of its ability to accommodate the changes that will occur as a result of the addition of the modified TI. The assessment of the susceptibility of the landscape receptor to change is classified as high, medium-high, medium, medium-low or low and the basis for this assessment is made clear using evidence and professional judgement, based on the following criteria:

- The specific nature of the modified TI: The susceptibility of landscape receptors is assessed in relation to change arising from the specific development proposed, including the specific components and features of the modified TI proposed, its size, scale, location, context and characteristics.
- Landscape character: The key characteristics of the existing landscape character of the receptor is considered in the evaluation of susceptibility as, they determine the degree to which the receptor may accommodate

the influence of the modified TI. For example, a landscape that is of a particularly wild and remote character may have a high susceptibility to the influence of the modified TI due to the contrast that it would have with the landscape, whereas a developed, industrial landscape, where built elements and structures are already part of the landscape character, may have a lower susceptibility. However, there are instances when the quality of a landscape may have been degraded to an extent whereby it is considered to be in a fragile state and therefore a degraded landscape may have a higher susceptibility to the modified TI.

- Landscape association: The extent to which the modified TI will influence the character of the landscape receptors across the study area, relates to the associations that exist between the landscape receptor where the modified TI is located and the landscape receptor from which the modified TI is being experienced. In some situations this association will be strong where the landscapes are directly related, for example the influence on a valley landscape by an enclosing upland landscape where the modified TI is set along the skyline, and in other situations weak where the landscapes are not directly related, for example the influence on a coastal landscape which is strongly associated with the seaward aspect and not the landward aspect where the modified TI is situated.
- Landscape Planning Policies and Strategies: The degree to which the modified TI achieves landscape planning policies and strategies, set out within the development plan or planning guidance. A landscape which is defined in planning guidance as area of search for this kind of development, for example, may be considered to be less susceptible to change, as the planning policy strategy for that area indicates that some change in the landscape could be accommodated. On the other hand, landscapes which are defined in planning policy as areas where the baseline situation should be maintained or protected, may be considered to be of higher susceptibility to change.

Sensitivity Rating

An overall sensitivity assessment of the landscape receptor is made by combining the assessment of the value of the landscape character receptor and its susceptibility to change. An overall level of sensitivity is applied for each landscape receptor - high, medium-high, medium, medium-low and low - by combining individual assessments of the value of the receptor and its susceptibility to change. The basis for the assessments is made clear using evidence and professional judgement in the evaluation of sensitivity for each receptor. Criteria that tend towards higher or lower sensitivity are set out in Table 6.

Table 6: Sensitivity to Change – Landscape Receptors

Criteria tending towards higher or lower sensitivity		
	National/International ⟶ **Local/Regional** ⟶ **Community**	
Value	Designated landscapes with national policy level protection or defined for their natural beauty. Higher quality landscapes with consistent, intact and well-defined, distinctive attributes. Rare or unique landscape character types or features. Aesthetic or perceptual aspects of designated wildlife, ecological or cultural heritage features that contribute to landscape character. Evidence that the landscape is valued or used substantially for recreational activity. Landscape with perceptual qualities of wildness, remoteness or tranquillity. Landscape with strong cultural associations that contribute to perceptions of scenic quality.	Landscapes without formal designation. Despoiled or degraded landscape with little or no evidence of being valued by the community. Lower quality landscapes with indistinct elements or features that detract from its inherent attributes. Widespread or 'common' landscape character types or features. Limited or no wildlife, ecological or cultural heritage features, or limited contribution to landscape character. No evidence that the landscape is used for recreational activity. Landscape with inherent character has been changed by human activity. Landscape with few cultural associations.

Criteria tending towards higher or lower sensitivity		
Susceptibility to Change	**High Susceptibility → Medium Susceptibility → Low Susceptibility**	
	Landscape vulnerable or fragile to change through the loss or addition of features that would alter key landscape characteristics. Strong or direct association between proposed development and the landscape receptor. Landscape is defined in planning policy as having limited/no capacity for development. Landscape strategy is to maintain or protect existing character. Undue consequences are likely to arise from the proposed development.	Robust landscape, able to accommodate change or loss of features without altering key characteristics. Weak and indirect association between proposed development and the landscape receptor. Landscape is defined in planning policy as having capacity for development. Landscape strategy indicates some change could be accommodated. Undue consequences are unlikely to arise from the proposed development.
Sensitivity to Change	**High → Medium → low**	

Magnitude of Change on Landscape Character Receptors

The magnitude of change on views is an expression of the scale of the change that will result from the modified TI, and is dependent on a number of variables regarding the size or scale of the change and its geographical extents. The basis for this assessment is made clear using evidence and professional judgement, based on the following criteria:

- The degree to which the pattern of elements that makes up the landscape character will be altered by the modified TI, by removal or addition of elements in the landscape. The magnitude of change will generally be higher if the features that make up the landscape character are extensively removed or altered, and/or if many new components are added to the landscape;
- The extent to which the effects change the key characteristics of the landscape as identified in the baseline study and which may be critical to the distinctive character of the landscape. This may include, for example, the scale of the landform, its relative simplicity or irregularity, the nature of the landscape context, the grain or orientation of the landscape, the degree to which the receptor is influenced by external features and the juxtaposition of the modified TI in relation to these key characteristics; and the distance between the landscape character receptor and the modified TI. Generally, the greater the distance, the lower the scale of change as the modified TI will constitute a less apparent influence on the landscape character; and
- The amount of the modified TI that will be seen. Visibility of the modified TI may range from a small part of the modified TI to a large part of the modified TI; generally the greater the extent of the modified TI that can be seen, the higher the scale of change.

The geographic area over which the landscape effects will be experienced is also assessed, which is distinct from the size or scale of effect. The extent of the effects will vary depending on the specific nature of the modified TI and is principally assessed through analysis of the extent of visibility of the modified TI within the landscape receptor, to assess the geographical extent of the receptor that will be affected.

Magnitude of Change Rating

An overall assessment of the magnitude of change resulting from the modified TI on the landscape receptor is made by combining the assessments of size or scale of change and geographical extent. The basis for the assessment of magnitude for each receptor is made clear using evidence and professional judgement.

The levels of magnitude of change that can occur are defined as follows:

- High, the modified TI will result in a major alteration to the baseline characteristics of the landscape, providing the prevailing influence and/or introducing elements that are substantially uncharacteristic in the receiving landscape;
- Medium, the modified TI will result in a moderate alteration to the baseline characteristics of the landscape, providing a readily apparent influence and/or introducing elements that may be prominent but are not uncharacteristic in the receiving landscape;
- Low, the modified TI will result in a minor alteration to the baseline characteristics of the landscape, providing a slightly apparent influence and/or introducing elements that are characteristic in the receiving landscape; and
- Negligible, the modified TI will result in a negligible alteration to the baseline characteristics of the landscape, providing a barely discernible influence and/or introducing elements that are substantially characteristic in the receiving landscape.

There may also be intermediate levels of magnitude of change - medium-high and medium-low - where the change falls between two of the definitions. Criteria that tend towards higher or lower magnitude of change are set out in Table 7.

Table 7: Magnitude of Change – Landscape Receptors

Criteria tending towards higher or lower magnitude		
Size or scale of change	**Large → Moderate → Small**	
	Major loss of existing landscape elements which contribute to the landscape character. Major alteration to pattern of elements, or perception of landscape pattern, through removal or addition of landscape elements. Major change to key characteristics which define the distinctive character of the landscape. Development located within or	Minor or negligible loss of existing landscape elements. Minor alteration to pattern of elements, or perception of landscape pattern. Minor change to key characteristics, or changes to characteristics which are not part of inherent distinctiveness. Development located at long distance outside landscape

Criteria tending towards higher or lower magnitude		
	close to landscape receptor and results in large scale change to its landscape character. Large amount of proposed development visible resulting in higher scale of change.	receptor and result in small scale change to its landscape character. Small amount of proposed development visible resulting in lower scale of change.
Geographical extent of change	**Regional → Local → Site**	
	Effect of change occurs at a regional scale of the landscape character type or wider landscape types beyond the host landscape. Changes occur over widespread/extensive areas within host landscape type and/or adjacent landscape types.	Effect of change occurs at the local/site level. Changes occur over a limited area within the host landscape type.
Magnitude of Change	**High → Medium → Low**	

Significance of Effects on Landscape Character Receptors

The significance of the effect on each landscape character receptor is dependent on all of the factors considered in the sensitivity of the receptor and the magnitude of change resulting from the modified TI. These judgements on sensitivity and magnitude are combined to arrive at an overall assessment as to whether the modified TI will have an effect that is significant or not significant on the landscape character receptor. An assessment of the factors considered in the evaluation of the sensitivity of each landscape character receptor and the magnitude of the change resulting from the modified TI are presented in the assessment in order that the relevant considerations which have informed the significance can be considered transparently. The matrix shown in Table A7.1 helps to inform the threshold of significance when combining sensitivity and magnitude to assess significance.

A significant effect will occur where the combination of the variables results in the modified TI having a defining effect on the receptor. A not significant effect will occur where the effect of the modified TI is not definitive, and the landscape character of the receptor continues to be characterised principally by its baseline characteristics. In this instance the modified TI may have an influence on the receptor and may alter the landscape character, but this influence will not be a defining one. A major loss or irreversible effect over an extensive area, on elements and/or perceptual aspects that are key to the character of nationally valued landscapes are likely to be of greatest significance. Reversible effects, over a restricted area, on elements and/or perceptual aspects that contribute to but are not key characteristics of the character of landscapes that are of lower value, are likely to be of least significance.

Assessment of Visual Effects

The assessment of visual effects is an assessment of how the introduction of the modified TI will affect the views available to people and their visual amenity. The assessment of visual effects is carried out in two parts:

- An assessment of the effects that the modified TI will have on a series of viewpoints that have been selected to represent the views available to people from representative or specific locations within the study area; and
- An assessment of the effects that the modified TI will have from principal visual receptors, including residents of settlements, motorists using roads and people using recreational routes, features and attractions throughout the study area.

The objective of the assessment of effects on visual receptors is to determine what the likely effects of the modified TI will be on the people experiencing views across the study area, and whether these effects will be significant or not significant. The methodology for the assessment of visual effects involves the undertaking of a baseline study, evaluation of sensitivity, magnitude of change and an assessment of significance.

Visual Baseline and Scope Assessment

The visual baseline establishes the area in which the modified TI may be visible, the different groups of people who may experience views of the modified TI, the viewpoints where they will be affected and the nature of the views at those points. The visual baseline describes aspects of the landscape that may be significantly affected, as defined in the EIA Regulations. The baseline description of the groups of people (referred to as visual receptors) and viewpoints that may be affected is primarily determined by the Zone of Theoretical Visibility (ZTV) of the modified TI.

An overview of the visual baseline is described and a scope assessment identifies visual receptors that may experience significant effects, which require to be assessed in full. A full description of the baseline is provided for each visual receptor that may experience significant effects, allowing the full baseline to be described for visual receptors that may be significantly affected. Those receptors which are identified as not having the potential to undergo significant effects are not included in the subsequent detailed assessment, but are noted with reasons given for their exclusion.

The baseline study establishes the visual baseline, including the area from which the modified TI may be visible, the different groups of people who may experience views of the modified TI (visual receptors), the viewpoints where they will be affected and nature of views at these points. The baseline study establishes the visual baseline in relation to the following issues:

- The area from which the modified TI may be visible, that is land from which it may potentially be seen, is established and mapped using an initial ZTV of the modified TI;
- The location, type and number of visual receptors experiencing visibility of the modified TI, the likely views experienced and the activity / occupation they are engaged in;
- Selection of viewpoints from within the ZTV, including representative viewpoints selected to represent the experience of different types of visual receptor and specific viewpoints selected because they are key/promoted viewpoints in the landscape;

- The location, character and type of each viewpoint with an indication of the type of visual receptor likely to be experiencing the view from each viewpoint;
- The nature of the view in terms of both the direction of view towards the modified TI as well as the wider available view, making reference to the principal orientation, focal features, and visible extents in terms of both horizontal degrees and distance;
- The character of the view in terms of its content and composition, its horizontal and vertical scale as well as depth and sense of perspective, important attributes such as prominent skylines and focal points and ultimately identifying the defining patterns and features which characterise the view; and
- The influence of human intervention and how the addition of artefacts and modification through land use affect the baseline situation. This may include operational wind farms where they are a feature of the baseline landscape and visual context.

The visual baseline also describes current pressures that may cause change to the visual amenity of the area in the future, in particular drawing on information for wind energy developments that are not yet present in the landscape, but are at other stages in planning process. Operational and under construction wind energy developments are regarded as part of the baseline visual context. Any changes resulting from the modified TI are assessed within this context in the assessment of landscape and visual effects.

Sensitivity of Visual Receptors

The sensitivity of visual receptors is determined by a combination of the value of the view and the susceptibility of the visual receptors to the change that the modified TI will have on the view.

Value of the View

The value of a view or series of views is a reflection of the recognition and the importance attached either formally through identification on mapping or being subject to planning designations, or informally through the value which society attaches to the view(s). The value of a view is classified as high, medium-high, medium, medium-low or low and the basis for this assessment is made clear using evidence and professional judgement, based on the following criteria:

Formal recognition: The value of views can be formally recognised through their identification on OS or tourist maps as formal viewpoints, sign-posted and with facilities provided to add to the enjoyment of the viewpoint such as parking, seating and interpretation boards. Specific views may be afforded protection in local planning policy and recognised as valued views. Specific views can also be cited as being of importance in relation to landscape or heritage planning designations, for example the value of a view will be increased if it presents an important vista from a designated landscape or lies within or overlooks a designated area such as a National Scenic Area, which implies a greater value to the visible landscape.

Informal recognition: Views that are well-known at a local level and/or have particular scenic qualities can have an increased value, even if there is no formal recognition or designation. Views or viewpoints are sometimes informally recognised through

references in art or literature and this can also add to their value. A viewpoint that is visited or used by a large number of people will tend to have greater importance than one gained by very few people, although this is not always the case.

Scenic quality: The value of the view is a reflection of the scenic qualities gained in the view. This relates to the content and composition of the landscape, whereby certain patterns and features will increase the scenic quality and others will reduce the scenic quality. The value of the view will also be increased if the condition of the landscape is near to the optimum for its type.

Susceptibility to Change

Susceptibility relates to the nature of the viewer experiencing the view and how susceptible they are to the potential effects of the modified TI. A judgement to determine the level of susceptibility therefore relates to the nature of the viewer and their experience from that particular viewpoint or series of viewpoints.

Nature of the viewer: The nature of the viewer is described by the occupation or activity which they are engaged in at the viewpoint or series of viewpoints. The most common groups of viewers considered in the visual assessment include residents, road-users, workers and walkers. Viewers whose attention is focused on the landscape – walkers, for example are likely to have a higher sensitivity, as will residents of properties that gain constant views of the modified TI. Viewers travelling in cars or on trains will tend to have a lower sensitivity as their view is transient and moving. The least sensitive viewers are usually people at their place of work as they are less sensitive to changes in the view; however this also depends on the nature of their work and the work place which they occupy.

Experience of the viewer: The experience of the visual receptor relates to the extent to which the viewer's attention or interest may be focused on the view and the visual amenity they experience at a particular location. The susceptibility of the viewer to change arising from the proposed development may be influenced by the viewer's attention or interest in the view, which may be focused in a particular direction, from a static or transitory position, over a long or short duration, and with high or low clarity. For example if the principal outlook from a residential property is aligned directly towards the modified TI, the experience of the visual receptor will be altered more notably than if the experience related to a glimpsed view seen at an oblique angle from a car travelling at high speed. The visual amenity experienced by the viewer varies depending on the presence and relationship of visible elements, features or patterns experienced in the view and the degree to which the landscape in the view may accommodate the influence of the modified TI.

Sensitivity Rating

An overall level of sensitivity is applied for each visual receptor or view – high, medium-high, medium, medium-low, low – by combining individual assessments of the value of the receptor and its susceptibility to change. The basis for the assessments is made clear using evidence and professional judgement in the evaluation of each receptor. Criteria that tend towards higher or lower sensitivity are set out in Table 8.

Table 8: Sensitivity to Change – Visual Receptors

Criteria tending towards higher or lower sensitivity		
Value of the View	**High Value → Medium Value → Low Value**	
	Specific viewpoint identified in OS maps and/or tourist information and signage. Facilities provided at viewpoint to aid the enjoyment of the view. View afforded protection in planning policy. View is within or overlooks a designated landscape, which implies a higher value to the visible landscape. View has informal recognition and well-known at a local level, as having particular scenic qualities. View or viewpoint is recognised through references in art or literature. View has high scenic qualities relating to the content and composition of the visible landscape.	Viewpoint not identified in OS maps or tourist information and signage. No facilities provided at viewpoint to aid enjoyment of the view. View is not afforded protection in planning policy. View is not within, nor does it or overlook, a designated landscape. View has no informal recognition and is not known as having particular scenic qualities. View or viewpoint is not characteristic through references in art or literature. View has low scenic qualities relating to the content and composition of the visible landscape.
Susceptibility to Change	**High Susceptibility → Medium Susceptibility → Low Susceptibility**	
	Viewers such as walkers, or tourists, whose main attention and interest is on their surroundings. Residents that gain static, long-term views of the modified TI in their principal outlook. Viewpoint is visited or used by a large number of people. A view that is focused in a specific directional vista, with notable features of interest in a particular part of the view. A view of an undeveloped landscape with little or no built development and/or human influence. Existing elements, features or patterns in view that will contrast with the modified TI.	Viewers whose main attention is not focused on their surroundings, such as people at work, or specific forms of recreation. Viewers whom are transient and dynamic, such as those travelling in cars or on trains, where the view is of short duration. View is visited or gained by very few people. Open views with no specific point of interest. A view of a developed, industrial landscape where built elements and structures are present. Existing elements, features or patterns in view that may assist with integration of the modified TI.
Sensitivity to Change	**High → Medium → Low**	

Magnitude of Change on Views

The magnitude of change on views is an expression of the scale of the change that will result from the modified TI, and is dependent on a number of variables regarding the size or scale of the change and its geographical extents.

Size or Scale

An assessment is made about the size or scale of change in the view that is likely to be experienced as a result of the modified TI, based on the following criteria:

- The scale of the change in the view, with respect to the loss or addition of features in the view and changes in its composition;
- The distance between the visual receptor and the modified TI. Generally, the greater the distance, the lower the magnitude of change, as the modified TI will constitute a smaller scale component of the view;
- The amount and size of the modified TI that will be seen. Visibility may range from one blade tip to all of the turbines. Generally, the larger the modified TI appears in the view, and the more of the modified TI that can be seen, the higher the magnitude of change;
- The field of view available and the proportion of the view that is affected by the modified TI. Generally, the more of a view that is affected, the higher the magnitude of change will be. If the modified TI extends across the whole of the open part of the outlook, the magnitude of change will generally be higher as the full view will be affected. Conversely, if the modified TI covers just a part of an open, expansive and wide view, the magnitude of change is likely to be reduced as the modified TI will not affect the whole open part of the outlook; and
- The scale and character of the context within which the modified TI will be seen and the degree of contrast or integration of any new features with existing landscape elements, in terms of scale, form, mass, line, height, colour and texture. The scale of the landform and the patterns of the landscape, the existing land use and vegetation cover, and the degree and type of development and settlement seen in the view will be relevant. For example, a large-scale simple landform can provide a more appropriate receiving environment than a more intimate, small-scale setting where the modified TI may result in uncomfortable scale comparisons that attract the eye of the viewer and increase the magnitude of change.
- The consistency of the appearance of the modified TI. If the modified TI appears in a similar setting and form and from the same angle each time it is apparent it will be characterised as a single, familiar site and this tends to reduce the magnitude of change. If, on the other hand, it appears from a different angle, and this is seen in a different form and setting, the magnitude of change is likely to be higher as it will be a less familiar component of the landscape.

Geographical Extent

The geographic area over which the visual effects will be experienced is also assessed, which is distinct from the size or scale of effect. The extent of the effects will vary depending on the specific nature of the modified TI and is principally assessed through analysis of the extent of visibility of the modified TI from visual receptors, to

assess the geographical extent of the receptor that will be affected, based on the following criteria:

- The distance over which the modified TI may be seen. If the modified TI is visible over long distances, its overall magnitude will be higher than a development which is visible only at short range;
- The extent of the visual receptor that will experience changes through visibility of the modified TI. If the modified TI is visible from a limited part of a settlement, or road for example, the overall magnitude of change on that receptor is likely to be lower than if there were widespread visibility.
- The extent to which the change would affect views, whether this is unique to a particular viewpoint or if similar visual changes occur over a wider area represented by the viewpoint;
- The position of the modified TI in relation to the principal orientation of the view and activity of the receptor. If the modified TI is seen in a specific, directional vista, the magnitude of change will generally be greater, than if it were seen in a glimpsed view at an oblique angle of view.

Magnitude of Change Rating

An overall assessment of the magnitude of change resulting from the modified TI on each visual receptor is made by combining the assessment of size or scale and geographical extent. The basis of the assessment is made clear using evidence and professional judgement. The levels of magnitude of change that can occur on views are defined as follows:

- High, the modified TI will result in a major alteration to the baseline view, providing the prevailing influence and/or introducing elements that are substantially uncharacteristic in the receiving landscape;
- Medium, the modified TI will result in a moderate alteration to the baseline view, providing a readily apparent influence and/or introducing elements that may be prominent but are not uncharacteristic in the receiving landscape;
- Low, the modified TI will result in a minor alteration to the baseline view, providing a slightly apparent influence and/or introducing elements that are characteristic in the receiving landscape; and
- Negligible, the modified TI will result in a negligible alteration to the baseline view, providing a barely discernible influence and/or introducing elements that are substantially characteristic in the receiving landscape.

There may also be intermediate levels of magnitude of change - medium-high and medium-low - where the change falls between two of the definitions. Criteria that tend towards higher or lower magnitude of change are set out in Table 9.

Table 9: Magnitude of Change – Visual Receptors

	Criteria tending towards higher or lower magnitude	
Size or scale of change	**Large → Moderate → Small**	
	Large scale change in the view resulting from loss and/or addition of features and changes in its composition. Proposed development located in close proximity to the viewpoint and will form large scale component of the view. All or majority of the modified TI will be visible in the view e.g. full towers and rotor sweep. Proposed development effects large proportion of available field of view. Proposed development has high degree of contrast/low degree of integration with existing landscape elements, in terms of scale, form, mass, line, height, colour and texture. Proposed development appears inconsistently, in a different setting and/or form each time it is visible.	Small scale change in the view resulting from loss and/or addition of features and changes in its composition. Proposed development located at long distance from the viewpoint and will form small scale component of the view. Limited amount of the modified TI will be visible in the view e.g. extremity of blade tips. Proposed development effects small proportion of available field of view. Proposed development has low degree of contrast/high degree of integration with existing landscape elements, in terms of scale, form, mass, line, height, colour and texture. Proposed development appears consistent, in a similar setting and/or form each time it is visible.
Geographical extent of change	**Extensive/long distance → Scattered/mid-range→Limited/short distance**	
	Proposed development is visible over long distances. Proposed development is visible from widespread areas/extensive parts of visual receptor. Visibility/views of proposed development occur over a wider area represented by multiple viewpoints.	Proposed development is visible only at short range. Proposed development is visible from restricted areas/limited parts of visual receptor. Visibility/view of proposed development is unique to a particular location or viewpoint.
Magnitude of Change	**High → Medium → Low**	

The Significance of Effects on Views

The significance of the effect on each view is dependent on all of the factors considered in the sensitivity of the view and the magnitude of change resulting from the modified TI. These judgements on sensitivity and magnitude are combined to arrive at an overall assessment as to whether the modified TI will have an effect that is significant or not significant on the visual receptor. The matrix shown in Table A7.1 helps to inform the threshold of significance when combining sensitivity and magnitude to assess the significance of effect.

A significant effect will occur where the combination of the variables results in the modified TI having a defining effect on the view. A not significant effect will occur where the appearance of the modified TI is not definitive, and the view continues to be defined principally by its baseline characteristics. In this instance the modified TI may affect the appearance of the view, but this effect will not be a defining one. Irreversible, long-term effects on people who are particularly sensitive to changes in views and visual amenity are more likely to be significant, as are effects on people at recognised viewpoints with high scenic quality. Large-scale changes which introduce new, non-characteristic or discordant elements into the view are also more likely to be significant than small changes or changes involving features already present within the view.

The assessment of visual effects assumes clear weather and optimum viewing conditions. This means that effects that are assessed to be significant may be not significant under different, less clear conditions. Viewing conditions and visibility tend to vary considerably and therefore the likelihood of effects resulting from the modified TI will vary greatly dependent on the prevailing viewing conditions.

Assessment of Cumulative Landscape and Visual Effects

Introduction

Cumulative effects arise where the study areas for two or more projects or developments overlap so that both of the developments are experienced at a proximity where they may have a greater incremental effect, or where developments may combine to have a sequential effect, irrespective of any overlap in study areas.

The objective of the Cumulative Landscape and Visual Impact Assessment (CLVIA) is to describe, visually represent and assess the ways in which the modified TI will have additional effects when considered together with other developments and to identify related significant cumulative effects arising as a result of the modified TI. The guiding principle in preparing the CLVIA is to '*focus on the likely significant effects and in particular those which are likely to influence the outcome of the consenting process'* (SNH, 2012), in accordance with SNH guidance.

Cumulative Effect Scenarios Assessed

The objective of the Cumulative Impact Assessment (CIA) is to describe, visually represent and assess the ways in which the modified TI will have additional effects on SL&V receptors when considered together with other existing, consented or proposed developments and to identify related significant cumulative effects arising from the modified TI. The guiding principle in preparing the CIA of SL&V receptors is to focus on the likely significant effects and in particular those which are likely to influence the outcome of the consenting process, in accordance with the EIA Regulations.

The main SLVIA (Section 5.3.4) assesses the effect of the modified TI in addition to developments already present in the landscape. This scenario involves the assessment of the addition of the modified TI to the existing baseline which includes operational wind energy developments.

An additional CIA has been undertaken to assess the likely significant cumulative effects of the OfTI and OnTI elements of the modified TI and the three consented wind farms. An assessment of the likely significant cumulative effects of the modified TI with consented projects and unconsented planning applications has also been undertaken, which includes onshore wind energy developments (identified in Figure 5.3.38).

Types of Cumulative Effect

Cumulative effects on landscape character arise when two or more projects or development, through the introduction of new landscape features, change the key characteristics of a landscape or change it to such an extent that they create a different 'landscape type. Developments may also have a cumulative effect on the character of landscapes that are designated for their landscape value.

Cumulative effects on visual amenity consist of combined and sequential effects. Combined visibility occurs where the observer is able to see two or more developments from one viewpoint. Combined visibility may either be 'in combination', where several projects or developments are within the observer's main angle of view at the same time, or 'in succession', where the observer has to turn to see the various projects or developments. Sequential visibility occurs when the observer has to move to another viewpoint to see different developments. Sequential effects are assessed along regularly used routes such as major roads, railway lines and footpaths. The occurrence of sequential effects range from 'frequently sequential' (the features appear regularly and with short time lapses between, depending on speed of travel and distance between the viewpoints) to 'occasionally sequential' (long time lapses between appearances, because the observer is moving slowly and/or there are large distances between the viewpoints).

Assessing the Significance of Cumulative Landscape and Visual Effects

The significance of cumulative effects is determined through a combination of the sensitivity of the landscape receptor or visual receptor and the cumulative magnitude of change resulting from the modified TI. The sensitivity of landscape receptors and visual receptors is taken from the main assessment carried out in the SLVIA. The cumulative magnitude of change is assessed with additional criteria, as described below.

Cumulative Magnitude of Change

The cumulative magnitude of change is an expression of the degree to which landscape character receptors and visual receptors will be changed by the addition of the modified TI in addition to other projects and developments. The cumulative magnitude of change is assessed based on a number of criteria, set out as follows:

- The location of the modified TI in relation to other projects or developments. If the modified TI is seen in a part of the view that is not affected by another project or development, this will generally increase the cumulative magnitude of change as it will extend development influence into an area that is currently unaffected. Conversely, if the modified TI is seen in the context of other projects or developments, the cumulative magnitude of change may be lower as it is not extending development to undeveloped parts of the outlook;

- The extent of the developed skyline. If the modified TI will add notably to the developed skyline in a view, the cumulative magnitude of change will tend to be higher, as the appearance of the skyline has a particular influence on both views and landscape receptors;
- The number and scale of developments seen simultaneously or sequentially. Generally, the greater the number of clearly separate projects or developments that are visible, the higher the cumulative magnitude of change will be. The addition of the modified TI to a view where a greater number of smaller projects or developments are apparent will usually have a higher cumulative magnitude of change than a view of one or two large developments, as this can lead to the impression of a less co-ordinated or strategic approach;
- The scale comparison between developments. If the modified TI is of a similar scale to other visible projects or developments, particularly those seen in closest proximity to it, the cumulative magnitude of change will generally be lower, as it will have more integration with the other sites and will be less apparent as an addition to the cumulative situation;
- The consistency of image of the modified TI in relation to other projects or developments. The cumulative magnitude of change of the modified TI is likely to be lower if its form, arrangement and layout are broadly similar to other projects or developments in the landscape, as they are more likely to appear as relatively simple and consistent components of the landscape;
- The context in which the projects or developments are seen. If projects or developments are seen in a similar landscape context, the cumulative magnitude of change is likely to be lower due to visual integration and cohesion between the sites. If projects or developments are seen in a variety of different landscape settings, this can lead to a perception that wind farm development is unplanned and uncoordinated, affecting a wide range of landscape characters.
- The distance of the modified TI from the viewpoint or receptor. As in the assessment of the modified TI itself, the greater the distance, the lower the cumulative magnitude of change will tend to be; and
- The magnitude of change of the modified TI as assessed in the main assessment. The lower this is assessed to be, the lower the cumulative magnitude of change is likely to be. Where the modified TI itself is assessed to have a negligible magnitude of change on a view or receptor there will not be a cumulative effect as the contribution of the modified TI will equate to the 'no change' situation.

Definitions of cumulative magnitude of change are applied in order that the process of assessment is made clear. These are:

- High, the addition of the modified TI to other projects or developments in the landscape or view, will result in a major cumulative change, loss or addition to the cumulative situation;
- Medium, the addition of the modified TI to other projects or developments in the landscape or view will result in a moderate cumulative change, loss or addition to the cumulative situation;

- Low, the addition of the modified TI to other projects or developments in the landscape or view will result in a minor cumulative change, loss or addition to the cumulative situation;
- Negligible, where the addition of the modified TI to other projects or developments in the landscape or view will result in a negligible change, loss or addition to the cumulative situation; and
- None, where the addition of the modified TI to other projects or developments in the landscape or view will have no incremental change, loss or addition to the cumulative situation and its addition equates to a 'no change' situation.

There may also be intermediate levels of cumulative magnitude of change – medium-high and medium-low – where the change falls between two of the definitions.

Significance of Cumulative Effects

The objective of the cumulative assessment is to determine whether any effects that the modified TI will have on landscape receptors and visual receptors, when seen or perceived in combination with other projects or developments, will be significant or not significant. Significant landscape and visual effects may arise where a new landscape type is created as a result of the addition of the modified TI to other projects or developments, which results in a development typology becoming so prolific that they become the prevailing landscape and visual characteristic.

Less extensive, but nevertheless significant cumulative landscape and visual effects may also arise as a result of the addition of the modified TI, where it results in a landscape or view becoming defined by the presence of more than one projects or developments, so that other patterns and components are no longer definitive, or where the modified TI contrasts with the scale or design of other projects or developments.

Higher levels of significance may arise from cumulative landscape and visual effects related to the modified TI being in close proximity to other projects or developments when they are clearly visible together in views, however provided that the modified TI is designed to achieve a high level of visual integration, with few notable visual differences between projects or developments, these effects may not necessarily be significant. Higher levels of significance may result from developments that have some geographical separation, but remain highly inter-visible, potentially resulting in extending effects into new areas, such as an increased proliferation of development on a skyline, or the creation of multiple, separate landscapes defined by a particular type of development.

Nature of Effects

The nature of effects refers to whether the landscape and/or visual effect of the modified TI is positive or negative (herein referred to as 'beneficial' and 'adverse').

The EIA Regulations state that the ES should include '*a description of the likely significant effects of the proposed development on the environment, which should cover the direct effects and any indirect, secondary, cumulative, short, medium and long-term, permanent and temporary, positive and negative effects of the proposed development.*'

Guidance provided by the Landscape Institute on the nature of effect in GLVIA3 states that '*in the SLVIA, thought must be given to whether the likely significant landscape and visual effects are judged to be positive (beneficial) or negative (adverse) in their consequences for landscape or for views and visual amenity',* but it does not provide guidance as to how that may be established in practice. The nature of effect is therefore one that requires interpretation and, where applied, this involves reasoned professional opinion.

Judgements on the nature of effect are based on professional experience and reasoned opinion informed by best practice guidance.

Adverse, neutral or beneficial, effects are based on the following definitions:

- Beneficial effects contribute to the landscape and visual resource through the enhancement of desirable characteristics or the introduction of new, beneficial attributes. The modified TI contributes to the landscape by virtue of good design, even if it contrasts with the existing character. The removal of undesirable existing elements or characteristics can also be beneficial, as can their replacement with more appropriate components;
- Neutral effects occur where the modified TI fits with the existing landscape character or visual amenity. The modified TI neither contributes to nor detracts from the landscape and visual resource and can be accommodated with neither beneficial or adverse effects, or where the effects are so limited that the change is hardly noticeable. A change to the landscape and visual resource is not considered to be adverse simply because it constitutes an alteration to the existing situation;
- Adverse effects are those that detract from the landscape character or quality of visual attributes experienced, through the introduction of elements that contrast, in a detrimental way, with the existing characteristics of the landscape and visual resource, or through the removal of elements that are key in its characterisation.

Duration and Reversibility

The effects of the modified TI are of variable duration, and are assessed as short-term or long-term, and permanent or reversible.

6 Visual Representations

Zone of Theoretical Visibility (ZTV)

The Zone of Theoretical Visibility (ZTV) of the onshore substations has been generated using Geographic Information System (GIS) software (ESRI ArcGIS Version 10.2.2) to demonstrate the amount of the development that may theoretically be seen from any point in the study area.

There are limitations in this theoretical production, and these should be considered in the interpretation and use of the ZTV:

- The ZTV illustrates the 'bare ground' situation, and does not take into account the screening effects of vegetation, buildings, or other local features that may prevent or reduce visibility;
- The ZTV is based on a 5m data grid (Ordnance Survey (OS) Digital Terrain 5 Model (DTM)) and therefore does not pick up some subtle changes in the landform, which may result in minor inaccuracies in the analysis; and
- The ZTV does not indicate the decrease in visibility that occurs with increased distance from the modified TI. The nature of what is visible from 1 km away will differ markedly from what is visible from 6 km away, although both may be indicated on the ZTV has having the same level of visibility.

These limitations mean that while the ZTV is used as a starting point in the assessment, providing an indication of where the modified TI will theoretically be visible, the information drawn from the ZTV is checked in the field, to ensure that the assessment conclusions represent the visibility of the modified TI reasonably accurately.

Visualisations

The viewpoint assessment is illustrated by a range of tools including photographs and photomontages. The photographs used to produce the photomontages have been taken using a Canon EOS 5D Digital SLR camera with a fixed 50mm lens. This camera has a full-frame (35 mm negative size) CMOS sensor, therefore with a fixed 50mm lens, it provides a focal length that is widely regarded as best practice, based on relevant guidance (Landscape Institute, 2011).

The photographs are taken at a height of around 1.6m above ground level with a 50% overlap between frames. The frames are individually cylindrically projected and then digitally joined to create a fully cylindrically projected panorama using Adobe Photoshop software. This process avoids the wide-angle effect that would result should these frames be arranged in a perspective projection, whereby the image is not faceted to allow for the cylindrical nature of the full 360-degree view but appears essentially as a flat plane. For this reason the most representative image of the appearance of the modified TI is obtained by curving the images or by viewing all parts of the panoramic images at a constant distance in order to maintain the correct viewing distance for all parts of the view. Tonal alterations are made using Adobe software to create an even range of tones across the photographs once joined.

Visual representations that illustrate the modified TI model set within a computer-generated image of the landform are used in the assessment to predict the theoretical appearance of the onshore substation. These are produced with Visual Nature Studio software and are based on 5 m resolution OS Terrain 5 DTM.

The layout of the onshore substations has been modelled in the visual representations using several 'development envelopes' related to the height, width and depth of each part of the substation layout (shown in Figure 5.3.5). The envelopes are modelled at the maximum height of the largest structures or buildings within each area and therefore represent a worse-case scenario, showing the area in which the substations will be built. These envelopes are used as the basis for visual modelling in the photomontages and the assessment of impacts. Colours are used solely to differentiate between the MORL substation and the TO substation and to

differentiate between buildings and external electrical equipment. The colours shown are not indicative of the colour of the substation buildings.

The position of the development envelopes on the landform has been shown relative to their position on the OS Terrain 5 DTM and are a representation of the maximum height of the onshore substation buildings and electrical infrastructure within the site. In reality the onshore substations compound is likely to be profiled to a level platform with screening earthworks profiled around the onshore substations compound. This would further reduce visibility of the onshore substations in views.

Woodland planting mitigation proposals within the onshore substations area are shown in the visual representations to provide an indication of the likely screening of the onshore substation 15 years post construction. These visual representations assume a woodland height of 6 – 10m and a 2 m planting density.

The photographs and visualisations shown for each viewpoint cover a 72-degree view as it allows the modified TI to be seen in the context of the surrounding landscape, including familiar features and components of the setting. When reproduced at A3 scale, as is the case in this assessment, the 72-degree view photographs and photomontages should be viewed from a distance of around 32cm in order to gain as accurate an impression as possible of the real effect on the views.

The photographs and other graphic material such as wirelines and photomontages used in this assessment are for illustrative purposes only and, whilst useful tools in the assessment, are not considered to be completely representative of what will be apparent to the human eye. The assessments are carried out from observations in the field and therefore may include elements that are not visible in the photographs.

7 References

- Aberdeenshire Council, 2012, Aberdeenshire Local Plan;
- Aberdeenshire Council, 2012, Planning Advice 12/2012 Landscape Character Advice for Small Scale Development;
- BS 5837: 2012. Trees in Relation to Design, Demolition and Construction;
- Countryside Commission for Scotland, 1970, 1977, Beaches of Caithness and Beaches of Northeast Scotland;
- CCW, 2001, Guide to Best Practice in Seascape Assessment;
- DEFRA (2009). Protecting Our Water, Soil and Air: Code of Good Agricultural Practice for farmers, growers and land managers.
- DTI, 2005, Guidance on the Assessment of the Impact of Offshore Wind farms: Seascape and Visual Impact Report;
- Landscape Institute, 2013, Guidelines for the Assessment of Landscape and Visual Impacts: Third Edition;
- Landscape Institute, 2011, Use of Photography and Photomontage in Landscape and Visual Impact Assessment, Note 01 / 11;
- NJUG Publication Volume 4 (2007). Guidelines for the Planning, Installation and Maintenance of Utility Apparatus in Proximity to Trees;
- SNH, 1997, Banff and Buchan LCA;

- SNH, 1998, Caithness and Sutherland LCA;
- SNH, 1998, Moray and Nairn LCA;
- SNH, 2002, Visual Assessment of Wind farms: Best Practice;
- SNH, 2005, An Assessment of the Sensitivity and Capacity of the Scottish Seascape in Relation to Wind Farms.
- SNH, 2005, Cumulative Effects of Windfarms (Version 2).
- SNH, 2006, Visual Representation of Wind farms Good Practice Guidance;
- SNH, 2014, Siting and Designing Wind Farms in the Landscape (Version 2);
- SNH, 2008, Guidance on Landscape / Seascape Capacity for Aquaculture; and
- SNH, 2012, Assessing the Cumulative Effects of Onshore Wind Energy Developments.