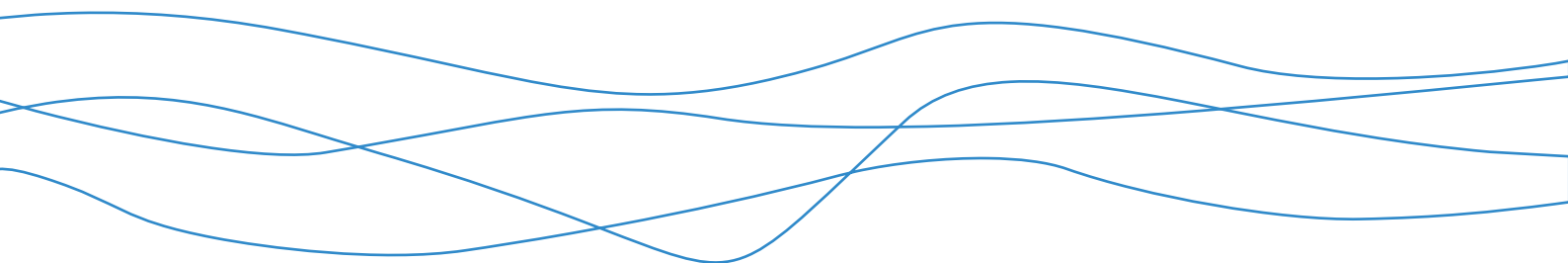




Bowdun Offshore Wind Farm, Onshore EIA Report

Volume 2, Technical Appendix 8.3: Cumulative
Landscape and Visual Effects

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Contents

List of Tables	iii
Glossary	iv
Acronyms	vi
Table of Units	vi
1 Cumulative Landscape and Visual Effects	1
1.1 Introduction	1
1.2 Study Area.....	1
1.3 Methodology for Assessment of Cumulative Effects	1
1.4 Assessment of Significance	2
2 References	7

List of Tables

Table 1.1: Cumulative Landscape and Visual Effects (during Operation and Maintenance Phase):
Other Third-Party Developments 3

Glossary

Glossary	Definition
Bowdun Offshore Wind Farm Limited	A Special-Purpose Vehicle (SPV) (legal entity) for the purpose of developing the Project.
Cumulative Effects	The effects of the Proposed Development assessed together with effects from one or more different projects on the same receptor/resource.
Effect	Term used to express the consequence of an impact i.e. the result of change or changes on specific environmental resources or receptors. The significance of an effect is determined by correlating the magnitude of the impact with the importance, or sensitivity of the receptor or resource in accordance with defined significance criteria.
Environmental Impact Assessment (EIA)	Assessment of the potential likely significant effects of the Proposed Development on the physical, biological, and human environment during construction, operations and maintenance and decommissioning.
Environmental Impact Assessment (EIA) Report	Document prepared to comply with The Town and Country Planning (Environmental Impact Assessment) (Scotland) Regulations 2017 in order to provide information on: the baseline environment; project description for the Proposed Development; a systematic assessment of the Proposed Development's likely significant environmental effects; measures to avoid, prevent, reduce or offset likely significant adverse environmental effects; a description of the reasonable alternatives studied by the Applicant; and a non-technical summary.
Horizontal Directional Drilling	Horizontal Directional Drilling (HDD) is a method of installing underground pipelines, cables and service conduit or ducts through trenchless methods to avoid obstacles and sensitive features such as roads, watercourses and woodlands. The term HDD is used here interchangeably with other similar trenchless techniques but excluding micro tunnelling or direct pipe methods.
Impact	A change caused by an action that occurs during a project's lifetime.
Landfall	The area in which the offshore export cables make landfall and is also the transitional area between the Offshore Transmission Assets and the Onshore Transmission Assets. Located in the intertidal area (see definition above) at Benholm Bay.
Landscape	An area, as perceived by people, the character of which is a result of the action and interaction of natural and/or human factors.
Landscape Character	A distinct, recognisable and consistent pattern of elements in the landscape that makes one landscape different from another, rather than better or worse.
Landscape Character Area	These are single unique areas which are the discrete geographical areas of a particular landscape character type. Each has its own individual character and identity, even though it shares the same generic characteristics with other types. (Natural England, 2014) .

Glossary	Definition
Landscape Character Types (LCTs)	Distinct types of landscapes that are usually homogenous in character. They are generic in nature in that they may occur in different areas in different parts of the country, but wherever they occur they share broadly similar combinations of geology, topography, drainage patterns, vegetation and historical land use and settlement pattern, and perceptual and aesthetic attributes. (Topic Paper 6, Countryside Agency and SNH 2002)
Landscape effects	Effects on the landscape as a resource in its own right.
Landscape quality (condition)	A measure of the physical state of the landscape. It may include the extent to which typical character is represented in individual areas, the intactness of the landscape and the condition of individual elements.
Landscape receptors	Defined aspects of the landscape resource that have the potential to be affected by a proposal.
Landscape value	The relative value that is attached to different landscapes by society. A landscape may be valued by different stakeholders for a whole variety of reasons.
Landscape and Visual Impact Assessment	A chapter within the EIA Report to systematically identify, predict, assess and report on the likely significant landscape and visual effects of a proposed project or development.
Mean Low Water Springs	The average tidal height throughout the year of two successive low waters during those periods of 24 hours when the range of the tide is at its greatest.
Project (the)	An overarching term for the Bowdun Offshore Wind Farm (Bowdun OWF) comprising the offshore and onshore infrastructure required to generate and transmit electricity from the Array Area to the onshore Grid Connection Point (GCP). The Project includes the Offshore Generation Assets, the Offshore Transmission Assets and the Onshore Transmission Assets.
Proposed Development	Term used to define the Onshore Infrastructure associated with the Project landward of MLWS for which PPP is being sought. Further details of the parameters are included in the Onshore EIA Report Volume 1, Chapter 2: The Proposed Development.
Sensitivity	A term applied to specific receptors, combining judgements of the susceptibility of the receptor to the specific type of change or development proposed and the value related to that receptor.
Significance	Effect factor that is determined by the magnitude of impact along with the sensitivity of the receptor.
Study Area	For each environmental topic, the baseline environment will be characterised, and the potential environmental impacts will be described within a topic-specific study area. Specific study areas are defined for each topic and are based on the maximum spatial extent across which potential impacts of the Proposed Development may be experienced by the relevant receptors (i.e. Zone of Influence).
Substation	The onshore Substation to be constructed as a component of the Proposed Development. The Substation would transform voltage from low to high by means of electrical transformers to ensure the electrical energy provided from the Offshore Generation Assets is at a voltage suitable for connection to the National Grid.

Glossary	Definition
Substation Search Area	The area identified at scoping that the Proposed Development Substation would be located within in proximity to the grid connection point.
Visual Effect	Effects on specific views and on the general visual amenity experienced by people. (Landscape Institute and IEMA, 2013).
Visual Receptors	Individuals and/or defined groups of people who have the potential to be affected by a proposal.
Visual Sensitivity	The sensitivity of visual receptors such as residents, relative to their location and context/activity, to visual change proposed by development.

Acronyms

Acronym	Definition
GLVIA3	Guidelines for Landscape and Visual Impact Assessment Third Edition
HDD	Horizontal Directional Drilling
LCT	Landscape Character Type
LVIA	Landscape and Visual Impact Assessment
MLWS	Mean Low Water Springs
SSEN	Scottish and Southern Electricity Networks

Table of Units

Units	Definition
km	kilometre
m	metre
kV	Kilovolt

1 Cumulative Landscape and Visual Effects

1.1 Introduction

1.1.1 This Appendix presents an assessment of cumulative landscape and visual effects for the onshore infrastructure of the Bowdun Offshore Wind Farm ('the Project'). The onshore infrastructure of the Project, is the works landward of Mean Low Water Springs (MLWS), including the intertidal area, and is referred to as 'the Proposed Development'. This assessment considers the Proposed Development in combination with other developments (consented and in planning) in the wider area. In combination effects, the overall effects resulting from the Proposed Development together with other proposed third-party developments, are considered as a 'worst-case' scenario. This Appendix supports the assessment reported in Volume 1, Chapter 8: Landscape and Visual.

1.2 Study Area

1.2.1 The Study Area for the assessment of cumulative landscape and visual effects is defined as a 10 km radius from the Substation Search Area (as shown in Volume 1, Chapter 3: Environmental Impact Assessment Methodology, Figure 3.1: Cumulative Assessment Projects), as the Substation would be the only visible structure associated with the Proposed Development during operation and maintenance phase.

1.3 Methodology for Assessment of Cumulative Effects

1.3.1 The methodology used in this Appendix follows the principles contained within Section 3.10 Cumulative Effects Assessment within Volume 1, Chapter 3: Environmental Impact Assessment Methodology.

1.3.2 Guidance for the cumulative landscape and visual effects assessment has been taken from Chapter 7 (Assessing cumulative landscape and visual effects) of the Guidelines for Landscape and Visual Impact Assessment, 3rd Edition (GLVIA3) (The Landscape Institute and Institute of Environmental Management and Assessment, 2013).

1.3.3 Section 8.6 (Methodology for Assessment of Effects) of Volume 1, Chapter 8: Landscape and Visual provides an overview of the process that has been used to determine the significance of landscape and visual effects associated with the Proposed Development (which involves defining the magnitude of the potential impacts and the sensitivity of the receptors). The same process has been applied in this Appendix to assess the significance of effects that are predicted to result from the Proposed Development in combination with other, third-party future development.

1.3.4 The assessment of cumulative landscape and visual effects focuses on changes which may result from the introduction of the Proposed Development (during operation and maintenance phase) in combination with other, third-party future development. Only those landscape and visual receptors where there would be visibility of the Proposed Development in combination with other developments (and where significant combined cumulative effects are predicted during the

operation and maintenance phase of the Proposed Development) have been included in the assessment.

- 1.3.5 Cumulative landscape and visual effects during the construction phase of the Proposed Development have been scoped out of this assessment due to uncertainty regarding the timing of the construction phase of the other, third-party future developments.

1.4 Assessment of Significance

- 1.4.1 A summary of the assessment of significant cumulative landscape and visual effects of the Proposed Development (during operation and maintenance phase) in combination with other, third-party future developments are provided below in Table 1.1.
- 1.4.2 The locations of the cumulative developments assessed, together with ZTV illustrating the theoretical visibility of the Bowdun Substation and SSEN Hurlie Substation, are shown on Figure 8.7: Cumulative Developments within Volume 1, Chapter 8: Landscape and Visual.

Table 1.1: Cumulative Landscape and Visual Effects (during Operation and Maintenance Phase): Other Third-Party Developments

Cumulative Development	Landscape Character Types (LCTs) and Visual Receptor Locations
<p>SSEN Hurlie 400 kV substation and associated elements + The Proposed Development</p>	<p>LCT 24: Coastal Farmed Ridges and Hills – Aberdeenshire: The combined cumulative effects on landscape character within 4 km (concentrated along north-facing slopes south of Carron Water, stretching between Carnmont Hill and Hillhead of Auquhirie) are predicted to be Moderate (significant) during the winter of the year of opening. These cumulative effects would be perceptual rather than physical, resulting from visibility of the two substations and associated elements which, combined, would noticeably alter the landscape character. These combined cumulative effects are, however, predicted to reduce to Minor (not significant) by the summer 12 years after opening following the establishment of mitigation planting (LAN10). The combined cumulative effects on landscape character are predicted to be Minor (not significant) beyond 4 km during both the winter of the year of opening and the summer 12 years after opening (due to a combination of distance and screening provided by intervening topography and vegetation).</p> <p>LCT 29: Summits and Plateaux – Aberdeenshire: The two substations and associated elements would noticeably alter the existing landscape character within 1.5 km (across elevated slopes to the east and south), resulting in Moderate (significant) combined cumulative physical and perceptual effects during both the winter of the year of opening and the summer 12 years after opening. The combined cumulative physical and perceptual effects on landscape character are, however, predicted to be Minor (not significant) beyond this distance during both the winter of the year of opening and the summer 12 years after opening (due to a combination of distance and screening provided by intervening topography and vegetation).</p> <p>Core Paths and Cycle Networks: Fetteresso Forest Local Paths: The two substations and associated elements would cause perceptible damage to views for people travelling along sections of path around Upper Baulk, Hill of Trusta and Hill of Swanley, resulting in Moderate (significant) combined cumulative visual effects during both the winter of the year of opening and the summer 12 years after opening. However, the combined cumulative visual effects are predicted to reduce to Minor (not significant) during both the winter of the year of opening and the summer 12 years after opening for people travelling along remaining paths within Fetteresso Forest (due to a combination of distance and screening provided by intervening topography and vegetation).</p> <p>Viewpoint 6: Hill of Swanley, Fetteresso Forest: The combined cumulative visual effects are predicted to be Major (significant) during the winter of the year of opening due to the proximity (approx. 0.75 – 1.9km) and visual prominence of the two substations and associated elements in views looking west and south-west from this location. The combined cumulative visual effects are predicted to reduce to Moderate (significant) by the summer 12 years after opening following the establishment of mitigation planting (LAN10).</p>
<p>SSEN Tealing to Kintore 400kV</p>	<p>Core Paths and Cycle Networks: Fetteresso Forest Local Paths: The proposed substation in combination with the proposed towers and overhead lines would cause perceptible damage to views for people travelling along sections of path which lie within 1km of the Proposed Development (including paths located on the more elevated western slopes</p>

Cumulative Development	Landscape Character Types (LCTs) and Visual Receptor Locations
<p>Overhead Line + The Proposed Development</p>	<p>of the Hill of Swanley), resulting in Moderate (significant) combined cumulative visual effects during both the winter of the year of opening and the summer 12 years after opening. However, the combined cumulative visual effects are predicted to reduce to Minor (not significant) during both the winter of the year of opening and the summer 12 years after opening for people travelling along remaining paths within Fetteresso Forest (due to a combination of distance and screening provided by intervening topography and vegetation).</p> <p>Viewpoint 6: Hill of Swanley, Fetteresso Forest: The combined cumulative visual effects are predicted to be Major (significant) during the winter of the year of opening. These cumulative visual effects would result from the visually prominent proposed substation in combination with the proposed towers and overhead lines. The combined cumulative visual effects are predicted to reduce to Moderate (significant) by the summer 12 years after opening following the establishment of mitigation planting (LAN10).</p> <p>Viewpoint 8: A957 (Slug Road) at Rickarton nr Bogheadly: The cumulative visual effects are predicted to be Moderate (significant) during the winter of the year of opening due to visibility of the proposed substation in combination with the proposed towers and overhead lines (that together would cause perceptible damage to views), reducing to Minor (not significant) by the summer 12 years after opening following the establishment of mitigation planting (LAN10).</p>
<p>Glenskinnan Renewable Energy Park + The Proposed Development</p>	<p>LCT 24: Coastal Farmed Ridges and Hills – Aberdeenshire: The combined cumulative effects on landscape character (concentrated along north-facing slopes south of Carron Water, stretching between Carnmont Hill and Hillhead of Auquhirie) are predicted to be Moderate (significant) during the winter of the year of opening. These cumulative effects would be perceptual rather than physical, resulting from visibility of the proposed substation plus the proposed 14 wind turbines (up to 220m to blade tip) which, combined, would noticeably alter the landscape character. These combined cumulative effects are predicted to reduce to Minor (not significant) by the summer 12 years after opening following the establishment of mitigation planting (LAN10). The combined cumulative effects on landscape character are, however, predicted to be Minor (not significant) elsewhere within LCT 24 during both the winter of the year of opening and the summer 12 years after opening (due to a combination of distance and screening provided by intervening topography and vegetation).</p> <p>LCT 29: Summits and Plateaux – Aberdeenshire: The cumulative physical and perceptual effects resulting from the proposed substation in combination with the proposed 14 wind turbines (up to 220m to blade tip) and associated infrastructure would noticeably alter the landscape character within the central and eastern parts of LCT 29. Moderate (significant) combined cumulative effects are predicted (during both the winter of the year of opening and the summer 12 years after opening) as a result.</p> <p>Core Paths and Cycle Networks: Fetteresso Forest Local Paths: The proposed substation in combination with the proposed 14 wind turbines (up to 220m to blade tip) would cause perceptible damage to views for people travelling along sections of path around Hill of Trusta and Hill of Swanley, resulting in Moderate (significant) cumulative visual</p>

Cumulative Development	Landscape Character Types (LCTs) and Visual Receptor Locations
	<p>effects during both the winter of the year of opening and the summer 12 years after opening. However, the combined cumulative visual effects are predicted to reduce to Minor (not significant) during both the winter of the year of opening and the summer 12 years after opening for people travelling along remaining paths within Fetteresso Forest (due to a combination of distance and screening provided by intervening topography and vegetation).</p> <p>Viewpoint 5: Hillhead of Auquhirie: The cumulative visual effects are predicted to be Moderate (significant) during the winter of the year of opening due to the perceptible damage to views that would result from the proposed substation in combination with the proposed 14 wind turbines (up to 220m to blade tip). The combined cumulative visual effects are predicted to reduce to Minor (not significant) by the summer 12 years after opening following the establishment of mitigation planting (LAN10).</p> <p>Viewpoint 6: Hill of Swanley, Fetteresso Forest: The combined cumulative visual effects are predicted to be Major (significant) during the winter of the year of opening. These cumulative visual effects would result from the visually prominent proposed substation in combination with the proposed 14 wind turbines (up to 220m to blade tip). The combined cumulative visual effects are predicted to reduce to Moderate (significant) by the summer 12 years after opening following the establishment of mitigation planting (LAN10).</p> <p>Viewpoint 8: A957 (Slug Road) at Rickarton nr Bogheadly: The cumulative visual effects are predicted to be Moderate (significant) during the winter of the year of opening due to visibility of the proposed substation in combination with the proposed 14 wind turbines (up to 220m to blade tip), that together would cause perceptible damage to views, reducing to Minor (not significant) by the summer 12 years after opening following the establishment of mitigation planting (LAN10).</p>
<p>Craigneil Wind Farm + The Proposed Development</p>	<p>LCT 29: Summits and Plateaux – Aberdeenshire: The proposed substation in combination with the proposed wind farm (up to seven wind turbines (180m to blade tip) and associated infrastructure) would noticeably alter the existing landscape character within the eastern part of the LCT. Moderate (significant) combined cumulative physical and perceptual effects are predicted (during both the winter of the year of opening and the summer 12 years after opening) as a result.</p> <p>Roads: A957 (Slug Road): The cumulative visual effects are predicted to be Moderate (significant) during both the winter of the year of opening and the summer 12 years after opening (along a 3.35km section of the route between Durris Forest car park and Bogheadly) due to the obvious deterioration to views that would result from the proposed substation in combination with the proposed wind farm (up to seven wind turbines (180m to blade tip)).</p> <p>Core Paths and Cycle Networks: Fetteresso Forest Local Paths: The proposed substation in combination with the proposed wind farm (up to seven wind turbines (180m to blade tip) would cause perceptible damage to views for people travelling along sections of path around Hill of Swanley, resulting in Moderate (significant) cumulative visual effects</p>

Cumulative Development	Landscape Character Types (LCTs) and Visual Receptor Locations
	<p>during both the winter of the year of opening and the summer 12 years after opening. However, the combined cumulative visual effects are predicted to reduce to Minor (not significant) during both the winter of the year of opening and the summer 12 years after opening for people travelling along remaining paths within Fetteresso Forest (due to a combination of distance and screening provided by intervening topography and vegetation).</p> <p>Viewpoint 6: Hill of Swanley, Fetteresso Forest: The cumulative visual effects are predicted to be Major (significant) during the winter of the year of opening when the visually prominent proposed substation is considered in combination with the proposed wind farm (up to seven wind turbines (180m to blade tip). The combined cumulative visual effects are predicted to reduce to Moderate (significant) by the summer 12 years after opening following the establishment of mitigation planting (LAN10).</p> <p>Viewpoint 8: A957 (Slug Road) at Rickarton nr Bogheadly: The cumulative visual effects are predicted to be Major (significant) during both the winter of the year of opening and the summer 12 years after opening due to visibility of the proposed substation in combination with the proposed wind farm (up to seven wind turbines (180m to blade tip), that together would cause major deterioration to views.</p>
<p>Fetteresso Wind Farm + The Proposed Development</p>	<p>Core Paths and Cycle Networks: Fetteresso Forest Local Paths: The proposed substation in combination with the consented 10 wind turbines (up to 200 m to blade tip) would increase views to energy development for walkers on the Hill of Trusta and Hill of Swanley, with the Fetteresso turbines seen within the context of the existing turbines at Mid Hill. This would result in Moderate (significant) cumulative visual effects during the winter of the year of opening. However, the combined cumulative visual effects would reduce to Minor (not significant) for the summer 12 years after opening due to maturation of screening provided by vegetation.</p> <p>Viewpoint 6: Hill of Swanley, Fetteresso Forest: The combined cumulative visual effects are predicted to be Major (significant) during the winter of the year of opening. These cumulative visual effects would result from the visually prominent proposed substation in combination with the consented 10 wind turbines (up to 200 m to blade tip). The combined cumulative visual effects are predicted to reduce to Moderate (significant) by the summer 12 years after opening following the establishment of mitigation planting surrounding the substation (LAN10).</p>

2 References

Landscape Institute and the Institute for Environmental Management and Assessment (2013). Guidelines for Landscape and Visual Impact Assessment, 3rd Edition. Routledge.