

Appendix 6.1: LVIA Methodology



Loch Liath Wind Farm Ltd

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Loch Liath Wind Farm Ltd

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Appendix 6.1

LVIA Methodology

Introduction

A6.1.1 This appendix sets out the detailed methodology used for the Loch Liath Wind Farm (hereafter ‘the Proposed Development’) Landscape and Visual Impact Assessment (LVIA) including the cumulative assessment, as set out in **Chapter 6: Landscape and Visual Amenity**, Volume 1 of the Environmental Impact Assessment Report (EIA Report).

A6.1.2 The methodology for production of accompanying visualisations is based on current good practice guidance¹ as set out by NatureScot (formerly known as Scottish Natural Heritage (SNH)) and The Highland Council (THC). Detailed information about the approach to viewpoint photography, and Zone of Theoretical Visibility (ZTV) and visualisation production is provided in **Appendix 6.2: ZTV Mapping and Visualisation Methodology**.

A6.1.3 Landscape and visual assessments are separate, although linked, processes. LVIA therefore considers the potential effects of a proposed development on:

- Landscape as a resource in its own right (caused by changes to the constituent elements of the landscape, its specific aesthetic or perceptual qualities and the character of the landscape); and
- Views and visual amenity as experienced by people (caused by changes in the appearance of the landscape).

A6.1.4 LVIA deals with landscape and visual effects separately, followed by an assessment of cumulative effects where relevant.

Guidance

A6.1.5 This methodology was developed by Chartered Landscape Architects (Chartered Members of the Landscape Institute (CMLI)) at LUC, who have extensive experience in the assessment of landscape and visual effects arising from wind energy developments.

A6.1.6 The methodology has been developed primarily in accordance with the principles contained within the Guidelines for Landscape and Visual Impact Assessment, 3rd Edition (GLVIA3)². NatureScot cumulative guidance³ also informs the approach to the assessment of cumulative landscape and visual effects.

Scope of Assessment

A6.1.7 A LVIA considers physical changes to the landscape as well as changes in landscape character. It also considers changes to areas designated for their scenic or landscape qualities, and the visual effects of a proposed development as perceived by people. In terms of visual effects, the focus is on public views and public visual amenity. In contrast, a Residential Visual Amenity Assessment (RVAA) is a stage beyond LVIA and focusses on private views and private visual amenity. If undertaken, such an RVAA is therefore separate from, but related to the LVIA.

A6.1.8 All potentially significant landscape and visual effects, including cumulative effects, are examined, including those relating to construction, operation and, where relevant, decommissioning.

A6.1.9 Where it is judged that significant effects are unlikely to occur, the assessment of potential effects on some receptors may be ‘scoped out’. This is usually agreed at scoping stage in the case of development that requires an Environmental Impact Assessment (EIA).

Assessment Methodology

Study Area

A6.1.10 The study area for a LVIA is determined by the nature and scale of the development proposed and the nature of the study area (e.g. complex topography or extensive tree cover leading to visually enclosed areas may limit the extent of likely significant effects).

Methodological Overview

A6.1.11 The key steps in the methodology for assessing landscape and visual effects are as follows:

- the existing (baseline) landscape of the study area is analysed, and landscape receptors identified, informed by desk and field survey. The baseline for the primary assessment is taken as including all existing development. Development that is consented but not yet built, as well as potential future development, is considered in the cumulative assessment;
- the area over which the development will potentially be visible is established through the creation of an initial ZTV plan⁴;
- the visual baseline is recorded in terms of the different receptors (groups of people) who may experience views of the development (informed by the initial ZTV) and the nature of their existing views and visual amenity. Again, the baseline for the primary assessment is taken as including all existing development, with potential future development being considered in the cumulative assessment;
- potential assessment viewpoints are selected, as advocated by GLVIA3 to represent a range of different receptors and views, in consultation with statutory consultees;
 - **‘Representative viewpoints**, selected to represent the experience of different types of visual receptor, where larger numbers of viewpoints cannot all be included individually and where the significant effects are unlikely to differ – for example, certain points may be chosen to represent the views of users of particular public footpaths and bridleways;
 - **Specific viewpoints**, chosen because they are key and sometimes promoted viewpoints within the landscape, including for example specific local visitor attractions, viewpoints in areas of particularly noteworthy visual and/or recreational amenity such as landscapes with statutory landscape designations, or viewpoints with particular cultural landscape associations;
 - **Illustrative viewpoints**, chosen specifically to demonstrate a particular effect or specific issues, which might, for example, be the restricted visibility at certain locations’ (GLVIA3, Para. 6.19, Page 109).
- likely significant effects on both the landscape as a resource and visual receptors are identified; and
- the level (and significance) of landscape and visual effects are judged with reference to the nature of the receptor (commonly referred to as the sensitivity of the receptor), which considers both susceptibility and value, and the nature of the effect (commonly referred to as the magnitude of effect), which considers a combination of judgements including size/scale, geographical extent, duration and reversibility.

Direction of Effects

A6.1.12 As required by the EIA Regulations⁵, the assessment must identify the direction of effect as either being beneficial (positive), adverse (negative) or neutral.

¹ Scottish Natural Heritage (SNH). (2017). Visual Representation of Wind Farms Guidance, Version 2.2.

² The Landscape Institute and Institute of Environmental Management and Assessment (2013) Guidelines for Landscape and Visual Impact Assessment, 3rd Edition

³ NatureScot, (2021). Guidance: Assessing the Cumulative Impact of Onshore Wind Energy Developments

⁴ ZTV indicate areas from where a development is theoretically visible, but they cannot show what it would look like, nor indicate the nature or magnitude of landscape or visual effects.

⁵ The Electricity Works (Environmental Impact Assessment) (Scotland) Regulations (2017)

A6.1.13 The direction of landscape, visual and cumulative effects (**beneficial, adverse or neutral**) is determined in relation to the degree to which the proposal fits with the existing landscape character or views, and the contribution to the landscape or views that the proposed development makes, even if it is in contrast to the existing character of the landscape or views.

A6.1.14 For wind energy development, whilst there is a broad spectrum of response from the strongly positive to the strongly negative, an assessment is required to take an objective approach. Therefore, to cover the 'maximum case effect' situation, potential landscape and visual effects relating to commercial scale wind farms are generally assumed to be adverse (negative).

Method for Assessing Landscape Effects

A6.1.15 As outlined in GLVIA3 'An assessment of landscape effects deals with the effects of change and development on landscape as a resource.' (GLVIA3, Para 5.1, Page 70). Changes may affect the elements that make up the landscape, the aesthetic and perceptual aspects of the landscape and its distinctive character.

A6.1.16 An assessment of landscape effects requires consideration of the nature of landscape receptors (sensitivity of receptor) and the nature of the effect on those receptors (magnitude of effect). GLVIA3 states that the nature of landscape receptors, commonly referred to as their sensitivity, should be assessed in terms of the susceptibility of the receptor to the type of change proposed, and the value attached to the receptor. The nature of the effect on each landscape receptor, commonly referred to as its magnitude, should be assessed in terms of size and scale of effect, geographical extent, duration, and reversibility.

A6.1.17 These aspects are considered together, to form a judgement regarding the overall significance of landscape effects (GLVIA3, Figure 5.1 Page 71). The following sections set out the methodology used to evaluate sensitivity and magnitude.

Sensitivity of Landscape Receptors

A6.1.18 The sensitivity of a landscape receptor to change is defined as high, medium, or low and is based on weighing up professional judgements regarding susceptibility and value, as set out below.

Appendix Table A6.1.1: Sensitivity of Landscape Receptors

Sensitivity of Landscape Receptors			
	Higher	↔	Lower
Susceptibility	Attributes that make up the character of the landscape offer very limited opportunities for the accommodation of change without key characteristics being fundamentally altered by wind energy development, leading to a different landscape character.	↔	Attributes that make up the character of the landscape are resilient to being changed by wind energy development.
Value	Landscapes with high scenic quality, high conservation interest, recreational value, important cultural associations or a high degree of rarity. Areas or features designated at a national level e.g. National Parks or National Scenic Areas or key features of these with national policy level protection.	↔	Landscape in poor condition and a low level of intactness, limited aesthetic qualities, or of character that is widespread. Areas or features that are not formally designated.

Susceptibility of Landscape Receptors

A6.1.19 Susceptibility is defined by GLVIA3 as 'the ability of the landscape receptor (whether it be the overall character or quality/condition of a particular type or area, or an individual element and/or feature, or a particular aesthetic and perceptual aspect) to accommodate the proposed development without undue consequences for the maintenance of the baseline situation and/or the achievement of landscape planning policies and strategies' (GLVIA3 paragraph 5.40).

A6.1.20 A series of criteria are used to evaluate the susceptibility of Landscape Character Types (LCTs) or Landscape Character Areas (LCAs) to wind energy development as set out in the table below. These criteria or aspects are drawn from a range of published sources relating to wind farm development, including Siting and Designing Windfarms in the Landscape (Version 3a, SNH, 2017) and GLVIA3.

Appendix Table A6.1.2: Aspects Influencing Susceptibility of Landscape Receptors to Wind Turbines

Aspects Influencing Susceptibility of Landscape Receptors to Wind Turbines			
Characteristic/attribute	Aspects indicating reduced susceptibility to wind energy development	↔	Aspects indicating greater susceptibility to wind energy development
Scale	Large scale	↔	Small scale
Value	Absence of strong topographical variety, featureless, convex or flat	↔	Presence of strong topographical variety or distinctive landform features
Landscape pattern and complexity	Simple Regular or uniform	↔	Complex Rugged and irregular
Settlement and man-made influence	Presence of contemporary structures e.g. utility, infrastructure or industrial elements	↔	Absence of modern development Presence of small scale, historic or vernacular settlement
Skylines	Non-prominent /screened skylines Presence of existing modern man-made features	↔	Distinctive, undeveloped skylines Skylines that are highly visible over large areas or exert a large influence on landscape character Skylines with important historic landmarks
Inter-visibility with adjacent landscapes	Little inter-visibility with adjacent sensitive landscapes or viewpoints	↔	Strong inter-visibility with sensitive landscapes Forms an important part of a view from sensitive viewpoints
Perceptual aspects	Close to visible or audible signs of human activity and development	↔	Remote from visible or audible signs of human activity and development

A6.1.21 Published landscape capacity or sensitivity studies (where they exist) may be reviewed to inform the evaluation of susceptibility, in addition to fieldwork undertaken across the study area which is required to inform a more detailed understanding. This review includes an evaluation as to the relevance of the publication to the assessment being undertaken (e.g. consideration of the purpose and scope of the published studies – which are typically more strategic in scale - and whether they have become out of date). Such studies may also include strategic guidance on development within certain areas. Cognisance is taken of this.

A6.1.22 Landscape susceptibility is described as **high, medium or low**.

Value of Landscape Receptors

A6.1.23 The European Landscape Convention advocates that all landscape is of value, whether it is the subject of defined landscape designation or not: 'The landscape is important as a component of the environment and of people's surroundings in both town and

country and whether it is ordinary landscape or outstanding landscape.⁶ The value of a landscape receptor is recognised as being a key contributing factor to the sensitivity of landscape receptors.

A6.1.24 The value of landscape receptors is determined with reference to:

- Review of relevant designations and the level of policy importance that they signify (such as landscapes designated at international, national or local level); and/or
- Application of criteria that indicate value (such as scenic quality, rarity, recreational value, representativeness, conservation interests, perceptual aspects and artistic associations) as described in GLVIA3, paragraphs 5.44 - 5.47.

A6.1.25 Internationally and nationally designated landscapes would generally indicate landscape of higher value whereas those without formal designation (such as a widespread or common landscape type without high scenic quality) are likely to be of lower value, bearing in mind that all landscapes are valued at some level. There is however variation across both designated and undesignated areas, and so judgements regarding value are also informed by fieldwork.

A6.1.26 Landscape value is described as being **high, medium** or **low**.

Magnitude of Landscape Effect

A6.1.27 The overall judgement of magnitude of landscape effect is based on combining professional judgements on size and scale, geographical extent, duration and reversibility. Further information on the criteria is provided below.

Size and Scale of Effect

A6.1.28 For landscape elements/features this depends on the extent of existing landscape elements that would be lost or changed, the proportion of the total extent that this represents, and the contribution of that element to the character of the landscape.

A6.1.29 In terms of landscape character, this reflects the degree to which the character of the landscape would change as a result of removal or addition of landscape components, and how the changes would affect key characteristics.

A6.1.30 The size and scale of the effect is described as large, medium, small, or barely perceptible.

Geographical Extent of Effect

A6.1.31 The geographical extent over which the landscape effect would arise is described as **large** (scale of the landscape character type, or widespread, affecting several landscape types or character areas), **medium** (more immediate surroundings) or **small** (site level). Where the effect will be localised, then place names or landscape features may be used to help inform the reader as to the extent of the effect.

Duration of Effect

A6.1.32 GLVIA3 states that 'Duration can usually be simply judged on a scale such as short term, medium term or long term.' For the purposes of the assessment, duration is often determined in relation to the phases of the proposed development, as follows:

- **Short-term** effects are those that occur during construction, and may extend into the early part of the operational phase, e.g. construction activities, generally lasting 0 - 5 years;
- **Medium-term** effects are those that occur during part of the operational phase, generally lasting 5 - 10 years; and
- **Long-term** effects are those which occur throughout the operational phase (in this instance 35 years), e.g. presence of turbines, or are permanent effects which continue after the operational phase, generally lasting over 10 years.

A6.1.33 Duration is also a relevant consideration for effects which are intermittent (for example lighting).

Reversibility of Effect

A6.1.34 In accordance with the principles contained within GLVIA3, reversibility is reported as reversible, partially reversible or irreversible (i.e. permanent), and is related to whether the change can be reversed at the end of the phase of development under consideration (i.e. at the end of construction or at the end of the operational lifespan of the development).

A6.1.35 Judgements on the magnitude of landscape effect (nature of landscape effect) are recorded as **high, medium, low** or **barely perceptible** and are guided by the table below.

Appendix Table A6.1.3: Magnitude of Landscape Effects

Magnitude of Landscape Effects			
	Higher	↔	Lower
Size/Scale	Extensive loss of landscape features and/or elements, and/or change in, or loss of key landscape characteristics, and/or creation of new key landscape characteristics	↔	Limited loss of landscape features and/or elements, and/or change in or loss of some secondary landscape characteristics
Geographical Extent	Change in landscape features and/or character extending considerably beyond the immediate site and potentially affecting multiple landscape character types/areas	↔	Change in landscape features and/or character extending contained within or local to the immediate site and affecting only a small part of the landscape character type/area
Duration	Changes experienced for a period of around 10 years or more Continuous	↔	Changes experienced for a shorter period of up to 5 years Intermittent or occasional
Reversibility	Change to features, elements or character which cannot be undone or are only partly reversible after a long period	↔	A temporary landscape change which is largely reversible following the completion of construction, or decommissioning of the development

Judging Levels of Landscape Effect and Significance

A6.1.36 The final step in the assessment requires the judgements of sensitivity and magnitude of effect to be combined to make an informed professional assessment on the significance of each landscape effect (GLVIA3, Figure 5.1, Page 71).

A6.1.37 There may be a complex relationship between the value attached to a landscape and the susceptibility of the landscape to a specific change. Therefore, the rationale for judgements on the sensitivity of landscape receptors needs to be clearly set out for each receptor. It should be noted that whilst landscape designations at an international or national level are likely to be accorded the highest value, it does not necessarily follow that such landscapes all have a high susceptibility to all types of change, and conversely, undesignated landscapes may also have high value and susceptibility to change (GLVIA3, Page 90).

A6.1.38 Levels of effect are identified as **negligible, minor, moderate** or **major** where moderate and major effects are considered **significant** in the context of the EIA Regulations.

A6.1.39 Determination of the level of effect requires the application of professional judgement and experience to take on board the many different variables which need to be considered, and which are given different weight according to site-specific and location-specific considerations in every instance. Judgements are made on a case by case basis, guided by the principles set out in **Diagram 1**.

A6.1.40 A rigid matrix-type approach, where the level of landscape effect would be defined simply based on the level of sensitivity (nature of receptor) combined with the magnitude of change (nature of effect) is not used. This is given the need for consideration of the relative importance of each aspect to feed into the overall decision. An assessor takes on board professional judgement and

⁶ Council of Europe, (2000). The European Landscape Convention – Council of Europe Treaty Series No. 176.

experience to determine the weight given to each variable in each case. As such, the conclusion on the level of effect is not always the same.

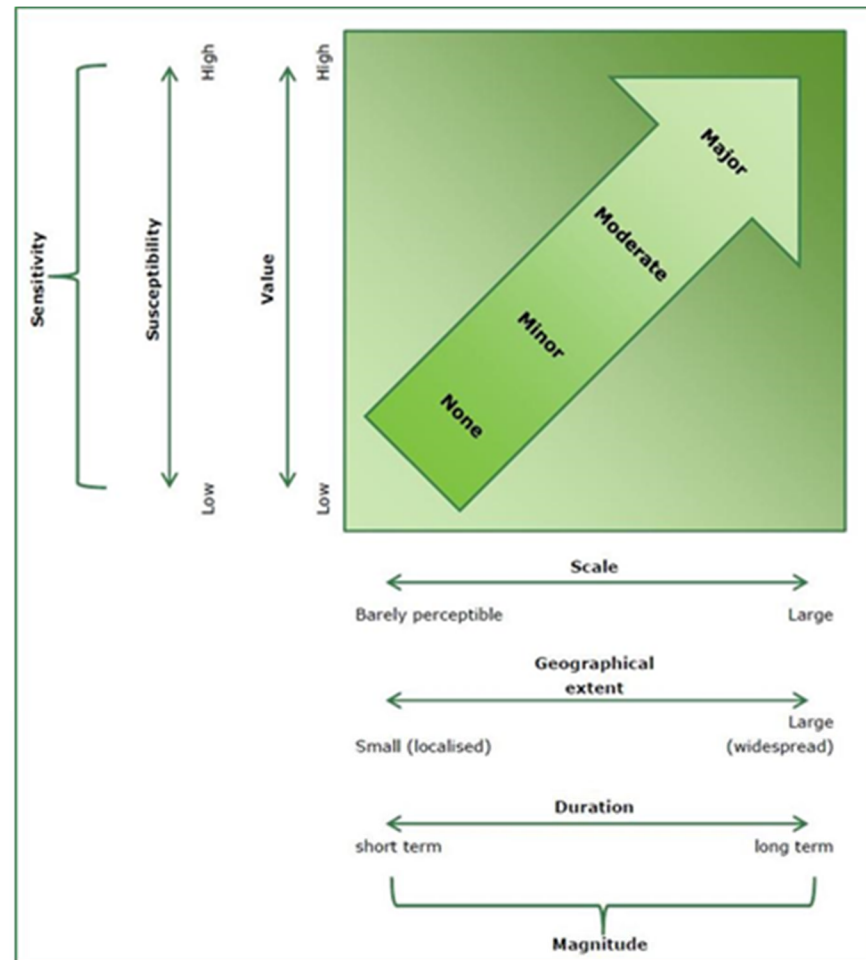


Diagram 1 - Judging levels of effect - Landscape or Visual (including cumulative)

Method for Assessing Visual Effects

Significance of Visual Effects

A6.1.41 As outlined in GLVIA3 'An assessment of visual effects deals with the effects of change and development on views available to people and their visual amenity' (GLVIA3, Para. 6.1, Page 98). Changes in views may be experienced by people at different locations within the study area including from static locations (normally assessed using representative viewpoints) and whilst moving through the landscape (normally referred to as sequential views, e.g. from roads and walking routes).

A6.1.42 Visual receptors are individuals or groups of people who may be affected by changes in views and visual amenity. They are usually grouped by their occupation or activity (e.g. residents, motorists, recreational users) and the extent to which their attention is focused on the view (GLVIA3, Paras. 6.31 – 6.32, Page 113).

A6.1.43 GLVIA3 states that the sensitivity of visual receptors should be assessed in terms of the susceptibility of the receptor to change in views and/or visual amenity and the value attached to particular views. The magnitude of effect should be assessed in terms of the size and scale, geographical extent, duration and reversibility of the effect.

A6.1.44 These aspects are considered together, to form a judgement regarding the overall significance of visual effect (GLVIA3, Figure 6.1 Page 99). The following sections set out the methodology used to evaluate sensitivity and magnitude.

Sensitivity of Visual Receptor

A6.1.45 The sensitivity of a visual receptor to change is defined as **high**, **medium**, or **low** and is based on weighing up professional judgements regarding susceptibility and value, and each of their component considerations, as set out in the table below.

Appendix Table A6.1.4: Sensitivity of Visual Receptors

Sensitivity of Visual Receptors			
	Higher	↔	Lower
Susceptibility	Viewers whose attention or interest is focused on their surroundings, including communities/ individual residential receptors/ people engaged in outdoor recreation/ visitors to heritage assets or other attractions where views of surrounding area an important contributor.	↔	People whose attention is not on their surroundings (and where setting is not important to the quality of working life) such as commuters/ people engaged in outdoor sports/ people at their place of work.
Value	Views may be recorded in management plans, guidebooks, and/or which are popular and thus likely to be experienced by large numbers of people. Views may be associated with nationally designated landscapes; local authority designated landscapes; designed views recorded in citations for historic parks, gardens/scheduled monuments etc.	↔	Views which are not documented or protected. Views which are more incidental, and less likely to be associated with somewhere people travel to or stop, or which may be less popular and thus experienced by smaller numbers of people.

Susceptibility of Visual Receptor

A6.1.46 The susceptibility of visual receptors to changes in views/visual amenity is a function of the occupation or activity of people experiencing the view and the extent to which their attention is focused on views (GLVIA 3, para 6.32). This is recorded as **high**, **medium**, or **low** informed by the table below.

Appendix Table A6.1.5: Susceptibility of Visual Receptors

Susceptibility of Visual Receptors		
High	Medium	Low
Viewers whose attention or interest is focussed on their surroundings, including: communities where views contribute to the landscape setting enjoyed by residents; visitors to heritage assets, other attractions and popular hill summits where views of surroundings are an important contributor to experience; and formal or promoted stopping places on scenic or tourist routes.	People engaged in outdoor recreation (including users of cycle routes, footpaths and public rights of way whose interest is likely to be partly focused on the landscape); People travelling in vehicles on scenic routes and tourist routes, where attention is focused on the surrounding landscape, but is transitory; and People at their place of work whose attention is focused on the surroundings and where setting is important to the quality of working life.	People travelling more rapidly on more major roads, rail or transport routes (not recognised as scenic routes); People engaged in outdoor sport or recreation which does not involve or depend upon appreciation of views of the landscape; and People at their place of work whose attention is not on their surroundings (and where setting is not important to the quality of working life).

Value of View of Visual Amenity

A6.1.47 GLVIA3 also requires evaluation of the value attached to the view or visual amenity and relates this to planning designations and cultural associations (GLVIA3, Para. 6.37, Page 114).

A6.1.48 Recognition of the value of a view is determined with reference to:

- planning designations specific to views including views with recognised scenic value;
- whether it is recorded as important in relation to designated landscapes (such as views specifically mentioned in the special qualities of a National Park or National Scenic Area);
- whether it is recorded as important in relation to heritage assets (such as designed views recorded in citations of Gardens and Designed Landscapes (GDL) or views recorded as of importance in Conservation Area Appraisals); and
- the value attached to views by visitors, for example through appearances in guidebooks or on tourist maps, provision of facilities for their enjoyment and references to them in literature and art.

A6.1.49 A designated viewpoint or scenic route advertised on maps and in tourist information, or which is a popular destination in its own right, such as a Munro summit, is likely to indicate a view of higher value. High value views may also be recognised in relation to the special qualities of a designated landscape or heritage asset, or it may be a view familiar from photographs or paintings.

A6.1.50 Views experienced from viewpoints or routes not recognised formally or advertised in tourist information, or which are not provided with interpretation, or in some cases, formal access are likely to be of lower value, and to be less well frequented.

A6.1.51 Judgements on the value of views or visual amenity are recorded as **high, medium** or **low**.

Magnitude of Visual Effect

A6.1.52 The overall judgement of magnitude of visual effect (nature of visual effect) is based on weighing up professional judgements on size and scale, geographical extent, duration and reversibility. Further information on the criteria is provided below.

Size and Scale

A6.1.53 The size and scale of a visual change depends on:

- 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, including the proportion of the view occupied by the proposed development;
- the degree of contrast or integration of any new features or changes in the landscape with the existing or remaining landscape elements and characteristics in terms of form, scale and mass, line, height, colour and texture; and
- the nature of the view of the proposed development, in terms of the relative amount of time over which it will be experienced and whether views will be full, partial or glimpses.

A6.1.54 All changes are assumed to be during winter, representing a 'maximum case effect' scenario with minimal screening by vegetation and deciduous trees. Note that wireframes and ZTVs prepared to illustrate potential visual effects are calculated on the basis of bare ground and therefore demonstrate the maximum extent of visibility possible, in the absence of buildings or vegetation. Where forestry is present, consideration is given to felling regimes if levels of screening by forestry are likely to change notably during the lifetime of the development.

A6.1.55 In this assessment, scale of visual change is described as **large, medium, small**, or **barely perceptible**.

Geographical Extent

A6.1.56 The geographical extent of a visual change records the extent of the area over which the changes will be visible e.g. whether this is a unique viewpoint from where the proposed wind farm can be glimpsed, or whether it represents a large area from which similar views are gained. Geographical extent is described as **large, medium**, or **small**.

Duration

A6.1.57 The duration of visual effects is reported as **short-term, medium-term**, or **long-term**, as defined for the duration of landscape effects (see above). It is also relevant to consider duration in terms of the period over which intermittent or occasional

effects may operate (for example lighting), or the duration over which an effect may be experienced, for example when travelling along a road or path.

Reversibility

A6.1.58 Reversibility is reported as **irreversible** (i.e. permanent), **partially reversible** or **reversible**, and is related to whether the visual change can be reversed at the end of the phase of development under consideration (i.e. at the end of construction or at the end of the operational lifespan of the development). Operational visual effects are generally considered to be partially reversible as the decommissioning phase will remove turbines and most infrastructure at the end of the operational phase.

A6.1.59 Judgements on the magnitude of visual effect are recorded as **high, medium**, or **low** guided by the table below.

Appendix Table A6.1.6: Magnitude of Visual Effects

Magnitude of Visual Effects			
	Higher	↔	Lower
Size/Scale	A large visual change resulting from the proposed development is the most notable aspect of the view, perhaps as a result of the development being in close proximity, or because a substantial part of the view is affected, or because the development introduces a new focal point and/or provides contrast with the existing view and/or changes the scenic qualities of the view.	↔	A small or some visual change resulting from the proposed development as a minor or generally unnoticed aspect of the view, perhaps as a result of the development being in the distance, or because only a small part of the view is affected, and/or because the development does not introduce a new focal point or is in contrast with the existing view and/ does not change the scenic qualities of the view.
Geographical Extent	The assessment location is clearly representative of similar visual effects over an extensive geographic area.	↔	The assessment location clearly represents a small geographic area.
Duration	Visual change experienced over around 10 years or more Continuous Longer periods of time when travelling along a linear route	↔	Visual change experienced over a short period of up to 5 years. Intermittent or occasional Shorter periods of time when travelling along a linear route
Reversibility	A permanent visual change which is not reversible or only partially reversible following decommissioning of the proposed development.	↔	A temporary visual change which is largely reversible following the completion of construction or decommissioning of the proposed development.

Direction of Visual Effects

A6.1.60 The direction of visual effects (**beneficial, adverse**, or **neutral**) is determined in relation to the degree to which the proposal fits with the existing view and the contribution to the view that a proposed development makes, even if it is in contrast to the existing character of the view.

A6.1.61 With regard to wind energy development, there is a broad spectrum of response from the strongly positive to the strongly negative. However, to cover the 'maximum case effect' situation, potential visual effects relating to commercial scale wind energy developments are generally assumed to be adverse.

Judging the Level of Visual Effect and Significance

A6.1.62 As for landscape effects, the final step in the assessment requires the judgements of sensitivity of visual receptor and magnitude of visual effect to be combined to make an informed professional assessment on the significance of each visual effect.

A6.1.63 The evaluations of the individual aspects set out above (susceptibility, value, size and scale, geographical extent, duration and reversibility) are considered together to provide an overall profile of each identified visual effect. An overview is then taken of the distribution of judgements for each aspect to make an informed professional assessment of the overall level of effect, drawing on good practice guidance provided in GLVIA3.

A6.1.64 The sensitivity of visual receptors may involve a complex relationship between a visual receptor's (e.g. people's) susceptibility to change and the value attached to a view. Therefore, the rationale for judgements of sensitivity is clearly set out for each receptor in relation to both its susceptibility (to the type of change proposed) and its value.

A6.1.65 Levels of visual effect are identified as **negligible, minor, moderate** or **major** where moderate and major visual effects are considered **significant** in the context of the EIA Regulations.

A6.1.66 Determination of the level of effect requires the application of professional judgement and experience to take on board the many different variables which need to be considered, and which were given different weight according to site-specific and location-specific considerations in every instance. Judgements were made on a case by case basis, guided by the principles set out in Diagram 1.

A6.1.67 A rigid matrix-type approach, where the level of visual effect would be defined simply based on the level of sensitivity (nature of receptor) combined with the magnitude of change (nature of effect), is not used. This is given the need for consideration of the relative importance of each aspect to feed into the overall decision. An assessor takes on board professional judgement and experience to determine the weight given to each variable in each case. As such, the conclusion on the level of effect is not always the same.

Cumulative Landscape & Visual Impact Assessment

A6.1.68 The aim of a cumulative assessment is to "describe, visually represent and assess the ways in which a proposed windfarm would have additional impacts when considered together with other existing, consented or proposed windfarms" (NatureScot, 2021). The cumulative assessment therefore focuses on the additional change which may result from the introduction of the proposed development (i.e. in addition to other development which may or may not be present).

A6.1.69 The primary LVIA considers the relationship of the proposed development with existing wind farms, and as such also considers cumulative effects against the current baseline. The cumulative assessment focuses on the additional cumulative change which may result from the introduction of a proposed development to two potential speculative future baseline scenarios, as described below. The primary and cumulative assessment also refer to the combined effects of all developments taken together where these are a relevant consideration, such as in the case of an area of landscape, or a particular view already being characterised by this type of development.

A6.1.70 The cumulative assessment focuses on other existing and proposed wind farms. A cumulative assessment may also consider the potential interactions between different types of development (e.g. transmission infrastructure, or other built development) if the proposed development, in combination with these, is likely to give rise to similar landscape and visual effects.

A6.1.71 Adjacent wind energy developments may complement one another, or may be discordant with one another, and it is the potential increase or decrease in the level of significance of effects which may arise as a result of this change that is considered in the cumulative assessment. The cumulative assessment therefore focuses on the additional change which may result from the introduction of a proposed development, when considered against different baseline scenarios.

A6.1.72 As with the primary LVIA, the cumulative assessment deals with landscape and visual effects separately.

Differences between the primary LVIA and the cumulative assessment

A6.1.73 Although both the primary LVIA and the cumulative assessment of potential future effects look at the effects of a proposed development on the landscape and on views, there are differences in the baseline against which the assessments are carried out.

A6.1.74 For the LVIA (the **primary** assessment), the baseline includes existing wind farms which are present in the landscape at the time of undertaking the assessment, which may be either operational or under construction (if well advanced), as they form a part of the baseline situation. Their presence has the potential to influence the assessment of effects on landscape character and the assessment of effects on views, as noted within the primary assessment.

A6.1.75 For the cumulative assessment of potential future effects, consideration is given to the effects should they occur within two partly speculative future baseline scenarios:

- **Scenario 1** – a baseline scenario which assumes that operational, under construction and wind farms which have been granted planning consent but are not yet constructed (**consented**) are all present; and
- **Scenario 2** – a baseline scenario which includes all the above plus submitted valid wind farm applications which are currently awaiting determination by the relevant consenting authority, including those at appeal and in some instances those currently at scoping when specifically requested (**proposed**).

A6.1.76 Wind farms which are operational and under construction are considered within the primary assessment. Consented and proposed sites are considered, along with the operational sites and those under construction, by examining potential effects against different baseline scenarios. These differ from the primary assessment in that they are necessarily speculative and increasingly uncertain. The cumulative assessment considers the combined effects of all development taken together where it is relevant to do so, but focuses more specifically on the **additional** effect of the proposed development, due to the way it associates and interacts with other wind energy developments relevant to each scenario. It describes the potential relationship between developments.

Types of Cumulative Effects

A6.1.77 The effects on landscape character types (LCTs) and designated landscapes are considered within the cumulative assessment NatureScot (2021) guidance. This sets out that "Cumulative landscape impacts can change either the physical fabric or character of the landscape, or any special values attached to it. For example:

- Cumulative impacts on the **physical fabric** of the landscape arise when two or more developments affect landscape components such as woodland, dykes, rural roads or hedgerows. Although this may not significantly affect the landscape character, the cumulative effect on these components may be significant – for example, where the last remnants of former shelterbelts are completely removed by two or more developments.
- Cumulative impacts on **landscape character** arise when two or more developments introduce new features into the landscape. In this way, they can change the landscape character to such an extent that they create a different landscape character type."

A6.1.78 NatureScot (2021) guidance sets out that "cumulative impacts on visual amenity can be caused by 'combined visibility' and/or 'sequential impacts':

- **Combined visibility** occurs where the observer is able to see two or more developments from one viewpoint. Assessments should consider the combined effect of all wind farms which are (or would be) visible from relevant viewpoints. Combined visibility may either be in combination (where several wind farms are within the observer's arc of vision at the same time) or in succession (where the observer has to turn to see the various wind farms).
- **Sequential impacts** occur when the observer has to move to another viewpoint to see different developments. Sequential impacts should be assessed for travel along regularly-used routes like major roads, railway lines, ferry routes, popular paths, etc. The magnitude of sequential effects will be affected by speed of travel and distance between viewpoints."

Assessing Cumulative Effects

Assessment Methodology

A6.1.79 The cumulative assessment considers the potential effects of the addition of a proposed development, against baseline scenarios that include wind farms that may or may not be present in the landscape in the future, i.e. wind farms that are consented but not yet built, and/or undetermined planning applications. The wind farms included in each scenario are assumed to be present in the landscape for the purposes of the assessment.

A6.1.80 The methodology follows that of the primary LVIA, which considers the introduction of a proposed development to a baseline which includes existing (operational and under construction) wind farms. Whilst different effects may be identified against different scenarios, only one effect will occur in practice. The effects represent an 'either/or' situation' and could not occur in tandem.

A6.1.81 The size and scale of cumulative change focuses on:

- the pattern and arrangement of wind farms in the landscape or view, e.g. developments seen in one direction or part of the view (in-combination views), or seen in different directions (successive views in which the viewer must turn) or developments seen sequentially along a route;
- the relationship between the scale of the wind farms, including turbine size and number, and if wind farms appear balanced in views in terms of their composition, or at odds with one another;

- the position of the wind farms in the landscape, e.g. in similar landscape or topographical context;
- the position of the wind farms in the view, e.g. on the skyline or against the backdrop of land; or how the proposed development will be seen in association with another development (separate, together, behind etc.); and
- the distances between wind farms, and their distances from the viewer.

A6.1.82 Consideration is given to whether an effect may be intensified, reduced or remain similar, through consideration against different potential future baseline scenarios.

Significance of Cumulative Effects

A6.1.83 Judging the significance of cumulative landscape and visual effects requires consideration of the sensitivity and the magnitude of effect on those receptors. The following sections set out the methodology applied for the assessment of cumulative effects for both landscape and visual receptors and explain the terms used. These are essentially the same as for the primary LVIA.

Assessing Cumulative Landscape Effects

Sensitivity

A6.1.84 An assessment of cumulative landscape effects requires a judgement to be made on the sensitivity of the landscape receptors. This requires consideration of susceptibility and value and is as recorded in the LVIA.

Magnitude of Cumulative Landscape Effects

A6.1.85 The magnitude of cumulative landscape effect (nature of cumulative landscape effect) is based on combining professional judgements on size and scale, geographical extent, duration, and reversibility. Judgements on the magnitude of cumulative landscape effect are recorded as **high, medium, or low**.

Size and Scale

A6.1.86 The size/scale of landscape change is the additional influence the proposed development has on the characteristics and character of the area assuming the other wind farms considered in the potential baseline scenarios are already present in the landscape. This is influenced by:

- how the proposal fits with existing pattern of wind farm development, including the relationship to landscape character types and areas; and
- the siting and design of the proposed development in relation to other existing and proposed developments (including distance between wind farms, composition, size and scale).

Geographical Extent

A6.1.87 The geographical extent over which the landscape change will be experienced is described as **large** (scale of the landscape character type, or widespread, affecting several landscape types or character areas), **medium** (immediate surroundings) or **small** (site level).

Duration and Reversibility

A6.1.88 For the purpose of the cumulative landscape assessment, consideration of the judgements of the duration and reversibility of landscape effects are as recorded in the LVIA.

A6.1.89 Judgements on the magnitude of effect are recorded as **high, medium, or low**.

Levels of Cumulative Landscape Effect and Significance

A6.1.90 The final step requires the judgements of sensitivity and magnitude of cumulative landscape effect to be combined, to make an informed professional assessment on the significance of each cumulative landscape effect.

A6.1.91 The levels of cumulative landscape effect are described as **negligible, minor, moderate, or major** where moderate and major cumulative landscape effects are considered **significant** in the context of the EIA Regulations.

A6.1.92 More significant effects are likely where:

- the proposed development extends or intensifies a landscape effect;
- the proposed development ‘fills’ an area such that it alters the landscape resource; and / or
- the interaction between the proposed development and other wind farms means that the effect on the landscape is greater than the sum of its parts.

A6.1.93 GLVIA 3 states “*The most significant cumulative landscape effects are likely to be those that would give rise to changes in the landscape character of the study area of such an extent as to have major effects on its key characteristics and even, in some cases, to transform it into a different landscape type. This may be the case where the project being considered itself tips the balance through its additional effects. The emphasis must always remain on the main project being assessed and how or whether it adds to or combines with the others being considered to create a significant cumulative effect*” (para 7.28 GLVIA 3).

A6.1.94 The determination of cumulative landscape effects requires the application of professional judgement and experience to take on board the many different variables which need to be considered, and which are given different weight according to site-specific and location-specific considerations in every instance. Judgements are made on a case by case basis.

Assessing Cumulative Visual Effects

Sensitivity

A6.1.95 The assessment of the significance of cumulative visual effects requires a judgement to be made on the sensitivity of the visual receptors. This requires consideration of susceptibility and value and is as recorded in the LVIA.

Magnitude of Cumulative Visual Effects

A6.1.96 The magnitude of cumulative visual effect (nature of cumulative visual effect) is based on combining professional judgements on size and scale; geographical extent; duration and reversibility. Judgements on the magnitude of cumulative visual effect are recorded as **high, medium, low or barely perceptible**.

Size and Scale

A6.1.97 The size/scale of cumulative change to views depends on the additional influence the proposed development has on views assuming the other wind farms considered in the potential baseline scenarios are already present in views. This is influenced by:

- whether the proposed development introduces development into a new part of the view so that the proportion of the developed part of the view increases;
- the relationship between the proposed development and other wind farms in terms of design, size and layout;
- the apparent visual relationship of wind farms to landscape character types and or landscape character areas; and / or
- in the case of magnitude of change to routes, the relative duration of views of wind farms from routes, and whether these will be intermittent or continuous.

A6.1.98 There has to be clear visibility of more than one wind farm, of which one must be the proposed development, for there to be a cumulative effect (given this is an assessment of the effects of the proposed development and not broader consideration of combined cumulative effects). Where the proposed development is clearly visible and other wind farms are not, the effect is likely to be the same as recorded in the primary LVIA.

Geographical Extent

A6.1.99 The geographical extent of a cumulative visual change records the extent of the area over which the changes will be visible e.g. whether this is a unique viewpoint from where the proposed wind farm can be glimpsed, or whether it represents a large area from which similar views are gained from large areas. Geographical extent is described as **large, medium or small**.

Duration and Reversibility

A6.1.100 For the purpose of the cumulative visual assessment, consideration of the judgements of the duration and reversibility of visual effects are as recorded in the LVIA.

Levels of Cumulative Visual Effect and Significance

A6.1.101 The final step in the assessment of cumulative visual effects requires the judgements of sensitivity and magnitude of cumulative visual effect to be combined to make an informed professional assessment on the significance of each cumulative visual effect.

A6.1.102 The levels of cumulative visual effect are described as **negligible, minor, moderate, or major** where moderate and major cumulative visual effects are considered **significant** in the context of the EIA Regulations.

A6.1.103 The evaluations of susceptibility, value, size and scale, geographical extent, duration, and reversibility are considered together to provide an overall profile of each identified visual effect.

A6.1.104 An overview is taken of the distribution of judgements for each aspect to make an informed professional assessment of the overall level of each visual effect, drawing on guidance provided in GLVIA3. Levels of effect are identified as **negligible, minor, moderate or major** where moderate and major visual effects are considered significant in the context of the EIA Regulations.

A6.1.105 More significant effects are likely where:

- the proposed development extends or intensifies a visual effect;
- the proposed development ‘fills’ an area such that it alters the view/ visual amenity;
- the interaction between the proposed development and other developments means that the total visual effect is greater than the sum of its parts; and / or
- the proposed development will lengthen the time over which effects are experienced (sequential effects).

A6.1.106 The determination of cumulative visual effects requires the application of professional judgement and experience to take on board the many different variables which need to be considered, and which are given different weight according to site-specific and location-specific considerations in every instance. Judgements are made on a case by case basis, guided by the same principles as set out in **Diagram 1** above.

Combined Cumulative Effects

A6.1.107 GLVIA3 refers to the focus of cumulative LVIA being either *“additional effects of the main project under consideration, or on the combined effects of all the past, present and future proposals together with the new project.”* (paragraph 7.18), but in doing so acknowledges that *“...assessing combined effects involving a range of different proposals at different stages in the planning process can be very complex. Furthermore the assessor will not have assessed the other schemes and cannot therefore make a fully informed judgement. A more comprehensive overview of the cumulative effects must rest with the competent authority.”*

A6.1.108 Therefore, this type of cumulative effect is only described where it is considered likely to be a relevant consideration in the determination of the proposed development. In considering the detailed cumulative landscape and visual effects set out in the LVIA, broad observations are made, where relevant, within the summary of effects. These relate to how the combined cumulative effects of multiple future wind farm developments may influence landscape character, views and visual amenity and designated landscapes.