



# Appendix 14.1

## SLVIA Technical Report

Land Use Consultants Ltd.

December 2017



Environmental Planning  
Design & Management

# Neart na Gaoithe Offshore Wind Farm: Seascape, Landscape and Visual Impact Assessment

## Technical Appendix

Prepared by LUC for Neart na Gaoithe Offshore Wind Limited  
December 2017

Planning & EIA  
Design  
Landscape Planning  
Landscape Management  
Ecology  
Mapping & Visualisation

LUC EDINBURGH  
28 Stafford Street  
Edinburgh  
EH3 7BD  
T +44 (0)131 202 1616  
edinburgh@landuse.co.uk

Offices also in:  
London  
Bristol  
Glasgow



FS 566056 EMS 566057

Land Use Consultants Ltd  
Registered in England  
Registered number: 2549296  
Registered Office:  
43 Chalton Street  
London NW1 1JD  
LUC uses 100% recycled paper

# Contents

<b>1</b>	<b>Introduction</b>	<b>1</b>
	Purpose of this Report	1
	The Project	1
	Tidal Range and Turbine Height	3
	Consultation	4
	Structure of the Report	8
	Glossary	9
<b>2</b>	<b>Approach and Methodology</b>	<b>11</b>
	Introduction	11
	Guidance	11
	Study Area	11
	Scope of the Assessment	12
	Overview of the SLVIA Methodology	13
	Method for Assessing Effects on Landscape and Coastal Character	13
	Method for Assessing Visual Effects	18
	Cumulative Landscape & Visual Impact Assessment (CLVIA)	22
	Assessing Cumulative Landscape Effects	24
	Assessing Cumulative Visual Effects	25
	Visualisations	26
	Limitations	29
<b>3</b>	<b>Baseline</b>	<b>30</b>
	Introduction	30
	Coastal Character	30
	Onshore Landscape Character	31
	Landscape Designations	32
	Visual Amenity	38
	Visibility	46
<b>4</b>	<b>Potential Effects and Mitigation</b>	<b>48</b>
	Effects During Construction	48
	Effects During Operation	49
<b>5</b>	<b>Effects on Coastal and Landscape Character</b>	<b>52</b>
	Introduction	52
	Coastal Character	52
	Landscape Character	58
	Summary of Effects on Coastal and Landscape Character	65
	Implications for Designated Landscapes	66
<b>6</b>	<b>Effects on Visual Amenity</b>	<b>71</b>
	Introduction	71
	Viewpoint Assessment	71
	Effects on Visual Receptors	74
<b>7</b>	<b>Cumulative Assessment</b>	<b>78</b>
	Introduction	78
	Cumulative Baseline	78
	Assessment of Cumulative Effects	82
	Cumulative Effects on Visual Amenity	83

<b>8</b>	<b>Summary and Conclusions</b>	<b>86</b>
<b>9</b>	<b>References</b>	<b>89</b>
<b>Annex 1</b>		<b>91</b>
	Neart na Gaoithe Offshore Wind Farm	91
	Design Analysis	91
	Introduction	91
	Existing guidance on offshore wind farm design	92
	Previous work	93
	Scope of this Analysis	94
	Turbine Layout	95
	Turbine Blade Tip Height	97
	Conclusions	98
<b>Annex 2</b>		<b>99</b>
	Seascape Character Assessment: Aberdeen to Holy Island	99
<b>Annex 3</b>		<b>100</b>
	Viewpoint Assessment	100
	Night Time Viewpoint Assessment	127
<b>Annex 4</b>		<b>135</b>
	Implications for East Lothian AGLVs	135
	Areas of Great Landscape Value	135

## Tables

Table 1.1	Consultation	4
Table 2.1	Sensitivity of Regional Seascape Units (see Annex 2)	14
Table 2.2	Aspects Influencing Susceptibility of Landscape Receptors to Wind Turbines	15
Table 2.3	Sensitivity of landscape receptors	16
Table 2.4	Magnitude of Impact on Landscape Receptors	17
Table 2.5	Susceptibility of Visual Receptors	19
Table 2.6	Sensitivity of Visual Receptors	20
Table 2.7	Magnitude of Impact on Visual Receptors	21
Table 3.1	Regional Seascape Units	30
Table 3.2	Level 2 LCTs included in the assessment	32
Table 3.3	Local Landscape Designations	34
Table 3.4	Review of Gardens and Designed Landscapes	35
Table 3.5	Representative Viewpoints	42
Table 3.6	Representative Night-time Viewpoints	45
Table 3.7	Viewpoints illustrated with wirelines	45
Table 3.8	Visibility from Leuchars	47
Table 4.1	Consent conditions for the Originally Consented Project relevant to Seascape Landscape and Visual impacts	50
Table 5.1	Sensitivity of Regional Seascape Units	52
Table 5.2	Assessment of Effects on Regional Seascape Units	54
Table 5.3	Assessment of Effects on Landscape Character Types	59

Table 6.1 Viewpoint assessment	71
Table 7.1 Offshore Wind Farms in the cumulative baseline	78
Table 7.2 Onshore Wind Farms in the cumulative baseline	80
Table 7.3 Cumulative effects at Representative Viewpoints	83
Table 7.4 Cumulative effects at night time representative viewpoints	85

## Figures

### Maps

Figure 14.1 (Volume 3)	SLVIA Study Area
Figure 14.2a (Volume 3)	Zone of Theoretical Visibility: Turbine tip height
Figure 14.2b (Volume 3)	Zone of Theoretical Visibility: Turbine tip height (A0)
Figure 14.3a (Volume 3)	Zone of Theoretical Visibility: Turbine hub height
Figure 14.3b (Volume 3)	Zone of Theoretical Visibility: Turbine hub height (A0)
Figure 14.4 (Volume 3)	Coastal Character
Figure 14.5 (Volume 3)	Landscape Character
Figure 14.6 (Volume 3)	Landscape designations
Figure 14.7 (Volume 3)	Access and recreation
Figure 14.8 (Volume 3)	Wind Farms within 65km of Neart na Gaoithe
Figure 14.9a (Volume 3)	Cumulative ZTV: Inch Cape and Seagreen
Figure 14.9b (Volume 3)	Cumulative ZTV: Inch Cape and Seagreen (A0)
Figure 14.10 (Volume 3)	Cumulative ZTV: Other offshore wind farms
Figure 14.11 (Volume 3)	Cumulative ZTV: Onshore Group 1
Figure 14.12 (Volume 3)	Cumulative ZTV: Onshore Group 2
Figure 14.13 (Volume 3)	Cumulative ZTV: Onshore Group 3
Figure 14.14 (Volume 3)	Cumulative ZTV: Onshore Group 4
Figure 14.15 (Volume 3)	Cumulative ZTV: Onshore Group 5
Figure 14.16 (Volume 3)	Cumulative ZTV: Onshore Group 6
Figure 14.17 (Volume 3)	Cumulative ZTV: Onshore Group 7

### Visualisations

Figure 14.18 (Volume 3)	VP2: Beach Road, Kirkton, St Cyrus
Figure 14.19 (Volume 3)	VP5:Dodd Hill
Figure 14.20 (Volume 3)	VP6:Braehead of Lunan
Figure 14.21 (Volume 3)	VP7:Arbroath Signal Tower
Figure 14.22 (Volume 3)	VP8:Carnoustie
Figure 14.23 (Volume 3)	VP9:Dundee Law
Figure 14.24 (Volume 3)	VP10:Tentsmuir
Figure 14.25 (Volume 3)	VP11:Strathkinness
Figure 14.26 (Volume 3)	VP12:St Andrews, East Scores
Figure 14.27 (Volume 3)	VP13:Fife Ness, Lochaber Rock

Figure 14.28 (Volume 3)	VP14:Anstruther Easter
Figure 14.29 (Volume 3)	VP15:Largo Law
Figure 14.30 (Volume 3)	VP16:Isle of May
Figure 14.31 (Volume 3)	VP17:North Berwick Law
Figure 14.32 (Volume 3)	VP18:Dunbar
Figure 14.33 (Volume 3)	VP19:Innerwick
Figure 14.34 (Volume 3)	VP20:Coldingham Moor
Figure 14.35 (Volume 3)	VP21:St Abb's Head
Figure 14.36 (Volume 3)	VP22:St Andrews, West Sands Road
Figure 14.37 (Volume 3)	VP23:Crail
Figure 14.38 (Volume 3)	VP24:Scottish Seabird Centre, North Berwick
Figure 14.39 (Volume 3)	VP25:Tantallon Castle
Figure 14.40 (Volume 3)	VP26:Broad Sands, North Berwick
Figure 14.41 (Volume 3)	VP27:A198, North Berwick
Figure 14.42 (Volume 3)	VP28:A199, East Linton
Figure 14.43 (Volume 3)	VP29:Hopetoun Monument

#### **Night visualisations**

Figure 14.44 (Volume 3)	N1:Kings Road, Arbroath
Figure 14.45 (Volume 3)	N2:B961, Carmyllie
Figure 14.46 (Volume 3)	N3:East Haven
Figure 14.47 (Volume 3)	N4:St Andrews, East Scores
Figure 14.48 (Volume 3)	N5:Crail
Figure 14.49 (Volume 3)	N6:Scottish Seabird Centre, North Berwick
Figure 14.50 (Volume 3)	N7:Dunbar
Figure 14.51 (Volume 3)	N8:A199, East Linton

#### **Additional wirelines**

Figure 14.52 (Volume 3)	A1:West Steel
Figure 14.53 (Volume 3)	A2:Traprain Law
Figure 14.54 (Volume 3)	A3:B6370 north of Garvald
Figure 14.55 (Volume 3)	A4:B6355 west of B6368
Figure 14.56 (Volume 3)	A5:Ewieside Hill
Figure 14.57 (Volume 3)	A6:Fast Castle

#### **Wirelines accompanying Annex 1**

Figure A1.1 (Volume 3)	Arbroath Signal Tower
Figure A1.2 (Volume 3)	St Andrews, East Scores
Figure A1.3 (Volume 3)	Fife Ness
Figure A1.4 (Volume 3)	North Berwick Law
Figure A1.5 (Volume 3)	St Abb's Head
Figure A1.6 (Volume 3)	Arbroath Signal Tower
Figure A1.7 (Volume 3)	St Andrews, East Scores

Figure A1.8 (Volume 3)

Fife Ness

Figure A1.9 (Volume 3)

North Berwick Law

Figure A1.10 (Volume 3)

St Abb's Head

**Figures accompanying Annex 2**

Figure 1

Seascape Character Units

[BLANK PAGE]

# 1 Introduction

## Purpose of this Report

- 1.1 Neart na Gaoithe Offshore Wind Limited (NnGOWL) is developing a proposal for the Neart na Gaoithe Offshore Wind Farm and associated infrastructure in the outer Firth of Forth ('the Project'). LUC has been appointed to undertake seascape, landscape and visual impact assessment (SLVIA) of the offshore components of the Project. Onshore components of the project were the subject of a separate assessment, and have received planning permission.
- 1.2 This SLVIA report forms a technical appendix to the EIA Report, and is summarised in **Chapter 14: Seascape Landscape and Visual Impact** of the EIA Report. It has been undertaken by Chartered Landscape Architects at LUC.
- 1.3 LUC prepared an SLVIA for the Originally Consented Project that was included in the 2012 Neart na Gaoithe Environmental Statement ('the Original ES'), as well as SLVIA information included in the 2013 Addendum and S36 Variation. This SLVIA has been updated from that completed in 2012/13 to reflect recent published guidance, the current baseline situation, and design changes.

## The Project

- 1.4 The Project, described fully in **Chapter 4: Project Description** of the EIA Report, comprises the Offshore Wind Farm and associated Offshore Transmission Works (OTW), located within the outer Firth of Forth. The site boundary defines a Wind Farm Area of approximately 105 square kilometres (km<sup>2</sup>). At its closest point to shore, the Wind Farm Area is approximately 15.5 kilometres (km) east of Fife Ness. To the northwest, the Angus coast is 30 km from the site boundary, and to the southwest, the East Lothian coast is around 27 km from the site boundary.

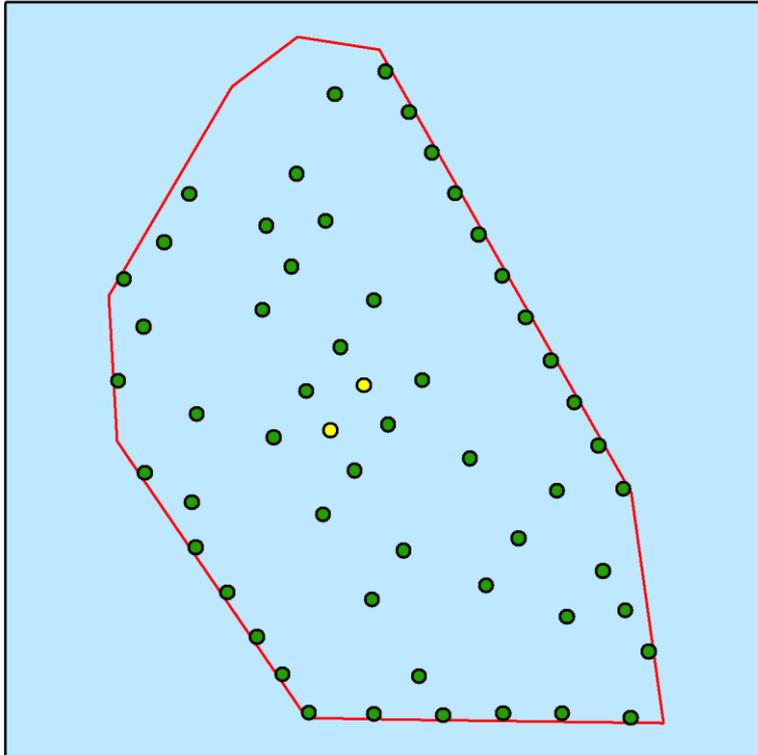
### Offshore Wind Farm

- 1.5 The Offshore Wind Farm has an indicative maximum capacity of 450 MW. The turbine specification and layout has not yet been determined, and a design envelope has been determined to identify the range of possible parameters. Based on the maximum parameters in the design envelope, the SLVIA is based on consideration of a layout comprising 54 turbines that are 208 metres (m) to tip height above lowest astronomical tide (LAT), with a rotor diameter of 167 m and a hub height of 124.5 m above LAT.<sup>1</sup> The turbines will be painted a pale grey colour (RAL 7035)
- 1.6 The Offshore Wind Farm can be *in situ* for up to 50 years.  
*Wind farm layout*
- 1.7 The indicative wind farm layout is illustrated in **Plate 1**. This layout has been developed for the purposes of impact assessment, and represents a realistic scenario that responds to known constraints.

---

<sup>1</sup> The maximum hub height is 126 m, which combined with the maximum rotor diameter of 167 m would produce a turbine slightly taller than the maximum 208 m. The largest rotor diameter was considered 'worst case', so a slightly lower hub height was adopted.

**Plate 1 Indicative layout of the Offshore Wind Farm, showing turbines in green and OSPs in yellow**



1.8 The final layout may differ significantly from this indicative assessment, and some comparative assessment of different layouts has therefore been undertaken, to provide information on the arrangement of turbines that may offer the most coherent appearance in sensitive views. This assessment is presented in **Annex 1**, and concludes with a series of design objectives that can be considered in the development of the Offshore Wind Farm. These are provided below for information purposes, and will only influence the final design where other constraints permit:

- Seek to minimise the overall horizontal spread of the Offshore Wind Farm in views from the shore, by forming a compact layout within the Wind Farm Area;
- Avoid outlying turbines that will appear detached from the rest of the Offshore Wind Farm;
- Seek to balance the logic of a grid layout with the more organic appearance of an irregular layout;
- Highly regular grids have a logical appearance but lead to dense stacking of turbines in particular views that are aligned with the layout – this can create an uneven appearance of clusters and gaps which changes significantly from different view angles;
- The distribution of sensitive visual receptors, to the northwest, west and southwest, means it is unlikely that a grid layout could be devised so as to avoid stacking effects at all of these locations;
- Introducing a degree of irregularity, as the EIA layout does, creates a more organic appearance that can help to avoid the clustering or stacking of turbines in the view;
- A more irregular layout also shows less change from different angles, so that it is more likely to present a coherent appearance from multiple viewpoints; and
- There is no clear pattern in the seascape that a regular grid could meaningfully respond to, which again may favour a more irregular design solution.

## Lighting

- 1.9 Navigation and aviation lighting will be required on the turbines and other structures, in line with statutory requirements. The details of lighting will be developed post-consent as part of a Lighting and Marking Plan.
- 1.10 Navigation lights would normally be mounted on the tower, at a maximum height of 30 m above highest astronomical tide (HAT), and would normally be steady yellow lights. Navigation lights on 'significant peripheral structures' (i.e. selected outermost turbines) would normally have a nominal range of five nautical miles (NM) or 9.26 km, with lights on 'intermediate peripheral structures' of nominal range two NM (3.7 km). These nominal ranges are considered to represent the minimum required visibility, but the upper limit of visibility depends on a range of factors, and cannot be precisely determined. It is therefore assumed, for the purposes of assessment, that lighting will be visible from any location where visibility of the lower part of the tower would be expected. Precautionary assumptions have been made that 5NM lights have an intensity of 500 candela, and 2NM lights have an intensity of 50 candela, and these specifications have been modelled.
- 1.11 Aviation lighting would normally be mounted on the nacelle of each outer turbine, and would normally comprise a red light of 2000 candela, flashing in a Morse code 'w' pattern (dot-dash-dash). This may be reduced in good visibility to 200 candela, though 2000 has been assumed to represent the 'worst case' for the visual impact assessment. Aviation lights on the remaining turbines would normally be of lower intensity and will only be switched on during search-and-rescue operations in the area. Heli-hoist lights are also required, though these low-intensity lights are only switched on during helicopter operations, which will not normally be scheduled in the hours of darkness.

## Offshore Transmission Works

- 1.12 Up to two Offshore Substation Platforms (OSPs) will be installed within the Wind Farm Area. Each substation will comprise a platform structure with maximum dimensions of 40 m by 40 m, and up to 39 m high, set on a platform approximately 21 m above LAT (total height 60 m above LAT). These have been located centrally within the indicative layout for the purposes of assessment, and are shown in the layout diagram in **Plate 1**. The final location of the OSP(s) would be determined during the final scheme design process and may differ somewhat from the positions indicated.
- 1.13 The Offshore Export Cable connects the Offshore Wind Farm with the proposed landfall at Thorntonloch Beach in East Lothian. No infrastructure visible above water will be installed in the cable corridor, though there will be a small permanent cable marker at the landfall.
- 1.14 Two construction methods are under consideration for construction of the landfall at Thorntonloch Beach, East Lothian. Open trenching will require a construction width of 30 m across the beach, for approximately 3 months. Horizontal directional drilling (HDD) will require a sheet-piled dry area of up to 400 m<sup>2</sup> to be established, below low water, for approximately 4 months.

## Maintenance activities

- 1.15 Maintenance activities will require regular boat movements to and from the Offshore Wind Farm, as well as helicopter operations. The location of the harbour from which these boats will operate is currently under assessment.

## Tidal Range and Turbine Height

- 1.16 The height of any structure above sea level will vary according to the state of the tide, with the turbines potentially appearing taller at low tide and smaller at high tide, depending upon how much of the foundation is exposed.

- 1.17 Heights for wind turbines and other infrastructure are given in relation to the lowest astronomical tide (LAT). This is the lowest water level that can be expected to occur under normal conditions, and is equivalent to Chart Datum (CD).
- 1.18 At Leith, the closest major port, Chart Datum (and therefore LAT) is 2.9 m below Ordnance Datum (OD, Newlyn).<sup>2</sup> The Zone of Theoretical Visibility (ZTV, see Section 2.8) and wirelines are based on Land-Form Profile data from the Ordnance Survey, referenced to Ordnance Datum. Therefore, in the visualisations, all turbines appear 2.9 m higher than they would do in reality. The tip of a turbine 208 m above LAT would be 205.1 m above OD.
- 1.19 As such, the modelling process slightly overestimates the extent of visibility of the turbines, ensuring that a maximum effect scenario is assessed. However, over the distances at which the turbines will be viewed, this overestimation is unlikely to be discernible, and would not affect the significance of any assessed impacts.
- 1.20 Other heights may be specified above highest astronomical tide (HAT), such as the height of navigation lights. The difference between HAT and LAT in the Wind Farm Area is 5.64 m.

## Consultation

- 1.21 A Scoping Report was published in May 2017, and a Scoping Opinion was issued by MS-LOT on 8 September 2017. Follow up consultation was carried out in October 2017. Details of consultation relevant to SLVIA are included in **Table 1.1**.

**Table 1.1 Consultation**

Consultee	Comment	Response
Scoping Opinion		
Scottish Ministers responses to scoping questions	Agree that 2012 baseline coastal character assessment can be used.	See Section 3.2 and <b>Annex 2</b> .
	Baseline information as described by Angus and East Lothian Councils should be used.	Landscape baseline information is discussed below and in Section 3.5.
	The assessment should be based on the maximum turbine height.	The SLVIA is based on the maximum turbine height of 208 m above LAT.
	No potential effects should be scoped out of the SLVIA.	Effects on onshore landscape character and Gardens And Designed Landscapes have been considered, see Section 3.5 and Section 3.26.
	Provided a list of projects to be considered in the cumulative SLVIA.	These are included in the assessment, see Section 7.4.
	Advised NNGOWL to present approach to wind farm design, and provide comparison with the Originally Consented Project.	This material is presented in <b>Annex 1</b> .

<sup>2</sup> "Chart Datum and Ordnance Datum" National Oceanography Centre [<http://www.ntsif.org/tides/datum>] Accessed 1 December 2017.

Consultee	Comment	Response
	Accepted re-use of photography taken for the Original ES, but note photography should be retaken where stakeholders recommend.	This has been done, see detail comments below.
	Effects of lighting should be considered, and advice of stakeholders should be considered in relation to location of night time visualisations.	This has been done, see detailed comments below.
	NNGOWL should consider the detailed advice provided by stakeholders in relation to viewpoint locations.	This has been done, see detail comments below.
Scottish Natural Heritage	Concerns that increased height may increase visual complexity, drawing attention to wind farm design.	<b>Annex 1</b> provides further information in relation to wind farm design.
	No potential effects should be scoped out of the SLVIA.	Accepted, see above.
	A study area of 50 km radius from the Wind Farm Area should be used.	See Section 2.6.
	Changes in visibility from use of larger turbines should be examined using ZTVs.	Changes in visibility compared to the Consented Project are considered in <b>Annex 1</b>
	SNH defer to local authorities on viewpoint selection.	See local authority comments below.
	Accepted re-use of photography taken for the Original ES, but note that new photography may be required where baseline changes have occurred, and request new photo from at least one Angus coast viewpoint taken in late afternoon.	New photography has been taken where required.  New photography taken from Carnoustie in late afternoon. See Figure 14.22 (Volume 3).
	Larger turbines could alter perspective, appearing closer than the consented turbines – this should be explored using wirelines.	Changes in appearance compared to the Consented Project are considered in <b>Annex 1</b> .
	Turbine circumference and blade width should be accurately modelled into photomontages.	Turbine circumference and blade width has been modelled in proportion to the dimensions of the turbine.

Consultee	Comment	Response
	The assessment should cover the landscape and visual impacts of turbine lighting.	This is addressed in the assessment of operational impacts.
	Recommend a 'rigorous design process' in relation to other offshore developments.	A collaborative approach to design has not been undertaken due to the differing implementation timescales between the three offshore wind farms. However, current design envelopes were exchanged to inform the cumulative assessment. See Section 7.5
	Methil (Forthwind) and Kincardine offshore wind farms should be considered in the cumulative assessment.	These are listed in Table 7.1.
Angus Council	Capacity studies for Arbroath, Carnoustie and Monifieth could be relevant to the SLVIA baseline.	These studies were reviewed, but primarily focus on capacity for settlement expansion, so are not referenced specifically.
	Highlighted the visual contrast likely to arise from the difference in turbine size between proposed offshore wind farms.	These differences are considered throughout the cumulative impact assessment in Section 7.
	Photography may need to be retaken where turbines now appear in the view.	All locations have been checked and photography retaken where this may alter the assessment.
	Suggested locations away from ambient light for night-time visualisations, including the Carmyllie area.	Wireframes provided to Angus Council as part of follow up consultation, see below.
	Requested detailed ZTVs to inform viewpoint selection.	ZTVs provided for follow up consultation, see below.
Dundee Council	No comment.	N/A
Fife Council	No comments on SLVIA.	N/A
East Lothian Council	Existing Areas of Great Landscape Value and proposed Special Landscape Areas should be included in the baseline.	These local landscape designations have been considered, see Section 3.21.
	Greater turbine height could lead to more widespread and more significant effects, and lesser	These factors are considered throughout the SLVIA, and in <b>Annex 1.</b>

Consultee	Comment	Response
	density could lead to more noticeable movement of blades.	
	'Changes to the character of landscape character types' can be scoped out for non-coastal landscapes, but not for coastal landscapes.	All effects have been scoped in on the advice of Scottish Ministers (see above)  Coastal landscapes are covered under the coastal character areas (see <b>Annex 2</b> ).
	Effects on Gardens And Designed Landscapes should be scoped in.	Effects on Gardens And Designed Landscapes have been considered, see Section 3.26.
	A number of onshore and offshore projects are listed for consideration in the cumulative assessment.	These have been included in the assessment. See Section 7.4.
	A number of detailed comments were made in relation to viewpoints and photography, including requests for new and amended viewpoints.	These suggestions were discussed further with consultees. A number of wirelines and ZTVs were provided for follow up consultation, as detailed below.
	Raised potential for significant lighting impacts on the Tantallon to Tynninghame coast.  Recommend use of Dunbar and North Berwick viewpoints for night-time visualisations.	Night time effects are discussed throughout Section 6, with reference to visualisations from these locations.  See Table 3.6 for list of night viewpoint locations.
Scottish Borders Council	Suggested additional viewpoints at Ewieside Hill and Fast Castle.	Wirelines were provided for follow up consultation, see below.
Follow up consultation		
Scottish Natural Heritage (20 October 2017)	Support the stated approach to wind farm design, request comparison of the proposed layout with a 'most likely' consented scheme.	This comparison is presented in Annex 1.
	Agree with the approach to night time visualisations, and suggest Tentsmuir and Arbroath as night viewpoint locations.	Arbroath to be used along with others in Angus, on advice of Angus Council. St Andrews used in place of Tentsmuir, as elevated location more likely to enable views of navigation lighting.
	Assessment should consider impacts through twilight and night time, as well as in different daylight conditions.	Different light conditions considered for each viewpoint assessment (see <b>Annex 3</b> ).

Consultee	Comment	Response
Scottish Natural Heritage (email 18 December 2017)	Confirmed that there was no requirement to provide cumulative photomontages, and that cumulative representation can be by wireline only.	Cumulative wirelines have been produced for all viewpoints. In addition, supplementary cumulative photomontages have been produced for a selection of key viewpoints. See Section 3.54.
Angus Council (email 9 November 2017)	Stated agreement with approach to ZTV, viewpoints and photography.	N/A
	Requested an additional night time visualisation from a location with minimal light pollution.	Follow up conversation agreed night time viewpoints at East Haven and Carmyllie. See Table 3.6 for list of all night viewpoint locations.
	Suggested all turbines over 50 m should be included in the cumulative assessment.	These turbines are not listed or included in modelling, but their presence is recognised in the assessment.
	Cumulative assessment to address design envelopes for other offshore schemes.	'Worst case' for cumulative assessment discussed at Section 7.6.
East Lothian Council (email 9 November 2017)	Requested additional viewpoint locations on A199, A198, and Hopetoun Monument.	These have been included in the viewpoint assessment. See Table 3.5 for list of representative viewpoints.
	Further locations to be included as wirelines to inform the assessment.	Wirelines for the requested locations are provided in <b>Figures 14.52 to 14.55</b> (Volume 3), see Table 3.7.
	Agree with Seabird Centre and Dunbar for night time visualisations. Request an additional night montage from the A199 viewpoint.	This has been included. See Table 3.6 for list of night viewpoint locations.
	Confirmed all relevant wind farms included in proposed cumulative assessment scope.	Scope of cumulative assessment set out in Section 7.4.
Scottish Borders Council (email 12 October 2017)	Confirmed illustration of views from Ewieside Hill and Fast Castle with wirelines only.	Wirelines for the requested locations are provided in <b>Figures 14.56 and 14.57</b> (Volume 3). See Table 3.7.

## Structure of the Report

1.22 This SLVIA technical appendix is structured as follows:

- **Section 2** sets out the methodology;
- **Section 3** reviews baseline data, including planning policy, landscape and seascape designations, seascape resources, landscape resources, and visual environment;
- **Section 4** discusses potential impacts and mitigation measures;
- **Section 5** presents the assessment of impacts on coastal and landscape character;
- **Section 6** presents the assessment of impacts on visual amenity;
- **Section 7** presents the assessment of cumulative impacts on coastal character and visual resources;
- **Section 8** summarises the findings of the SLVIA; and
- **Section 9** lists references used.

1.23 The SLVIA technical appendix is supported by the following annexes:

- **Annex 1** presents analysis of wind farm design, including layout and height considerations, and potential cumulative effects;
- **Annex 2** is the seascape character assessment that was prepared in 2012 to inform assessment of all Forth and Tay offshore wind farms;
- **Annex 3** presents the detailed assessment of impacts on representative viewpoints; and
- **Annex 4** includes an additional evaluation of implications for AGLVs in East Lothian.

## Glossary

1.24 Abbreviations used in this technical Annex:

AGLV	Area of Great Landscape Value
AOD	Above Ordnance Datum
CCA	Coastal Character Assessment
CD	Chart Datum
CLVIA	Cumulative Landscape and Visual Impact Assessment
CZTV	Cumulative Zone of Theoretical Visibility
DTM	Digital Terrain Model
ECML	East Coast Main Line
EIA	Environmental Impact Assessment
EIA Report	Environmental Impact Assessment Report
ELC	East Lothian Council
ES	Environmental Statement
FTOWDG	Forth and Tay Offshore Windfarm Developer Group
GDL	Site listed on the Inventory of Gardens and Designed Landscapes in Scotland
HAT	Highest Astronomical Tide
HDD	Horizontal Directional Drilling
LAT	Lowest Astronomical Tide
LCA	Landscape Character Assessment
LCT	Landscape Character Type

LLA	Local Landscape Area
LVIA	Landscape and Visual Impact Assessment
MS-LOT	Marine Scotland – Licensing Operation Team
NCN	National Cycle Network
NnGOWL	Neart na Gaoithe Offshore Wind Farm Limited
O&M	Operations and Maintenance
OD	Ordnance Datum (Newlyn)
OS	Ordnance Survey
SBC	Scottish Borders Council
SLA	Special Landscape Area
SLVIA	Seascape, Landscape and Visual Impact Assessment
SNH	Scottish Natural Heritage
VP	Viewpoint
ZTV	Zone of Theoretical Visibility

## 2 Approach and Methodology

### Introduction

- 2.1 Landscape (including 'seascape') and visual assessments are separate, although linked, processes. SLVIA therefore considers the potential effects of a proposed development on:
- Seascape/landscape as a resource in its own right (caused by changes to its constituent elements, its specific aesthetic or perceptual qualities and/or its character); and
  - Views and visual amenity as experienced by people (caused by changes in the appearance of the landscape).
- 2.2 Recent publications from SNH have focused on 'coastal character' as opposed to 'seascape' (SNH, 2017c). Coastal character is made up of the coastal edge, its immediate hinterland and the sea, in contrast to seascape, which may not include the coast. Accordingly, the focus of the assessment is on coastal landscapes, and the term 'coastal character' is used throughout this SLVIA in place of 'seascape'.
- 2.3 The SLVIA deals with coastal/landscape character and visual effects separately, followed by an assessment of cumulative effects where relevant.

### Guidance

- 2.4 This methodology has been developed by Chartered Landscape Architects (Chartered Members of the Landscape Institute) at LUC, who have extensive experience in the assessment of landscape and visual effects.
- 2.5 The methodology has been developed primarily in accordance with the principles contained within the Guidelines for Landscape and Visual Impact Assessment, 3<sup>rd</sup> Edition ('GLVIA3'; LI & IEMA, 2013), with reference to other published guidance as appropriate, as listed below:
- Scottish Natural Heritage (2017a) Siting and designing wind farms in the landscape. Version 3;
  - Scottish Natural Heritage (2017b) Visual Representation of Wind Farms: Good Practice Guidance. Version 2.2;
  - Scottish Natural Heritage (2012a) Offshore Renewables: Guidance on assessing the impact on coastal landscape and seascape;
  - Scottish Natural Heritage (2012b) Assessing the cumulative impact of onshore wind energy developments;
  - Landscape Institute (2011) Photography and photomontage in landscape and visual impact assessment. Advice Note 01/2011; and
  - Enviro (2005) Guidance on the Assessment of the Impact of Offshore Wind Farms: Seascape and Visual Impact Report. Prepared for the Department of Trade and Industry (DTI).

### Study Area

- 2.6 SNH guidance recommends a ZTV radius of 45 km for turbines of over 150 m, but notes that "*Greater distances may need to be considered for the larger turbines used offshore.*" (SNH, 2017b, page 12). The study area for the 2012 SLVIA was defined as a radius of 50 km from the

development site boundary, in relation to a maximum tip height of 197 m. At 208 m the maximum tip height for the Project is only 11 m greater, and a study area of 50 km from the Wind Farm Area has therefore been retained. This was accepted in the Scoping Opinion (see **Table 1.1**). The 50 km study area is illustrated in **Figure 14.1** (Volume 3).

- 2.7 The 50 km study area covers over 9,800 km<sup>2</sup>, of which approximately 75% is sea. The landward study area includes parts of the following local authorities (listed north-south):
- Aberdeenshire;
  - Angus;
  - Dundee;
  - Perth and Kinross;
  - Fife;
  - East Lothian;
  - Scottish Borders; and
  - Northumberland.
- 2.8 The study area is further refined through mapping of the Zone of Theoretical Visibility (ZTV) of the Offshore Wind Farm. The ZTV indicates areas from where a development is theoretically visible, but cannot show what it would look like, nor indicate the nature or magnitude of any resulting landscape or visual impacts. The approach to calculating the ZTV is described in Section 2.98.
- 2.9 For the purposes of identifying other wind farms for inclusion in the cumulative assessment, a search area of 65 km radius has been adopted. The 65 km search area additionally includes parts of Edinburgh and Midlothian, and is illustrated in **Figure 14.8** (Volume 3). This outer extent was agreed with consultees through the post-Scoping consultation recorded in **Table 1.1**.
- 2.10 The purpose of this additional area is to identify wind farms outside the study area that could, when combined with the Offshore Wind Farm, give rise to effects on receptors inside the study area. The additional area between 50 and 65 km does not form part of the study area and is not included in any baseline analysis.

## Scope of the Assessment

- 2.11 This assessment considers the potential impacts associated with the construction, operation and decommissioning of the Project and the effects on landscape character and visual amenity. The impact assessment process and methodology follows the principles and general approach outlined in Chapter 6: EIA Methodology, modified as appropriate in line with accepted good practice for SLVIA, as set out in GLVIA3.
- 2.12 Since the Offshore Wind Farm will not have any physical effects on landscape, the SLVIA is primarily informed by a viewpoint assessment, which considers the effect of the Project on a number of representative views. Based on this assessment, the SLVIA considers:
- Effects upon coastal character, including effects on the aesthetic value of the coastal and marine landscape caused by changes in elements and qualities as a result of the Offshore Wind Farm;
  - Effects upon landscape character away from the coast, including effects on the aesthetic value of the landscape caused by changes in elements and qualities as a result of the Offshore Wind Farm;
  - Implications for the special qualities of designated landscapes, caused by changes in the character of coastal landscapes as a result of the Offshore Wind Farm; and

- Effects on the visual amenity experienced by different groups of people (e.g., residents, visitors, tourists) during day time and night time, caused by changes in the outlook from particular locations as a result of the Offshore Wind Farm.
- 2.13 All potentially significant landscape and visual effects (including cumulative effects) are examined, including those relating to construction, operation and, where relevant, decommissioning.
- 2.14 Where it is judged that significant effects are unlikely to occur, the assessment of potential effects on these receptors has been 'scoped out'. The Scoping Report and Scoping Opinion issued by MS-LOT have informed the scope of this SLVIA (refer to **Table 1.1**).
- 2.15 As well as effects formally scoped out, the following effects have not been assessed within this SLVIA:
- Effects on receptors outside the ZTV of the Offshore Wind Farm, where it will not be seen and where significant effects on views or on the perception of character will not occur; and
  - Effects on receptors further than 50 km from the Offshore Wind Farm, where perception of the turbines will be minimal and significant effects will not occur – the use of a 50 km study area has been agreed through scoping and no receptors beyond this distance have been identified by consultees for inclusion in the assessment.

## Overview of the SLVIA Methodology

- 2.16 The key steps in the methodology for SLVIA are as follows:
- the marine, coastal and landscape character of the study area is analysed, and receptors are identified, informed by desk and field based survey;
  - the area over which the development will potentially be visible is established through the creation of a ZTV map;
  - the visual baseline is recorded in terms of the different groups of receptors (people) who may experience views of the development (informed by the ZTV) and the nature of their existing views and visual amenity;
  - assessment viewpoints are selected (including representative viewpoints, specific viewpoints and illustrative viewpoints) to represent a range of different receptors and views, in consultation with statutory consultees;
  - likely significant effects on landscape and coastal character as a resource and on visual receptors are identified; and
  - the level (and significance) of effects is judged with reference to the **sensitivity of the receptor**, which considers both susceptibility and value, and the **magnitude of impact**, which considers a combination of judgements including scale, geographical extent, duration and reversibility.
- 2.17 As recommended by GLVIA3, effects on landscape and coastal character and on visual amenity are assessed separately, though given the nature of the Project both assessments are informed by the viewpoint assessment. The detailed methodology for each assessment process is set out below.

## Method for Assessing Effects on Landscape and Coastal Character

- 2.18 As outlined in GLVIA3, *"An assessment of landscape effects deals with the effects of change and development on landscape as a resource."* (GLVIA3, paragraph 5.1). The Offshore Wind Farm may affect the elements that make up the landscape, particularly coastal landscape, including aesthetic and perceptual aspects, and its distinctive character. The Offshore Wind Farm will not physically affect any part of the landscape.

- 2.19 An assessment of landscape effects requires consideration of the nature of landscape receptors and the nature of the effect on those receptors. 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 resource; and
  - the nature of the effect on each landscape receptor, commonly referred to as the magnitude of impact, should be assessed in terms of its scale, geographical extent, duration and reversibility.
- 2.20 These aspects are considered together to form a judgement regarding the overall level of effect, and its significance (GLVIA3, Figure 5.1 Page 71). The following sections set out the methodology used to evaluate sensitivity and magnitude.

### Sensitivity of Coastal Character

- 2.21 A baseline Seascape Character Assessment was undertaken in 2011 for the purposes of the Original Project SLVIA, and is included in **Annex 2**. This characterised the coastline of the study area and assigned levels of sensitivity to each identified area. The assessment of sensitivity was specific to offshore wind energy, and was undertaken with reference to the criteria reproduced in **Table 2.1**.

**Table 2.1 Sensitivity of Regional Seascape Units (see Annex 2)**

Sensitivity of the receptor	Description
High	A seascape of particularly distinctive character, which may be nationally designated for its scenic quality and where its key characteristics have limited resilience to change of the type proposed
Medium	A seascape of notable character and where its key characteristics have some/moderate resilience to change of the type proposed
Low	A seascape which is of lower scenic quality and where its key characteristics are such that they are resilient to change of the type proposed

- 2.22 The Seascape Character Assessment was undertaken prior to GLVIA3, and so does not make specific reference to the susceptibility or value of the receptor. However, the above definitions clearly relate to both the susceptibility of the receptor, in terms of the resilience of key characteristics, as well as the value of the resource, in terms of designation and scenic quality.
- 2.23 Following a review of the Seascape Character Assessment, no substantive changes in baseline character were noted that would affect its conclusions. The assessments of sensitivity made in the Seascape Character Assessment therefore form the basis for making judgements of effect. The use of the 2011 Seascape Character Assessment to inform this SLVIA was agreed through Scoping, as noted in **Table 1.1**.

### Sensitivity of Landscape Character

- 2.24 For onshore landscape character, no pre-determined assessment of sensitivity to offshore development is available, and sensitivity has been determined based on weighing up professional judgements regarding the susceptibility of the receptor and the value placed on the resource, as recommended by GLVIA3. Further information on each criteria is provided below.

#### *Susceptibility of Landscape Receptors*

- 2.25 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).

2.26 A series of criteria are used to evaluate the susceptibility of landscape receptors to wind energy development as set out in the table below. These criteria are drawn from a range of published sources relating to wind farm development, including Siting and Designing Windfarms in the Landscape (SNH, 2017) and GLVIA3.

**Table 2.2 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
Landform	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

2.27 Evaluation of these criteria is based on review of published landscape character assessments and available landscape capacity or sensitivity studies, in addition to fieldwork undertaken across the study area.

*Value of Landscape Receptors*

2.28 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."*<sup>3</sup> The value of a landscape receptor is recognised as being a key contributing factor to the sensitivity of landscape receptors.

2.29 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

<sup>3</sup> Council of Europe, (2000). The European Landscape Convention – Council of Europe Treaty Series No. 176.

- 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.

2.30 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.

#### *Judging sensitivity*

2.31 **Table 2.3** below defines the levels of sensitivity that are used for this SLVIA.

**Table 2.3 Sensitivity of landscape receptors**

Receptor sensitivity	Description
Very high	Key characteristics and attributes are highly vulnerable to the type of change proposed. May be within a nationally designated landscape that has rarity and strong scenic qualities.
High	Key characteristics and attributes are vulnerable to the type of change proposed. May be within a nationally or locally designated landscape that is uncommon or particularly scenic.
Medium	Key characteristics and attributes are reasonably resilient to the type of change proposed. May be within a locally designated landscape that has some scenic quality.
Low	Key characteristics and attributes are resilient to the type of change proposed. Unlikely to be designated but may have other indicators of local value.
Very low	Key characteristics and attributes are unlikely to be affected by the type of change proposed. Little or no indication of value.

#### **Magnitude of Impact on Coastal/Landscape Character**

2.32 The assessment of magnitude of impact is based on combining professional judgements on scale, geographical extent, duration and reversibility. Further information on each criteria is provided below.

#### *Scale*

2.33 This reflects the degree to which the character of the landscape would change as a result of the addition of the Offshore Wind Farm, and whether these changes would affect key characteristics. The scale of the impact is described as being **large**, **medium**, **small**, or **barely perceptible**.

#### *Geographical Extent*

2.34 The geographical extent over which the impact would arise is described as being **large** (across an entire receptor), **medium** (experienced across many locations) or **small** (experienced only at a single location or small group of locations).

#### *Duration*

2.35 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 this assessment, duration is determined in relation to the phases of the Project, as follows:

- **Short-term** changes 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** changes are those that occur during the construction phase and part of the operational phase, generally lasting 5-10 years; and
- **Long-term** changes are those that occur throughout the operational phase, e.g. presence of turbines, or are permanent changes that continue after the operational phase, generally lasting over 10 years.

#### *Reversibility*

- 2.36 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). Operational effects of the Project on character are generally considered reversible, as all turbines and infrastructure will be removed during decommissioning.

#### *Judging magnitude*

- 2.37 **Table 2.4** below defines the levels of magnitude that are used for this SLVIA.

**Table 2.4 Magnitude of Impact on Landscape Receptors**

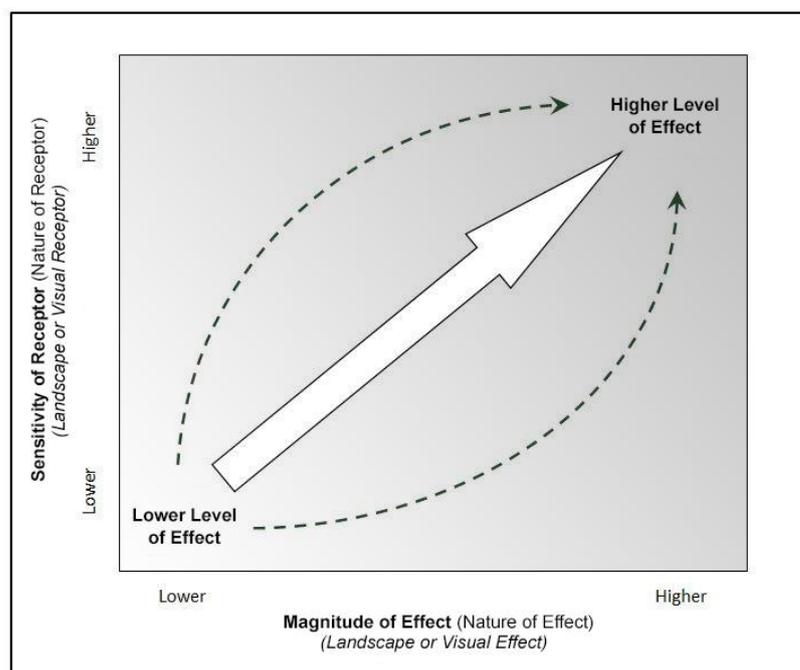
<b>Magnitude</b>	<b>Definition</b>
Very high	Extensive changes in key characteristics, including potential creation of new characteristics, across a regional-scale area. And/or a change that is long-term and likely to be permanent and irreversible.
High	Changes in key characteristics, including potential creation of new characteristics, across a district-scale area. And/or a change that is long-term but may be at least partly reversible.
Medium	Some changes in key characteristics, including potential creation of new characteristics, across a local-scale area. And/or a change that is medium-term or short-term, and likely to be at least partly reversible.
Low	Limited changes in key characteristics, including potential creation of new characteristics, across a localised area. And/or a change that is medium-term or short-term, and likely to be fully reversible.
Very low	Little or no change in key characteristics, across a very localised area. And/or a change that is short-term and likely to be fully reversible.

#### **Judging Levels of Effect and Significance**

- 2.38 The final step in the assessment requires the judgements of sensitivity and magnitude of impact to be combined to make an informed professional assessment on the significance of each landscape effect (GLVIA3, Figure 5.1, Page 71). Levels of effect are identified as **negligible**, **minor**, **moderate** or **major** where moderate or greater effects are considered **significant** in the context of the EIA Regulations.
- 2.39 This determination 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. Although a numerical or formal weighting system is not applied, consideration of the relative importance of each aspect feeds into the overall decision. Judgements are made on a case by case basis, guided by the principles set out in **Plate 2** below.
- 2.40 A rigid matrix-type approach, which does not take on board professional judgement and experience, and where the level of effect is defined simply based on the level of sensitivity

(nature of receptor) combined with the magnitude of impact (nature of the effect), is not used. As such, the conclusion on the level of effect is not always the same.

## Plate 2 Judging levels of effect



## Method for Assessing Visual Effects

- 2.41 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, paragraph 6.1). 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).
- 2.42 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, paragraph 6.31 – 6.32).
- 2.43 GLVIA3 states that the sensitivity of visual receptors (nature of receptor) 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 impact (nature of the effect) should be assessed in terms of the scale, geographical extent, duration and reversibility of the impact.
- 2.44 These aspects are considered together to form a judgement regarding the overall significance of visual effect (GLVIA3, Figure 6.1). The following sections set out the methodology used to evaluate sensitivity and magnitude.

### Sensitivity of Visual Receptors

- 2.45 The assessment of sensitivity of a visual receptor is based on weighing up professional judgements regarding the susceptibility of the receptor and the value placed on the resource. Further information on each criteria is provided below.

### *Susceptibility of Visual Receptors*

- 2.46 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, paragraph 6.32). This is recorded as **high**, **medium** or **low** informed by **Table 2.5**.

**Table 2.5 Susceptibility of Visual Receptors**

Susceptibility	Definition
High	Viewers whose attention or interest is focussed on their surroundings, including: <ul style="list-style-type: none"> <li>• communities where views contribute to the landscape setting enjoyed by residents;</li> <li>• people engaged in outdoor recreation (including users of cycle routes, footpaths and public rights of way) whose interest is likely to be focussed on the landscape; and</li> <li>• visitors to heritage assets or other attractions where views of surroundings are an important contributor to experience.</li> </ul>
Medium	People travelling in vehicles on scenic routes and tourist routes, where attention is focussed on the surrounding landscape, but is transitory; and/or People at their place of work whose attention is focussed on the surroundings and where setting is important to the quality of working life.
Low	People travelling more rapidly on major road, rail or transport routes (not recognised as scenic routes); and/or People engaged in outdoor sport or recreation which does not involve or depend upon appreciation of views of the landscape; and/or 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 or Visual Amenity*

- 2.47 GLVIA3 also requires evaluation of the value attached to the view or visual amenity and relates this to planning designations and cultural associations (GLVIA3, paragraph. 6.37).
- 2.48 Recognition of the value of a view is determined with reference to:
- planning designations specific to views;
  - whether it is recorded as important in relation to designated landscapes (such as views specifically mentioned in the special qualities of a National Scenic Area);
  - whether it is recorded as important in relation to heritage assets (such as registered Gardens and Designed Landscapes or Conservation Areas); and
  - the value attached to views by visitors, for example through appearances in guide books or on tourist maps, provision of facilities for their enjoyment and references to them in literature and art.
- 2.49 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.
- 2.50 The value of views or visual amenity is recorded as **high**, **medium** or **local**, reflecting the fact that all views are likely to be valued by the people who experience them every day.

### *Judging sensitivity*

- 2.51 Judgements on the sensitivity of each receptor to change are guided by **Table 2.6**.

**Table 2.6 Sensitivity of Visual Receptors**

<b>Receptor sensitivity</b>	<b>Description</b>
Very high	Viewers with proprietary interest and prolonged viewing opportunities, or those who are present mainly to appreciate the view, and where there are open marine views. Views may be recognised as important to a national designation or widely promoted for their scenic value.  For example: residents in large coastal settlements; people at nationally valued viewpoints.
High	Viewers with proprietary interest, or people whose attention is likely to be focused on appreciation of their surroundings, including open marine views. Views may be recognised in relation to local designations, or marked as viewpoints on maps.  For example: residents in smaller coastal settlements/houses; users of coastal footpaths/cycleways; or visitors to locally promoted viewpoints.
Medium	Viewers with a passing interest in their environment such as those travelling in vehicles on scenic routes and tourist routes, where attention is focussed on the surrounding landscape, but is transitory. Views that may be locally recognised and valued for their scenic quality.  For example: people on non-coastal cycleways; a local viewpoint indicated by a bench at the edge of a village.
Low	People travelling more rapidly on major road, rail or transport routes that are not recognised as scenic routes, and/or those engaged in outdoor sport or recreation that does not involve or depend upon appreciation of views of the landscape. Views are unlikely to be recognised for their scenic quality.  For example: people passing on the A1 or main line railway.
Very low	People whose attention is not on their surroundings, who may be primarily indoors, and where setting is not important to their activity. No indications that value is placed on views.  For example: people at their place of work.

**Magnitude of Visual Impact**

2.52 The assessment of magnitude of impact is based on weighing up professional judgements on scale, geographical extent, duration and reversibility. Further information on each criteria is provided below.

*Scale*

2.53 The scale of a visual change depends on:

- the scale of the change in the view including the proportion of the view occupied by the proposed development and changes in its composition;
- the degree of contrast or integration of any new features with the existing 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.

- 2.54 All changes are assumed to be during winter, representing a 'maximum case effect' or 'worst 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.
- 2.55 In this assessment, size/scale of visual change is described as being **large, medium, small** or **barely perceptible**.

*Geographical Extent*

- 2.56 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 being **large, medium** or **small**.

*Duration*

- 2.57 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).

*Reversibility*

- 2.58 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 relevant phase of development (i.e. at the end of construction or at the end of the operational lifespan of the development). Operational visual effects of the Project are generally considered reversible, as the decommissioning phase will remove turbines and infrastructure from the view.

*Judging magnitude*

- 2.59 Judgements on the magnitude of visual impact are guided by **Table 2.7** below.

**Table 2.7 Magnitude of Impact on Visual Receptors**

Magnitude	Definition
Very high	Extensive visual change, likely to result from the Project being the main, focal feature in the view. Strong contrast with existing views and changes in scenic quality, experienced across a regional-scale area. And/or a change that is long-term and likely to be permanent and irreversible.
High	Extensive visual change, likely to result from the Project being a focal feature in the view. Contrast with existing views and changes in scenic quality, experienced across a district-scale area. And/or a change that is long-term but may be at least partly reversible.
Medium	Some visual change, likely to result from the Project being a feature in the view. More limited contrast with existing views and limited changes in scenic quality, experienced across a local-scale area. And/or a change that is medium-term or short-term, and likely to be at least partly reversible.
Low	Limited visual change, likely to result from the Project being visible in the view. Limited changes in scenic quality, experienced across a localised area. And/or a change that is medium-term or short-term, and likely to be fully reversible.
Very low	Little or no visual change, likely to result from occasional or glimpsed views of the Project. Little change in scenic quality across a very localised area. And/or a change that is short-term and likely to be fully reversible.

### Direction of Visual Effects

- 2.60 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.
- 2.61 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 worst 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

- 2.62 As for landscape effects, the final step in the assessment requires the judgements of sensitivity of visual receptor (nature of visual receptor) and magnitude of visual impact (nature of visual effect) to be combined to make an informed professional assessment on the significance of each visual effect.
- 2.63 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.
- 2.64 The sensitivity of visual receptors (nature of visual receptors) may involve a complex relationship between a visual receptors (people's) susceptibility to change and the value attached to a view. Therefore, the rationale for judgements of sensitivity (nature of receptor) is clearly set out for each receptor in relation to both its susceptibility (to the type of change proposed) and its value. Further information on each criteria is provided below.
- 2.65 A rigid matrix-type approach, where the level of visual effect is defined simply based on the level of sensitivity combined with the magnitude of impact is not used. As such, the conclusion on the level of effect is not always the same. Although a numerical or formal weighting system is not applied, consideration of the relative importance of each aspect is made to feed into the overall decision. 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.
- 2.66 This determination 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 **Plate 2** above.

### Cumulative Landscape & Visual Impact Assessment (CLVIA)

- 2.67 The aim of a Cumulative Landscape and Visual Impact Assessment (CLVIA) 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" (SNH, 2012, paragraph 55).
- 2.68 The cumulative assessment therefore focuses on the *additional* cumulative change which may result from the introduction of a proposed development. The cumulative assessment may also refer to *total* (also referred to as combined) cumulative effects, where these have the potential to be significant. A cumulative assessment may also consider the potential interactions between different types of development (e.g. transmission infrastructure, other energy generation stations or other built development) if these are likely to result in similar landscape and visual impacts.
- 2.69 As with an LVIA, a CLVIA deals with cumulative landscape and visual effects separately.

### Differences between LVIA and CLVIA

- 2.70 Although both LVIA and CLVIA 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.
- 2.71 For the LVIA, the baseline includes existing wind farm developments which are present in the landscape at the time of undertaking the assessment, which may be either operational or under construction. For the CLVIA the baseline is partially speculative and includes (in addition to existing wind farms):
- wind farms that have been granted planning consent but are not yet constructed (consented); and
  - submitted valid wind farm applications that are currently awaiting determination by the relevant consenting authority, including those at appeal (proposed).

### Types of Cumulative Effects

- 2.72 Assessing the Cumulative Impact of Onshore Wind Energy Developments states that, "cumulative landscape effects can impact on either the physical fabric or character of the landscape, or any special values attached to it" (SNH, 2012, paragraph 48).
- 2.73 Three types of cumulative effects on visual amenity are considered in the assessment: combined, successive and sequential:
- **Combined effects** occur where a static viewer is able to view two or more wind farms from a viewpoint within the viewers' same arc of vision (assumed to be about 90 degrees for the purpose of the assessment);
  - **Successive effects** occur where a static viewer is able to view two or more wind farms from a viewpoint, but needs to turn to see them; and
  - **Sequential effects** occur when a viewer is moving through the landscape from one area to another, for instance when a person is travelling along a road or footpath, and is able to see two or more wind farms at the same, or at different times as they pass along the route. Frequently sequential effects occur where wind farms appear regularly, with short time lapses between points of visibility. Occasionally sequential effects occur where long periods of time lapse between views of wind farms, depending on speed of travel and distance between viewpoints.

### Assessment Methodology for CLVIA

- 2.74 The CLVIA considers the potential effects of the addition of a proposed development, against a baseline landscape that includes 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 CLVIA.
- 2.75 The methodology for the CLVIA follows that of the LVIA, which considers the introduction of a proposed development to a baseline which includes existing (operational and under construction) wind farms. The scale and size of cumulative change focuses on:
- the arrangement of wind farms in the landscape or view, e.g. developments seen in one direction or part of the view (combined 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;
  - 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; and
  - the distances between wind farms, and their distances from the viewer.

## Significance of Cumulative Effects

- 2.76 As for a LVIA, judging the significance of cumulative landscape and visual effects requires consideration of the sensitivity (nature of the receptor) and the magnitude of impact on those receptors (nature of the effect). 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.

## Assessing Cumulative Landscape Effects

### Sensitivity (Nature of the Landscape Receptor)

- 2.77 An assessment of cumulative landscape effects requires consideration of the sensitivity of the landscape receptors. This is based on consideration of susceptibility and value, and is as recorded in the LVIA.

### Magnitude of Cumulative Landscape Impacts (Nature of Cumulative Landscape Effects)

- 2.78 Similarly to the methodology applied for an LVIA, the magnitude of cumulative landscape impact (nature of cumulative landscape effect) is based on combining professional judgements on scale, geographical extent, duration and reversibility. Judgements on the magnitude of cumulative landscape impact are recorded in line with the definitions presented in **Table 2.4**.

#### Scale

- 2.79 The scale of cumulative landscape change is the additional influence the proposed development has on the characteristics and character of the area assuming the other wind farm developments considered in the CLVIA baseline 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 wind farm developments (including distance between wind farms, composition, size and scale).

#### Geographical Extent

- 2.80 As for the LVIA, the geographical extent over which the cumulative landscape change will be experienced is described as being **large** (scale of the landscape character type, or widespread, affecting several landscape types or character areas), **medium** (immediate surroundings) or **small** (site level).

#### Duration & Reversibility

- 2.81 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.

### Levels of Cumulative Landscape Effect and Significance

- 2.82 The final step in the assessment of cumulative landscape effects requires the judgements of sensitivity (nature of the receptor) and magnitude of cumulative landscape impact (nature of the effect) to be combined to make an informed professional assessment on the significance of each cumulative landscape effect.
- 2.83 As for the LVIA, 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.
- 2.84 Greater levels of effect 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 farm developments means that the total effect is greater than the sum of its parts.
- 2.85 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” (GLVIA 3, paragraph 7.28).
- 2.86 This 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 (Nature of the Visual Receptor)

- 2.87 The assessment of the significance of cumulative visual effects requires consideration of the sensitivity of the visual receptors. This requires consideration of susceptibility and value, and is as recorded in the LVIA.

### Magnitude of Cumulative Visual Impact (Nature of Cumulative Visual Effects)

- 2.88 As for cumulative landscape effects and the methodology for the LVIA, the magnitude of cumulative visual impact (nature of cumulative visual effect) is based on combining professional judgements on scale; geographical extent; duration and reversibility. Judgements on the magnitude of cumulative visual impact are guided by **Table 2.7**.

#### Scale

- 2.89 The scale of cumulative change to views depends on the additional influence the proposed development has on views assuming the other wind farm developments are already present in the landscape. 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 farm developments in terms of design, size and layout;
  - the apparent relationship of cumulative wind farm developments to landscape character types and or landscape character areas; and/or
  - in the case of impacts on views from routes, the relative duration of views of wind farm developments from the route.
- 2.90 There has to be clear visibility of more than one wind farm development, of which one must be the Project, for there to be a cumulative effect (given this is an assessment of the effects of the Project). Where the Project is clearly visible and other wind farm developments are not, the effect will be the same as recorded in the LVIA (i.e. the effect is not a cumulative effect).

#### Geographical Extent

- 2.91 As for the LVIA, the geographical extent of cumulative visual changes 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 being **large, medium or small**.

### *Duration & Reversibility*

- 2.92 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**

- 2.93 The final step in the assessment of cumulative visual effects requires the judgements of sensitivity (nature of the receptor) and magnitude of cumulative visual effect (nature of the effect) to be combined to make an informed professional assessment on the significance of each cumulative visual effect.
- 2.94 As for the LVIA 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.
- 2.95 Greater levels of effect 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 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).
- 2.96 This 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. Again, as for the assessment of landscape and visual effects, judgements are made on a case by case basis, guided by the same principles as set out in **Plate 2** above.

## Visualisations

### **Zone of Theoretical Visibility**

- 2.97 The ZTV is the area within which the Offshore Wind Farm is theoretically visible, and therefore where it may have an effect upon visual amenity and/or landscape character. The ZTV assessment was performed on 'bare ground' digital terrain model (DTM), which does not take account of potential screening by buildings or vegetation. As it uses a 'bare ground' model, it is considered to over emphasise the extent of visibility of the Offshore Wind Farm and therefore represents a 'maximum potential visibility' scenario. The accuracy of the ZTVs is determined by the accuracy of the DTM data.. Theoretical visibility does not imply visual impact.
- 2.98 The ZTV maps were produced based on the following approach:
- the DTM used for the analysis is OS Terrain® 50 height data, obtained from Ordnance Survey in July 2017. The root-mean-square error (RMSE) of this data is 4 m. The DTM data is represented by a 50 x 50 m grid. The offshore part of the DTM data has been 'levelled' out to 0 m using Mean High Water (MHW). The onshore DTM data has not been altered (i.e. by the addition of local surface screening features);
  - although the turbine heights are referenced to Lowest Astronomical Tide (LAT), for the ZTV assessment they were 'anchored' at 0 m above sea level, as the resulting discrepancy (-2.9 m) will make no discernible difference, as discussed at Section 1.18;
  - two ZTVs were calculated for the turbines, one to show the number of potentially visible turbines to tip height, and the other to hub height;
  - to construct cumulative ZTVs (CZTVs) to illustrate the combined visibility of the Offshore Wind Farm with other wind farms, the ZTV to tip height of each wind farm was generated (based on

the tip height of each turbine to a radius in accordance with the current guidance (SNH, 2017b), and then relevant ZTVs were combined. The cumulative CZTVs were set up to show the number of wind farms (rather than the number of turbines) visible;

- ESRI's ArcMap 10.4.1 software was used to generate the ZTVs, using the Spatial Analyst/Viewshed tool, which does not use mathematically approximate methods. The effect of earth curvature and light refraction have been included in the ZTV analysis and a viewer height of 2 m above ground level has been used;
- for the purpose of the model used, the term 'intervisibility' indicates mutual visibility between the Offshore Wind Farm and locations within the landscape and seascape which fall within a 50 km radius of the site; and
- the accuracy of the model is determined by the accuracy of the DTM data, and does not take into account other factors such as detailed landform (e.g. man-made cuttings and embankments), vegetation, buildings, or atmospheric conditions, though these are considered in the assessment of effects.

2.99 The ZTVs are presented in **Figure 14.2 (Volume 3)** and **Figure 14.3 (Volume 3)**, and are discussed in detail in **Section 3**.

### **Viewpoint Photography**

#### *Daytime*

- 2.100 By agreement with statutory consultees (see **Table 1.1**), some baseline photographs from the Original ES, taken between 2011 and 2013, have been reused. Additional photography was taken in 2017. All photography was taken in accordance with the relevant good practice guidelines current at the time (SNH, 2006; SNH, 2017b; Landscape Institute, 2011).
- 2.101 A Nikon D7000 digital SLR camera with a 35 mm fixed lens was used for the earlier photography. This lens provides an equivalent focal length to using a 52 mm lens on a standard 35 mm SLR camera. 2017 photography was taken with a Nikon D600 or Nikon D750 full frame digital SLR camera, both with fixed 50 mm focal length lens.
- 2.102 For all photography, a tripod with vertical and horizontal spirit levels was used to provide stability and to ensure a level set of adjoining images. A panoramic head was used to ensure the camera rotated about the no-parallax point of the lens in order to eliminate parallax errors between the successive images and enable accurate stitching of the images. The camera was moved through increments of 24 degrees and rotated through a full 360 degrees at each viewpoint. Fifteen photographs were taken for each 360 degree view.
- 2.103 The location of each viewpoint was recorded using GPS grid reference, a location map, and a photograph of the tripod in position.
- 2.104 Weather conditions and visibility were considered an important aspect of the field visits for the photography. Where possible, visits were planned around clear days with good visibility. Viewpoint locations were visited at times of day to ensure, as far as possible, that the sun lit the scene from behind, or to one side of the photographer.

#### *Night time*

- 2.105 Baseline photographs were taken in 2017 for the night time visualisations, using the same camera equipment and similar procedure as the daytime views. 360 degree ranges of photography were taken at regular intervals starting shortly before sunset with subsequent ranges taken as natural light faded and existing manmade light sources became visible.
- 2.106 Exposure settings were carefully optimised at each viewpoint with shutter speed, aperture and ISO levels balanced to ensure the photography provided an accurate representation of the conditions at the time.
- 2.107 From viewpoints where intermittent light sources were observed, such as the Bell Rock, Bass Rock and Isle of May lighthouses, we endeavoured to capture the moment in the sequence when the flash was visible.

## **Photograph Stitching, Wireframes and Photomontages**

- 2.108 Photography stitching software (Panorama Factory© and Adobe Photoshop©) was used to stitch together the adjoining images to form panoramic images in cylindrical projection.
- 2.109 The software package ReSoft© WindFarm version 4.2 was used to view the wind farm from selected viewpoints in wireframe format. OS Terrain 50 data (displayed with 25 m grid spacing on the wireframes) was used to create a digital terrain model (DTM) which provided a detailed and reliable representation of the topography for the wireframe view. Turbine locations, type and size, and viewpoint location coordinates were entered. Photomontages have been constructed to show the candidate turbine with the specified tip height, hub height and rotor diameter. Viewer height was set to 1.5 m above ground level. On limited occasions this viewer height was increased by a small increment to achieve a closer match between the terrain data and photographic landform content. Additionally where photography was taken from elevated locations such as Arbroath Signal Tower (Viewpoint 7), Tantallon Castle (Viewpoint 25) and Hopetoun Monument (Viewpoint 29) the viewer height was increased to include the structure height. The pre-prepared panoramic photos were imported into the ReSoft© WindFarm software and the wireframe views overlaid and aligned with the photographs.
- 2.110 The presentation of fully rendered photomontages involved a number of additional stages as follows.

### *Daytime*

- 2.111 ReSoft© WindFarm software was used to render the turbines, taking account of the light conditions and the position of the sun in the sky at the time the photograph was taken. Blade angle and orientation adjustments were also made to represent a realistic situation
- 2.112 The next stage required the rendered turbines to be blended into the baseline photographic view. This was carried out using Adobe Photoshop© software and allowed, where relevant, for turbines or parts of turbines to be masked (removed) where they were located behind foreground elements that appeared in the original photograph.
- 2.113 The software package 43D Topos© was used for adding the proposed permanent met mast and OSPs to the photomontages. These structures were created as 3D models to their specified dimensions and positioned within a DTM created from the same OS Terrain 50 data used for the turbine alignment and renders. Views were rendered and exported images composited with the turbine renders and photographs to create the photomontages.
- 2.114 Finally, the photomontage images were converted from cylindrical projection to planar projection using PTGui© software in accordance with SNH presentation format guidance.

### *Night time*

- 2.115 Autodesk 3ds Max® software was used to create a digital 3D model of the turbines, permanent met mast, OSPs and both the aviation and navigational lighting proposed for the development. Light sources were created to match the specifications provided in terms of luminous intensity (candela units), colour and position. The sunlight and daylight system within the software was also set to accurately simulate the natural light still present at the date, time and geographical location of night time photography. Viewpoints were added to the 3D model using the GPS photography coordinates with views created and rendered to replicate the camera parameters and perspective geometry of the baseline photography.
- 2.116 As with the daytime images the exported renders were then composited with the baseline photographic view using Adobe Photoshop© software and converted from cylindrical projection to planar projection using PTGui© software.

### *Presentation of Photomontages*

- 2.117 Adobe InDesign© software was used to present the figures. In order to illustrate the wider landscape and visual context the first page of each figure presents the baseline panorama above the wireline both with cylindrical projection, at 90° horizontal field of view, and printed on A1 length sheets. As required for SNH visualisations, cumulative wind farms are shown on the panoramic wireframes.

2.118 Additional figures for each viewpoint include a wireline and corresponding photomontage both with planar projection, at 53.5° horizontal field of view and 18.2° vertical field of view, each printed on A1 length sheets with an image size of 260 mm by 820 mm. A viewpoint location map precedes each set of viewpoint visuals showing the view direction of each 90° and 53.5° image.

## Limitations

- 2.119 The SLVIA has assumed a 'worst case' scenario that adopts a range of maximum design parameters and which may not reflect a realistic development scenario, but that does ensure that the eventual design will be certain to fall within the assessed parameters.
- 2.120 In relation to turbine lighting for aviation and navigation, assumptions have been made as to the number, position and brightness of the lights. Although based on normal statutory requirements and recommendations, the assumed arrangement of lights may not necessarily reflect what is actually installed since this is a requirement advised by the relevant statutory bodies during the final design process. Particular uncertainty applies to the apparent brightness of the lights, which will be determined based on site-specific analyses, and can also be varied. The need to assess the worst case has led to the precautionary assumption that lights will be brighter than may actually be the case.
- 2.121 The cumulative assessment has been based on 'worst case' scenarios for the redesigned Inch Cape and Seagreen offshore wind farms. Since both these schemes are at scoping stage, only limited information is available in terms of likely design envelope. The layouts and turbines illustrated and assessed for these wind farms are unlikely to accurately reflect what may actually be constructed. Some consideration is given to this uncertainty in **Section 7**.

## 3 Baseline

### Introduction

- 3.1 This section sets out the existing conditions within the 50 km study area, and describes the baseline against which the assessment of changes in seascape, landscape and views is undertaken. This section provides information about:
- the character of the coastal part of the study area;
  - the character of the non-coastal landscapes of the study area;
  - landscape designations within the study area; and
  - existing visual amenity.

### Coastal Character

- 3.2 To ensure consistency between SLVIAs for offshore wind farms in the Forth and Tay area, a seascape character and sensitivity assessment was developed jointly, in 2011, by the involved landscape consultants. This assessment was undertaken following discussions between the developers, SNH and local authorities. It provides an assessment of the sensitivity of the east coast seascape to offshore wind farm development, and formed part of the baseline for all SLVIAs of offshore wind farms in the Forth and Tay area.
- 3.3 This document, entitled *Seascape Character Assessment: Aberdeen to Holy Island* is included in **Annex 2**, and its relevant findings are summarised below. The approach to the seascape character assessment broadly followed the methodology for coastal character assessment published by SNH in relation to aquaculture developments (SNH, 2008). This methodology has since been published as a general approach to coastal character assessment (SNH, 2017c).
- 3.4 The seascape assessment defined a total of 21 regional seascape units along the coast, from Aberdeen to Holy Island. Each seascape unit was described and characterised under a series of sensitivity criteria, leading to an assessment of the area's sensitivity to offshore wind farm development. There are 16 regional seascape units within the study area. These are set out in **Table 3.1** and illustrated in **Figure 14.4 (Volume 3)**. Descriptions are included in the assessment document in **Annex 2**.

**Table 3.1 Regional Seascape Units**

No.	Regional Seascape Unit Name
SA4	Montrose
SA5	Long Craig
SA6	Lunan Bay
SA7	Lang Craig to the Deil's Head
SA8	Arbroath to Monifieth
SA9	Dundee
SA10	Inner Firth of Tay
SA11	St Andrews Bay
SA12	St Andrews to Fife Ness
SA13	East Neuk of Fife

No.	Regional Seascape Unit Name
SA14	Kirkcaldy and Largo Bay
SA16	Edinburgh to Gullane
SA17	Eyebroughy to Torness Point
SA18	Torness Point to St Abb's Head
SA19	St Abb's Head to Eyemouth
SA20	Eyemouth to Berwick upon Tweed

## Onshore Landscape Character

- 3.5 SNH has published a national programme of landscape character assessments (LCA) covering the whole of Scotland. The study area includes areas covered by five of these LCAs:
- South and Central Aberdeenshire (Environmental Resources Management, 1998);
  - Tayside (Land Use Consultants, 1999);
  - Fife (David Tyldesley and Associates, 1999);
  - The Lothians (ASH Consulting, 1998a); and
  - The Borders (ASH Consulting, 1998b).
- 3.6 In 1998, the various assessments were combined into a national GIS dataset, with some equivalent landscape character types (LCT) being grouped (David Tyldesley and Associates, 1998). This grouping was undertaken at three levels:
- Level 1 grouped identical LCTs;
  - Level 2 grouped similar LCTs into 100-150 national types; and
  - Level 3 grouped all broadly similar LCTs into 40-60 national types.
- 3.7 For the purposes of this assessment, Level 2 LCTs have been examined, in order to manage the overall number of units to be assessed, without losing local detail.
- 3.8 Where Level 2 LCTs overlap with regional seascape units listed in **Table 3.1**, they have not been included, as this would lead to certain landscapes being assessed twice. The area covered by regional seascape units has therefore been excluded from the LCT dataset.
- 3.9 A total of 33 Level 2 LCTs are present in the study area – not including 'Urban' – as illustrated in **Figure 14.5 (Volume 3)**.
- 3.10 The study area includes a small area of north Northumberland. This area is classified as *Northumberland Coastal Plain* under the *Countryside Character of England* landscape character assessment. This national-level classification is considered broadly equivalent to the SNH Level 2 classification.

### Consideration of Level 2 LCTs for inclusion in the assessment

- 3.11 Due to the offshore location of the proposed turbines, significant effects on landscape character are only likely to occur where coastal and marine views are a key characteristic. As part of the Original Project SLVIA (NNGOWL, 2012, **Annex 2**), an exercise was undertaken to establish which of the Level 2 LCTs had such key characteristics. This led to the identification of 15 Level 2 LCTs that were considered in the assessment. Since no new baseline material has been published in relation to these areas, this evaluation is considered to remain valid, and the included Level 2 LCTs are listed in **Table 3.2**. Their locations are shown in **Figure 14.5 (Volume 3)**.

**Table 3.2 Level 2 LCTs included in the assessment**

Level 2 LCT (numbers refer to Figure 14.5 (Volume 3))		Component landscape character types/areas
1	Coastal Hills, Headlands, Plateaux and Moorlands	Fife Type 11 Coastal hills Borders Type 21 Coastal moorland
4	Coastal Margins	Lothian Area 23 Dunbar Plain Lothian Area 24 North Berwick Plain
5	Coastal Raised Beaches and Terraces	Fife Type 12 Coastal terraces
6	Dipslope Farmland	Tayside Type 13 Dipslope farmland
9	Fife Lowland Farmland	Fife Type 5 Lowland hills and valleys Fife Type 6 Lowland open sloping farmland
11	Foothills	Fife Type 3 Upland foothills
15	Low Coastal Farmlands	Borders Type 19 Coastal farmland Borders Type 20 Coastal pasture Borders Type 30 Coastal valley
16	Lowland Coastal Flats Sands and Dunes	Fife Type 15 Coastal flats
20	Lowland Hills (South)	Lothian Area 18 Garleton Hills
22	Lowland Plains	Lothian Area 22 Haddington Plain
23	Lowland River Valleys	Lothian Area 9 Whittingehame Water Lothian Area 10 Gifford Water
24	Narrow Wooded River Valleys	Fife Type 7 Lowland Dens
26	Pronounced Hills	Fife Type 4 Pronounced volcanic hills
29	Upland Fringe Moorland and Grassland: the Lammermuir, Pentland and Moorfoot Hills	Lothian Area 8 Eastern Lammermuirs Borders Type 11 Grassland with Hills Borders Type 14 Moorland
32	Upland Hills: the Lammermuir, Pentland and Moorfoot Hills	Lothian Area 1 Lammermuir Plateau Borders Type 1 Dissected plateau moorland

## Landscape Designations

- 3.12 Since effects on coastal and landscape character are already assessed, landscape designations are not assessed as discrete receptors since this would lead to double counting of effects. Instead, the special qualities of each landscape designation are evaluated against the findings of

the coastal and landscape impact assessment, to determine whether the designated area would be adversely affected by the Offshore Wind Farm.

- 3.13 The marine part of the study area is not designated for visual or aesthetic reasons. This section identifies onshore landscape designations within the study area. All landscape designations are illustrated in **Figure 14.6 (Volume 3)**. Designated routes, including tourist drives, cycleways and long-distance footpaths, are discussed under visual receptors below.

### National Landscape Designations

#### *National Parks*

- 3.14 There are no National Parks within the study area. The closest National Parks are the Cairngorms, 70 km to the northwest, and Northumberland, 70 km to the south, of the Wind Farm Area.

#### *National Scenic Areas*

- 3.15 There are no National Scenic Areas (NSA) within the study area. The closest NSA is Eildon and Leaderfoot in the Scottish Borders, 70 km to the southeast of the Wind Farm Area.

#### *Areas of Outstanding Natural Beauty*

- 3.16 There are no Areas of Outstanding Natural Beauty (AONB) within the study area. The Northumberland Coast AONB lies 55 km to the south of the Wind Farm Area.

### Local Landscape Designations

- 3.17 A number of local landscape designations lie within the study area. These are described below with reference to the local authorities who define them. All landscape designations are shown in **Figure 14.6 (Volume 3)**. Only those designations with a coastal component are considered in the SLVIA, and these are listed in **Table 3.3**.

#### *Aberdeenshire*

- 3.18 The Aberdeenshire Local Development Plan (adopted 2017) refers to "*Special Landscape Areas of local importance*" under Policy E2. Further details are provided in Supplementary Guidance (Aberdeenshire Council, 2017), including the boundaries and qualifying interests of Special Landscape Areas (SLAs). Only the southern-most part of Aberdeenshire is within the 50 km study area, and this falls within the South East Aberdeenshire Coast SLA.

#### *Angus*

- 3.19 The Angus Local Plan Review (adopted 2009) confirms that there are no current local landscape designations within Angus. The local plan states that all proposals should take account of the guidance provided by the Tayside Landscape Character Assessment. This document was referred to in developing the Seascape Character Assessment referred to above.

#### *Fife*

- 3.20 The St Andrews and East Fife Local Plan (adopted 2012) identifies Local Landscape Areas (LLA) under Policy E19. LLAs in East Fife are shown on Designation Map 2, including several coastal areas. The same set of LLAs is included in the Proposed FIFEplan, which is expected to be adopted shortly. Coastal LLAs within the ZTV include Tentsmuir, St Andrews Links, St Andrews to Fife Ness, the East Neuk and part of the Forth Islands (the Isle of May). Inland LLAs, and the north-facing Tay Coast, are outside the ZTV. Wemyss Coast LLA is not considered further due to distance from the Offshore Wind Farm.

#### *East Lothian*

- 3.21 The East Lothian Local Plan (adopted 2008) identifies Areas of Great Landscape Value (AGLVs), which are described as "*areas of outstanding landscape value*", although no detailed justification appears to be available. Local Plan Policy NH4 states that, "*Development that harms the landscape character and appearance of Areas of Great Landscape Value will not be permitted.*"

- 3.22 The Proposed East Lothian Local Development Plan 2016 incorporates a revised set of Special Landscape Areas (SLA). These are based on review of landscape designation, which is presented in Technical Note 9: Planning for Local Landscape Designation Review (ELC, 2016). This identifies several coastal SLAs covering the coast from Port Seton to Cockburnspath. Although not adopted, it is anticipated that these SLAs will replace the existing AGLVs, and the Technical Note provides a more detailed evidence base for consideration. Inland SLAs are not considered further.
- 3.23 ELC requested that, in the case that the Proposed LDP has not been adopted at the time of writing, the assessment consider both sets of designations. While SLAs are the focus of the SLVIA, effects on the AGLVs are considered in **Annex 4**.

#### *Scottish Borders*

- 3.24 The Scottish Borders Local Development Plan (adopted 2016) identifies Special Landscape Areas (SLA) under Policy EP5. These are detailed in Supplementary Planning Guidance on Local Landscape Designations (Scottish Borders Council, 2012), which identifies one coastal SLA.

#### *Northumberland*

- 3.25 Although Northumberland County Council is now the relevant unitary authority, the Berwick upon Tweed Borough Local Plan (1999) remains in place while the new Northumberland Local Development Framework is under development. The local plan identifies Areas of High Landscape Value (AHLV). Part of the Tweed Valley AHLV is within the 50 km study area, but is outside the ZTV and has therefore not been considered further.

**Table 3.3 Local Landscape Designations**

Designation	Local authority	Distance from Wind Farm Area (km)
South-East Aberdeenshire Coast SLA	Aberdeenshire	47
Tentsmuir Coast LLA	Fife	31
St Andrews Links LLA	Fife	29
St Andrews to Fife Ness LLA	Fife	15.5
East Neuk LLA	Fife	18
Forth Islands LLA	Fife	16
Port Seton to North Berwick Coast SLA	East Lothian	31
North Berwick Law SLA	East Lothian	31
Tantallon Coast SLA	East Lothian	27
Belhaven Bay SLA	East Lothian	28
Dunbar to Barns Ness Coast SLA	East Lothian	27
Thorntonloch to Dunglass Coast SLA	East Lothian	28
Berwickshire Coast SLA	Scottish Borders	30

## Gardens and Designed Landscapes

- 3.26 The *Inventory of Gardens and Designed Landscapes in Scotland* lists nationally significant parks and gardens in Scotland. There are 49 Inventory-listed Gardens and Designed Landscapes (GDL) within 50 km of the proposed wind farm, although 22 of these are entirely outside the ZTV (see **Figure 14.2 (Volume 3)**) and have not been considered further. All GDLs within 50 km are illustrated on **Figure 14.6 (Volume 3)**, and those which are included for assessment are named.
- 3.27 In England, the *Register of Historic Parks and Gardens* is maintained by English Heritage. There are no registered sites within the study area.
- 3.28 GDLs are primarily a historic environment designation, and effects on their heritage value are considered in **Chapter 13: Cultural Heritage**. Changes in their character as landscapes may be perceived as significant effects only where coastal and marine views are an important part of that character. An exercise was undertaken to identify those GDLs within the ZTV in which marine or coastal views directed towards the Wind Farm Area are important, as described in the Inventory. **Table 3.4** sets out the results of this review, and indicates that eight GDLs have been identified for consideration in the impact assessment.

**Table 3.4 Review of Gardens and Designed Landscapes**

Site name	Local authority	Distance from Wind Farm Area (km)	Marine views noted in Inventory description <sup>4</sup>	Include
Dunninald	Angus	41	"the site is self-contained"	No, no external views
The Guynd	Angus	37	"the landscape restricts views from the site but sight of the North Sea can be gained from the top of the house"	No, glimpsed views only
Camperdown House	Dundee	47	"views south west across the Firth of Tay to Fife and west towards the Carse of Gowrie"	No, no reference to views east towards the Wind Farm Area
Baxter Park	Dundee	43	"there is a glimpse of the former panoramic view over the Firth of Tay to Fife. The trees have all but obscured this view"	No, glimpsed views only
Balgay Park	Dundee	47	"panoramic views of the city of Dundee including Dundee Law and the Firth of Tay, and Camperdown Park"	No, small and distant part of a much wider panorama from one part of the park
Earlshall	Fife	35	"There are no views out from Earlshall"	No, no external views
<b>St Andrews Links</b>	Fife	30	"influenced by the sea"; "views from the [coastal] flats"	<b>Yes</b> , close connection to the sea, eastward views

<sup>4</sup> Available online via [<http://portal.historicenvironment.scot/>]

Site name	Local authority	Distance from Wind Farm Area (km)	Marine views noted in Inventory description <sup>4</sup>	Include
			encompass much of St Andrews Bay”	
St Andrews Botanic Gardens	Fife	29	No reference to external views	No, no external views
Craigtoun	Fife	31	Significant views over Tentsmuir, but no reference to marine views	No, no significant views towards the Wind Farm Area
Hill of Tarvit	Fife	42	No reference to marine views	No, no significant views towards the Wind Farm Area
<b>Cambo</b>	Fife	19	“A series of significant coastal views have been created across Kingsbarns Golf Course”	<b>Yes</b> , close connection to the sea, eastward views and relatively close to the Wind Farm Area
Kellie Castle	Fife	28	“views from the Castle south across the Firth of Forth to the Bass Rock and beyond to the Pentland Hills”	No, views are directed south away from the Wind Farm Area
Balcaskie	Fife	27	“axial view focussing on Bass Rock in the Firth of Forth”	No, views are directed south away from the Wind Farm Area
Balcarres	Fife	31	“extensive views [...] to north, west and south”; “panoramic views over the surrounding countryside and southwards across the Firth of Forth”	No, views are directed south away from the Wind Farm Area
Charleton	Fife	33	“two shallow earth terraces [...] provide viewing platforms to the Firth of Forth and Bass Rock”	No, views are directed south away from the Wind Farm Area
Lahill	Fife	35	“Panoramic views from the south garden terraces of Lahill extend over the Firth of Forth and the East Lothian coastline”	No, views are directed south away from the Wind Farm Area

Site name	Local authority	Distance from Wind Farm Area (km)	Marine views noted in Inventory description <sup>4</sup>	Include
Wemyss Castle	Fife	48	No reference to marine views	No, no significant views towards the Wind Farm Area
<b>Grey Walls</b>	East Lothian	39	"panoramic sea views with the coastal links and dunes to the north"	<b>Yes</b> , connection with open coastal location and views towards the Wind Farm Area
Dirleton Castle	East Lothian	37	Enclosed within Dirleton village, no reference to marine views except from the top of the castle	No, glimpsed views only
Seton House	East Lothian	49	"views of the Forth from the house and North Garden"; these views look northwest	No, views are directed northwest away from the Wind Farm Area
<b>Leuchie</b>	East Lothian	32	"Views to the coast of Fife, beyond the Firth of Forth, can be gained on a clear day"	<b>Yes</b> , views in the direction of the Wind Farm Area
Balgone House	East Lothian	34	Important view to North Berwick Law, but no reference to marine views	No, no significant views towards the Wind Farm Area
<b>Tynninghame</b>	East Lothian	30	"panoramic views northeast across the estuary to the rocky promontory of Dunbar"	<b>Yes</b> , views in the direction of the Wind Farm Area
Lennoxlove	East Lothian	44	No reference to marine views	No, no significant views towards the Wind Farm Area
Pilmuir	East Lothian	47	No reference to marine views	No, no significant views towards the Wind Farm Area
<b>Biel</b>	East Lothian	33	"the Bass Rock in the Firth of Forth and the Fife Coast can be seen from Biel"	<b>Yes</b> , views in the direction of the Wind Farm Area
Whittingehame	East Lothian	37	No reference to marine views	No, no significant views towards the Wind Farm Area
<b>Broxmouth Park</b>	East Lothian	28	"views out northwards to the Isle of May and [...] over to the Bass Rock"	<b>Yes</b> , views in the direction of the Wind Farm Area

Site name	Local authority	Distance from Wind Farm Area (km)	Marine views noted in Inventory description <sup>4</sup>	Include
<b>Dunglass</b>	East Lothian	31	"Views out to the North Sea are obtainable, particularly from high points"	<b>Yes</b> , views in the direction of the Wind Farm Area

## Visual Amenity

- 3.29 The assessment of visual amenity is undertaken with reference to people who will view the turbines, referred to as visual receptors. As a tool to assist the assessment process, visualisations of the Offshore Wind Farm are generated for a number of viewpoints considered representative of the views available.

### Zone of Theoretical Visibility

- 3.30 ZTVs were generated to tip and hub heights to illustrate the potential visibility across the study area. These are described below.
- 3.31 **Figure 14.2 (Volume 3)** shows the tip-height ZTV. It indicates that, when viewed from sea level, the turbines will disappear below the horizon at a distance of approximately 60 km.
- 3.32 The tip height ZTV indicates visibility along most of the Angus coast, between Dundee and St Cyrus in southern Aberdeenshire. Theoretical visibility extends inland up to 10 km to the edge of the Sidlaw Hills and the higher ground around Monikie and Carmyllie. There are areas of theoretical visibility further inland, most notably from a large area around Montreathmont Moor. Beyond the study area, theoretical visibility is indicated from the Caterthun Hills, some 57 km from the Wind Farm Area.
- 3.33 Across Fife, the ZTV covers the coast between Tayport and Earlsferry, extending 5-10 km inland across Tentsmuir. Theoretical visibility is extensive across the East Neuk and the area east of the A915. There is also an area of theoretical visibility along the coast between Leven and Kirkcaldy, extending beyond the study area boundary towards Glenrothes and across the Kirkcaldy to Kinghorn coast. To the southeast, also beyond the study area, the turbines will theoretically be visible from Arthur's Seat and the Pentland Hills, at 60-70 km distance.
- 3.34 The ZTV includes the North Sea coastline between Eyebroughy and Berwick upon Tweed. There is intermittent theoretical visibility from higher ground within the East Lothian coastal plain, for example the Garleton Hills, as well as from the rising ground south of Dunbar up to the edge of the Lammermuir Hills. Further south, theoretical visibility is limited to the coastal edge, including Eyemouth, and the high ground behind, which shields inland areas of the Scottish Borders.
- 3.35 **Figure 14.3 (Volume 3)** shows the hub-height ZTV. This indicates a very similar pattern to that described for **Figure 14.2 (Volume 3)**, but the ZTV is less extensive. At sea level, there would be no visibility of the hubs from distances greater than 48 km.

### Visual Receptors

- 3.36 Likely viewers or visual receptors include:
- residents living in any of the settlements or individual residences across the area which lies within the ZTV of the wind farm;
  - tourists visiting, staying in, or travelling through this part of Scotland;
  - recreational users of the landscape, including those using golf courses, cycle routes and footpaths;

- recreational users of the marine environment, including those involved in yachting, angling, people on boat trips to the Isle of May, and passengers on ships;
- travellers (tourists, workers, visitors or local people) using transport (road and rail) routes passing through the study area;
- people working in the countryside or in any of the towns, villages or dwellings across the area which lies within the ZTV of the wind farm; and
- people working in the marine environment, such as fishermen and crews of ships.

3.37 The following sections discuss the locations where potential viewers of the Offshore Wind Farm are located. This focuses on the most potentially sensitive viewers: residents; recreational users of the landscape and seascape; and people travelling through the landscape or seascape. People who may view the Offshore Wind Farm only in the context of their work (whether sea or land based) are considered to be less sensitive receptors. In general, the locations from where people at work may view the wind farm are the same locations from where more sensitive receptors would have the same views.

#### *Communities*

3.38 There are a number of coastal settlements in the study area, ranging from moderate sized towns, to small fishing villages and scattered individual houses. It is not possible to assess every residential receptor, therefore a representative series of settlements has been selected to form the baseline. The following substantial settlements are within 50 km of the proposed wind farm and lie within the ZTV:

Arbroath	Carnoustie
Monifieth	Dundee
Tayport	St Andrews
Crail	Anstruther
Pittenweem	St Monans
Elie	Leven
Buckhaven	East Wemyss
West Wemyss	North Berwick
Dunbar	Cockburnspath
Eyemouth	Berwick upon Tweed

#### *Recreational Receptors*

3.39 Many sections of the coastline within the study area have a high recreational value, and as a result there are numerous coastal cliff-top or beach-side car parks, viewpoints and short recreational walks, as well as piers and harbours in the coastal settlements. Coastal visitor attractions include nature reserves, castles, and golf courses. There are hotels, guesthouses, caravan parks and campsites in many locations along the coast. Further inland, there are hilltop viewpoints and other locations which enable coastal and marine views.

3.40 There are six country parks in the study area:

Crombie Country Park, Angus	Monikie Country Park, Angus
Clatto Country Park, Dundee	Camperdown and Templeton Woods, Dundee

Craigtoun Country Park, Fife	John Muir Country Park, East Lothian
------------------------------	--------------------------------------

3.41 There are numerous other recreational destinations where the seascape and landscape is a key part of the experience. A selection of those within the ZTV includes:

St Cyrus Bay, Aberdeenshire	Seaton Cliffs, Arbroath
King's Drive, Arbroath	Broughty Castle
Dundee Law	Tentsmuir Forest, Fife
St Andrews Castle and Cathedral	Cambo Gardens, Fife
Fife Ness	Isle of May
Largo Law, Fife	North Berwick Law
Tantallon Castle	Pease Bay
Fast Castle	St Abb's Head

3.42 Recreational users of the seascape include sailors and other boat users. These users will be concentrated around the various marinas and harbours in the study area, and the range of locations they visit will depend on the range of their craft.

#### *Travelling Receptors*

3.43 A number of routes within the study area enable coastal views, which may be affected by the presence of offshore wind turbines. Many of these routes are promoted for their attractive coastal scenery, including walking, cycling and driving routes. Key routes are shown on **Figure 4.7 (Volume 3)**.

3.44 Longer-distance coastal walks form part of the North Sea Trail, an international series of footpaths around the North Sea Coast. Routes of the National Cycle Network, and designated tourist drives, follow coastal roads.

3.45 While there are no long-distance passenger ferry routes currently operating within the Forth or Tay, there are shorter recreational ferry routes providing visitor access to the islands of the Forth. A number of cruise ships also enter the Forth each year, anchoring by the Forth Bridge.

3.46 Key travelling receptors within the 50 km study area, and within the ZTV, include people using the following routes:

- Scotland's Great Trails:
  - Fife Coastal Path (Kincardine to Newburgh);
  - John Muir Way (Edinburgh to Dunglass);
  - Southern Upland Way (Port William to Cockburnspath);
- National Cycle Network (NCN):
  - Route 1 (Edinburgh to Aberdeen via St Andrews, Dundee and Montrose);
  - NCN Route 76 (Berwick to Edinburgh via Dunbar);
- East Coast Main Line (ECML) railway (Berwick to Edinburgh);
- The A1 (Berwick to Edinburgh);
- Tourist routes:
  - East Lothian Coastal Trail/Scotland's Golf Coast Road (Dunbar to North Berwick and Prestonpans: A198);
  - Fife Tourist Route (Kincardine to Dundee: A921/A955/A915/A917/ A91/A914/A92);

- Angus Tourist Route (Dundee to Stonehaven: A930/A92);
- Ferries to the Isle of May from Anstruther and North Berwick; and
- Cruise ships entering and leaving the Firth of Forth.

### Viewpoints

- 3.47 Assessment viewpoints were selected to be representative of the receptor groups across the 50 km radius study area, reflecting places and routes frequented by the public. They were chosen through fieldwork and a study of maps, to represent key locations where the public may view the Offshore Wind Farm, including the locations listed in the preceding sections.
- 3.48 The viewpoints used for this assessment were chosen according to the following criteria<sup>5</sup>:
- being publicly accessible;
  - having a reasonably high potential number of viewers or being of particular significance to the viewer(s) affected;
  - providing a representative range of viewing distances (i.e. short, medium and long distance views) and elevations;
  - representing a range of viewing experiences (i.e. static views, for example from settlements, designated viewpoints or car parks, and points along sequential views, for example from public highways and walking and cycling routes);
  - representing a range of visual receptor types (i.e. residential, recreational, and travelling receptors); and
  - representing locations with potential cumulative views of the Offshore Wind Farm in conjunction with other onshore and offshore wind farms.
- 3.49 For the purposes of the Original ES SLVIA, viewpoints were selected in consultation with statutory consultees (including SNH and MS-LOT) and LPAs (Aberdeenshire, Angus, Dundee, Fife, East Lothian and Scottish Borders), to form a common set of viewpoints for use in assessing all the Forth and Tay Wind Farms. In 2011, 21 viewpoints were selected across the overlapping study areas of the three proposed offshore developments. Three of the 21 viewpoints were not considered in the Original ES, since they were outside the Neart na Gaoithe 50 km study area and/or the ZTV.<sup>6</sup> For ease of reference, the original numbering of the viewpoints has been retained, and viewpoint numbers 1, 3 and 4 are not used.
- 3.50 Following submission of the Original ES, additional viewpoints were identified by stakeholders as being of relevance to the assessment, and were illustrated with wirelines in the addendum. Several other viewpoints were suggested by stakeholders through the scoping process and in follow-up consultation for the current application, as detailed in **Table 1.1**.
- 3.51 The viewpoints examined in the SLVIA are listed in **Table 3.5**. The locations of each of the viewpoints are shown on the ZTV maps (**Figure 14.2 (Volume 3)** and **14.3 (Volume 3)**) and photographs of the existing view from each location are included in **Figure 14.18 (Volume 3)** to **14.43 (Volume 3)**.

### *Night-time assessment*

- 3.52 Due to the statutory requirement to install visible aviation and navigation lighting on some of the wind turbines, an assessment of effects during the hours of darkness has been carried out. A smaller selection of viewpoints, including some of those listed in Table 3.5 was included in this night-time assessment. These were agreed with stakeholders to represent a range of viewpoints where people are most likely to be present during darkness, i.e. populated places rather than coastal walks or beaches. The eight representative night-time viewpoints are listed in **Table 3.6**.

<sup>5</sup> Not all selection criteria apply to all viewpoints selected.

<sup>6</sup> The three locations are Viewpoint 1 Garron Point, Viewpoint 3 Montrose, and Viewpoint 4 White Caterthun.

### Additional Viewpoints

3.53 In addition to the assessment viewpoints, the illustration of a number of specific viewpoints was requested by statutory consultees. These locations were considered to be of interest, but detailed assessment was not required. Most of these viewpoints illustrate views from more distant locations, or views that are similar to locations listed in **Table 3.5**. The additional viewpoints are listed in **Table 3.7**.

### Visualisations

- 3.54 Wireline and photomontage visualisations have been prepared for all the viewpoints listed in **Table 3.5**. Visualisations are presented in **Figure 14.18 (Volume 3)** to **14.43 (Volume 3)**, and include wirelines showing the Inch Cape and Seagreen offshore wind farms. In addition, cumulative photomontages showing the Offshore Wind Farm with Inch Cape and Seagreen have been produced for five key viewpoints: VP 7 Arbroath Signal Tower; VP 12 St Andrews, East Scores; VP 13 Fife Ness; VP 17 North Berwick Law; and VP 21 St Abb’s Head. .
- 3.55 Night-time photomontages have been prepared from the eight locations in **Table 3.6**, to illustrate the potential appearance of turbine lighting in evening views. Night-time visualisations are included in **Figures 14.44 (Volume 3)** to **14.51 (Volume 3)**.
- 3.56 Further wireline visualisations for the additional locations listed in **Table 3.7** are included in **Figures 14.52 (Volume 3)** to **14.57 (Volume 3)**.
- 3.57 The methodology for producing all visualisations is presented in **Section 2**.

**Table 3.5 Representative Viewpoints**

No.	Location	Easting	Northing	Distance to closest turbine (km)	Reason for selection
2	Beach Road, Kirkton, St Cyrus	375188	764634	50.0	Car park offering beach access, and wide elevated views over Montrose Bay, on a coastal footpath
5	Dodd Hill	345255	739616	44.4	Inland location on walking route offering views across Angus to the coast
6	Braehead of Lunan	368988	752598	40.3	Representative of views from a hamlet, located on NCN Route 1, enables views south over Red Head
7	Arbroath Signal Tower	364047	740440	32.1	Listed building with an elevated platform and historic connection to the Bell Rock, now a museum
8	Carnoustie	356224	734145	32.4	Recently upgraded promenade with car parking and beach access
9	Dundee Law	339155	731266	45.1	Most prominent viewpoint in Dundee, a popular recreational location with large numbers of

No.	Location	Easting	Northing	Distance to closest turbine (km)	Reason for selection
					visitors, and long views down the Firth of Tay
10	Tentsmuir	350325	724227	32.0	Forestry Commission car park in a popular recreational area. Views across sandbanks. Located on Fife Coastal Path and NCN Route 1
11	Strathkinness	346663	716398	33.3	Within coastal hills, small settlement overlooking St Andrews and the Firth of Tay
12	St Andrews, East Scores	351572	716671	28.5	Popular location within the town, by the abbey, overlooking St Andrews Bay, on the Fife Coastal Path
13	Fife Ness	363844	709759	15.6	Easternmost point of Fife, unobstructed views across the outer Firth and Tay, on the Fife Coastal Path
14	Anstruther Easter	357897	704143	22.1	Representative of views from coastal settlement at a local play park with foreshore access, on the Fife Coastal Path
15	Largo Law	342709	704970	37.0	Elevated location, enabling wide views across the Firth of Forth, on a locally-signposted footpath
16	Isle of May	365655	699329	16.4	The island is a popular day-trip destination, and a useful proxy for marine views
17	North Berwick Law	355645	684235	33.1	Popular walking destination close to North Berwick, enabling wide views over the Firth of Forth
18	Dunbar	367583	679172	28.0	Park with views of Dunbar Castle, representative of views from coastal settlement, on John Muir Way
19	Innerwick	372437	673859	30.5	Elevated viewpoint at a village, enabling views across Barns Ness to the Firth of Forth

No.	Location	Easting	Northing	Distance to closest turbine (km)	Reason for selection
20	Coldingham Moor	383563	669442	32.9	Elevated headland with wide seaward views, enabling northward views over the Firth of Forth
21	St Abb's Head	391231	669168	33.1	Marked as a viewpoint on OS map, within National Trust for Scotland access land, offering extensive coastal views
22	St Andrews, West Sands	350216	717798	30.0	Recreational location close to the town of St Andrews, with important associations between golf course and coast.
23	Crail	361013	707243	18.5	Fishing village on the Fife coast, popular with visitors and with open views across the outer Firth of Forth.
24	North Berwick Seabird Centre	355412	685550	32.5	Popular visitor location close to the settlement centre, with coastal views towards the Bass Rock.
25	Tantallon Castle	359585	685029	29.4	Popular visitor attraction on elevated coast, with views over the Forth including the Bass Rock.
26	Broad Sands	352222	685811	35.0	Views across the Forth, including the inshore islands, from this popular beach near North Berwick.
27	A198, North Berwick	350682	685144	30.6	Views to the Bass Rock from a tourist route and core path
28	A199, East Linton	357751	676674	36.2	Views from higher ground across Belhaven Bay from a tourist route and core path
29	Hopetoun Monument	350077	676425	42.1	View from the top of a hilltop monument, which offers panoramic vistas across East Lothian.

**Table 3.6 Representative Night-time Viewpoints**

No.	Location	Easting	Northing	Distance to closest turbine (km)	Reason for selection
N1	King's Road, Arbroath	366004	741075	31.5	Located close to the town, but away from the brightest lights
N2	Carmyllie	354993	743026	39.6	An elevated inland location with limited light intrusion
N3	East Haven	359368	736345	31.7	A coastal location with limited light intrusion
N4	St Andrews, East Scores	351572	716672	28.5	VP12: Coastal walk near the abbey and close to the town centre
N5	Crail	361013	707243	18.5	VP23: Close to the settlement and harbour
N6	North Berwick Seabird Centre	355412	685553	32.5	VP24: Popular location close to town centre and visitor attractions
N7	Dunbar	367585	679173	28.0	VP18: Park within a residential area close to the town centre
N8	A199, East Linton	357751	676674	36.2	VP28: Elevated inland location, by a main road likely to be used at night

**Table 3.7 Viewpoints illustrated with wirelines**

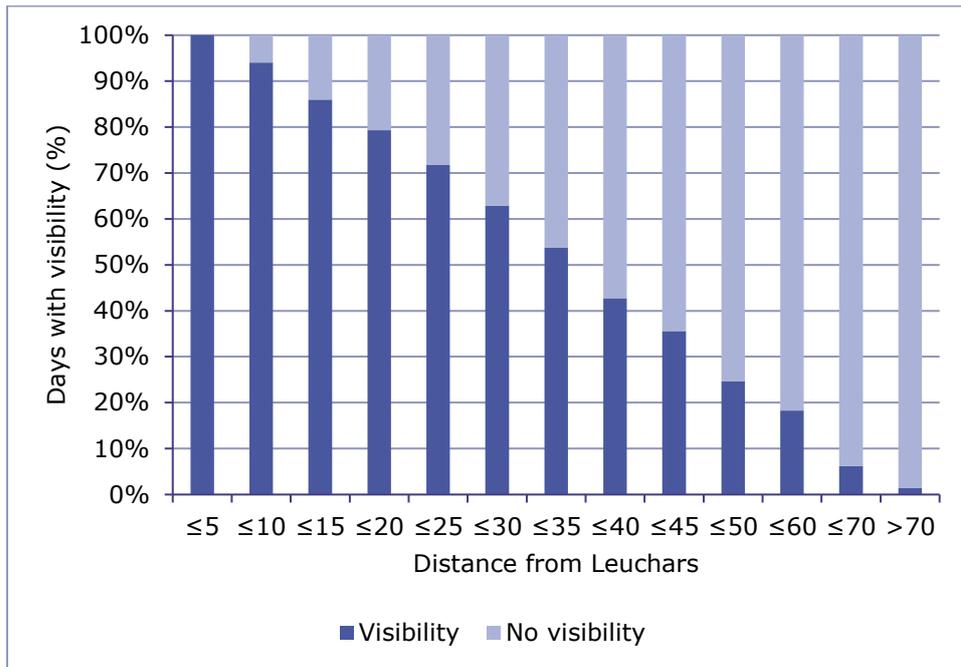
No.	Location	Easting	Northing	Distance to closest turbine (km)	Reason for selection
A1	West Steel	368820	670537	35.0	A viewpoint in the Lammermuirs used in the Original SLVIA, replaced with Innerwick as requested by East Lothian Council.
A2	Traprain Law	358161	674665	37.4	Requested by East Lothian Council to illustrate the view over Belhaven Bay from this prominent hill.
A3	B6370 north of Garvald	358588	671330	39.7	Requested by East Lothian Council to illustrate the view from the lower fringe of the Lammermuirs.

No.	Location	Easting	Northing	Distance to closest turbine (km)	Reason for selection
A4	B6355 west of B6368	349538	668277	48.0	Requested by East Lothian Council to illustrate distant view from inland location.
A5	Ewieside Hill	385942	670835	34.0	Requested by Scottish Borders Council to illustrate the elevated view over Cockburnspath.
A6	Fast Castle	377780	668840	31.5	Requested by Scottish Borders Council to illustrate the view from a cliff top historic site.

## Visibility

- 3.58 The Met Office records atmospheric visibility on a regular basis. Data were obtained from the Met Office giving the average visibility recorded at Leuchars, Fife, over a ten-year period from January 2007 to December 2016.
- 3.59 These data are presented in **Table 3.8**. They show that visibility reduces steadily with distance from the observation point. The following observations can be made:
- there is no visibility beyond 15 km for 14% of the time, suggesting that the wind turbines would not be visible from Fife Ness on 51 days per year;
  - there is no visibility beyond 30 km for 37% of the time, suggesting that the turbines would not be visible from most of Angus or East Lothian on 135 days per year; and
  - there is no visibility beyond 50 km for 75% of the time, suggesting that the turbines would not be visible from the outer edge of the study area on 274 days per year.
- 3.60 While this information provides background data, it is acknowledged that many viewers, particularly recreational users, will be active when conditions are better, and visibility greater. Therefore, all assessment work has been carried out in good visibility, and these conditions are considered in the assessment of impacts.

**Table 3.8 Visibility from Leuchars**



## 4 Potential Effects and Mitigation

- 4.1 This section identifies potentially significant effects on coastal/landscape character and visual amenity that are likely to arise from the Offshore Wind Farm, during construction, operation, and decommissioning. Mitigation measures, which have been applied to reduce the level of significance of potential adverse effects, are set out.

### Effects During Construction

#### Offshore Wind Farm

- 4.2 During the construction period (estimated to take place over 2-3 years), a number of activities will take place in the Wind Farm Area, as described in Chapter 4: Project Description in the EIA Report. Effects on coastal character and visual amenity may arise as a result of the following construction activities:
- Movement of installation vessels, cranes and other equipment visible in and around the Wind Farm Area;
  - Views of turbines and other structures under construction; and
  - Laying of the subsea cables, particularly the export cables where these connect to the onshore cable.
- 4.3 Construction activities may affect coastal character and views in areas where they can be seen. The ZTV maps (**Figure 14.2 (Volume 3)** and **14.3 (Volume 3)**) indicate the extent of theoretical visibility of the completed Offshore Wind Farm. The extent of theoretical visibility during construction would initially be much smaller, being limited to areas with views of the sea surface of the Wind Farm Area. The nature of the works would also limit their perceptibility in comparison to wind turbines. As construction progresses, visibility of the works will increase as more turbines are erected.

#### Offshore Grid Connection and Landfall

- 4.4 Cable laying will be carried out from a vessel working between the Wind Farm Area and the landfall at Thorntonloch, near Torness in East Lothian. The options available for landing the cable at Thorntonloch beach are dependent on ground conditions. The options currently being considered are horizontal directional drilling (HDD) and open cut trenching.

#### Construction Mitigation Measures

- 4.5 There are few potential mitigation measures which would reduce the potential for effects upon coastal character and views. The construction activities are temporary in nature, and best practice measures will be applied to minimise the duration and level of disruption of the construction period.

#### Residual Effects During Construction

- 4.6 The presence of boat movements or offshore equipment is not considered to be out of place in this relatively busy seascape, where large numbers of craft are moving in and out of the Forth and Tay. There may be locally concentrated activity, but this is not considered to have the potential to give rise to significant effects on coastal character or on views.
- 4.7 There will be increased activity at the harbour where construction vessels and equipment will be based. This is likely to be at an existing major port, and therefore the additional activity is unlikely to give rise to any significant landscape or visual effects. Visibility of vessels outside the

Wind Farm Area is not considered likely to give rise to any significant impacts on landscape or visual amenity.

- 4.8 The visibility of partially-completed turbines will never exceed the visibility of the operational Offshore Wind Farm. The potential for effects will increase incrementally over the construction period, but will never exceed the potential for operational effects. Construction phase impacts will be short term (2-3 years). As such, potential effects arising from the construction phase of the Offshore Wind Farm will always be less than those arising from the operational phase.
- 4.9 The pattern of any effects would be the same for construction activities as it would be for operational activities. While it is acknowledged that there are likely to be significant effects arising from views of the Offshore Wind Farm under construction, they have not been assessed separately.

#### *Residual effects of Construction of the Landfall*

- 4.10 If HDD is used at the landfall, the drill will pass from landward of Thorntonloch Beach, to a point below the low water mark, i.e. within the water. To complete the operation, a temporary dry area may need to be established below the low water mark, using sheet piling driven into the sand. Impacts on the coastal landscape of the beach arising from this temporary works area would be medium in scale, small in extent, short term and reversible. If open trenching is required, Thorntonloch beach will be directly affected by excavation and burial works. This would be a large-scale impact across a small geographical extent, and would be short term and reversible.
- 4.11 The sensitivity of the coast at this location is high, due to the susceptibility of the beach landscape to change and the value placed upon the landscape. For either HDD or open trenching, the effect on coastal landscape will be minor and not significant.
- 4.12 The visual disturbance arising from either HDD or open trenching is likely to be seen by residents of a small number of nearby properties, people in caravan park, and walkers on the beach and coastal footpaths. These recreational and residential viewers are considered to have a high sensitivity to change.
- 4.13 If open trenching is used, the scale of impact on these receptors will be large, but affecting a small geographical extent. The impact will be short term and reversible, and the visual effect will be minor and not significant. Should the HDD method be used, this would lessen the visual intrusion of construction activities on the beach, though the dry area below the low water mark would be clearly visible. In this case, impacts are also predicted to be minor and not significant.

## Effects During Operation

- 4.14 Effects on coastal character and visual amenity may arise as a result of the following aspects of the Offshore Wind Farm:
- introduction of wind turbines and OSP(s) within an area of formerly open sea;
  - introduction of lighting into currently dark area of sea; and
  - operational activities such as operational and maintenance vessel movements.
- 4.15 This would result in potential changes to the perception of coastal character, and to the amenity of viewer groups, within the study area. There will be direct effects on an area of open sea, upwards of 15 km from shore. There will be no physical effects on coastal landscapes. The assessment is therefore primarily concerned with effects on coastal character, arising from physical changes occurring at a distance. The assessment is informed by the ZTV maps (**Figure 14.2 (Volume 3)** and **14.3 (Volume 3)**), and by the visualisations of the wind farm presented in **Figure 14.18 (Volume 3)** to **14.43 (Volume 3)**.
- 4.16 Maintenance activities will require regular vessel movements between the Offshore Wind Farm and the O&M port/harbour. At present, the location of the O&M port/harbour, and the extent of vessel movements, is undetermined. The increases in vessel movements would be seen in the

context of existing port/harbour activity and wider marine activity in the outer Firth and Tay, and no significant effects are predicted.

- 4.17 Operational effects will continue for the lifetime of the Offshore Wind Farm. The Offshore Wind Farm can be *in situ* for up to 50 years.

#### Mitigation of Operational Effects

- 4.18 It is acknowledged that traditional methods of landscape and visual mitigation, such as screen planting, are ineffective for wind farm development. Mitigation for wind farms is generally limited to the reduction of potential direct effects through detailed siting, and the reduction in adverse aesthetic effects through wind farm design. This is made clear in *Siting and Designing Windfarms in the Landscape* (SNH, 2017a).
- 4.19 The marine horizon is flat and uninterrupted, and therefore presents no opportunity to relate turbines to an underlying landform. All offshore wind farms are seen as rows of turbines, and so regular patterns tend to be preferred, in contrast to the more organic layouts sought for onshore wind farms. Detailed siting is driven by a range of physical and environmental constraints including localised geological conditions, ecology, aviation, navigation, wind resource, and marine archaeology. These constraints have led to the indicative offset grid layouts which have been assessed, though it is noted that the finalised layout may differ.
- 4.20 In order to consider the aesthetic aspects of wind farm design, an analysis was undertaken of alternative layouts, and this is presented in **Annex 1**. This provides 'design objectives' that can be used to refine the appearance of the final wind farm layout. Detailed siting of the offshore turbines will also be driven by a range of physical and environmental constraints including localised geological conditions, bathymetry, ecology, aviation, navigation, wind resource, and marine archaeology.
- 4.21 Detailed design of the aviation and navigation lighting will also take place post-consent. It is likely that through this process the number and brightness of lights can be reduced, subject to the requirements of the relevant statutory authorities, such that the actual impacts may be less than is assessed in this SLVIA.
- 4.22 Since the wind farm design is dependent on detailed design that will only take place post-consent, this mitigation cannot be adopted into the Project design at this stage.
- 4.23 A number of consent conditions were attached to the Original Consents to manage the environmental risk associated with the Originally Consented Project. NnGOWL anticipate that any future consents issued to the Project may incorporate similar conditions to manage the environmental risk commensurate with the Project design envelope, where it remains necessary to do so. **Table 4.1** sets out the conditions attached to the Consents for the Originally Consented Project which have some relevance to the management of effects on seascape, landscape and visual amenity.

**Table 4.1 Consent conditions for the Originally Consented Project relevant to Seascape Landscape and Visual impacts**

Original Consent Requirement	Relevance to seascape landscape and visual impacts
Development Specification and Layout Plan	Setting out, for approval, the final design and layout of the Project to ensure it remains consistent with the design assessed in the EIA Report as relevant to SLVIA.
Design Statement	<p>Providing representative visualisations of the Offshore Wind Farm based on the final Development Specification and Layout Plan.</p> <ul style="list-style-type: none"> <li>- The requirements for the design statement will be discussed with MS-LOT and relevant stakeholders following award of consent.</li> </ul>

Original Consent Requirement	Relevance to seascape landscape and visual impacts
Lighting and Marking Plan	Setting out, for approval, how the Offshore Wind Farm will be lit and marked in accordance with the current aviation and navigation policy and guidance.

#### Residual Operational Effects

- 4.24 Residual effects on seascape and landscape are considered in **Section 5**. Residual effects on visual receptors are considered in **Section 6**.

#### Effects During Decommissioning

- 4.25 After the end of the lifespan of the Offshore Wind Farm, the turbines will be decommissioned. Decommissioning of the site will involve the removal of all structures, and will follow the reverse of the construction activity. As described above, the potential impact of these activities would always be less than those of the operational effects. Decommissioning effects have not therefore been considered further in this SLVIA.

# 5 Effects on Coastal and Landscape Character

## Introduction

- 5.1 This section sets out the likely effects of the Offshore Wind Farm on the coastal and landscape character of the study area, and any implications for the special qualities of relevant landscape designations.
- 5.2 Effects will arise from the presence of the Offshore Wind Farm in views from the coastal or onshore landscape, which may affect the perceived character of that location. As noted in **Section 4.15**, no physical effects on coastal or landscape character will occur.
- 5.3 Effects on coastal character areas are considered first, followed by effects on onshore landscape character types. The implications for designated landscapes are set out after this.
- 5.4 This assessment draws on the assessment of effects on representative viewpoints presented in **Annex 3**.

## Coastal Character

### Sensitivity of the Resource

- 5.5 The sensitivity of the coastal landscape, as represented by regional seascape character units, to offshore wind farm development, has been assessed as part of the Seascape Character Assessment study (**Annex 2**). These sensitivity assessments are summarised in **Table 5.1**. Receptor sensitivity is defined in **Table 2.1**.

**Table 5.1 Sensitivity of Regional Seascape Units**

No.	Regional Seascape Unit Name	Sensitivity
SA4	Montrose	High
SA5	Long Craig	Medium
SA6	Lunan Bay	High
SA7	Lang Craig to the Deil's Head	High
SA8	Arbroath to Monifieth	Medium
SA9	Dundee	Low
SA10	Inner Firth of Tay	Low
SA11	St Andrews Bay	High
SA12	St Andrews to Fife Ness	High
SA13	East Neuk of Fife	High
SA14	Kirkcaldy and Largo Bay	Medium
SA16	Edinburgh to Gullane	Medium
SA17	Eyebroughy to Torness Point	Medium
SA18	Torness Point to St Abb's Head	Medium
SA19	St Abb's Head to Eyemouth	High
SA20	Eyemouth to Berwick upon Tweed	Medium

### Assessment of Effects

- 5.6 This section sets out the predicted magnitude of impact that will be experienced by each coastal character receptor as a result of the Offshore Wind Farm, and assesses the significance of the resulting effect. Magnitude of impact and significance of effect are defined in **Section 2**.
- 5.7 The magnitude of impact on each regional seascape unit is assessed with reference to available tools including the ZTV, wirelines, and photomontages. The assessment has been informed by fieldwork. Where visibility of the turbines is more extensive, they are likely to be more persistent features in the outlook from the coastal landscape, and therefore are more likely to result in perceptible effects on coastal character. Representative assessment viewpoints within each area are noted.
- 5.8 The effects on the character of regional seascape units are set out in **Table 5.2**.

**Table 5.2 Assessment of Effects on Regional Seascape Units**

Regional Seascape Unit	Sensitivity (see Table 2.1)	Theoretical visibility	Magnitude of impact (see Table 2.4)	Level of effect
SA4: Montrose Representative viewpoints: 2 St Cyrus	High	The ZTV indicates visibility along the elevated northern coast of the area, including Milton Ness and the cliffs at St Cyrus. There is no theoretical visibility from the mouth of the North Esk, and to the south only from the beach. Visibility from Montrose is blocked by the high ground of Scurdie Ness.	The turbines will be visible in the distance from elevated locations, at 48-50 km distance. From closer to sea level, including the long beach between St Cyrus and Montrose, there would be reduced visibility of the turbines due to the effects of earth curvature over this distance. Due to distance and atmospheric effects, the presence of the turbines will only be noticeable on very clear days (fewer than 50% of days). Lighting may be visible at night in the otherwise dark seascape, but will be very distant and not prominent.  The scale of change in coastal character will be barely perceptible, across a large geographical extent. The change will be long-term and reversible, and the magnitude of impact will be <b>very low</b> .	<b>Negligible</b>
SA5: Long Craig Representative viewpoints: n/a	Medium	The ZTV indicates visibility along almost all of this elevated coast, which has a generally south-easterly aspect.	Turbines would be visible between 41 and 43 km to the south, from these open clifftops, and from sea level will be less visible. Due to distance and atmospheric effects, the presence of the turbines will be noticeable on fewer than 50% of days. Lighting may be visible at night in the otherwise dark seascape, but will be very distant and not prominent.  The scale of change in coastal character will be barely perceptible, across a large geographical extent. The change will be long-term and reversible, and the magnitude of impact will be <b>very low</b> .	<b>Negligible</b>
SA6: Lunan Bay Representative viewpoints: 6 Braehead of Lunan	High	The ZTV indicates visibility along the northern part of the bay. From the Lunan estuary and the southern part of the bay, visibility will be blocked by the high ground of Lang Craig.	From elevated areas in the north of this area, turbines would be visible around 40 km to the south-southeast. Views would be slightly reduced at sea level. Turbines would not be visible from the southern part of the area. Due to distance and atmospheric effects, the presence of the turbines will be noticeable on fewer than 50% of days. Aviation lighting may be visible at night in the otherwise dark seascape, but will be very distant and not prominent.  The scale of change in coastal character will be barely perceptible, across a large geographical extent. The change will be long-term and reversible, and the magnitude of impact will be <b>very low</b> .	<b>Negligible</b>
SA7: Lang Craig to the Deil's Head Representative viewpoints: n/a	High	The ZTV indicates continuous visibility along this southeast facing section of coast.	From elevated areas along open cliff tops, turbines would be visible around 31 to 35 km to the south-southeast. Due to distance and atmospheric effects, the turbines will be visible on around 50% of days, and their presence is likely to be noticeable in this undeveloped seascape. Lighting may also be visible at night in the otherwise dark seascape.  The scale of change in coastal character will be small, across a large geographical extent. The change will be long-term and reversible, and the magnitude of impact will be <b>low</b> .	<b>Minor</b>

Regional Seascape Unit	Sensitivity (see Table 2.1)	Theoretical visibility	Magnitude of impact (see Table 2.4)	Level of effect
SA8: Arbroath to Monifieth  Representative viewpoints: 7 Arbroath Signal Tower 8 Carnoustie	Medium	The ZTV indicates continuous visibility along southeast facing sections of coast, and extending well inland. Only the southwest coast of Buddon Ness will have more limited visibility.	From the sea fronts of Arbroath and Carnoustie, and from open areas between, there would be views of the turbines around 30 km to the southeast. From inland parts of Arbroath and Carnoustie the turbines are unlikely to be perceptible, though they will be more noticeable from undeveloped coastal areas. Due to distance and atmospheric effects, the turbines will be visible on around 50% of days. Turbine lighting will be visible, and will be most perceptible from darker areas of the coast.  The scale of change in coastal character will be small, across a large geographical extent. The change will be long-term and reversible, and the magnitude of impact will be <b>low</b> .	<b>Minor</b>
SA9: Dundee  Representative viewpoints: 9 Dundee Law	Low	The ZTV indicates visibility from the coast between Monifieth and Dundee Harbour, but not from the Tay Road Bridge or Dundee waterfront.	Buildings are likely to screen many views of the turbines. Where they are seen from more open locations, they will be distant features unlikely to affect perceptions of the developed coast. Similarly, views of turbine lighting are unlikely to affect coastal character due to existing lighting.  The scale of change in coastal character will be barely perceptible, across a large geographical extent. The change will be long-term and reversible, and the magnitude of impact will be <b>very low</b> .	<b>Negligible</b>
SA10: Inner Firth of Tay  Representative viewpoints: n/a	Low	The ZTV indicates no theoretical visibility of the Offshore Wind Farm from this coast, which generally faces to the northwest. The only exception is at Newport on Tay at the western end, where the firth transitions into St Andrews Bay.	Within most of this area, the turbines will not be seen. Effects in the Newport on Tay area will be similar to those experienced in SA9 Dundee.  The scale of change in coastal character will be barely perceptible, across a large geographical extent. The change will be long-term and reversible, and the magnitude of impact will be <b>very low</b> .	<b>Negligible</b>
SA11: St Andrews Bay  Representative viewpoints: 10 Tentsmuir 22 St Andrews, West Sands	High	Theoretical visibility extends across this low-lying landscape, although actual visibility will be limited by Tentsmuir Forest. Part of the north-facing coast, east of Tayport, is outside the ZTV.	In views from these low-lying locations, the turbines will be low on the horizon, at around 30-33 km distance. From open areas including Tentsmuir Beach, the presence of the turbines may affect the perception of this area as a relatively remote seascape, particularly at night when turbine lighting may be visible. From more developed areas, as at Leuchars and St Andrews Links, the effect on local character will be less.  The scale of change in coastal character will be small, across a large geographical extent. The change will be long-term and reversible, and the magnitude of impact will be <b>low</b> .	<b>Minor</b>
SA12: St Andrews to Fife Ness  Representative viewpoints:	High	The ZTV shows theoretical visibility across most of this coast, though it is more limited across the area between St Andrews and Boarhills.	The presence of the Offshore Wind Farm will be noticeable in this coastal landscape, particularly to the east where turbines will be an increasingly persistent feature. The general lack of development renders the turbines as uncharacteristic features. At night, aviation lighting is likely to be visible, occasionally in the context of lights on the Angus coast, but also in currently very dark locations.	<b>Moderate</b>

Regional Seascape Unit	Sensitivity (see Table 2.1)	Theoretical visibility	Magnitude of impact (see Table 2.4)	Level of effect
12 East Scores 13 Fife Ness			The scale of change in coastal character will be medium, across a large geographical extent. The change will be long-term and reversible, and the magnitude of impact will be <b>medium</b> .	
SA13: East Neuk of Fife  Representative viewpoints: 13 Fife Ness 14 Anstruther 16 Isle of May 23 Crail	High	Theoretical visibility extends across the whole of this coast, only becoming more intermittent west of Elie.	Although there will be some localised screening, the presence of the turbines will be noticeable in this coastal landscape, particularly to the east. There are some locations where the outlook is mainly to the southeast, where the turbines may be peripheral, but many areas with an easterly outlook, where the turbines will be a presence between 15 and 30 km. Although the coast is settled, and there are views to lights on the Lothian coast, there are darker areas. The turbine lights will be seen in a currently dark sector of the view, affecting the night-time experience of the coast.  The scale of change in coastal character will be medium, across a large geographical extent. The change will be long-term and reversible, and the magnitude of impact will be <b>medium</b> .	<b>Moderate</b>
SA14: Kirkcaldy and Largo Bay  Representative viewpoints: n/a	Medium	Theoretical visibility is limited across Largo Bay, which is screened behind Elie Ness. Visibility extends across Leven, Methil and the Wemyss Coast.	Visibility of the development will be relatively limited from the built-up area of the seascape, and is unlikely to affect the experience of the developed coast. From less developed areas south of Buckhaven, the turbines will be visible from the elevated coast, but at 45 km and over will be noticeable on fewer than 50% of days. These views are unlikely to affect the experience of this coast.  The scale of change in coastal character will be barely perceptible, across a large geographical extent. The change will be long-term and reversible, and the magnitude of impact will be <b>very low</b> .	<b>Negligible</b>
SA16: Edinburgh to Gullane  Representative viewpoints: n/a	Medium	The location of this coast on the west side of East Lothian means that theoretical visibility of the Offshore Wind Farm is very limited, with only occasional views from higher ground around Gullane.	There will be very limited views of the turbines, and these will not impinge upon the main views from this coast, which are oriented to northwest. Effects on the experience of this coast are unlikely to occur. Where aviation lights are glimpsed, these may be seen in the context of lights on the Fife coast or towards Edinburgh, as well as nearby.  The scale of change in coastal character will be barely perceptible, across a large geographical extent. The change will be long-term and reversible, and the magnitude of impact will be <b>very low</b> .	<b>Negligible</b>
SA17: Eyebroughy to Torness Point  Representative viewpoints: 17 N. Berwick Law 18 Dunbar 24 Seabird Centre 25 Tantallon Castle	Medium	Extensive theoretical visibility is indicated across the East Lothian coast, including the low-lying shoreline and elevated cliffs, as well as the offshore islands.	Views of the turbines are likely to be available on more than 50% of days, as they will be between 27 and 35 km distant. Although this coast includes some significant development, particularly to the south, there are sections north of Tynninghame that retain a sense of remoteness, in which the turbines would be an uncharacteristic feature. The Offshore Wind Farm will be seen in the context of the characteristic offshore islands, including the Bass Rock. At night, lighting is a presence in many views, including local lighting and views of lights on the Fife coast. However, there are also dark	<b>Moderate</b>

Regional Seascape Unit	Sensitivity (see Table 2.1)	Theoretical visibility	Magnitude of impact (see Table 2.4)	Level of effect
26 Broad Sands 27 A198			<p>locations where aviation lighting will be an uncharacteristic presence in the coastal landscape.</p> <p>The scale of change in coastal character will be medium, across a large geographical extent. The change will be long-term and reversible, and the magnitude of impact will be <b>medium</b>.</p>	
SA18: Torness Point to St Abb's Head  Representative viewpoints: 20 Coldingham Moor	Medium	Theoretical visibility is continuous along this narrow, elevated coastal strip.	<p>With the exception of the western area, much of this coast is relatively remote, and views of the turbines will introduce an uncharacteristic feature. In the west, near Torness and the A1, the turbines are less likely to affect local character. Turbine lighting may appear uncharacteristic from the darker eastern areas. At between 28 and 32 km, the turbines are likely to be visible on more than 50% of days.</p> <p>The scale of change in coastal character will be small, across a large geographical extent. The change will be long-term and reversible, and the magnitude of impact will be <b>low</b>.</p>	<b>Minor</b>
SA19: St Abb's Head to Eyemouth  Representative viewpoints: 21 St Abb's Head	High	There is theoretical visibility from St Abbs Head, but the headland screens views from the area to the south. Theoretical visibility is shown across the area west of Eyemouth.	<p>St Abbs Head has a strong degree of remoteness, and the turbines will be uncharacteristic, though distant. From the coast around Eyemouth, the turbines will be visible on around 50% of days in characteristic northward views towards St Abbs Head. At night, aviation lighting may be visible, potentially affecting the remote character of St Abbs Head, but less likely to affect the settled area around Eyemouth.</p> <p>The scale of change in coastal character will be small, across a large geographical extent. The change will be long-term and reversible, and the magnitude of impact will be <b>low</b>.</p>	<b>Minor</b>
SA20: Eyemouth to Berwick upon Tweed  Representative viewpoints: n/a	Medium	From Eyemouth southwards, there is theoretical visibility from along the coastal edge, though this is intermittent due to screening by varied topography.	<p>Much of this area has an eastward aspect, and will be over 40 km from the turbines. As such, they will only be visible on fewer than 50% of days, and are unlikely to influence the experience of this coast. From the northern section at Eyemouth, effects will be similar to those assessed for SA19.</p> <p>The scale of change in coastal character will be barely perceptible, across a large geographical extent. The change will be long-term and reversible, and the magnitude of impact will be <b>very low</b>.</p>	<b>Negligible</b>

## Landscape Character

### Sensitivity of the Resource

- 5.9 Sensitivity of onshore landscape character types is assessed by evaluating their susceptibility to change of the type proposed, and the value placed on the landscape as a resource, in line with the method set out in **Section 2**.

### Assessment of Effects

- 5.10 This section sets out the predicted magnitude of impact that will be experienced by each coastal character receptor as a result of the Offshore Wind Farm, and assesses the significance of the resulting effect. Magnitude of impact and significance of effect are defined in **Section 2**.
- 5.11 The magnitude of impact on each landscape character type is assessed with reference to available tools including the ZTV, wirelines, and photomontages. The assessment has been informed by fieldwork. Where visibility of the turbines is more extensive they are likely to be more persistent features in the outlook from the landscape, and therefore are more likely to result in perceptible effects on landscape character. Representative assessment viewpoints within each area are noted.
- 5.12 The effects on the character of landscape character types are set out in **Table 5.3**.

**Table 5.3 Assessment of Effects on Landscape Character Types**

Level 2 Landscape Character Type	Sensitivity to offshore development (see Table 2.3)	Theoretical visibility of the Offshore Wind Farm	Magnitude of impact (see Table 2.4)	Level of effect
<p>Coastal Hills Headlands Plateaux and Moorlands</p> <p>Representative viewpoints: 11 Strathkinness 20 Coldingham Moor</p>	<p><b>Medium</b></p> <p>Susceptibility: Medium</p> <p>A landscape associated with the coast, and influenced by seaward views, which could be altered by the presence of offshore structures.</p> <p>Value: Medium</p> <p>Several local landscape designations, likely to be valued for recreation</p>	<p>This LCT occurs in the study area to the west and south of St Andrews, and at Coldingham Moor in the Borders.</p> <p>By St Andrews, theoretical visibility is more extensive to the west, across the sloping ground north of Strathkinness. Visibility is more limited to the south of St Andrews.</p> <p>In the Borders, the ZTV indicates visibility across north-facing slopes of Penmanshiel Moor and across parts of Lumsdaine Moor. More southerly-facing slopes have no theoretical visibility of the proposals.</p>	<p>By St Andrews, the turbines will be intermittently visible at around 26 to 33 km to the east. There would be some local screening by tree cover. Views of the turbines would not be persistent across these small areas, and are unlikely to affect landscape character.</p> <p>In the Borders, the landscape is open, though some forest plantations at Coldingham Moor will filter views. Turbines would be a visible feature on clear days, at between 32 and 35 km north. They would be a relatively small feature on the horizon. The presence of offshore turbines would have a minimal effect on perception of this open coastal moorland landscape.</p> <p>The scale of change in landscape character will be small, across a large geographical extent. The change will be long-term and reversible, and the magnitude of impact will be <b>low</b>.</p>	Minor
<p>Coastal Margins</p> <p>Representative viewpoints: n/a</p>	<p><b>Medium</b></p> <p>Susceptibility: Medium</p> <p>An attractive landscape, which derives some of its character from its association with the coast and coastal views.</p> <p>Value: Medium</p> <p>Several local landscape designations, likely to be valued for recreation</p>	<p>The ZTV indicates widespread visibility of the turbines from northern and eastern parts of this extensive East Lothian LCT. Visibility is concentrated along the northeast-facing slopes above Dunbar and Torness. Further west, visibility becomes more intermittent, and in landward areas is restricted to higher ground.</p>	<p>In the western part of this LCT views of the turbines will be intermittent, particularly given the relatively wooded landscape. To the east, on the more open sloping ground above Dunbar and Torness, the turbines will be a more persistent feature in the view, at around 29 to 33 km distance. This is a relatively developed landscape, already affected by views of large-scale industrial buildings, and turbines are unlikely to affect perceptions of the landscape.</p> <p>The scale of change in landscape character will be small, across a large geographical extent. The change will be long-term and reversible, and the magnitude of impact will be <b>low</b>.</p>	Minor
<p>Coastal Raised Beaches and Terraces</p>	<p><b>High</b></p> <p>Susceptibility: High</p> <p>The coastal experience is intrinsic to this character type, and Offshore</p>	<p>This LCT occurs around the Eden estuary, and extending northward to Tayport. Theoretical visibility is extensive across this northern area, but is more intermittent in the Leuchars/Guardbridge area.</p>	<p>There are some woodland and conifer plantations within this low-lying area, which is relatively detached from the coastal edge. Views of the turbines would be intermittent, at around 37 to 40 km distance. The presence of</p>	Negligible

Level 2 Landscape Character Type	Sensitivity to offshore development (see Table 2.3)	Theoretical visibility of the Offshore Wind Farm	Magnitude of impact (see Table 2.4)	Level of effect
Representative viewpoints: n/a	Wind Farm has the potential to affect perceptions of this landscape. Value: Medium Local landscape designations, likely to be valued for recreation, setting of settlements.	This LCT also occurs along the coast of the East Neuk, see SA12 and SA13 in Table 5.2 for assessment of effects on this area.	turbines will not affect the character of this landscape.  The scale of change in landscape character will be barely perceptible, across a large geographical extent. The change will be long-term and reversible, and the magnitude of impact will be <b>very low</b> .	
Dipslope Farmland Representative viewpoints: 5 Dodd Hill	<b>Medium</b> Susceptibility: Medium An agricultural area, where the sea forms a backdrop rather than a key part of the landscape. Value: Medium Likely to be valued for recreation, setting of settlements.	The ZTV indicates extensive visibility across the area between Dundee and Arbroath. The ZTV becomes increasingly intermittent inland, and there is very limited visibility beyond 10 km inland.	Forest plantations and shelterbelts would reduce actual visibility of the turbines, particularly to the north of Carnoustie.  Turbines would be visible at between 30 to 50 km distance, in the context of a farmed, settled landscape, which has numerous prominent man-made features. Views of turbines are unlikely to affect perceptions of this landscape.  The scale of change in landscape character will be barely perceptible, across a large geographical extent. The change will be long-term and reversible, and the magnitude of impact will be <b>very low</b> .	Negligible
Fife Lowland Farmland Representative viewpoints: n/a	<b>Medium</b> Susceptibility: Medium Although coastal views are a characteristic of this landscape, these views tend to be restricted to the more open areas. Elsewhere, coastal influence is limited, and the potential for offshore development to impact upon overall character is therefore reduced. Value: Medium Undesignated, but likely to be valued for recreation, and provides setting of settlements.	This LCT occurs in two main areas of Fife. The area around Cupar has very limited theoretical visibility. The larger area is located south of St Andrews, and occupies the inland part of the East Neuk. The ZTV indicates extensive visibility across this area, particularly in the east.	The most extensive visibility occurs across the area closest to the Offshore Wind Farm, 16km at its eastern extent. There is some local screening from shelterbelts and policy woodland, though this landscape is often open. In the most eastern parts of this LCT, and in places where there is a coastal association, views of the wind turbines are likely to become persistent, resulting in small changes to landscape character. Further west, as screening and distance increases, the magnitude of change will decrease.  The scale of change in landscape character will be small, across a large geographical extent. The change will be long-term and reversible, and the magnitude of impact will be <b>low</b> .	Minor
Foothills	<b>Medium</b> Susceptibility: Medium	This LCT occurs in several blocks across northern Fife. The ZTV is very limited in the west, but more concentrated on higher	There is some woodland in this landscape which would interrupt views, though hilltops tend to be more open. Lucklaw Hill is the closest hilltop to the proposals, at around	Negligible

Level 2 Landscape Character Type	Sensitivity to offshore development (see Table 2.3)	Theoretical visibility of the Offshore Wind Farm	Magnitude of impact (see Table 2.4)	Level of effect
Representative viewpoints: n/a	Coastal views are not a specific characteristic of this landscape, although several areas lie close to the Firth of Tay.  Value: Medium  Local landscape designations, likely to be valued for recreation.	ground and east-facing slopes to the east, particularly around Balmullo.	38 km. The turbines would be visible from this location, but are unlikely to affect the character of this farmed landscape.  The scale of change in landscape character will be barely perceptible, across a large geographical extent. The change will be long-term and reversible, and the magnitude of impact will be <b>very low</b> .	
Low Coastal Farmlands  Representative viewpoints: n/a	<b>Medium</b>  Susceptibility: Medium  Coastal views are a feature of this landscape, and offshore development has some potential to affect its character.  Value: Medium  Local landscape designations, likely to be valued for recreation and views.	Visibility is extensive across the northern area of this LCT, around Cockburnspath. There is little or no theoretical visibility from the area south of Coldingham Moor, though the ZTV includes some north-facing areas west and south of Eyemouth.	The northern area of this LCT is at around 30 to 35 km from the Offshore Wind Farm, and is generally open and facing the coast. The turbines are likely to be a small but persistent feature in views. The southern area of this LCT is more distant, at over 37 km, and views would be more intermittent, due to greater woodland cover.  The scale of change in landscape character will be small, across a large geographical extent. The change will be long-term and reversible, and the magnitude of impact will be <b>low</b> .	Minor
Lowland Coastal Flats Sands and Dunes  Representative viewpoints: n/a	<b>High</b>  Susceptibility: High  Coastal influence and views of the sea are a key characteristic of this landscape, and offshore development has the potential to affect its character.  Value: Medium  Local landscape designations, likely to be valued for recreation and coastal scenery.	This LCT occurs in small areas around Leuchars. Theoretical visibility is limited to the area west of Tentsmuir Forest.	Views of the wind turbines from this low-lying landscape would be largely screened by the dense Tentsmuir Forest. There may be glimpsed views from some locations, but these would not have an effect on landscape character.  The scale of change in landscape character will be barely perceptible, across a large geographical extent. The change will be long-term and reversible, and the magnitude of impact will be <b>very low</b> .	Negligible
Lowland Hills (South)  Representative viewpoints: n/a	<b>Low</b>  Susceptibility: Low  Although the sea is visible from the tops of these hills, it does not form a characteristic of the landscape.  Value: Medium	This LCT occurs in the study area at the Garleton Hills in East Lothian. The ZTV indicates visibility from hilltops and northeast-facing slopes, with the majority of the area having no visibility.	The turbines would be clearly visible in good conditions, at around 40 km distance. However, they would only be visible from hilltops such as at the Hopetoun Monument, and would not affect the wider landscape character.  The scale of change in landscape character will be barely perceptible, across a large	Negligible

Level 2 Landscape Character Type	Sensitivity to offshore development (see Table 2.3)	Theoretical visibility of the Offshore Wind Farm	Magnitude of impact (see Table 2.4)	Level of effect
	Local landscape designation, likely to be valued for recreation and views.		geographical extent. The change will be long-term and reversible, and the magnitude of impact will be <b>very low</b> .	
Lowland Plains Representative viewpoints: n/a	<b>Low</b> Susceptibility: Low A rural landscape of strong character, which is not primarily influenced by coastal views. Value: Medium Several local landscape designations, parts are likely to be valued for recreation, some areas of scenic value.	Theoretical visibility is intermittent across this broad LCT within East Lothian, and is limited to higher ground at upwards of 33 km from the turbines. The most extensive areas of visibility are furthest from the Offshore Wind Farm. Large areas of lower ground around the Tyne have no visibility.	There would be some localised screening by tree cover in this landscape, though elevated areas are often more open, particularly isolated summits such as Traprain Law. Although the turbines would be visible from parts of this landscape, they would not form a persistent feature, and would not affect landscape character.  The scale of change in landscape character will be barely perceptible, across a large geographical extent. The change will be long-term and reversible, and the magnitude of impact will be <b>very low</b> .	Negligible
Lowland River Valleys Representative viewpoints: n/a	<b>Low</b> Susceptibility: Low Coastal views are a feature of only limited parts of this landscape type. The presence of offshore features is unlikely to affect the experience of the wooded valleys, due to the limited nature of views. Value: Medium Several local landscape designations, likely to be valued for recreation and scenic qualities.	Of the two areas of this LCT in the study area, the Gifford valley has limited visibility from higher ground. Theoretical visibility from the Whittingehame valley is more extensive but still intermittent and limited to higher ground.	These wooded valleys are unlikely to offer extensive views of the turbines, due to local screening by woodland cover. Views of the turbines will be intermittent at most, and will not affect the character of the river valleys.  The scale of change in landscape character will be barely perceptible, across a large geographical extent. The change will be long-term and reversible, and the magnitude of impact will be <b>very low</b> .	Negligible
Narrow Wooded River Valleys Representative viewpoints: n/a	<b>Low</b> Susceptibility: Low An enclosed landscape, inward looking and not dependent on external views. Value: Medium Local landscape designations. Likely to be valued for recreation and scenic quality.	This LCT occurs in several locations in Fife. There is no visibility from the Kemback Valley. The Craigtoun area has extensive theoretical visibility. The ZTV indicates reduced visibility across the long, narrow Kenly and Kilduncan valleys. The more extensive area of this LCT around Largo has more limited visibility, largely restricted to higher ground to the east of Largo Law.	From the narrower, well-wooded Craigtoun, Kenly and Kilduncan valleys, the turbines would not be widely visible due to local screening, though there may be glimpsed views. From the area east of Largo Law, local screening is provided by policy woodlands and shelterbelts. Views of the turbines are unlikely to be seen as a persistent feature from these areas, and will not affect landscape character.  The scale of change in landscape character will be barely perceptible, across a large	Negligible

Level 2 Landscape Character Type	Sensitivity to offshore development (see Table 2.3)	Theoretical visibility of the Offshore Wind Farm	Magnitude of impact (see Table 2.4)	Level of effect
			geographical extent. The change will be long-term and reversible, and the magnitude of impact will be <b>very low</b> .	
Pronounced Hills  Representative viewpoints: 15 Largo Law	<b>Low</b>  Susceptibility: Low  Although there are views out to other landscapes, the key characteristics of this type are not vulnerable to changes in these views.  Value: Medium  Local landscape designations. Likely to be valued for recreation, views and scenic quality.	This LCT occurs across inland Fife, and stretches from the edge of the study area at Kettlebridge, to Kellie Law in the east. The ZTV indicates restricted visibility across most of this area, with visibility limited to higher ground in the southeast.	Views of the turbines would be intermittent at most from this area, with some local woodland screening. The main areas of theoretical visibility are between 27 and 31 km from the Offshore Wind Farm. However, views of the turbines are unlikely to affect perception of this rolling farmed landscape.  The scale of change in landscape character will be barely perceptible, across a large geographical extent. The change will be long-term and reversible, and the magnitude of impact will be <b>very low</b> .	Negligible
Upland Fringe Moorland and Grassland: the Lammermuir, Pentland and Moorfoot Hills  Representative viewpoints: n/a	<b>Medium</b>  Susceptibility: Medium  This landscape has a distinctive character, not strongly influenced by the coast, though views are a key element, and the presence of offshore development may affect their perception.  Value: Medium  Local landscape designations. Likely to be valued for recreation and scenic views.	The northern area of this LCT wraps around the Lammermuirs, and includes a number of northeast-facing slopes, particularly above Dunbar. Theoretical visibility is relatively extensive across this area, reducing to the west. A second area of this LCT is located within the Borders, and has very limited theoretical visibility.	The turbines would be visible at between 30 and 35 km from the northern part of this LCT, though with some localised screening by woodland cover and landform. Even in the area above Dunbar, views of the turbines are unlikely to be persistent, and would not result in changes to the character of this landscape. Further south and west, changes would be even more limited.  The scale of change in landscape character will be barely perceptible, across a large geographical extent. The change will be long-term and reversible, and the magnitude of impact will be <b>very low</b> .	Negligible
Upland Hills: the Lammermuir, Pentland and Moorfoot Hills  Representative viewpoints: 19 West Steel	<b>Medium</b>  Susceptibility: Medium  This landscape has an open upland character, not strongly influenced by the coast, though views are a key element, and the presence of offshore development may affect their perception.  Value: Medium	Theoretical visibility across this area is limited to high ground, including linear ridges such as Spartleton Edge and Lothian Edge. The majority of the area would have no visibility of the turbines.	Views towards the turbines would be occasionally screened by forest plantations, though many of the ridges with visibility are open. The turbines would be located over 35 km away, and would not be visible from most of this landscape. There would be very limited or no change to the character of this landscape, in which a number of wind turbines are already present.  The scale of change in landscape character will be barely perceptible, across a large	Negligible

Level 2 Landscape Character Type	Sensitivity to offshore development (see Table 2.3)	Theoretical visibility of the Offshore Wind Farm	Magnitude of impact (see Table 2.4)	Level of effect
	Locally designated. Likely to be valued for recreation and scenic quality.		geographical extent. The change will be long-term and reversible, and the magnitude of impact will be <b>very low</b> .	

## Summary of Effects on Coastal and Landscape Character

- 5.13 The SLVIA has identified significant (moderate) effects on the following three regional seascape units (as shown on **Figure 14.4 (Volume 3)**):
- SA12 St Andrews to Fife Ness;
  - SA13 East Neuk of Fife; and
  - SA17 Eyebroughy to Torness.
- 5.14 These areas are the closest to the Wind Farm Area, and have a generally open outlook towards the turbines. The Offshore Wind Farm may impact on the relationship between these coasts, the Forth, and the islands, as well as the perception of these areas as relatively wild coasts. Effects on all other regional seascape units are assessed as minor or negligible.
- 5.15 The SLVIA has identified no significant effects on landscape character types. Generally, the character of onshore landscapes is not defined by the relationship with the sea, as is the case with coastal character areas. As such, though it is likely to be visible, the SLVIA concludes that the Offshore Wind Farm will not significantly alter the experience of landscape character away from the coast.
- 5.16 The SLVIA concludes that the experience of landscape or coastal character is likely to be significantly affected by the Offshore Wind Farm in locations that are strongly coastal in their nature, that have open views towards the Wind Farm Area, and which are within 30 km of the Wind Farm Area. The experience of the remaining part of the study area will not be significantly affected.

### Night Time Effects

- 5.17 The aviation and navigation lighting on the turbines is likely to be visible during the hours of darkness from large parts of the study area. Based on observations from St Andrews of the Inch Cape met mast light, the aviation lights are likely to be visible from at least 35 km, although they may not be particularly noticeable at such distances. At closer distances, the lights will become noticeable features in the night-time coastal landscape.
- 5.18 The effects on character arising from views of this lighting mainly relate to a reduction in perceived wildness. Although lighting on shipping is not an uncommon feature in the Firth and Tay, and lighting is often visible from coastal locations in views across the two firths, there are nevertheless areas of high relative wildness, that experience dark skies at night. In particular, the eastern coasts of Fife (SA12 and SA13) and the northeast coast of East Lothian (SA17) are undeveloped and have limited visibility of lighting at night. Although the lighting will not be bright enough to obscure dark skies or interfere with stargazing, there will be some impact on the experience of these closer areas, which are considered to be highly sensitive to this type of change.
- 5.19 The scale of the change in the night-time experience of coastal character in eastern Fife will be medium, across a large geographic extent, and will be long-term and reversible. The magnitude of the impact will be medium and the effect will be moderate (significant).
- 5.20 Along the East Lothian coast, the lights will be much more distant, and the scope of change will be small, across a large geographic extent, and will be long-term and reversible. The magnitude of the impact will be low and the effect will be minor (not significant).
- 5.21 Along more distant coasts, and within inland landscapes, the effect of lighting on night time character will not be significant.

## Implications for Designated Landscapes

- 5.22 The assessment above concludes that significant effects on character will only occur at coastal locations within 30 km, which includes parts of the Fife and East Lothian coasts, with lesser effects occurring in other areas. The following section applies these findings to determine whether any local landscape designations will be adversely affected by the Offshore Wind Farm. This considers the particular features or criteria for which each area has been designated, and seeks to determine whether these will be affected by the Offshore Wind Farm. Based on the findings of this SLVIA in relation to effects on coastal and landscape character, only coastal landscape designations are considered.

### Aberdeenshire

#### *South East Aberdeenshire Coast SLA*

- 5.23 The 'qualifying interests' of the South East Aberdeenshire Coast SLA include the following points:
- *"Coastal routes include the A92, A90, east coast railway, footpaths and National Cycle Network (Route 1), all offering expansive views out to sea.*
  - *Panoramic views out to sea from headlands and beaches and important views along the coast, including the view over the sands at St Cyrus, and views from Dunnottar."*(Aberdeenshire Council, 2016).
- 5.24 Although the Offshore Wind Farm will be visible in these views on clear days, due to the distance involved effects will be limited (see Section 6). The SLVIA finds that there will be negligible effects on coastal character in this area. As such, the effect on these qualifying interests is likely to be low, and the other qualifying interests will be entirely unaffected.

### Fife

- 5.25 Four coastal Local Landscape Areas (LLA) are designated along the eastern coasts of Fife. The seaward boundary of these LLAs *"includes the inter tidal area and related offshore environment."* (Land Use Consultants, 2009).

#### *Tentsmuir Coast LLA*

- 5.26 This LLA covers a very narrow strip of beach and dunes at the fringe of Tentsmuir Forest. The designation statement focuses on the natural character of the area, including its remoteness, and its dynamic coastal nature. Seaward views are not specifically mentioned, though openness is clearly inferred in the description. Viewpoint 11 illustrates the likely visibility of the Offshore Wind Farm from this LLA, at over 30 km distance. Though visible, the wind farm is unlikely to have a significant effect on landscape character in this area, though it may affect the qualities of remoteness that contribute to this designation. Other qualities will be relatively unaffected, including the dynamic nature of the coast and the natural heritage interests.

#### *St Andrews Links LLA*

- 5.27 This LLA includes the links area to the north of St Andrews, and has been designated for a range of reasons including its seaward views and visual association with the town. The forces for change section specifically notes that *"Offshore wind development would potentially impact on the expansive open views."* Viewpoint 22 illustrates the likely visibility of the Offshore Wind Farm from this LLA, and shows how it may alter the relationship between the links and the town by adding a new focus to the view. However, the links landscape will retain its value as a green space with high recreational value and strong cultural associations with the 'home of golf', and is likely to remain a valued landscape were the Project to be built.

#### *St Andrews to Fife Ness LLA*

- 5.28 The designation statement for this LLA refers to its undeveloped nature, and the expansive seaward views that are characteristic of the area. The scenic nature of the coast is also described, particularly the contrast between exposed and more intimate areas. Viewpoint 13 illustrates the likely visibility of the Offshore Wind Farm from this LLA. The SLVIA identifies

significant effects on character in locations that will have open views towards the Offshore Wind Farm. This will affect the characteristic seaward views, but will not affect the other qualities for which this area is identified for designation, including its historic environment and recreational value.

#### *East Neuk LLA*

- 5.29 This LLA includes the coastal landscapes between Crail and Elie on the southeast coast of Fife. The designation statement refers to “*extensive seaward views*” that are experienced from the coast, and the contrast between open coastal farmland and intimate villages and policy landscapes. Offshore development is noted as a ‘force for change’, and it is stated that views “*which extend to the southern shore of the Forth should be protected from inappropriate offshore development*”. The Offshore Wind Farm will be visible in the extensive seaward views, but will not interrupt the views to the southern shore of the Forth. Viewpoints 14 and 23 illustrate the likely visibility of the Offshore Wind Farm from this LLA. There will be significant effects on coastal character in locations with open views to the Offshore Wind Farm, but the villages and policy landscapes that make this an attractive, valued landscape will not be affected and the reasons for designation will not be undermined.

#### *Forth Islands LLA*

- 5.30 Only one of the three designated islands, the Isle of May, is within the study area. The designation statement highlights its exposure and extensive views, but notes that weather often limits the latter. The Offshore Wind Farm will be visible from the Isle of May (see Viewpoint 16), and effects on coastal character are likely to be significant. However, the distinctive characteristics of the island, including its heritage and nature conservation value, will not be undermined, and its status as one of the scenic islands of the Forth will not be adversely affected.

#### **East Lothian**

- 5.31 Proposed SLAs in East Lothian are described in the Proposed Local Development Plan Technical Note 9: Local Landscape Designation Review (ELC, 2016), which includes statements of their ‘special qualities and features’. These designations will be adopted with the new LDP, which is currently at the proposed plan stage. At the time of writing, the LDP has not been adopted, and the AGLVs remain the local landscape designations in East Lothian, although these do not have detailed citations. These are considered in **Annex 4**.

#### *Port Seton to North Berwick Coast SLA*

- 5.32 This extensive SLA covers the northwest facing coast of East Lothian, overlooking the inner Firth of Forth. The ZTV indicates limited visibility of the Offshore Wind Farm over most of the SLA, though views of the turbines will be available from the north-facing coast between Eyebroughy to North Berwick. This part of the SLA includes the beaches and town of North Berwick, and the offshore islands of Fidra and Craigleith.
- 5.33 The special qualities and features mention the visual relationships between these islands and the coast, with the former acting as focal points in views from beaches such as Yellowcraigs. East ward views include “*some open views out to the North Sea*”, though most views are over the Forth Islands, and towards Edinburgh and Fife. Views considered important and popular include those from Yellowcraigs and North Berwick. The Offshore Wind Farm will be visible in some of these views, and significant effects on landscape character and visual amenity are predicted. Viewpoints 24 and 26 illustrate the likely visibility of the Offshore Wind Farm from this SLA. At night, visibility of turbine lighting may affect qualities of darkness in this northern part of the SLA. Other views towards Fife and Edinburgh will be unaffected, as will many other of the special qualities and features of the SLA.
- 5.34 There will be some effect on coastal character in part of this SLA, arising from distant views of the Offshore Wind Farm, with some implications for particular views. However, the Project will not affect the overall scenic quality of the SLA, particularly as it will not be visible across much of this area.

#### *North Berwick Law SLA*

- 5.35 This is a small SLA, covering North Berwick Law and its immediate surroundings. The special qualities and features focus on the role of the hill as an iconic landmark in the wider landscape. The excellent views along the coast are noted, taking in Fife, the Firth of Forth, Dunbar and Tantallon, and beyond. The Offshore Wind Farm will be visible from the summit, including in views of the Bass Rock, and significant effects on visual amenity are predicted. Viewpoint 17 illustrates the likely visibility of the Offshore Wind Farm from this SLA. The Project will not affect the setting of this landmark, or its relationship with the wider East Lothian landscape.

#### *Tantallon Coast SLA*

- 5.36 The coastline from North Berwick to St Baldred's Cradle is designated as East Lothian's "*most scenic and diverse stretch of coastline*", and includes the Bass Rock. The special qualities and features of this area include its relative wildness and elemental feel, despite views of shipping in the Forth and development on the Fife coast. Views over the Forth from many locations offer a sense of openness, and views to the Bass Rock are considered to be important from places including Tantallon. Dark sky qualities are also noted.
- 5.37 The Offshore Wind Farm will be theoretically visible along this coastline, particularly from more elevated locations around Tantallon where more of the turbines will be visible above the horizon. The Offshore Wind Farm will be seen in views towards Fife Ness and the Bass Rock. In clear weather, the turbines will be an unavoidable presence in views from this coastline, and significant effects on landscape character and visual amenity are predicted. Viewpoint 25 illustrates the likely visibility of the Offshore Wind Farm from this SLA. At night, lighting on the turbines will also be visible, affecting the lack of lighting that contributes to wildness, but not affecting dark sky quality as the lights will be very low on the horizon. The many other scenic, recreational, cultural and natural qualities of this SLA will be unaffected.

#### *Belhaven Bay SLA*

- 5.38 This SLA includes the coast between St Baldred's Cradle and Dunbar, and extends inland across the Tyne estuary. Among the extensive description of special qualities and features, a number of views are listed as being important, including views out to sea from Dunbar, Sandy Hirst, the A199 and St Baldred's Cradle. Sunrise views over the sea are mentioned, as is the relative wildness of the coastal landscapes, and dark skies.
- 5.39 The Offshore Wind Farm will be theoretically visible across much of this coast, and significant effects on landscape character and visual amenity are predicted to arise from the presence of the turbines. On days when visibility is suitable, the Offshore Wind Farm will be an unavoidable presence in seaward views. At night, lighting on the turbines will also be visible, affecting the experience of wildness, but not affecting dark sky quality as the lights will be very low on the horizon. The many other scenic, recreational, cultural and natural qualities of this SLA will be unaffected.

#### *Dunbar to Barns Ness Coast SLA*

- 5.40 Including the coastline between the town of Dunbar and Torness Nuclear Power Station, this SLA has high scenic and sensory value, with historic and recreational values. It is a "*purely coastal*" area, with views out to the North Sea imparting a sense of relative wildness. There will be views of the Offshore Wind Farm, which will be an unavoidable presence in views on days when visibility extends to 30 km or more. Viewpoints 18 and 19 illustrate the likely visibility of the Offshore Wind Farm from this SLA. The turbines will also be visible in views across this area that take in the Barns Ness lighthouse. Significant effects on landscape character and visual amenity are predicted along this coast as a result, which will impact on some of the qualities of the SLA associated with offshore views. However, other qualities of the SLA, such as the rugged landform and the fossil beach, will be unaffected.

#### *Thorntonloch to Dunglass Coast SLA*

- 5.41 The southern-most SLA along the East Lothian coast extends from Torness Power Station to the Council area boundary at Dunglass. The special qualities and features of this area include references to views from the A1 and East Coast Main Line railway out to sea. The Offshore Wind

Farm will be theoretically visible from this coastline, though effects on this coastal character area are not anticipated to be significant, due to increasing distance from the turbines. In the north of the area, turbines are closer and more likely to be visible. Although views from the coast may be affected, other qualities of the SLA, including the setting of Torness Power Station, will be unaffected.

### **Scottish Borders**

#### *Berwickshire Coast SLA*

- 5.42 The Berwickshire Coast SLA covers the elevated coastline south of Cockburnspath, where the landscape is described as “*dramatic and wild, expansive and exciting*” (SBC, 2012). The wildness of the coast is referred to more than once, as well as the “*long views to Fife*”. The Offshore Wind Farm will be visible in these views, at well over 30 km. Viewpoints 20 and 21 illustrate the likely visibility of the Offshore Wind Farm from this SLA. There will be some effects on the local experience of wildness but other qualities of the SLA, such as the attractive rocky scenery, will be unaffected and the reasons for designation will not be undermined.

### **Gardens and Designed Landscapes**

- 5.43 Eight GDLs were identified in Table 3.4 as requiring further consideration for potential effects on their status as designations.

#### *St Andrews Links*

- 5.44 The ZTV indicates extensive visibility across almost the whole of this flat, coastal area, and these views are represented by Viewpoint 22. There would be views of the Offshore Wind Farm at 30 km distance from much of this area, although with some screening provided by low level topography such as sand dunes. The coastal setting of the links is considered important, and views of offshore turbines may affect the open character of the site to some extent. The historic landscape importance of the site is unlikely to be affected.

#### *Cambo*

- 5.45 Theoretical visibility extends across this area, with the exception of the glen of the Cambo Burn. Mature policy woodland, particularly along the Cambo Burn, is likely to reduce views of the Offshore Wind Farm across the area, and effects are unlikely within this core area of the landscape. From more open coastal areas, such as on and around the golf course, the turbines will be clearly visible in the middle distance (19 km), and significant effects on views may be anticipated.

#### *Grey Walls*

- 5.46 Visibility is limited to a small area in the north of the GDL and an area to the south around the house. The core garden around the house is enclosed by walls, with views to the south, and the wind turbines will not be seen. There may be glimpsed views from peripheral areas, including the golf course, though these will not affect the character of the designation.

#### *Leuchie*

- 5.47 The ZTV indicates scattered visibility across this small GDL, largely in the northeast. Much of the GDL is surrounded by mature policy woodland, and views to northeast toward the Offshore Wind Farm would only be glimpsed from peripheral locations, across the flat coastal farmland, with no effect on historic character.

#### *Tynninghame*

- 5.48 The ZTV indicates extensive visibility across the northern and coastal parts of the GDL, though with more intermittent visibility to the south around the house. The Tynninghame designed landscape is surrounded by mature policy woodlands, which screen the core of the parkland from the coast. From coastal parts of the designed landscape, there are views across to Dunbar, and northeast out to sea. The Offshore Wind Farm would be seen in these views at around 29 km distance. The presence of the offshore turbines may affect the character of coastal parts of the GDL, but this will not be felt in the central parkland.

### *Biel*

- 5.49 The ZTV indicates visibility from the southern, more elevated part of the GDL, but not from the core parkland which is located in the Biel Water valley. The core parkland around the house is secluded, and unlikely to be affected by views of the Offshore Wind Farm. Views of the turbines would only be perceived from peripheral areas of the policies, where they would not affect the character of the GDL.

### *Broxmouth Park*

- 5.50 Theoretical visibility is extensive across the whole of this coastal GDL. The core area around the house is surrounded by mature policy woodland, with limited coastal views. There is an axial view along the Brox Burn towards the Isle of May, in which the Offshore Wind Farm may be visible in oblique views. Views of the turbines are likely from peripheral areas of the policies, but the character of the GDL will not be affected.

### *Dunglass*

- 5.51 The ZTV shows theoretical visibility across the northern coastal part of the GDL, but no visibility from the glens which run southwest from the coast. Policy woodlands flank the east and west, and extend along the glens, but the northern coastal flank of the designed landscape remains largely open to sea views. These views look over the A1 and Torness Power Station, and would include the Offshore Wind Farm, 31 km north-northeast. The turbines would be a relatively distant feature in the view, and are unlikely to result in changes to the underlying character of the GDL.

# 6 Effects on Visual Amenity

## Introduction

- 6.1 This section sets out the likely effects of the Offshore Wind Farm on views and the visual amenity of the study area. Effects on visual receptors will arise from the presence of the Offshore Wind Farm and construction/operation activities in the view.
- 6.2 The theoretical visibility of the Offshore Wind Farm is discussed in **Section 3**, with reference to the ZTVs (**Figure 14.2 (Volume 3)** and **14.3 (Volume 3)**).
- 6.3 The final choice of turbine and layout will have some effect on the nature of visual effects. However, the assessments carried out for the Original ES (where two layout scenarios were considered), the Addendum, the 2011 Design Sensitivity Analysis and the comparative layout assessment (see **Annex 1**) have all indicated that the scale and extent of effects is unlikely to vary significantly based on the parameters in the Design Envelope. While the arrangement of turbines may be different, this is unlikely to alter the level of effect assessed at any onshore location, given the distances to the Wind Farm Area.
- 6.4 The following sections report on the findings of the viewpoint assessment, which has assessed effects at each of the viewpoints identified in **Table 3.5**. This is followed by a summary of the effects likely to be experienced by each receptor group across the study area.

## Viewpoint Assessment

- 6.5 The viewpoint assessment considers the representative viewpoints identified in **Table 3.5**, and the night-time viewpoints listed in **Table 3.6**.
- 6.6 For each viewpoint, a description of the existing view is given, together with an assessment of sensitivity. The approach to assessing sensitivity considers the susceptibility of the receptor and the value attached to the view. The detailed methodology is given in **Section 2**. The likely change in view is then described, based on examination of wireline views in the field. The magnitude of impact and significance of effect are then assessed, based on the methodology set out in **Section 2**. This process is informed by the visualisations (wirelines and photomontages) included in **Figure 14.18 (Volume 3)** to **14.43 (Volume 3)**.
- 6.7 The viewpoint assessment is presented in **Annex 3**. The findings of the viewpoint assessment are summarised in **Table 6.1**, and the findings for the night-time viewpoints are summarised in **Table 6.2**.

**Table 6.1 Viewpoint assessment**

No.	Viewpoint	Sensitivity	Magnitude of impact	Level of effect
2	Beach Road, Kirkton, St Cyrus	High	Very low	Negligible
5	Dodd Hill	Medium	Very low	Negligible
6	Braehead of Lunan	High	Low	Minor
7	Arbroath Signal Tower	High	Medium	<b>Moderate</b>

No.	Viewpoint	Sensitivity	Magnitude of impact	Level of effect
8	Carnoustie	High	Medium	<b>Moderate</b>
9	Dundee Law	Medium	Very low	Negligible
10	Tentsmuir	High	Medium	<b>Moderate</b>
11	Strathkinness	High	Low	Minor
12	St Andrews, East Scores	High	Medium	<b>Moderate</b>
13	Fife Ness	High	High	<b>Major</b>
14	Anstruther Easter	High	High	<b>Major</b>
15	Largo Law	Medium	Low	Minor
16	Isle of May	High	High	<b>Major</b>
17	North Berwick Law	High	Medium	<b>Moderate</b>
18	Dunbar	High	Medium	<b>Moderate</b>
19	Innerwick	High	Medium	<b>Moderate</b>
20	Coldingham Moor	Medium	Low	Minor
21	St Abb's Head	High	Medium	<b>Moderate</b>
22	St Andrews, West Sands	High	Medium	<b>Moderate</b>
23	Crail	High	High	<b>Major</b>
24	Scottish Seabird Centre, North Berwick	High	Medium	<b>Moderate</b>
25	Tantallon Castle	High	Medium	<b>Moderate</b>
26	Broad Sands	High	Medium	<b>Moderate</b>
27	A198, North Berwick	High	Medium	<b>Moderate</b>
28	A199, East Linton	Medium	Low	Minor
29	Hopetoun Monument	High	Low	Minor

**Table 6.2 Night time viewpoint assessment**

No.	Viewpoint	Sensitivity	Magnitude of impact	Level of effect
N1	King's Road, Arbroath	High	Low	Minor

No.	Viewpoint	Sensitivity	Magnitude of impact	Level of effect
N2	Carmyllie	Medium	Low	Minor
N3	East Haven	High	Low	Minor
N4	St Andrews, East Scores	High	Medium	<b>Moderate</b>
N5	Crail	High	Medium	<b>Moderate</b>
N6	Scottish Seabird Centre, North Berwick	High	Low	Minor
N7	Dunbar	High	Medium	<b>Moderate</b>
N8	A199, East Linton	Medium	Low	Minor

### Summary of Viewpoint Assessment

- 6.8 Significant effects (moderate or greater) are predicted at viewpoints located at up to 35 km from the Offshore Wind Farm. Significant effects at this distance would be restricted to high-sensitivity viewers at the coastal edge. The most distant significant effects are identified where the Offshore Wind Farm would be seen in the context of existing focal points in the view, such as inshore islands and the Bass Rock as perceived from East Lothian.
- 6.9 Major effects are predicted at viewpoints up to 22 km from the Offshore Wind Farm. Each of these has a close connection to the open sea, with open views in which the Offshore Wind Farm would appear in a prominent position. Due to the relative proximity of the turbines, they would form a substantial feature in the view, and would be visible for most of the time.
- 6.10 Moderate effects are predicted at viewpoints located between 28 and 35 km from the Offshore Wind Farm. Moderate effects have been predicted at locations with important connections to the open sea, but where the Offshore Wind Farm will be more distant (e.g. VP 7 Arbroath Signal Tower, VP 21 St Abb's Head), and at locations where the turbines will be less central to the view (e.g. VP 12 St Andrews, VP 17 North Berwick Law).
- 6.11 Minor effects (not significant) are predicted at viewpoints between 32 and 39 km from the Offshore Wind Farm. These include locations of medium sensitivity where turbines will be visible (e.g. VP 20 Coldingham Moor), or high sensitivity locations at greater distances, where turbines will not be a substantial feature of the view (e.g. VP 6 Braehead of Lunan).
- 6.12 Negligible impact is predicted at the remaining viewpoints, which are located between 33 and 49 km from the Offshore Wind Farm. These are generally distant locations, with a lesser connection to the sea (e.g. VP 9 Dundee Law) and/or where the Offshore Wind Farm will only be a very small element in the view (e.g. VP 1 St Cyrus).
- 6.13 The assessment of night-time impacts considered a more limited set of viewpoints, and the findings are summarised in **Table 6.2**. This suggests that a similar extent of effects is anticipated, with significant effects on views from coastal locations at up to 30 km. Beyond this distance, lights will become increasingly distant point sources, and are not predicted to be particularly noticeable features. Effects are likely to be greater in locations where there is minimal light at present, particularly in closer range views. The intermittent nature of the lights, and their distinctive flashing patterns, will draw attention and increase the potential for adverse impacts. Navigation lighting on the lower part of the towers will be visible only at closer distances or elevated locations.
- 6.14 Night time views are anticipated to be experienced by sensitive receptors most commonly during the hours of dusk, when the lighter sky will render the lights less prominent. Their prominence is likely to increase in the hours of full darkness, though fewer receptors will be present to

experience this effect. As distant point sources, the lights will not cause sky glow or affect dark sky activities such as stargazing.

- 6.15 The detailed assessment of day time and night-time effects is presented in **Annex 3**.
- 6.16 Effects on viewpoints listed in **Table 3.7** have not been assessed in detail. Wirelines in **Figures 14.52 (Volume 3) to 14.57 (Volume 3)** illustrate the appearance of the Offshore Wind Farm from these locations. They confirm the general conclusions set out above that at coastal locations with open views effects are more likely to be significant, for example Fast Castle (**Figure 14.57 (Volume 3)**), where effects are likely to be similar to nearby St Abb's Head (VP 21, moderate and significant). In views from inland locations the turbines are more distant features. For example, in the views from the B roads in East Lothian (**Figures 14.54 (Volume 3) and 14.55 (Volume 3)**), the Offshore Wind Farm forms a relatively small element in the view, and will be further screened by woodland in the foreground.

#### *Conclusions of the Viewpoint Assessment*

- 6.17 In the analysis undertaken, significant effects on viewers have been predicted at viewpoints located at up to 35 km. Where high sensitivity viewers within around 22 km of the Offshore Wind Farm have unobstructed seaward views in which the turbines would be clearly visible, they may experience up to major effects on visual amenity. Similarly, such receptors within around 35 km of the Offshore Wind Farm may experience up to moderate effects on visual amenity. The level of effect would be dependent on a number of factors besides distance, and so it cannot be taken that all viewers within these ranges would be similarly affected.
- 6.18 At night, the visibility of flashing aviation and/or navigation lighting is predicted to give rise to moderate (significant) effects on high sensitivity receptors at locations up to 30 km from the offshore wind farm.
- 6.19 These distances are greater than those at which significant impacts would normally be expected to occur as a result of an onshore wind farm. This is because of the lack of intervening landform and vegetation, which would screen many views of an onshore wind farm. It also reflects the unusual appearance of large vertical structures in the marine environment where manmade structures are an unexpected element in the view.
- 6.20 Views from inland locations have not generally been judged as significant, due to the greater variety of views available over land. The simplicity of views over sea is therefore more vulnerable to changes as a result of the introduction of offshore turbines.

## Effects on Visual Receptors

- 6.21 The following sections consider effects on the receptor groups identified in **Section 3**. The conclusions are based on the findings of the viewpoint assessment, summarised in **Table 6.1** and **Table 6.2**.

### **Communities**

- 6.22 Twenty settlements are listed in Section 3.38, although there are a large number of smaller settlements and individual residential properties within the ZTV. Based on the findings of the viewpoint assessment, up to major (significant) effects could be anticipated at coastal settlements within 22 km, including Crail, Anstruther and Pittenweem. Major (significant) effects will only occur where the Offshore Wind Farm is clearly visible from locations with an existing open sea view. In the densely clustered East Neuk villages, this is likely to be limited to houses and harbourside locations along the sea front, as well as some properties higher up on the raised beach. Outside these settlements, there are likely to be a number of individual properties with open sea views, where similar effects are likely to be experienced.
- 6.23 Coastal settlements between 22 and 35 km, where up to moderate (significant) effects may be anticipated, include Arbroath, Carnoustie, St Andrews, St Monans, North Berwick, Dunbar, and Cockburnspath. Again, moderate effects will only be experienced by high sensitivity receptors who currently have unobstructed open sea views.

- 6.24 Viewers looking out from closer settlements at night, such as Crail and St Andrews, may experience significant effects as a result of visible aviation and navigation lighting on the turbines. This is most likely to be a significant effect in smaller settlements with fewer existing light sources.
- 6.25 No significant effects are predicted at more distant settlements or properties, though minor effects may occur.

### **Recreational Receptors**

- 6.26 A number of recreational locations are identified in Sections 3.39 to 3.42 from which users may view the turbines. Again based on the findings of the viewpoint assessment, up to major (significant) effects may be anticipated for recreational users at locations within 22 km. This would include the whole of the Isle of May as well as the 20-minute ferry crossing from Anstruther, as well as Cambo Gardens and a number of beaches, golf courses and caravan parks along the Fife coast.
- 6.27 Open coastal locations within 35 km, where moderate (significant) effects may be anticipated, include cliff top sites such as Tantallon Castle (VP 25), Fast Castle and St Abb's Head (VP 21), and beaches at Pease Bay, Tentsmuir (VP 10) and Carnoustie (VP 8). A large number of other formal and informal recreation destinations also lie within this zone, including numerous beaches, as well as the John Muir Country Park in East Lothian.
- 6.28 Views from inland recreational destinations, such as country parks and historic sites, are unlikely to be significantly affected.
- 6.29 Recreational boat users within the outer Firth of Forth and Firth of Tay will view the Offshore Wind Farm at relatively close ranges, depending on their course. Boat users may view the turbines for prolonged periods. Up to major (significant) effects are predicted.
- 6.30 Recreational use outside of settlements is less likely to be taking place during the hours of darkness, though there will be receptors at caravan parks and coastal campsites, for example. Night views of the flashing aviation and navigation lights on the turbines will reduce the experience of relative remoteness that may be associated with such sites. Where these higher sensitivity receptors view the turbine lighting from dark coastlines within 30 km of the Offshore Wind Farm, effects may be up to moderate (significant).

### **Travelling Receptors**

- 6.31 The potential for effects on views experienced by users travelling on several key routes within the study area, listed at Section 3.43 to 3.46, has been assessed. Walking and cycling routes are not likely to see substantial use during the hours of darkness, and no significant night-time effects are therefore predicted for these receptor groups.

#### *Walkers*

- 6.32 Walkers following the Fife Coastal Path pass along the coast at Fife Ness, which is the closest point to the Offshore Wind Farm (VP 13). Walkers approaching Fife Ness from the south will have more or less continuous views of the Offshore Wind Farm as they progress along the East Neuk Coast from Earlsferry (passing VP 14 and VP 23), for around 20 km of the route. Similarly, walkers approaching from the north will have more or less continuous views of the turbines between St Andrews (VP 12) and Fife Ness, for around 15.5 km of the route. Views will be locally screened by topography, vegetation and buildings, but the route is often right on the coastal edge. Turbines would be seen in the direction of travel, at distances of 15 to 30 km. Up to major (significant) effects are predicted. Walkers on this route would also see the turbines from the Tentsmuir area (VP 10), between the Eden estuary and Tayport, at distances of 30 to 35 km.
- 6.33 Walkers on the John Muir Way follow the East Lothian Coast, and would pass through the ZTV of the Offshore Wind Farm for around 36 km between Eyebroughy and Dungallass. A number of assessment viewpoints are on or close to the route, including VP 18, VP 24 and VP26. Views of the turbines would be generally oblique to the direction of travel, whichever direction is followed. There may be some screening by topography, vegetation and buildings, but the route is often

right on the coastal edge. Turbines would be visible at distances of 28 to 35 km. Up to moderate (significant) effects are predicted.

- 6.34 Walkers on the Southern Upland Way will have no view of the Offshore Wind Farm until the route emerges from the narrow, wooded Pease Dean. The route crosses coastal farmland for 2-3 km to the end point at Cockburnspath. The turbines will be visible at around 33 km to the northeast for this short section of the route. No significant effects are predicted, due to the short section of the route affected.
- 6.35 Walkers on other coastal footpaths within approximately 35 km, where open views are available towards the Offshore Wind Farm, may experience significant effects on views.

#### *Cyclists*

- 6.36 NCN Route 1 enters the study area from the west, and heads northeast to St Andrews, and then north around Tentsmuir to Dundee. It then follows the Angus coast, leaving the study area near St Cyrus. The route does not enter the ZTV until west of Strathkinness (VP 11), on the approach to St Andrews. It remains largely within the ZTV as it passes St Andrews, Leuchars and Tentsmuir (VP 10). It is outside the ZTV between Tayport and Dundee. Following the Angus coast, almost all the route is within the ZTV except two 5 km sections south of Lunan and at Montrose. It passes VP 6 Lunan and VP 7 Arbroath Signal Tower. Up to moderate (significant) effects are predicted over these sections of the route.
- 6.37 NCN Route 76 enters the study area at Berwick, and heads generally northwest along the coast to Dunbar, before heading inland towards Edinburgh. It briefly passes through the ZTV south of Eyemouth. Between the northern edge of Coldingham Moor, past Dunbar (VP 18) and on to East Linton, it is almost entirely within the ZTV. Up to moderate (significant) effects are predicted over this section of the route.

#### *Rail Routes*

- 6.38 The East Coast Mail Line (ECML) railway follows the coastal edge between Berwick and Burnmouth, over which section there would be very oblique, intermittent views of the Offshore Wind Farm, 40 to 50 km offshore. It then runs inland for a stretch, emerging on to the coast again between Cockburnspath and Dunbar. Over this stretch (around 15 km), there would be open views out to the offshore turbines, at around 28 to 30 km distance. The railway then turns inland, with only intermittent very oblique views from increasing distance. Trains on this stretch are all high-speed long distance services. Up to minor (not significant) effects are predicted.

#### *Roads and Tourist Drives*

- 6.39 The route of the A1 closely follows that of the ECML. The difference in visibility would relate to the direction of view from a vehicle (forwards rather than sideways as with rail). Southbound travellers would see the Offshore Wind Farm ahead between East Linton and Dunbar. Northbound travellers would have distant, intermittent views between Berwick and Burnmouth. People travelling in both directions would have oblique views between Cockburnspath and Dunbar. Up to minor (not significant) effects are predicted.
- 6.40 The East Lothian Coastal Trail/Scotland's Golf Coast Road (A198) is largely within the ZTV between Gullane and the A1, though actual visibility would be reduced by vegetation and other features. The turbines would be seen at 30 km or more, sometimes in open elevated views. VP 27 is on this road, east of North Berwick, and shows how the Offshore Wind Farm may be seen alongside the Bass Rock. As the viewer travels along the A198 the relationship of the wind farm, the Bass Rock and other features will change. The turbines will introduce a new focal feature of different form to the existing focal points of the Forth islands, with moderate (significant) effects on the most sensitive receptors.
- 6.41 The Fife Tourist Route follows the A917 along the East Neuk coast between Elie and St Andrews, and is generally within the ZTV. Although there is some roadside screening of views by vegetation and buildings, road users would see the Offshore Wind Farm in the direction of travel, at distances of 15 to 30 km. There would also be more limited or distant views from sections of the A955 and A914. Up to moderate (significant) effects are predicted.

- 6.42 The Angus Tourist Route follows the A930 and A92, which often run close to the coast, and are generally within the ZTV. Views of the Offshore Wind Farm would be oblique or perpendicular to the direction of travel, at distances of up to 30 km. Up to minor (not significant) effects are predicted.
- 6.43 By night, the attention of road and rail users is less likely to be focused on the view, and the turbine lights are more likely to be viewed as a passing feature of interest rather than as an intrusion in views (e.g. VP N8). Significant effects are not anticipated.

#### *Ferry Routes and Cruise Ships*

- 6.44 For visitors accessing the Isle of May via boat trips from Anstruther harbour, the Offshore Wind Farm will be clearly visible at between 15 and 22 km to the east, over the whole course of this 20-minute trip. Major (significant) effects are predicted. It is also possible to visit the Isle of May from North Berwick. Over the course of the 30-minute outward trip, the Offshore Wind Farm will increase in visibility. From North Berwick (VP 24) the turbines will be a distant feature, partly behind the horizon. Heading northeast, more of the turbines will be revealed, and the Offshore Wind Farm will be continuously in view. Major (significant) effects are predicted. The island and the boat trips are not accessible at night.
- 6.45 Cruise ships entering and leaving the Firth of Forth may pass relatively close to the Offshore Wind Farm, depending on their precise route. Passengers may view the turbines by day or night as a feature of interest as they pass by, and would see the Offshore Wind Farm for a short period of their voyage. The presence of the turbines is unlikely to affect the overall experience of entering the Forth. Significant effects are not predicted.

# 7 Cumulative Assessment

## Introduction

- 7.1 This section sets out the likely cumulative effects of the Offshore Wind Farm on coastal and landscape character and visual amenity in combination with other proposed or consented wind farm developments in the study area.
- 7.2 The assessment is based upon the cumulative ZTVs and wirelines, illustrating the potential visibility of the Offshore Wind Farm in conjunction with other wind farms considered in the assessment. The cumulative assessment methodology is included in **Section 2**.
- 7.3 The assessment considered potential cumulative effects on the landscape, coastal and visual baseline of the 50 km study area, as set out in **Section 3**.

## Cumulative Baseline

- 7.4 The cumulative baseline includes all operational and consented wind farms within 65 km of the Wind Farm Area. Proposed wind farms with submitted applications for consent are also included, as well as offshore wind farm proposals at scoping stage. The locations of all these schemes are illustrated in **Figure 14.8 (Volume 3)**.

### Offshore Wind Farms

- 7.5 Based on scoping responses, all proposed offshore developments within the 65 km search area, as well as the Kincardine Offshore scheme that is beyond this distance, are included in the assessment. The main focus is on the Inch Cape and Seagreen Phase I proposals, other schemes are mainly considered in terms of potential sequential effects. All offshore schemes are listed in **Table 7.1**.
- 7.6 The redesigned Inch Cape and Seagreen wind farms, currently at scoping stage, are considered to represent the 'worst case' in terms of cumulative visual effects, due to the larger turbine sizes being proposed. The consented Inch Cape and Seagreen wind farms are also listed in **Table 7.1** for reference, but have not been included in visualisations.
- 7.7 Cumulative ZTVs have been produced to show:
  - Neart na Gaoithe with Inch Cape (scoping) and Seagreen (scoping) (**Figure 14.9 (Volume 3)**); and
  - Neart na Gaoithe with the Fife Energy Park turbine, the Forthwind proposals, and Kincardine Offshore wind farm (**Figure 14.10 (Volume 3)**).
- 7.8 Visualisations in **Figures 14.18 (Volume 3)** to **14.43 (Volume 3)** include both Inch Cape (scoping) and Seagreen (scoping).

**Table 7.1 Offshore Wind Farms in the cumulative baseline**

Wind Farm	Planning status	Tip height (m)	Number of turbines	Distance from the Wind Farm Area
Inch Cape	Consented	198.5	110	18

Wind Farm	Planning status	Tip height (m)	Number of turbines	Distance from the Wind Farm Area
Inch Cape (scoping) <sup>7</sup>	Scoping	301	40	18
Seagreen Alpha and Bravo	Consented	209.7	150	43
Seagreen Phase I (scoping) <sup>8</sup>	Scoping	280	120	43
Fife Energy Park	Operational	195.6	1	44
Forthwind Demonstration Array	Consented	198.5	2	44
Forthwind Demonstration Array Extension	Scoping	198.5	7	44
Kincardine Offshore Wind Farm	Consented	176	8	75

### Onshore Wind Farms

- 7.9 All onshore wind farms within 65 km of the Wind Farm Area are listed in **Table 7.2** (in order of distance from the Wind Farm Area). This list excludes any single turbines of less than 100 m to tip height, and all turbines of less than 50 m to tip height, in order to focus on likely significant effects. The locations of all schemes are shown in **Figure 14.8 (Volume 3)**.
- 7.10 Due to the large number of wind farms and the scale of the area, an analysis of the overall pattern of development was undertaken to identify groups of wind farms. Combined ZTVs have been prepared to show visibility of the Offshore Wind Farm along with each of these groups, as set out below. Some smaller or distant schemes do not fall into any group, so are not included in combined ZTVs, but are still included in the assessment of effects.
- 7.11 In the north of the study area, a cluster of operational development is located in southern Aberdeenshire, including the Tullo and St John's Hill wind farms. These developments are identified as Group 1. A cumulative ZTV of this group with the Offshore Wind Farm is shown in **Figure 14.11 (Volume 3)**.
- 7.12 Turbines across Angus are limited. Aside from scattered farm turbines, the main focus of development is on the Sidlaw Hills, including Ark Hill and the consented Govals and Frawney schemes. These three schemes are identified as Group 2. A cumulative ZTV of this group with the Offshore Wind Farm is shown in **Figure 14.12 (Volume 3)**.
- 7.13 In Fife, the consented Kenly Wind Farm is the closest large-scale development to the Offshore Wind Farm, and is the only large-scale scheme in east Fife. Along with the nearby farm turbines, this is identified as Group 3. A cumulative ZTV of this group with the Offshore Wind Farm is shown in **Figure 14.13 (Volume 3)**.
- 7.14 In central Fife, a number of wind farms are located in the area between Cowdenbeath and Methil, including Little Raith wind farm and a number of larger wind clusters. These schemes are identified as group 4. A cumulative ZTV of this group with the Offshore Wind Farm is shown in **Figure 14.14 (Volume 3)**.
- 7.15 The largest concentration of wind farms in the study area is within the Lammermuir Hills and surrounding uplands. In the western part of the hills, wind farms will be less intervisible with the

<sup>7</sup> Project details for Inch Cape have been refined from 301 m to 291 m, but this information was received after Figures had been produced. The maximum number of turbines of the 301 m height was stated to be 40, and this has been illustrated as representing 'worst case' in terms of the visual contrast between Inch Cape and the Offshore Wind Farm.

<sup>8</sup> No layout information was initially provided for Seagreen Phase I, and ZTVs and visualisations are therefore based on an indicative layout devised by LUC, based on parameters supplied by Seagreen. Information subsequently received was not judged to make a material difference to ZTVs and visualisations, or to the assessments.

Offshore Wind Farm than the schemes in the eastern hills, and those that are closer to the coast. Three separate groups have therefore been identified for the purposes of the CLVIA:

- Group 5 includes Dun Law, Fallago Rig and adjacent schemes in the western Lammermuirs, and a cumulative ZTV is shown in **Figure 14.15 (Volume 3)**;
- Group 6 includes Crystal Rig, Aikengall and adjacent schemes in the eastern Lammermuirs, and a cumulative ZTV is shown in **Figure 14.16 (Volume 3)**; and
- Group 7 includes Drone Hill, Penmanshiel and other schemes in the northern part of the Scottish Borders, and a cumulative ZTV is shown in **Figure 14.17 (Volume 3)**.

**Table 7.2 Onshore Wind Farms in the cumulative baseline**

Wind Farm	Planning status	Tip height (m)	Number of turbines	Distance from the Wind Farm Area (km)	Group
Kenly	Consented	100	6	23	3
Bonerbo, Drumrack and Balmonth Farms	Operational	67	3	26	3
Kinegar Quarry	Consented	110	2	33	6
Moorhouse Farm	Consented	77.9	2	34	7
Drone Hill	Operational	76	22	34	7
Penmanshiel	Operational	100	14	35	7
Ferneylea Farm	Operational	71	2	35	6
Ferneylea Farm 2	Application Submitted	115	6	35	6
Hoprigshiels	Operational	125	3	35	6
Howpark Farm	Appeal/Public Inquiry	100	8	35	7
Aikengall	Operational	125	16	36	6
Crystal Rig - Phase 3	Operational	125	7	37	6
Aikengall II - Wester Dod	Operational	145	19	37	6
Aikengall IIa	Consented	145	19	38	6
Crystal Rig - Phase 1	Operational	100	20	38	6
Crystal Rig - Phase 2a	Operational	110	9	38	6
Quixwood	Operational	115	13	38	7
Crystal Rig - Phase 2	Operational	125	56	38	6

Wind Farm	Planning status	Tip height (m)	Number of turbines	Distance from the Wind Farm Area (km)	Group
Crystal Rig - Phase 1a	Operational	100	5	39	6
Brockholes	Operational	84	3	39	7
Michelin Tyre Factory (Dundee)	Operational	120	2	41	-
Weirburn House	Consented	54	2	41	-
Clatto Farm	Application Submitted	99.5	3	45	-
Black Hill	Operational	78	22	47	-
Woodbank Farm	Consented	120.5	1	47	4
Earlseat Farm	Operational	120.5	8	49	4
Frawney	Consented	80	5	49	2
Fallago Rig	Operational	125	48	49	5
Govals Farm	Consented	86.5	6	50	2
Fallago Rig 2	Application Submitted	126.5	12	50	5
Middle Balbeggie Farm	Consented	126.5	2	53	4
Noble Foods	Operational	126.5	1	54	4
Ark Hill	Operational	81	8	54	2
Brotherton Estate	Operational	99.5	2	54	1
Skeddoway Farm	Operational	126.5	1	54	4
Keith Hill	Under Construction	76	5	55	5
Pogbie Extension	Consented	74	6	56	5
Pogbie	Consented	76	6	56	5
Tullo	Operational	100	8	57	1
Gilston Hill	Application Submitted	126.5	7	57	5
Easter Tulloch	Operational	100	3	57	1

Wind Farm	Planning status	Tip height (m)	Number of turbines	Distance from the Wind Farm Area (km)	Group
Shiels	Operational	100	3	58	1
Tullo Extension	Operational	100	3	58	1
Dun Law - Phase 2	Operational	75	35	58	5
Dun Law - Phase 1	Operational	63.5	26	58	5
Westfield	Operational	110	5	59	4
Gevens Wind Cluster	Operational	99.5	3	60	4
St John's Hill	Operational	80	9	61	1
Whitton Farm	Consented	74	2	62	-
Binn Eco Park	Consented	115	4	62	-
Toddleburn	Operational	125	12	62	5
Little Raith	Operational	126	9	63	4
Goathill Quarry	Operational	100	1	65	4
Barmoor	Operational	110.5	6	65	-
Herscha Extension	Consented	79	2	66	-

## Assessment of Cumulative Effects

### Cumulative Effects on Coastal Character

- 7.16 Moderate (significant) cumulative effects on coastal character are predicted to be limited to the eastern tip of Fife Ness, where the nearby presence of the Offshore Wind Farm, in addition to the presence of Inch Cape, would affect the perception of character along the coastal edge of two regional seascape units (SA12 St Andrews to Fife Ness and SA13 East Neuk of Fife). The presence of Neart na Gaoithe with the more distant Seagreen Phase I Project would be less likely to give rise to significant effects due to the separation between the two sites. The Offshore Wind Farm will also contribute to cumulative effects along the Angus coast (SA8 Arbroath to Monifieth), though it will be more distant than Inch Cape. Both Inch Cape and Seagreen Phase I are 50 km or more from the East Lothian Coast, so cumulative effects on character are highly unlikely in this area.
- 7.17 No significant cumulative effects on coastal character are predicted to occur as a result of interactions with any other wind farms. ZTVs for other offshore wind farms overlap with that of the Offshore Wind Farm across small areas. With regard to onshore schemes, there are extensive overlaps of visibility, particularly across East Lothian where operational and proposed wind farms on the Lammermuirs are visible. However, none of the onshore wind farms assessed have strong influences on coastal character, with the exception of Drone Hill in the Scottish Borders, and potentially Kenly in Fife. There may be localised cumulative effects in relation to the latter, but Drone Hill is more distant. No significant cumulative effects are predicted.

### Cumulative Effects on Landscape Character

- 7.18 The landscape impact assessment has not identified any significant impacts upon landscape character areas from the Offshore Wind Farm. Due to its offshore location, there is no potential for the presence of the Offshore Wind Farm to transform any LCT into a 'wind farm landscape'. Given the low magnitude of impact identified in the stand-alone assessment, and the limited potential for offshore development to give rise to cumulative impacts on landward character, no detailed assessment of cumulative effects on onshore landscape character, as represented by LCTs, has been undertaken.
- 7.19 There is an increasing number of single turbines or small clusters of turbines of varying size across the landscape of the study area, which has had some effect on landscape character in places. The additional presence of the Offshore Wind Farm is not considered likely to contribute significantly to such effects, due to its different scale, form and marine location.

### Cumulative Implications for Local Landscape Designations

- 7.20 The St Andrews to Fife Ness LLA and East Neuk LLA cover areas that, as noted above, are likely to experience significant cumulative effects on coastal character as a result of views of the Offshore Wind Farm and Inch Cape. This will lead to further effects on qualities related to outlook and remoteness, but will not further affect any of the other qualities for which the areas are designated. There may be more limited effects on the Tentsmuir LLA and St Andrews Links LLA.

### Cumulative Effects on Visual Amenity

- 7.21 Assessments of cumulative effect at representative viewpoint locations are included in Annex 3, and the findings are summarised in **Table 7.3**.

**Table 7.3 Cumulative effects at Representative Viewpoints**

No.	Viewpoint	Sensitivity	Magnitude of impact	Level of effect
2	Beach Road, Kirkton, St Cyrus	High	Low	Minor
5	Dodd Hill	Medium	Low	Minor
6	Braehead of Lunan	High	Low	Minor
7	Arbroath Signal Tower	High	Low	Minor
8	Carnoustie	High	Low	Minor
9	Dundee Law	Medium	Very low	Negligible
10	Tentsmuir	High	Medium	<b>Moderate</b>
11	Strathkinness	High	Low	Minor
12	St Andrews, East Scores	High	Medium	<b>Moderate</b>
13	Fife Ness	High	High	<b>Major</b>
14	Anstruther Easter	High	Medium	<b>Moderate</b>

No.	Viewpoint	Sensitivity	Magnitude of impact	Level of effect
15	Largo Law	Medium	Low	Minor
16	Isle of May	High	High	<b>Major</b>
17	North Berwick Law	High	Low	Minor
18	Dunbar	High	Low	Minor
19	Innerwick	High	Low	Minor
20	Coldingham Moor	Medium	Low	Minor
21	St Abb's Head	High	Low	Minor
22	St Andrews, West Sands	High	Medium	<b>Moderate</b>
23	Crail	High	Medium	<b>Moderate</b>
24	Scottish Seabird Centre, North Berwick	High	Low	Minor
25	Tantallon Castle	High	Low	Minor
26	Broad Sands	High	Low	Minor
27	A198, North Berwick	High	Low	Minor
28	A199, East Linton	Medium	Low	Minor
29	Hopetoun Monument	High	Low	Minor

- 7.22 Significant cumulative effects have been predicted for high-sensitivity viewers at several representative viewpoint locations. These are all located on the Fife coast, in locations where the Offshore Wind Farm will be clearly visible alongside the proposed Inch Cape Offshore Wind Farm. The combined views of both offshore wind farms from these locations will result in a large sector of the seaward view being occupied by wind turbines. Similar effects would be anticipated if the consented Inch Cape scheme were present in place of the scoping scheme. This combination will not give rise to cumulative effects on views from East Lothian due to the greater distance of Inch Cape. Cumulative impacts arising from the combination of the Offshore Wind Farm and Seagreen Phase I are not anticipated to be significant, again due to the greater distance of the latter from shore.
- 7.23 The Forthwind turbines will be visible in successive views from locations in Fife and East Lothian, but the distances between them, and the developed coastal backdrop that these turbines are seen against, will reduce the potential for cumulative effects. There are very few locations where both the Offshore Wind Farm and the Kincardine Offshore turbines will be seen together, and any resulting effects will not be significant.
- 7.24 When considering onshore turbines, there are no coastal wind farms or proposals that are likely to be seen in combined views of the Offshore Wind Farm, with the exception of the consented Kenly Wind Farm in Fife that may be seen in more distant views from north and south, as well as local successive views. Other operational and consented wind farms are set back from the coast, in upland areas such as the Lammermuirs and Sidlaw Hills. Compared with the Offshore Wind

Farm, they have distinctly different appearance and context in views, and significant cumulative effects are not anticipated.

### Cumulative Night Time Effects

- 7.25 Assessments of cumulative effect at representative night time viewpoint locations are included in Annex 3, and the findings are summarised in **Table 7.4**.

**Table 7.4 Cumulative effects at night time representative viewpoints**

No.	Viewpoint	Sensitivity	Magnitude of impact	Level of effect
N1	King's Road, Arbroath	High	Low	Minor
N2	Carmyllie	Medium	Low	Minor
N3	East Haven	High	Low	Minor
N4	St Andrews, East Scores	High	Medium	<b>Moderate</b>
N5	Crail	High	Low	Minor
N6	Scottish Seabird Centre, North Berwick	High	Low	Minor
N7	Dunbar	High	Very low	Negligible
N8	A199, East Linton	Medium	Very low	Negligible

- 7.26 At night, significant cumulative effects are predicted where aviation and/or navigation lights of more than one offshore wind farm are visible at relatively close range, and where the Offshore Wind Farm being closer is likely to have a greater additional effect. This is anticipated for high sensitivity receptors along the areas along the northeast Fife coast, including people in St Andrews and coastal settlements, campsites and caravan parks.
- 7.27 Onshore wind farms do not, generally, include lighting. Future proposals for larger turbines in the Lammermuirs may require lighting, but this will be distant from the Offshore Wind Farm, and cumulative effects are not anticipated.

### Sequential Effects

- 7.28 Users of routes in East Lothian, including the coastal tourist route and John Muir Way, will have views of the Offshore Wind Farm, followed by views of the Forthwind turbines seen against a backdrop of development in Fife. Significant effects are not anticipated. Users of the Fife Coastal Tourist Route and Fife Coastal Path will have close views of the Forthwind turbines seen against the view to the Bass Rock and the outer Firth, followed by views towards the Offshore Wind Farm. Rounding Fife Ness, Inch Cape and Seagreen will be seen in sequence. Cumulative effects on views are predicted to be major (significant) for walkers on the Fife Coastal Path, and moderate (significant) for road users. Users of the Angus Tourist Route travelling north or south will have combined but oblique views of the Offshore Wind Farm and Inch Cape, and more distant Seagreen. Continuing on this route Kincardine Offshore Wind Farm will also be seen, though separated from the Offshore Wind Farm by some distance. Significant cumulative effects are not anticipated.

## 8 Summary and Conclusions

### Summary of effects

- 8.1 The SLVIA has assessed the potential effects on landscape and visual receptors of the construction, operation and decommissioning of the Project, both in isolation and cumulatively.

#### Construction effects

- 8.2 The visibility of offshore construction activity and vessel movements is not predicted to have significant effects on landscape and visual receptors. The presence of partially constructed turbines may have some effects, but these are not considered separately from operational effects.
- 8.3 Construction of the landfall will give rise to some landscape and visual disturbance, experienced by receptors at Thorntonloch Beach, though due to their temporary nature these effects are not judged to be significant.

#### Operational effects

- 8.4 All operational impacts of the Project are judged to be long term, and are fully reversible.
- 8.5 Effects on coastal character were judged to be moderate (significant) along the eastern coasts of Fife, and along the northeast coast of East Lothian. These areas are the closest to the Wind Farm Area, and will have a generally open outlook towards the turbines. The Offshore Wind Farm may impact on the characteristic relationships between these coasts, the sea, and the islands in the Forth. The presence of the turbines will affect perception of these areas as relatively wild coasts that are generally undeveloped. Impacts on all coastal character across the rest of the study area are assessed as minor or negligible (not significant).
- 8.6 At night, turbine lighting will alter the character of darker coastal landscapes, and will give rise to moderate (significant) effects on coastal character in eastern Fife. Effects on other coastal landscapes will not be significant.
- 8.7 No significant impacts were identified on inland landscape character. Effects on areas of Fife and East Lothian that have a strong coastal element were assessed as minor (not significant), with effects on all other areas assessed as negligible (not significant). This reflects the limited effect of the offshore development on the character of inland areas. At night, turbine lighting is not predicted to have significant effects on inland landscape character.
- 8.8 The SLVIA examined the implications of these predicted effects for the special qualities of landscape designations. The assessment concludes that, for most of the areas examined, there will be some effect on one or two identified qualities or reasons for designation, but in each case there are several other reasons for designation that will not be affected. The historic character of GDLs in particular was not judged to be affected at any site. Qualities of local landscape designations relating to open marine views and wildness are most likely to be affected where coastal character effects have been identified, namely along the eastern coasts of Fife and the northeast coast of East Lothian.
- 8.9 The viewpoint assessment considered the effects of the Offshore Wind Farm on views from 26 locations across the study area. The findings of this assessment have informed judgements on the extent of significant effects on views likely to be experienced.
- 8.10 Up to major (significant) effects on views are predicted for high-sensitivity receptors with open sea views up to 22 km from the Offshore Wind Farm. This may include people within the settlements of Crail, Anstruther and Pittenweem; visitors to the Isle of May (including the ferry access); recreational boat users in the outer Forth and Tay; and walkers on the Fife Coastal Path.

- 8.11 Up to moderate (significant) effects on views are predicted for high-sensitivity receptors in coastal locations up to 35 km from the Offshore Wind Farm. This may include people within the settlements of Arbroath, Carnoustie, St Andrews, St Monans, North Berwick, Dunbar, and Cockburnspath; recreational visitors to coastal castles, beaches and other attractions; walkers on the John Muir Way in East Lothian; cyclists on NCN Routes 1 and 76; and tourists using the East Lothian and Fife tourist drives.
- 8.12 Receptors over 35 km from the Offshore Wind Farm, or in inland locations with limited seaward views, or who are of lower sensitivity, are not predicted to experience significant effects on views.
- 8.13 At night, the visibility of flashing aviation and/or navigation lighting is predicted to give rise to moderate (significant) effects on high sensitivity receptors at locations up to 30 km from the offshore wind farm. This may include people in the settlements of Crail, St Andrews and Dunbar; people at coastal campsites or caravan parks; and small numbers of recreational walkers. Effects on more distant receptors, and less sensitive receptors, are not predicted to be significant since the lights will not be immediately noticeable in the view, and will only be apparent with more prolonged viewing opportunities.
- 8.14 The level of impact would be dependent on a number of factors besides distance, and so it cannot be taken that all viewers within these ranges would be similarly affected.

### **Cumulative effects**

- 8.15 The main focus of the cumulative impact assessment is the relationship between the Offshore Wind Farm and the proposed Inch Cape and Seagreen Phase I wind farms.
- 8.16 Moderate (significant) cumulative effects on coastal character are predicted to be limited to the eastern coasts of Fife, and parts of the Angus coast, where the nearby presence of the Offshore Wind Farm, in addition to the presence of Inch Cape and of Seagreen Phase I, would affect the perception of character along the coastal edge. Cumulative effects on coastal character across the rest of the study area are not predicted to be significant.
- 8.17 No significant cumulative effects on coastal character were predicted as a result of the interaction of the Offshore Wind Farm with any onshore wind farms. There may be additional implications for a small number of the special qualities of local landscape designations in eastern Fife, though the integrity of the designations will not be affected.
- 8.18 No significant cumulative effects on inland landscape character are predicted to arise as a result of the presence of the Offshore Wind Farm.
- 8.19 Significant cumulative effects are predicted for high-sensitivity receptors on the Fife coast, in locations where the Offshore Wind Farm will be clearly visible alongside the proposed Inch Cape Offshore Wind Farm. The combined views of both offshore wind farms from these locations will result in a large sector of the seaward view being occupied by wind turbines. Receptors including people in the settlements of St Andrews, Crail and Anstruther; visitors to Tentsmuir and other recreational locations along the north and east Fife coasts; and users of the Fife Tourist Route, will experience up to moderate (significant) effects. Locally, walkers on eastern sections of the Fife Coastal Path, visitors to the Isle of May, and recreational boat users in the outer Firth of Tay, will experience up to major (significant) effects.
- 8.20 From locations in Angus, closer views of Inch Cape and Seagreen Phase I wind farms mean that the additional effect of the Offshore Wind Farm will be smaller. From East Lothian, Inch Cape and Seagreen Phase I wind farms will be very distant and are unlikely to be noticeable features, so no cumulative effects are predicted. There may be minor (not significant) effects on views from northern East Lothian, where the proposed Forthwind turbines would be seen in successive views, though these will be closer and seen in a more developed context than the Offshore Wind Farm.
- 8.21 Sequential effects on views are predicted to be up to major (significant) for walkers on the Fife Coastal Path, and moderate (significant) for users of the Fife Coastal Tourist Route, who will have views of the Forthwind turbines, followed by the Offshore Wind Farm, Inch Cape and Seagreen Phase I wind farms in turn. Other sequential effects are not judged to be significant, including sequential views of the Offshore Wind Farm and Kincardine Offshore Wind Farm.

- 8.22 Onshore wind farms tend to have a distinctly different appearance and context in views. There are few locations where combined views of the Offshore Wind Farm with proposed onshore schemes occur, and significant cumulative effects are not anticipated.
- 8.23 At night, significant cumulative effects are predicted where aviation and/or navigation lights of more than one offshore wind farm are visible at relatively close range. This is anticipated for high sensitivity receptors in the areas along the southeast Angus and northeast Fife coasts, which may include people in St Andrews and at coastal campsites or caravan parks, and very small numbers of recreational users during the hours of darkness.

#### **Decommissioning effects**

- 8.24 Decommissioning effects were not assessed separately, since the effects of decommissioning activities will be very similar to those associated with construction of the Offshore Wind Farm. On completion of decommissioning, all of the landscape and visual effects associated with the Project will cease.

## **Conclusion**

- 8.25 The SLVIA has identified a number of significant effects on coastal character and on visual amenity. These effects will occur along sections of coastal landscape, and will be experienced by higher sensitivity receptors. A precautionary approach has been taken in assuming that these effects will be perceived as adverse, although a receptors are likely to adopt a range of reactions to offshore wind energy development, including neutral and positive responses.
- 8.26 The assessment is based on assumptions of maximum visibility, although as shown in Table 3.8, atmospheric visibility varies significantly, and there will be many days when the Offshore Wind Farm will not be visible from the coast, and when no effects will therefore occur.
- 8.27 The Offshore Wind Farm will not give rise to any permanent effects, as the turbines and other infrastructure will be removed on decommissioning, at which point all landscape and visual effects will cease.

## 9 References

- Aberdeenshire Council (2016) *Aberdeenshire LDP Supplementary Guidance 9: Aberdeenshire Special Landscape Areas*.
- ASH Consulting (1998a) *The Lothians Landscape Assessment*. (Scottish Natural Heritage Review No 112)
- ASH Consulting (1998b) *The Borders Landscape Character Assessment*. (Scottish Natural Heritage Review No 91)
- Countryside Commission (1996) *Countryside Character of England: Volume 1* (North East England)
- David Tyldesley and Associates (1998) *Analysis of National Landscape Character Types in Scotland* (Scottish Natural Heritage)
- David Tyldesley and Associates (1999) *Fife Landscape Character Assessment* (Scottish Natural Heritage Review No 113)
- East Lothian Council (2016) *Proposed Local Development Plan Technical Note 9: Local Landscape Designation Review*
- Environmental Resources Management (1998) *South and Central Aberdeenshire Landscape Character Assessment* (Scottish Natural Heritage Review No 102)
- Enviro (2005) *Guidance on the Assessment of the Impact of Offshore Wind Farms: Seascape and Visual Impact Report* (Prepared for the Department of Trade and Industry (DTI))
- Historic Environment Scotland (1987-2017) *An Inventory of Gardens and Designed Landscapes in Scotland*. Available at [<http://portal.historicenvironment.scot/designations>]
- Landscape Institute and Institute of Environmental Management and Assessment (2013) *Guidelines for Landscape and Visual Impact Assessment*, 3<sup>rd</sup> Edition.
- Landscape Institute (2011) *Photography and photomontage in landscape and visual impact assessment. Advice Note 01/2011*.
- Land Use Consultants (1999) *Tayside Landscape Character Assessment*. (Scottish Natural Heritage Review No 122)
- Land Use Consultants, Carol Anderson and STAR Group (2009) *Fife Local Landscape Designation Review* (Fife Council)
- Scottish Borders Council (2012) *Supplementary Planning Guidance: Local Landscape Designations*.
- Scottish Natural Heritage (2017a) *Siting and designing wind farms in the landscape. Version 3*
- Scottish Natural Heritage (2017b) *Visual Representation of Wind Farms: Good Practice Guidance. Version 2.2*.
- Scottish Natural Heritage (2017c) *Guidance Note: Coastal Character Assessment*.
- Scottish Natural Heritage (2012a) *Offshore Renewables: Guidance on assessing the impact on coastal landscape and seascape*.
- Scottish Natural Heritage (2012b) *Assessing the cumulative impact of onshore wind energy developments*.
- Scottish Natural Heritage (2008) *Guidance on Landscape/Seascape Capacity for Aquaculture*.

- Scottish Natural Heritage (2006) *Visual Representation of Wind Farms: Good Practice Guidance. Version 1.*
- Sullivan, R., Kirchler, L., Cothren, J., Winters, S. (2013) *Offshore Wind Turbine Visibility and Visual Impact Threshold Distances (Environmental Practice 15(1) pp.33-49)*  
doi:10.1017/S1466046612000464

# Annex 1

## Neart na Gaoithe Offshore Wind Farm Design Analysis

### Introduction

- 9.1 This Annex presents considerations in relation to the layout of the Offshore Wind Farm from a landscape and visual perspective. It includes a review of earlier work carried out on this topic, the available guidance on aesthetic aspects of offshore wind farm design, and the constraints on wind farm layout. It examines a series of alternate layout types, including the indicative layout included in the Environmental Impact Assessment (EIA) Report, as well as considering turbine blade tip height. A series of observations are made in relation to optimal wind farm layouts from a visual perspective.

### SNH Comments on the Scoping Report

- 9.2 In responding to the Scoping Report, Scottish Natural Heritage (SNH) noted that the report did not explain 'design objectives' for the Offshore Wind Farm. SNH commented that:
- *"The proposed changes will draw particular attention to wind farm design on its own and in combination with other resubmitted proposals in the area.*
  - *Due to the increases in turbine height and spacing, individual turbines will be more easily seen and the rotational blade movement may become more noticeable.*
  - *The depth of field will also be more apparent; it might be possible to see into the wind farm and potentially pick out the more distant turbines.*
  - *Overall, the visual complexity will increase: this will be of particular concern in relation to views from the closest coastal stretches and nearby coastal settlements."*
- 9.3 The Scoping Report referred to a maximum turbine height of 230 metres (m), which has since been refined to 208 m for the Application. As such, the proposed turbines are only 11 m higher than the 197 m turbines in the Originally Consented Project.
- 9.4 Cumulative effects are addressed in the seascape, landscape and visual impact assessment (SLVIA). The viewpoint assessment identifies how the larger turbines proposed for Inch Cape offshore wind farm may appear closer to the viewer than Neart na Gaoithe, when they are in fact at similar distances. The difference in size will be most apparent from the coasts of southern Angus and northern Fife. Due to the longer timescales over which Inch Cape and Seagreen Phase I offshore wind farms are likely to be built, it is reasonable to assume that these schemes will adopt the most efficient technology available in future, which is likely to involve much larger turbines than the Project. Machines of this size are unlikely to be available in the shorter term, which has led NnGOWL to adopt a maximum height of 208 m. While the likely different appearance of the offshore wind farms is acknowledged, it is not considered that meaningful design objectives can be developed to address this issue at the current time.

### Wind Farm Layout Considerations

- 9.5 **Plate A1.1** sets out the range of factors that typically guide the development of a layout for an offshore wind farm. Aesthetic design is only one aspect among a large number of factors that constrain flexibility in turbine siting. Many of these constraints are unknown at the EIA stage, and so the use of the 'design envelope' approach includes the development of indicative layouts. These indicative layouts inform the EIA process, but do not necessarily resemble the wind farm that will eventually be built, including in relation to aesthetic appearance.
- 9.6 The indicative layout illustrated in the EIA Report is not therefore the result of an aesthetic design process, since the Offshore Wind Farm is unlikely to be constructed in this form.

**Plate A1.1 Factors affecting wind farm layout**



## Existing guidance on offshore wind farm design

### **Siting and Designing Wind Farms in the Landscape (SNH, 2017)**

- 9.7 The principal published guidance on the aesthetic design of wind farms is 'Siting and Designing Wind Farms in the Landscape' (SNH, 2017). This is primarily aimed at onshore development, though some of the key principles can be applied to offshore schemes. For example, the general advice to relate wind farm layout to the underlying landform translates at sea to a preference for more regular grid layouts, and this is what has generally been deployed at offshore wind farms in UK waters.
- 9.8 Limited specific guidance is given on offshore wind farms: paragraph 2.31 advises:
- "The design of offshore wind farms, with the greatest number of turbines in formal grid layouts, can lead to distinctive visual effects. From one part of the coast offshore turbines will be seen clearly in rows with the sea horizon visible between them, but by moving along the coast the design can appear more confused, with the turbines appearing as a constant mass on the horizon. It will be important to consider these design effects during project development and appraise the wind farm's image from sensitive receptors."

### **Offshore Renewables Guidance (SNH, 2012)**

- 9.9 Further guidance is provided in 'Offshore Renewables – Guidance on assessing the impact on coastal landscape and seascape' (SNH, 2012). In chapter 5, this document recognises the difficulty in applying layout design principles to a design envelope.
- 9.10 More specific design considerations for offshore turbines are set out at paragraph 5.6:
- *"How they relate to the coast, their position within a channel, or firth*
  - *How the height of turbines relates to other coastal elements or features, for example power station chimneys, prominent focal hills or mountains*
  - *Whether they will be backclothed by sea or land*

- *Their scale if positioned within a firth on a major sea route, or on a tourist/transport route*
- *How they relate, as a new focal feature, to their surroundings – for example, by replacing the value of existing landmarks.*
- *How they will be viewed from settlements on the coast, as well as those that enjoy an 'outer' marine backcloth."*

9.11 Annex 2 of the document provides a list of 'recommended outputs' for an offshore wind farm SLVIA, including "design concept (plan(s) and text)":

9.12 "This is needed in order to investigate the likely impacts of different layouts (e.g. grid, offset grid, arc array). This preliminary stage can examine visibility issues. The assessment process should demonstrate and be able to explain why a particular layout is likely to be selected."

### **Seascape and Visual Impact Assessment Guidance (DTI, 2005)**

9.13 The 'Guidance on the Assessment of the Impact of Offshore Wind Farms: Seascape and Visual Impact Report' (DTI, 2005) sets out guidelines on the principles and process of SLVIA. It includes a chapter on siting, layout and design, which recommends relating the offshore development to the character (patterns, colour, other qualities) of the seascape and coastline, though there is limited guidance on how this can be achieved. It is noted that in the absence of "strong patterns to relate to", then an offshore wind farm may create new patterns. Clearer guidance is offered in relation to visual receptors, including suggestions to optimise layouts in relation to any highly sensitive views identified.

9.14 The DTI guidance also notes the need to compromise between a range of competing constraints, and highlights the role that marine safety plays in the preference for grid layouts. This section concludes that the 'horizontal spread' of turbines should be minimised from key views, and recommends that alternative layouts should be reviewed from several key viewpoints in relation to seascape and visual effects.

9.15 Design solutions are also suggested as a response to weather, light and aspect, with a view to 'concealing' the offshore turbines through use of colour tones. The great variety of viewing conditions is described and illustrated, but little guidance is given as to how these can be reconciled. Turbine lighting requirements are also discussed, though the principal means of mitigating any resulting effects is to site turbines as far offshore as possible.

### **Other Offshore Wind Farms in the UK**

9.16 The majority of the 25-30 operational offshore wind farms in UK waters have adopted a grid layout, usually offset to some degree, though some are regular grids. A small number have more irregular layouts, though even these tend to be based on grid patterns rather than being genuinely 'organic'. A (non-exhaustive) literature search has not identified any recent UK offshore wind farm where 'design objectives' were presented as part of EIA, nor where the development of wind farm layout was clearly explained according to aesthetic principles, in the way that would normally be done for an onshore proposal.

## **Previous work**

9.17 The appearance of the Offshore Wind Farm has been considered in previous studies related to the Project.

### **Design Sensitivity Analysis (2011)**

9.18 In 2011, the Forth and Tay Offshore Wind Developer Group (FTOWDG) commissioned a Design Sensitivity Analysis to identify differences in predicted levels of visual impact associated with different wind farm designs. The analysis involved generating wireframe views of the four Forth and Tay offshore wind farms (the Project, Inch Cape and Seagreen Alpha and Bravo) from three key viewpoints, using different proposed turbine heights and different arrangements of turbines as follows:

- orthogonal grid;
  - offset grid; and
  - a series of arcs.
- 9.19 These wirelines were reviewed and ranked independently by three landscape architects, according to which layouts demonstrated the most balance, coherence and greatest degree of 'legibility', and avoided serried ranks of turbines extending from the viewpoint.
- 9.20 The analysis concluded that an offset grid layout was the most visually preferable of the three layout scenarios, in the greatest number of views. However, the consultants agreed that the preference was not strong, and that different layouts appeared better in some views than others.
- 9.21 Another key observation was the level of clutter which arose from a denser layout. There was a preference for the least 'busy' layouts, which derived from the maximum height turbines, with attendant greater spacing between turbines and reduced total number of turbines.
- 9.22 The approach to the Design Sensitivity Analysis was discussed with the stakeholder group, including SNH, MS-LOT and Local Planning Authorities (LPAs), and the completed analysis was submitted to the stakeholder group for information.

### **Originally Consented Project SLVIA (2012)**

- 9.23 The Originally Consented Project SLVIA considered two layout scenarios: a 'maximum height' layout based on fewer, taller turbines, and a 'maximum density' layout based on a larger number of smaller turbines. The following general observations were made:
- due to the absence of scale references in the open sea, the larger turbines of the maximum height scenario tend to appear closer, while the smaller turbines of the maximum density scenario appear more distant;
  - again due to the absence of scale references, the greater number of turbines of the maximum density scenario gives the impression of a more extensive wind farm, compared to fewer turbines in the maximum height scenario, although they occupy the same area and therefore the same proportion of the view;
  - this scale difference is more apparent in closer views. At greater distances, the apparent difference between the scenarios becomes increasingly imperceptible; and
  - since both indicative layouts are based on the same offset grid pattern on the same alignment, they appear similar in terms of the arrangement of turbines.
- 9.24 The SLVIA concluded that, although there would be discernible differences between the appearance of the two layouts, the magnitude of effect, and significance of any impacts, would remain similar.

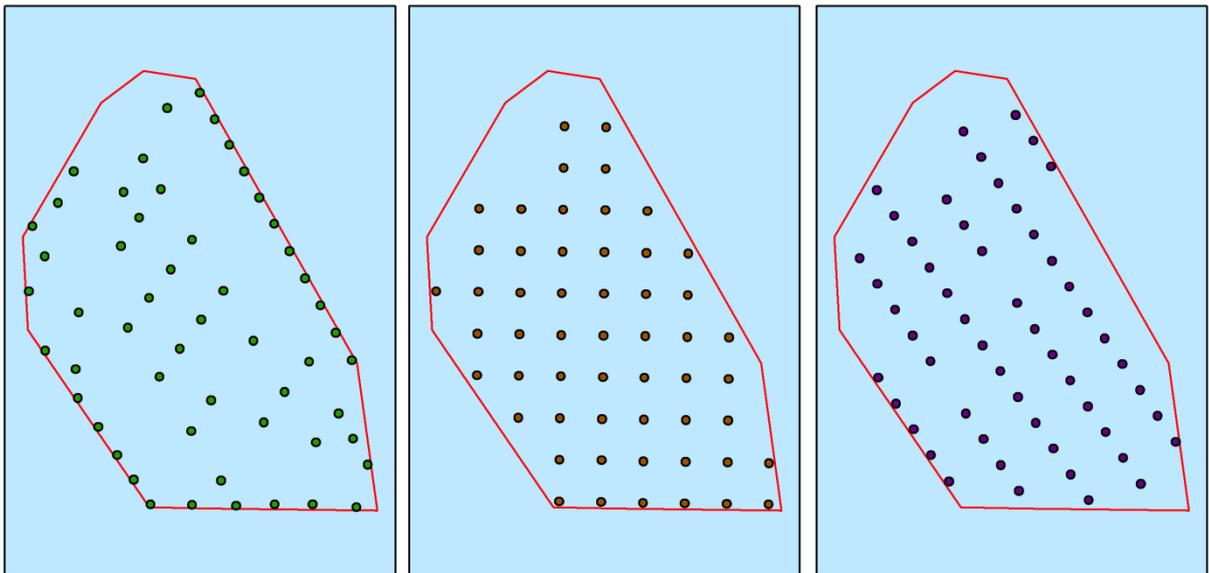
## **Scope of this Analysis**

- 9.25 With reference to the guidance quoted above, this Annex explores the relative impacts of different design approaches, and the resulting appearance of the Offshore Wind Farm from key onshore viewpoints.
- 9.26 This analysis considers two aspects of wind farm design:
- The arrangement (layout) of turbines; and
  - The blade tip height of the proposed turbines, in comparison to the Originally Consented Project.
- 9.27 The analysis concludes with a series of observations on 'design objectives' that can be considered in the development of the Offshore Wind Farm project design.

## Turbine Layout

- 9.28 In order to examine the appearance of different arrangements of turbines, alternative illustrative layouts were generated by NnGOWL:
- The illustrative application layout developed for the EIA, comprising an outer 'ring' of closely-spaced turbines, with more widely spaced turbines in the centre;
  - A regular grid with rows of turbines aligned to north-south and east-west, with a spacing of 8 rotor diameters; and
  - An offset grid with rows of turbines aligned to the prevailing wind, with a spacing of 6 rotor diameters crosswind and 10 rotor diameters downwind.
- 9.29 These are shown in **Plate A1.2**. Each layout includes 54 turbines of the dimensions assessed in the SLVIA (208 m tip height, 167m rotor diameter).

### Plate A1.2 The application layout; 8x8 regular grid; and 6x10 offset grid



- 9.30 Wireline views of each layout were generated from five viewpoints, selected to illustrate views from several different directions:
- VP7 Arbroath Signal Tower;
  - VP12 St Andrews, East Scores;
  - VP13 Fife Ness;
  - VP17 North Berwick Law; and
  - VP21 St Abb's Head.
- 9.31 The above viewpoints were selected as being high sensitivity locations where the layout and arrangement of the turbines was likely to be perceived. They are generally more elevated locations, since at sea level the turbines begin to dip below the horizon and the layout differences may be less pronounced. St Andrews was included to consider whether the relationship of the land and sea would affect perceptions of the turbines.
- 9.32 **Figures A1.1 to A1.5 (Volume 3)** show all three wirelines from each viewpoint side by side, with an included angle of 53.5 degrees.

### VP7 Arbroath Signal Tower

- 9.33 This viewpoint is directly aligned with the angle of the offset grid, which is designed in response to the prevailing wind. The central row of the offset grid appears as a dense group of turbines,

while the adjacent rows also appear closely 'stacked' in the view. Only the outer rows can be clearly read as individual turbines. The appearance of gaps and spaces in this view serves to increase the perceived horizontal spread of the layout, although it is only marginally broader than the regular grid, which from this angle appears almost random. This layout presents a more uniform spread of turbines; though there is still some bunching this is much less noticeable and there are no obvious gaps in the array. The EIA layout, being at a similar orientation to the offset grid, is also aligned with the viewpoint. The more irregular pattern means that the turbines are less ranked, but still clearly appear as a series of rows or groups, with spaces between. The broadening effect noted for the offset grid is less noticeable here.

### **VP12 St Andrews, East Scores**

- 9.34 All three layouts appear relatively random from this location. The offset grid shows the greatest degree of bunching, with a group of turbines noticeable off the coast of Fife Ness. The two grid layouts produce notable outliers from this angle, particularly the regular grid where two pairs of turbines appear dislocated from the otherwise evenly spaced array. The EIA layout appears the most organic from this angle, since the greater irregularity of layout produces a similar irregularity of appearance.
- 9.35 The meeting of coast and sea forms a focal point in this view, looking along the coast of Fife. All of the layouts show a relatively continuous spread of turbines behind this feature, but it would be extremely difficult to prepare a design response to this, since the relationship of the view to the Offshore Wind Farm varies as the viewer moves around. A break in the layout would only relate to the transition when viewed from this location, and may appear as a design flaw from other angles.

### **VP13 Fife Ness**

- 9.36 As the closest point on land, the view from Fife Ness will most readily allow the Offshore Wind Farm layout to be perceived. The bunching of turbines in both grid layouts is obvious, and in the case of the regular grid results in a particularly unbalanced appearance. This layout shows outlying pairs, rows with gaps, dense stacking in the centre, and a range of more evenly spaced turbines to the south, resulting in an unappealing whole. The offset grid manages to present a more regular appearance, while maintaining the sense of underlying logic. The EIA layout appears relatively random, with an organic appearance that may relate better to the nature of the local coastline. The more even spread appears to de-emphasise turbine height, in comparison with the regular grid layout, albeit that the horizontal spread itself is greater, which is particularly apparent from this relatively close point.

### **VP17 North Berwick Law**

- 9.37 This viewpoint illustrates the relationship between the Offshore Wind Farm and an existing focal feature, the Bass Rock. The regular grid layout shows a dense bunching of turbines to the left (north) of the view, which could form a competing focal feature, distracting attention from the dramatic Bass Rock. By contrast, the more even spread of turbines seen above the rock in the same image does not include such focal points. The offset grid has its own focal point of bunching, which is less obvious than the regular grid, and is placed directly above the rock in the view. This may serve to focus attention more towards the rock, particularly given the more even spacing across the rest of the layout. The more irregular EIA layout has no obvious focal points, but turbines are randomly spread. The absence of such focal points means that particular points of the Offshore Wind Farm do not compete for attention with the Bass Rock.

### **VP21 St Abb's Head**

- 9.38 The offset grid, from this angle, appears as a relatively evenly spaced array of turbines, with some limited stacking of turbines in the centre, and slight outliers to the right (east). The regular grid is also well spaced, apart from the spacing on the right (east), where the outlying pair is pronounced. The EIA layout is again more irregular in appearance, though in this view some denser groups of turbines are clearly seen. Horizontal spread is similar for each layout.

## Summary

- 9.39 Although not designed for its appearance, the semi-regular nature of the EIA layout does tend to produce a relatively even spread of turbines from most angles. While it lacks the sense of order arising from a grid layout, it also avoids the clear bunching of turbines in views that is an inevitable consequence of grids. Any grid layout will appear as groups of turbines with spaces from some viewpoints, e.g. the offset grid from Arbroath and the regular grid from Fife Ness. Clear rows of turbines can form focal points, channelling views to where the densest clusters of turbines lie. A less rigid layout can reduce these inherent problems.

## Turbine Blade Tip Height

- 9.40 The maximum blade tip height within the current design envelope is 208 m above LAT. This is less than the 230 m indicated in the Scoping Report, and only 11 m taller than the maximum consented blade tip height.
- 9.41 While the maximum consented blade tip height is 197 m, following the granting of consent, NnGOWL developed a likely design that utilised a lower height. SNH have referred to this proposal in correspondence as the '2014 most likely scenario' (MLS). For the purposes of this analysis, NnGOWL provided a layout representing this 2014 MLS, comprising 75 turbines of 184.5 m tip height (hub height 107.5 m, rotor diameter 154 m).
- 9.42 Comparative wirelines were generated from the same five viewpoints noted above, and these are presented in **Figures A1.6 to A1.10 (Volume 3)**. It should be noted that this is an academic exercise as, once built, there would be no means of comparing turbine height.

## Analysis of Wirelines

- 9.43 From Arbroath, 30.8 km from the Wind Farm Area, the difference between the turbine heights is not immediately apparent. The difference can be discerned, but does not represent a significant change. From St Andrews, which is slightly closer at 28.2 km, the appearance of the Fife coast in the view allows easier scale comparison. It can be seen that more of the turbine blades can be seen above the headland in the EIA Layout than in the 2014 MLS. More hubs can also be seen, but the turbines to the right (south) of the layout are still only visible as blades. The increase in height does not give rise to a significant change in the visibility or appearance of the Offshore Wind Farm.
- 9.44 The difference in height is most apparent from Fife Ness, being the closest viewpoint at 15.5 km. The wirelines show that, while the difference can be observed, it is not immediately obvious. What is more immediately apparent is the greater spacing of the EIA layout, which presents a more open arrangement, with more turbines apparent as individual features. However, it is not clear that this difference represents a step change or passes a threshold where higher levels of effect may be anticipated.
- 9.45 From North Berwick Law and St Abb's Head, both elevated viewpoints around 33 km from the Wind Farm Area, the difference in height is not immediately apparent, although as above, the layout shows a more open arrangement. The presence of the Bass Rock in the former view offers a scale reference, and when viewed side by side the increase in height can be discerned. However, in the field the change in turbine height is unlikely to give rise to any significant change in visual effect from these viewpoints.

## Summary

- 9.46 The maximum blade tip height considered in the SLVIA is over 30 m taller than that included in the 2014 MLS. From the closest viewpoints this change is unlikely to be discernible in the field, and does not represent any significant increase in the likely scale of effect. From more distant viewpoints, the change in height can only be discerned by examination of side by side images, and does not represent any significant change in the appearance of the turbines.

## Conclusions

- 9.47 The following conclusions arise from the analysis presented above, and from pre-existing guidance. They can be considered as 'design objectives' that, if applied to the project design, may enhance the appearance of the wind farm in views from the shore.
- Seek to minimise the overall horizontal spread of the Offshore Wind Farm in views from the shore, by forming a compact layout within the Wind Farm Area;
  - Avoid outlying turbines that will appear detached from the rest of the Offshore Wind Farm;
  - Seek to balance the logic of a grid layout with the more organic appearance of an irregular layout;
  - Highly regular grids have a logical appearance but lead to dense stacking of turbines in particular views that are aligned with the layout – this can create an uneven appearance of clusters and gaps which changes significantly from different view angles;
  - The distribution of sensitive visual receptors, to the northwest, west and southwest, means it is unlikely that a grid layout could be devised so as to avoid stacking effects at all of these locations;
  - Introducing a degree of irregularity, as the EIA layout does, creates a more organic appearance that can help to avoid the clustering or stacking of turbines in the view;
  - A more irregular layout also shows less change from different angles, so that it is more likely to present a coherent appearance from multiple viewpoints; and
  - There is no clear pattern in the seascape that a regular grid could meaningfully respond to, which again may favour a more irregular design solution.
- 9.48 Application of these design objectives is unlikely to alter the scale or significance of effects on landscape character and visual amenity identified in the SLVIA.
- 9.49 The greater maximum blade tip height of the turbines, up to 208 m in the current application, is unlikely to substantially change the appearance or level of effects when compared to the 2014 MLS (184 m) or the Originally Consented Project (197 m).

## **Annex 2**

# Seascape Character Assessment: Aberdeen to Holy Island



## **Scottish Offshore Wind Farms – East Coast**

### **Regional Seascape Character Assessment: Aberdeen to Holy Island**

Forth and Tay Offshore Wind Developers Group (FTOWDG)

December 2011

# Regional Seascape Character Assessment: Aberdeen to Holy Island

## 1 Introduction

- 1.1 As part of the collaborative approach to impact assessment being taken by the Forth and Tay Offshore Windfarm Developer Group (FTOWDG), a common seascape character baseline has been prepared. This note sets out the approach taken to carrying out a regional seascape character assessment (SCA) for FTOWDG.
- 1.2 The use of a common baseline will ensure consistency between SLVIAs for the offshore wind farms in the Forth and Tay area. The SCA was undertaken following discussions between FTOWDG, SNH and local authorities.
- 1.3 The SCA has been developed jointly by three landscape consultants working on behalf of the three developers in the FTOWDG. The methodology and approach was developed and agreed by the three consultants. In order to streamline the characterisation process each consultant was assigned responsibility for characterisation across a separate study area, as set out in Table I.

**Table I Consultants involved in the assessment**

Consultant	Area of focus
SLR Consulting	Aberdeen to Firth of Tay
Land Use Consultants	Firth of Tay to North Berwick
Pegasus Planning Group	North Berwick to Holy Island

- 1.4 The resulting descriptions and assessments for all areas were reviewed by all three consultants, and the findings were agreed prior to finalisation of this report.
- 1.5 The study area covers the coastline from Aberdeen in the north to Holy Island in the south. This area has been determined using a combined extent of a 50km radius from the boundaries of each of the FTOWDG wind farm areas.

## METHODOLOGY

- 1.6 The methodology has been developed based on a simplified and less technical adaptation of the approach set out in ‘*Guide to Best Practice in Seascape Assessment*.’<sup>1</sup> A less technical approach was considered appropriate due to the purpose of the SCA, as a baseline for assessment rather than as a ‘stand-alone’ document. Other documents referred to in developing the approach were ‘*Guidance on Landscape/Seascape Capacity for Aquaculture*,<sup>2</sup> and *An assessment of the sensitivity and capacity of the Scottish seascape in relation to offshore windfarms*.’<sup>3</sup>
- 1.7 Based on desk study, the coastline of the area was initially subdivided into areas of discrete character, based on analysis of coastal morphology and topography, underlying geology, and levels of human influence.
- 1.8 A series of criteria were developed, based on those used in ‘*An assessment of the sensitivity and capacity of the Scottish seascape in relation to offshore wind farms*’, to define sensitivity to offshore wind farm development. These were modified to include aspects of seascape covered in ‘*Guidance on Landscape/Seascape Capacity for Aquaculture*’ and are listed in **Table 2**.
- 1.9 It is to be noted that SNH issued an Advice Note on 22<sup>nd</sup> July 2011 drawing specific attention to the methodology in the ‘*Guidance on Landscape/Seascape Capacity for Aquaculture*’. This guidance document had not been raised previously, and work had already been undertaken on this baseline report prior to 22<sup>nd</sup> July 2011.
- 1.10 Although the methodology described in the aquaculture document has not been followed, it is considered that the method adopted is fit for purpose. Had the aquaculture methodology been adopted, it is not considered that the outcome would have differed.
- 1.11 This document sets out the key characteristics for the seascape character areas, but does not describe the characteristics of the landward character areas, which are set out in SNH’s Landscape Assessment publications and Natural England’s National Landscape Character Assessment publications for England.

---

<sup>1</sup> Countryside Council for Wales, Brady Shipman Martin, University College Dublin (2001) *Guide to Best Practice in Seascape Assessment*. Maritime Ireland / Wales INTERREG

<sup>2</sup> Scottish Natural Heritage (2008) *Guidance on Landscape/Seascape Capacity for Aquaculture*.

<sup>3</sup> Scott, K.E., Anderson, C., Dunsford, H., Benson, J.F. and MacFarlane, R. (2005). *An assessment of the sensitivity and capacity of the Scottish seascape in relation to offshore windfarms*. Scottish Natural Heritage Commissioned Report No.103 (ROAME No. F03AA06).

**Table I Assessment criteria**

Criteria	Tend to increase sensitivity	Tend to decrease sensitivity
Scale and openness	<p>Small scale, enclosed, views to horizon limited by landform</p> <p>Introduction of an element of scale into previously un-scaled area</p> <p>Where openness is a key characteristic and introduction of built elements would compromise this</p>	Large scale, open views
Form	Intricate, complex, rugged forms	Flat, horizontal or gently undulating Simple forms
Settlement	<p>Small scale, traditional, historic settlements. Small clustered villages</p> <p>Lack of infrastructure</p>	Linear settlements, urban form, larger scale infrastructure
Pattern and foci	<p>Complex or unified pattern which would be disrupted by turbines</p> <p>Important focal points eg headlands, offshore islands, hills, lighthouses</p>	<p>Simple pattern</p> <p>Lack of landmarks or focal points</p>
Lighting	<p>Where the area is unlit at night</p> <p>Little impact of lights from sea and land traffic</p> <p>Where lighting is from scattered small settlements, lighthouses etc and windfarm lighting would introduce a new, different scale</p>	<p>Area is already well lit at night</p> <p>Lights of sea and land traffic present</p>
Movement	<p>Where stillness is a key feature</p> <p>Where/when movement is highly natural, irregular or dramatic (on exposed coastlines, waves crashing) and regular mechanical movement of turbines would distract</p>	<p>In busier areas where turbine movement relates to other forms of mechanical movement present eg cars, boats, aircraft</p> <p>Where/when waves are gentler and slow, regular movement of turbines could compliment lapping of waves</p>
Aspect	<p>Coastal views are aligned towards the location of the potential turbines</p> <p>Aspect towards open sea</p> <p>Turbines would interfere with sunrises and particularly sunsets</p> <p>Where turbines would be most often front lit, thereby increasing contrast and appearing bright against the backcloth of the sea surface</p>	<p>Coastal views are aligned away from the location of the potential turbines</p> <p>Aspect towards inner firths (assuming that the offshore wind farm development is proposed outwith such areas)</p> <p>Turbines would be away from sunrise and sunset positions</p>

Criteria	Tend to increase sensitivity	Tend to decrease sensitivity
How experienced	From secluded coastline, intimate coastal roads and footpaths  From important viewpoints and elevated positions where the focus is the view and not the activity  Experienced close at hand, with associated maritime sensory experiences (eg sound, smell of the sea)	From main coastal, busy roads.  Beaches where focus is on beach activities  Maritime sensory experience (eg sound, smell of the sea) more limited or at a remove
Modifications/ Remoteness/ Sense of Naturalness	Undeveloped seascape  Natural, unmanaged  Remote or isolated	Developed seascape  Modified/managed  Not remote
Exposure	Sheltered and calm seascapes	Open, windy seascapes
Processes and dynamics	Stable seascape, without significant variation and a less elemental character	Dynamic seascape (changing tides, weather, etc), leading to variations in perception, and a more elemental character
Quality/ condition	Attractive seascapes in better condition, without detractive features	Seascapes which are less attractive and potentially degraded due to development, maintenance, erosion, etc
Designation	Presence of national or local level landscape designations	No designations
Forces for change	Development or other pressures likely to change other criteria towards increased sensitivity	Development or other pressures likely to change other criteria towards decreased sensitivity

1.12 Subsequent field visits by landscape architects were undertaken to check and amend the desk-based boundaries, and to gather information on each of the sensitivity criteria.

1.13 The final stage was to assign a sensitivity rating to each area. The assessment of sensitivity considers the ability of each seascape area to accept change of the type proposed (ie offshore wind farm development), without detriment to key characteristics. As such it is a judgement of sensitivity to a specific type of change, rather than overall or inherent sensitivity.<sup>4</sup> Sensitivity has been classed as high, medium or low, as defined in **Table 3**.

<sup>4</sup> *Landscape Character Assessment: Topic Paper 6: Techniques and Criteria for Judging Capacity and Sensitivity* (2004) Countryside Agency and Scottish Natural Heritage.

**Table 3 Sensitivity of Seascape/Landscape Resources**

Sensitivity of Receptor	Landscape/Seascape Resource
High	A seascape of particularly distinctive character, which may be nationally designated for its scenic quality and where its key characteristics have limited resilience to change of the type proposed
Medium	A seascape of notable character and where its key characteristics have some/moderate resilience to change of the type proposed
Low	A seascape which is of lower scenic quality and where its key characteristics are such that they are resilient to change of the type proposed

## FINDINGS

- 1.14 The SCA defined a total of 21 regional seascape character areas along the coast. These are listed in **Table 4** and illustrated on the accompanying figure, Regional Seascape and Landscape Character Areas.

**Table 4 Regional Seascape Character Areas**

SCA no.	SCA Name	Sensitivity
SA1	Nigg Bay	High
SA2	Greg Ness to Cove Bay	Medium
SA3	Cove Bay to Milton Ness	Medium
SA4	Montrose Bay	High
SA5	Long Craig	Medium
SA6	Lunan Bay	High
SA7	Lang Craig to the Deil's Head	High
SA8	Arbroath to Monifieth	Medium
SA9	Dundee	Low
SA10	Inner Firth of Tay	Low
SA11	St Andrews Bay	High
SA12	St Andrews to Fife Ness	High
SA13	East Neuk of Fife	High
SA14	Kirkcaldy and Largo Bay	Medium
SA15	Inner Firth of Forth	Low
SA16	Edinburgh to Gullane	Medium
SA17	Eyebroughy to Torness Point	Medium
SA18	Torness Point to St Abbs Head	Medium
SA19	St Abbs Head to Eyemouth	High
SA20	Eyemouth to Berwick upon Tweed	Medium
SA21	Berwick upon Tweed to Holy Island	Medium

## 2 Seascape Character Area Descriptions

### SA1: NIGG BAY

#### Definition of regional seascape unit boundaries

- 2.1 This unit comprises the small sandy cove of Nigg Bay and its enclosing headlands of the Girdleness peninsula and Greg Ness.

#### Key characteristics

- Contrast between urban inland area and coastline;
- Proximity of urban development to coastline;
- Contrast between shallow sandy bay and more elevated headlands, particularly the rocky headland of Greg Ness;
- Views of Aberdeen harbour and associated shipping movements;
- Historical buildings of Girdleness Lighthouse, Torry Point Battery and St Fittick's Church; and
- Modern infrastructure such as the waste water treatment works and Edinburgh-Aberdeen railway line.

#### Scale and Openness

- 2.2 Within the enclosed bay, contained by headlands and urban development inland, the scale of the landscape is small, rising to medium scale within elevated areas of headland, from where longer range views are possible, particularly to the north.

#### Form

- 2.3 In terms of area, this is a relatively small seascape character unit, and it also displays a relatively simple form comprising flat sandy beach and grassy hinterland enclosed by elevated headlands, which are rocky in places.

#### Settlement

- 2.4 This seascape unit lies wholly within the boundaries of Aberdeen City Council although most of the undeveloped areas are classified within the Local Plan as Green Belt. Large scale built development and infrastructure are visible in close proximity throughout the character area.

#### Pattern and foci

- 2.5 The two headlands form natural foci within which the sandy bay is enclosed creating a relatively simple pattern in terms of underlying landform and seascape. The presence of urban development within and adjacent to the character area introduces an overlying layer of complexity through a variety of built form, from harbour and rail infrastructure, to high and low-rise housing, industrial buildings, and other land uses, such as the golf course. Elements of the built form also create additional focal points, such as

Girdleness Lighthouse and the three tower blocks within the Balnagask Estate.

### **Lighting**

- 2.6 There are streetlights along the length of St Fittick's Road and also adjacent to the shoreline along part of Greyhope Road. Lighting from Aberdeen is very visible throughout this area particularly from the elevated areas of land on the headlands. Girdleness Lighthouse is still in operation.

### **Movement**

- 2.7 Movement is obvious throughout this area from the vehicles along St Fittick's Road, Greyhope Road and the foreshore car park to the activity associated with the beach itself, the golf course, and the areas of public open space within the Vale of Tullos and on the headlands. Both the harbour and airport are also sources of movement apparent from this character area and the Aberdeen to Edinburgh railway line cuts through the area before heading south along the coast.

### **Aspect**

- 2.8 Generally, this section of coastline faces east with localised variation. From the beach, views out to sea are due east. From the enclosing headlands, aspect will depend on direction of travel and exact location. Seaward views look out across the North Sea.

### **How experienced**

- 2.9 This coastline is experienced in a range of ways by large numbers of users including residential receptors, recreational users, tourists and other visitors. Many residential receptors have direct views of the coastline and sea, but also use the open space in the Vale of Tullos for dog-walking and other recreational activities. Many visitors will experience the area in views from the coastal roads and rail line, not to mention views obtained towards the coast from arriving and departing boats. The beach is well-used by recreational visitors and the Girdleness Peninsula in particular attracts visitors both for its panoramic views of coast and harbour but also its variety of historical buildings. The golf course also attracts recreational users to the Peninsula.

### **Modification/Remoteness/Sense of Naturalness**

- 2.10 Residential and industrial development associated with Aberdeen extends almost to the coastal edge leaving only a small strip of relatively undeveloped land between sea and the city limits. This combination of built development and infrastructure in close proximity to the coast means there is no sense of remoteness, and a much diminished sense of naturalness. However, there is a strong sense of contrast between the relatively undeveloped and small scale bay and its urban hinterland.

### **Exposure**

- 2.11 The close proximity of, and juxtaposition with, urban residential development may lead to a perception that the coastline is more exposed than it actually is, since the bay is sheltered by its enclosing headlands.

### **Process and dynamics**

- 2.12 The fact that Nigg Bay is a recognised surfing venue indicates the occasional power of the waves to which the bay is subjected. In these circumstances the dynamic character of the coastline may be emphasised.

### **Quality/condition**

- 2.13 The quality and condition of Nigg Bay seascape unit is medium. Although urban development, the industrialised harbour, transport infrastructure and busy shipping lanes provide an overall developed character of relatively poor condition to the landward component of this seascape area, the narrow undeveloped coastal edge which fringes Nigg Bay provides a marked contrast to the hinterland.

### **Designation**

- 2.14 There are no landscape designations associated with this seascape character area.

### **Sensitivity**

- 2.15 This seascape character area is considered to have a **high** sensitivity to offshore wind energy development. This mainly relates to the relatively small scale and enclosed nature of the undeveloped bay area and its immediate coastal edge which contrast with the proximity of large scale urban and industrial development including the harbour, which is a major base for the North Sea. The bay forms a distinctive and small scale feature which contrasts to the larger scale seascapes associated with the long beach to the north and the rocky coastline to the south.

### **Forces for Change**

- 2.16 Although the undeveloped areas immediately adjacent to the bay are classified as Green Belt in the Local Plan, urban development pressures exist in surrounding areas, particularly the industrial locations of the harbour and the East Tullos and Altens Industrial Estates. There are plans to develop an Offshore Wind Deployment Centre, involving testing of commercial scale turbines, just off the coastline to the north of Aberdeen.

## **SA2: GREG NESS TO COVE BAY**

### **Definition of regional seascape unit boundaries**

- 2.17 This unit comprises the rocky coast, low cliffs and narrow strip of agricultural hinterland to the east of the Dundee to Aberdeen railway together with the area of light industrial development to the west of the train line. The unit runs between the headland at Greg Ness and Cove Bay.

### **Key characteristics**

- Contrast between rocky coastline and adjacent agricultural land;
- Contrast between the coastal zone and the hinterland setting of light industry; and

- Main Dundee to Aberdeen railway line running parallel to the coastline, a short distance inland.

### **Scale and Openness**

- 2.18 This is a large scale seascape with open views out to sea and along the coastline. Views westwards are generally curtailed by the rising landform.

### **Form**

- 2.19 The area gently slopes towards the coastal edge where it generally gives way to low-lying cliffs or steep slopes above the sea. The shoreline is rocky and there are no areas of sandy foreshore exposed at low tide aside from the small shingle beach at Cove Bay.

### **Settlement**

- 2.20 To the west of the railway line are two areas of development. Altens Industrial Estate forms a backdrop to the coastal zone of generally one to three storey buildings, mostly industrial or warehouse type structures in a variety of styles, interspersed with a mixture of storage yards and vacant/derelict plots. South of this area is Cove Bay, a mainly residential suburb of Aberdeen. Part of the settlement straddles the railway line and leads down to a small harbour. There are also scattered farms located adjacent to the agricultural land.

### **Pattern and foci**

- 2.21 Although the range of land uses in the hinterland introduces elements of complexity, overall this seascape unit has a relatively simple pattern with a lack of natural focal points.

### **Lighting**

- 2.22 Lighting from the Altens Industrial Estate and adjacent settlement of Cove Bay is visible across the area. Girdleness Lighthouse is still operational and its light is also visible from within this character area.

### **Movement**

- 2.23 There is movement throughout this character area associated with the Dundee to Aberdeen railway line and the coastal road which runs between Aberdeen and Cove Bay. Movement is also obvious within the industrial estate and towards Cove Bay. Although the harbour itself is home to several small fishing boats, only a few are involved in regular fishing activity. Due to the area's relatively close proximity to Aberdeen, shipping movements associated with the harbour, together with planes and helicopters using the airport, are also intermittently apparent.

### **Aspect**

- 2.24 Generally, this section of coastline faces in an easterly to east south easterly direction with localised variations. Views are eastwards towards the open sea.

### **How experienced**

- 2.25 The coastline is viewed and used by a variety of receptors, including residential receptors within Cove Bay, some of whom have direct views of the coast and sea. Although agricultural land continues almost to the cliff edge throughout the length of this area, there is a narrow footpath which hugs the coastline and which attracts a degree of recreational use. Doonies Farm is located to the west of the coastal road and provides a home for endangered farm species which is open to the public. Other recreational use is associated with the small harbour at Cove Bay. Many visitors will experience the area in views from the railway line. Business users and local residents will also experience the coast in views from the road which runs adjacent to the railway.

### **Modification/Remoteness/Sense of Naturalness**

- 2.26 Busy transport routes on land and sea and the large industrial estate to the west of the railway line give a modified feel. Agricultural land extends almost to the coastal edge. As this is primarily grazing land, it creates a buffer zone between the developed land to the west and the coastline itself, which consequently retains more of a naturalistic feel in contrast to the developed hinterland. However, the area is not remote: it is contained entirely within the Aberdeen City local authority boundary.

### **Exposure**

- 2.27 The coastline is exposed particularly to the east due to openness and lack of shelter provided by landform.

### **Process and dynamics**

- 2.28 The presence of waves crashing onto the rocky shore and cliffs tends to heighten the sense of the coastline as a dynamic environment. The coastal environment and cliffs are also subject to a range of erosion processes relating primarily to wave action.

### **Quality/condition**

- 2.29 This is a medium to low quality seascape. Although the coastal edge is generally intact, the presence of the industrial estate, including areas of derelict land, in relatively close proximity to the west, detracts from the condition of the landscape.

### **Designation**

- 2.30 There are no landscape designations associated with this seascape character area.

### **Sensitivity**

- 2.31 This seascape character area is considered to have **medium** sensitivity to offshore wind energy development. Turbines would relate to the large scale seascape and generally linear coastline. Existing development and transport infrastructure already give a localised developed character in places.

## **Forces for Change**

- 2.32 There are development pressures within the industrial and urban parts of this character area particularly around the A956 (Wellington Road) and also associated with the Altens Industrial Estate. There are also quarries just to the south of Cove Bay whose possible future expansion could affect the southern extent of this character area.

## **SA3: COVE BAY TO MILTON NESS**

### **Definition of regional seascape unit boundaries**

- 2.33 This is a large character area extending almost 40km from Cove Bay in the north to the headland of Milton Ness, approximately 3.3km south of the village of Johnshaven. There are several settlements including the town of Stonehaven. The coastline itself comprises a predominantly rocky shore backed by cliffs or steep slopes and giving way to a predominantly agricultural hinterland.

### **Key characteristics**

- Long, east-facing, generally “straight” coastline with many small indentations and few significant headlands;
- Predominantly narrow rocky shoreline interspersed with small coves and shingle beaches;
- Shoreline predominantly backed by mixture of cliffs and steep slopes except for southernmost extent between Milton Ness and Gourdon;
- Some larger beaches including those at Inverbervie Bay and Stonehaven;
- Larger settlements including towns of Portlethen, Newtonhill, Stonehaven, and Inverbervie;
- Smaller coastal fishing villages and harbours including Catterline, Gourdon, and Johnshaven; and,
- Agricultural hinterland of arable fields and grazing land with occasional areas of semi-natural vegetation such as the heathland of Findon Moor.

### **Scale and Openness**

- 2.34 This is generally a large scale seascape with wide, open views out to sea and along the coast. A localised sense of enclosure occurs in certain areas, such as Catterline Bay, where orientation and adjacent headlands create a more sheltered environment.

### **Form**

- 2.35 The landform is not generally complex. The Grampian foothills to the west form a distant backdrop to the coastal zone which comprises rolling farmland which gently slopes to the coastline. Tree cover is largely restricted to the occasional shelterbelt as well as wooded areas around farmhouses and small

settlements. The coastal edge itself provides a contrast to this farmland, comprising primarily of rugged cliffs and steep slopes atop a predominantly rocky shoreline. At the local scale the coastline has many small coves and inlets with sea caves and natural arches being seen together with shingle beaches, rock platforms, and other natural features of the coastal environment.

### **Settlement**

- 2.36 There are a number of small to medium sized towns including Portlethen, Newtonhill and Stonehaven, all of which function primarily as commuter towns to Aberdeen. These are interspersed with frequent smaller fishing and harbour settlements often situated at the top of slopes overlooking the coast. Outside of the settlements, development is limited.

### **Pattern and foci**

- 2.37 Within the generally “straight” coastline, there is a smaller scale pattern of indentations with occasional focal points on rocky promontories including the cliffs of Craig David above Inverbervie, the lighthouse at Tod Head and the famous landmark of Dunnottar Castle. The coastline itself is a key focus, contrasting with the intensively farmed hinterland.

### **Lighting**

- 2.38 Frequent settlements provide limited illumination, increasing in extent around larger towns such as Stonehaven.

### **Movement**

- 2.39 Movement on land is mainly limited to transport corridors and settlements. Due to the openness of the seascape and expansive views, the movement of weather systems across the skies is noticeable in certain conditions. Although becoming less noticeable with increasing distance from Aberdeen, movements of shipping and also aircraft are occasionally apparent.

### **Aspect**

- 2.40 Generally, this section of coastline faces in an easterly to east south easterly direction with localised variations. Views are eastwards towards the open sea and also along the coastline. In places where topography allows, there are views inland to the foothills of the Grampian Mountains.

### **How experienced**

- 2.41 This seascape is experienced by a variety of receptors. There are numerous residential receptors throughout the area, some having direct views of the coastline and sea. A number of major transportation corridors traverse the length of the coastline including the A90, A92 and Dundee to Aberdeen railway line. Therefore much of the time the seascape is experienced by road and rail users, be they local residents or visitors and tourists. Some of the larger towns and villages also attract recreational use both from locals and visitors, especially those places which have accessible shoreline. From the coastal edge the seascape will be experienced by agricultural workers and also by walkers along the cliff-top footpaths. Dunnottar Castle is open daily to the public.

### **Modification/Remoteness/Sense of Naturalness**

- 2.42 Intensively managed farmland extends to the coastal edge thus limiting the sense of naturalness. This contrasts with the coastline and sea itself which has a strong sense of the natural environment, particularly where the waves crash against rugged cliffs. The area does not seem remote due to the presence of settlements and roads adjacent to the coast, although it does feel separated from the main landward area in places due to the steeply rising landform adjacent to the coastal edge.

### **Exposure**

- 2.43 In most parts of this character area the seascape is exposed due to the expansiveness of the sea and lack of shelter. Local features, where more natural shelter is available, are less exposed, for example Stonehaven Bay and some of the smaller bays and coves located along the coast.

### **Process and dynamics**

- 2.44 The rocky coastline is primarily affected by erosion from the sea. Natural erosion is the main influence on the physical structure of cliffs in the area. Slumping of soft cliffs is also noticeable, especially where it affects cliff-top paths squeezed between fields and cliff edges. The sound and movement of wave action against the cliffs and rocky shore edge increases the sense of the coastal zone as a dynamic environment.

### **Quality/condition**

- 2.45 Overall, the quality and condition of the coast is medium to high. There is limited development outside of the settlements and the condition of the agricultural land is generally good.

### **Designation**

- 2.46 There are no landscape designations associated with this seascape character area.

### **Sensitivity**

- 2.47 This seascape character area is considered to have a **medium** sensitivity to offshore wind energy development. The relatively linear nature of the coastline, in conjunction with its simple landform, lack of focal points, openness and the expansive scale of the sea, tends to limit sensitivity to offshore wind development. This is despite the existence of smaller-scale localised coastal features in places.

### **Forces for Change**

- 2.48 There is potential pressure from onshore wind energy development within the Grampians, including an existing wind farm at Meikle Carew in the foothills above Stonehaven, and a consented development at St John's Hill between Stonehaven and Inverbervie. There are several other wind farms currently at scoping or application stage.

## **SA4: MONTROSE BAY**

### **Definition of regional seascape unit boundaries**

- 2.49 This unit comprises Montrose Bay, a wide sandy bay which extends approximately 8 km north north-east from the outflow of the River South Esk at Montrose beyond the mouth of the North Esk, to St Cyrus and Milton Ness.

### **Key characteristics**

- Wide, sandy beach backed by line of dunes and grassland;
- Heughs of St Cyrus and St Cyrus National Nature Reserve;
- Mostly flat agricultural hinterland;
- Coniferous plantations to the south of the North Esk River;
- North and South Esk Rivers; and,
- The coastal town of Montrose with its port and industrial developments.

### **Scale and Openness**

- 2.50 This is a medium scale seascape. The wide sweep of the bay and flat hinterland are contained by Milton Ness to the north and Scurdie Ness to the south, and backed by the higher cliffs of St Cyrus to the north west. Views within the bay and its immediate hinterland are therefore short to medium distance although expansive views out to sea and sky.

### **Form**

- 2.51 This is a mostly flat or gently sloping, and low-lying seascape with a strong horizontal emphasis. Vertical elements are provided by the dunes and the cliffs around St Cyrus and to the west of Milton Ness.

### **Settlement**

- 2.52 The southern end of the character area is largely occupied by the town of Montrose, which is located on a peninsula between the sea and the shallow estuarial Montrose Basin. The town has an important commercial port for the offshore oil and gas industry and is also home to industrial development, both around the port and on the northern outskirts of the town. The only other development of any size is the small village of St Cyrus. The seascape is also influenced locally by the presence of Montrose Links and the resort facilities along the beachfront.

### **Pattern and foci**

- 2.53 This seascape character unit has a simple pattern centring on the wide stretch of sandy beach backed with dunes and grassland. The headlands of Milton Ness and Scurdie Ness are relatively low-lying and the lighthouse at Scurdie Ness provides a focal point and visual “full-stop” at the southern end of the Bay. The dunes themselves are also a focal feature within the seascape rising, as they do, above both beach and grassland. Within the northern half of the character area the cliffs at St Cyrus form another natural focal point.

### **Lighting**

- 2.54 Settlements and scattered farmsteads provide low level illumination in the coastal hinterland with the larger town of Montrose and its industrial developments centred on the port forming a higher concentration of lighting sources, including the prominent lighthouse at Scurdie Ness.

### **Movement**

- 2.55 The A92 runs through the area, although the coast itself is not always visible from the road. There is also local movement associated with the settlements. Aside from motor vehicles, there are movements of shipping coming to and from the port and also recreational users of the beach and sea as well as golfers using the links.

### **Aspect**

- 2.56 Generally east south easterly with some localised variation around the headland of Milton Ness.

### **How experienced**

- 2.57 Montrose is an important service and employment centre for the north east of Angus consequently the area is experienced by a wide variety of receptors. Its location on the A92 coastal tourist route and the rail network makes it a popular place to live as well as a destination for visitors, tourists and business. Residents will experience the seascape from houses as well as the local network of roads. They are also likely to use the beach and dunes for recreational purposes along with tourists and other visitors. Visitors to the area will also generally experience the seascape from the major roads and railway, along with destinations such as the St Cyrus National Nature Reserve (NNR) and resort facilities on the seafront at Montrose. Other recreational users will experience the seascape from the beach and sea and there will also be walkers using the network of coastal paths.

### **Modification/Remoteness/Sense of Naturalness**

- 2.58 Montrose town and its associated developments add a high degree of modification to the seascape at the southern extent of this character area. However, this contrasts strongly with the more natural northern extent of the bay with its sandy beach and dunes backed by the high Heughs of St Cyrus.

### **Exposure**

- 2.59 Some shelter is provided by the enclosing headlands combined with the cliffs on the landward side of the bay. This enclosure together with the varied topography of the sand dunes and areas of coniferous plantation at Kinnaber provide a more sheltered environment in the landward component of the seascape unit which contrasts strongly with the open beach on the seaward side of the dunes which is exposed.

### **Process and dynamics**

- 2.60 Montrose Bay is a well-known example of natural processes influencing the form and character of the seascape over relatively short periods of time.

Examples of this include changes in the position of the outlet of the River North Esk and erosion of Montrose Beach. The dune landscape in particular is constantly changing. Unlike the dunes of Montrose beach to the south, the dunes of St Cyrus are currently growing in size, whereas until relatively recently they were eroding. These processes contribute to the sense of the coastal zone as a dynamic environment.

### **Quality/condition**

- 2.61 Overall this is a medium quality seascape. The southern part of the character area is influenced by development in and around Montrose. To the south of the North River Esk, the square lines of the coniferous plantation belts also introduce a landscape element which feels at odds with the more natural forms of the dunes and beach adjacent. The northern part of the character area, in contrast presents a higher quality and condition of seascape incorporating, as it does, the National Nature Reserve.

### **Designation**

- 2.62 There are no landscape designations associated with this seascape character area.

### **Sensitivity**

- 2.63 This seascape has a **high** sensitivity to change associated with offshore wind development due to its medium scale, fairly enclosed nature with short to medium distance views across the landward component of the seascape unit that contrast with open vistas from the coastal edge.

### **Forces for Change**

- 2.64 The main forces for change relate to development pressures in and around the town of Montrose itself particularly around the port, but also the industrial fringes on the northern edge of the town. The site of the former Montrose Airfield, between the A92 and coast is highlighted within the Angus Local Plan Review (2009) as being an appropriate location for employment uses. There is less development pressure in the north of this character area due primarily to the location of St Cyrus National Nature Reserve.

## **SA5: LONG CRAIG**

### **Definition of regional seascape unit boundaries**

- 2.65 This relatively small seascape unit comprises the rocky headland and associated agricultural hinterland that stretches between Scurdie Ness in the north and Lunan Bay to the south.

### **Key characteristics**

- A low-lying headland with a rocky foreshore;
- Gently sloping agricultural hinterland extending in places up to the coastline;
- Sparse tree cover mainly concentrated around Usan House;

- Scattered farmsteads;
- Landmark of Scurdie Ness Lighthouse; and
- Dundee – Aberdeen railway line defining western extent.

### **Scale and Openness**

- 2.66 Although a small unit in physical extent, this is a large scale seascape with open views out to the North Sea and along the coastline.

### **Form**

- 2.67 The landward component of this seascape unit is gently sloping and low-lying with a strong horizontal emphasis. The agricultural hinterland of arable fields and grassland contrasts with the rocky shoreline most of which is covered at high tide. South of Usan, the coastal edge gains in height with steep grass slopes between the shoreline and the fields above.

### **Settlement**

- 2.68 Settlement is confined to scattered farmsteads and the remains of old fishing villages.

### **Pattern and foci**

- 2.69 This is a simple seascape with few focal points. The rocky shoreline itself is a focal feature of the coast, when contrasted with the regular field patterns of the farmland inland. The derelict tower at Usan and particularly the lighthouse at Scurdie Ness are prominent vertical elements and focal points within this seascape character unit.

### **Lighting**

- 2.70 Scattered farmsteads provide limited low level night time illumination. In the north of the character area, the night time character will be influenced by the lights of Montrose and the lighthouse at Scurdie Ness.

### **Movement**

- 2.71 Movement on land is limited to local traffic on the network of minor roads connecting the various farms as well as trains on the main railway line. At sea, there are movements of vessels to and from the harbour at Montrose.

### **Aspect**

- 2.72 The character area has an east south easterly aspect. From the coastline, views out to sea are due east. From Scurdie Ness, views also look north along the sandy beach of Montrose Bay. Where local topography allows, views inland extend towards the Grampian foothills.

### **How experienced**

- 2.73 The seascape will be experienced mainly from minor roads giving varied and changing views of the coast. It will also be experienced by residential receptors in the various isolated farmsteads, some of whom will have direct views of the coast. Visitors to the area travelling by train will also have views of the coastline, although these views will be intermittent as the line passes through cuttings for part of its length.

### **Modification/Remoteness/Sense of Naturalness**

- 2.74 With agricultural land extending up to, or very close to, the coastal edge, this character area does not possess a strong sense of remoteness. However, the lack of large scale built development in this area and the extensive agricultural landscape lends a sense of naturalness, particularly at the coastal edge where the well-tended fields contrast with the rocky shoreline.

### **Exposure**

- 2.75 This is a relatively exposed seascape with a lack of shelter.

### **Process and dynamics**

- 2.76 Compared to the shifting sands of Montrose Bay, this part of the coastline is subject to a slower process of erosion. However, the proximity of the agricultural land of the rocky shoreline and the contrast between these elements increases the perception of the sea as a dynamic environment, particularly when waves are breaking onto the shoreline.

### **Quality/condition**

- 2.77 This is a medium to good quality/condition seascape.

### **Designation**

- 2.78 There are no landscape designations associated with this character area although the historic landscapes at Craig House and Dunninald Castle, both listed in Historic Scotland's GDL inventory, are located close to the west.

### **Sensitivity**

- 2.79 This seascape character area is considered to have a **medium** sensitivity to offshore wind development, derived from its large scale, open nature with expansive views of the North Sea, coupled with the relatively simple pattern of the seascape.

### **Forces for Change**

- 2.80 Development in and around Montrose may affect the setting of this character area, particularly around Ferryden on the south side of the harbour.

## **SA6: LUNAN BAY**

### **Definition of regional seascape unit boundaries**

- 2.81 Lunan Bay lies to the south of Montrose with the broad sandy beach extending for approximately 3.7km between Boddin Point and the Lang Craig. It is backed by dunes and framed by low cliffs the north and south.

### **Key characteristics**

- Wide sandy beach;
- Well visited by recreational users all year round but particularly during the summer;
- Traditional salmon fishing using nets staked into the sand;

- Lunan Water, which empties into the sea in the middle of the bay;
- Dune system, particularly to the north of Lunan Water;
- Woodland and shelter belts around Lunan;
- Rocky headlands to the north and south; and
- Extensive cultural heritage including the remains of a 15th Century tower at Red Castle overlooking Lunan Water and the beach.

### **Scale and Openness**

- 2.82 This is a medium to large scale seascape. Views out to sea from the bay are expansive, but the headlands to north and south, together with the slopes at the rear of the beach provide a limited sense of enclosure. There are views inland and along the coast from within the agricultural hinterland.

### **Form**

- 2.83 This is a simple seascape unit, where the form is centred on the shallow arc of the sandy bay. The agricultural hinterland is flat or gently sloping lending the area a strong horizontal emphasis. The enclosing headland to the south is relatively low-lying; the cliffs of Rickle Craig to the north are higher, although sloping down to the natural harbour at Boddin and the promontory of Boddin Point.

### **Settlement**

- 2.84 There is no settlement in this character area apart from the small village of Lunan, one or two farmsteads and isolated houses, as well as the collections of holiday cabins and caravans at Corbie Knowe and Ethie Haven at the south end of the bay.

### **Pattern and foci**

- 2.85 A relatively simple seascape unit comprising the wide, sandy bay framed by rocky headlands. The dunes and steep grass slopes to the rear of the bay give way to a relatively undeveloped hinterland comprising a flat or gently sloping agricultural landscape of mostly regular fields divided by hedgerows (gappy in places) with occasional hedgerow trees or linear shelterbelts, but sometimes just by ditches or post-and-wire fencing. The Grampian foothills form a distant backdrop. There are few natural foci aside from the beach and dunes themselves which form a striking contrast to the fields behind. The ruin of Red Castle, standing above the Lunan Water where it discharges into the sea, is a prominent local landmark.

### **Lighting**

- 2.86 Aside from the small settlement of Lunan and isolated farmsteads and holiday enclaves, there is little illumination in this character area.

### **Movement**

- 2.87 Movement is mainly related to recreational activities taking place in the sea, on the beach, or in the dunes and cliff top areas. There are also traffic movements on the surrounding minor roads, by both visitors and local residents. At the north of the bay, the railway line is visible from the beach as

it crosses the viaduct over Buckie Den. Although outside the character area, the A92 coastal tourist route passes by relatively closely and has views towards the bay.

### **Aspect**

- 2.88 The bay itself is east-facing. Views from the headlands to the north and south will depend on orientation but are generally north from Ethie Haven and south-easterly from Boddin.

### **How experienced**

- 2.89 Lunan Bay is a well-known and popular beach, which attracts year-round recreational use by walkers, horse-riders, sightseers and, particularly in the summer, bathers. The bay also attracts surfers, windsurfers and kite-surfers to its waters. There are a number of holiday cottages and caravans in close proximity to the beach. Residential receptors within Lunan and other scattered farmsteads will also experience the seascape, with some having direct views of the coast. Other visitors and travellers may experience the seascape in passing either from the A92 or more often the railway line, which passes much closer to the coastline, in addition to the network of minor roads in the vicinity.

### **Modification/Remoteness/Sense of Naturalness**

- 2.90 Although neither remote nor unmodified, Lunan Bay has remained relatively undeveloped with very few tourism facilities despite its popularity with recreational users. This lack of development increases the sense of naturalness experienced within the character unit.

### **Exposure**

- 2.91 The headlands to north and south add a degree of shelter to the bay.

### **Process and dynamics**

- 2.92 The main coastal process affecting Lunan Bay is erosion. The cliffs to the rear of the bay are slowly eroding inland and there is dune erosion which is likely to be anthropogenic. This erosion is further intensified by wind action. The presence of recreational users on the water, where activities are associated with the waves and wind, is likely to increase the sense of the coast as a dynamic environment.

### **Quality/condition**

- 2.93 This is a good quality seascape unit. Aside from areas subject to pressure from visitors, it is also in good condition.

### **Designation**

- 2.94 There are no designations within this character area although the designed landscape of Dunninald Castle which is listed in Historic Scotland's Inventory of Gardens and Designed Landscapes lies just to the north.

### **Sensitivity**

- 2.95 Overall, this is a **high** sensitivity seascape, due both to the lack of development in the coastal zone and the relatively sheltered nature of the bay when compared to the adjacent rocky coastline.

### **Forces for Change**

- 2.96 Aside from offshore and onshore wind development, change is likely to come from increased pressures associated with recreational use. The dunes in particular are subject to serious erosion by both foot traffic and unauthorised use by off road vehicles and bikes.

## **SA7: LANG CRAIG TO THE DEIL'S HEID**

### **Definition of regional seascape unit boundaries**

- 2.97 This seascape unit comprises a continuous stretch of sea cliffs reaching up to 50m and associated rocky coastline between Lang Craig, to the south of Lunan Bay, and Whiting Ness at the eastern edge of Arbroath by St Ninian's Well.

### **Key characteristics**

- Old Red Sandstone cliffs display a series of erosion features including sea stacks, blowholes, caves, wave cut platforms and arches;
- Small, narrow shingle beaches located on the rock platform at Auchmithie, Carlingheugh Bay and Castlesea Bay;
- Gently sloping agricultural hinterland contrasting strongly with rocky coastline and cliffs;
- Limited areas of grassland at the top of cliffs supporting rare plant species; and
- Coastline important for conservation including large colonies of breeding seabirds on the cliffs, and geological interest. Much of the coast is designated as a SSSI.

### **Scale and Openness**

- 2.98 This is a large scale seascape with expansive views from the cliff top edge out to the North Sea. However, the coastal edge itself is rich in smaller scale detail including the aforementioned bays and inlets, small coves, blowholes and caves.

### **Form**

- 2.99 The wealth of small scale elements which occurs along the coastal edge creates a more complex form, within the context of a rocky foreshore, cliffs and agricultural hinterland with a strong horizontal emphasis.

### **Settlement**

- 2.100 The only settlement within this character area is the former fishing village of Auchmithie which is located approximately 5km northeast of Arbroath at the

top of the cliffs almost 40m above the narrow beach. Aside from Auchmithie, there are also several scattered farms and individual residences. Around Seaton there is a large area of land being cultivated under polytunnels in addition to a caravan park.

### **Pattern and foci**

- 2.101 The predominant land use in this character area is agricultural. This farmed hinterland generally slopes gently towards the coastal edge and lacks natural focal points, aside from areas of woodland and shelterbelt planting. These small woodland areas are often seen in conjunction with collections of farm buildings, which in this relatively flat landscape, form focal points in themselves. In views along the coastline, the cliffs also act as foci, drawing the eye with the sudden dramatic change in level between fields and sea.

### **Lighting**

- 2.102 In the south of the character area, illumination from Arbroath is visible in the night sky. Moving north along the coast, there are some street lights in Auchmithie with associated sources of lighting from the settlement. Otherwise, light sources are associated with farms and scattered houses. The area of sea is generally fairly dark, although some shipping movements are likely to be visible.

### **Movement**

- 2.103 There is some movement on the sea from occasional ships and boats. Otherwise, movement is mainly caused by wind and waves. There is vehicular movement on the network of minor roads linking farms and settlements and also agricultural activity on the farms themselves. Recreational activity and associated movement is limited to the coastal footpaths and beach at Auchmithie.

### **Aspect**

- 2.104 This seascape area is generally east to south easterly facing onto the open North Sea with localised variations along the coastal edge. From farmland areas at the top and behind the cliffs there are views inland to the west.

### **How experienced**

- 2.105 This character area is generally experienced from the network of minor roads connecting farmsteads and small settlements in the agricultural hinterland. The cliff top edge is also a very popular recreational destination, particularly to the north of Arbroath. It attracts both locals and visitors for its views, cultural heritage and bird watching interest. The shingle beach at Auchmithie is also popular for recreational use.

### **Modification/Remoteness/Sense of Naturalness**

- 2.106 As the A92 runs some distance inland, this area feels more remote than similar character areas along other parts of the coast. However, the intensively managed farmland abutting the coastline limits the sense of naturalness. The cliffs along this stretch of the coast are higher and more rugged than those to the north. Coupled with the lack of settlement, this tends to give the coastal edge itself a strong sense of naturalness.

### **Exposure**

- 2.107 From the coastal edge and cliff tops this seascape unit feels exposed due to the expansiveness of the sea and lack of shelter. Inland this sense of exposure is diminished somewhat, especially around areas of woodland and shelterbelt planting.

### **Process and dynamics**

- 2.108 The cliffs are subject to erosion, primarily by wave action, but the rate of changes is very low.

### **Quality/condition**

- 2.109 This is a high quality seascape unit with a wealth of natural features and dramatic, rugged feel to the coastal edge. The agricultural hinterland, although intensively managed, is also in a reasonably good condition.

### **Designation**

- 2.110 There are no landscape designations within this character area.

### **Sensitivity**

- 2.111 This is a **high** sensitivity seascape due to the varied, small scale and distinctive elements associated with the coastal edge, the high quality and good condition of the area, and its sense of naturalness.

### **Forces for Change**

- 2.112 There is little human pressure on the coastal edge when compared with adjacent parts of the coast, apart from the coastal path along the cliffs. Inland, large areas of land cultivated under polytunnels could lead to localised effects on the landscape. There is also the possibility of residential expansion on the outskirts of Arbroath at the southern extent of the character area along with onshore wind development in the hinterland.

## **SA8: ARBROATH TO MONIFIETH**

### **Definition of regional seascape unit boundaries**

- 2.113 This unit comprises the stretch of coastline between Whiting Ness at the eastern end of Arbroath, to the campsite at the eastern edge of Monifieth, including Carnoustie and Barry Links.

### **Key characteristics**

- Low lying coastal edge with extensive rock-cut platform interspersed with sections of sandy beach;
- Areas of dunes, particularly at Barry Links;
- Well settled coast with development focussing on the towns of Arbroath, Carnoustie and Monifieth;
- Active fishing harbour at Arbroath;
- Dundee to Aberdeen railway line running adjacent to coastline;

- Several golf links including the Championship course at Carnoustie;
- Conifers associated particularly with golf links, and larger areas of woodland within Barry Links; and,
- MOD training ground occupying a large area of Barry Links;

### **Scale and Openness**

- 2.114 Overall, this is a medium to large scale seascape particularly in areas to the east of Barry Links, where the flat coastal landform and expanse of open sea increases the scale in the Outer Firth of Tay.

### **Form**

- 2.115 The low lying coastline has a strong horizontal emphasis, heightened on the coastal edge by extensive rocky platforms interspersed with lengths of sandy beach. Low dunes and coniferous plantations add small scale vertical elements in some areas.

### **Settlement**

- 2.116 This is a well-settled coast, having a number of towns interspersed with areas of farmland and other types of open space. Arbroath is the largest town in the council area of Angus with a population of over 20,000.

### **Pattern and foci**

- 2.117 Generally the seascape has quite a simple pattern. Aside from Barry Links, which extends out into the mouth of the Firth of Tay, the coastline is relatively linear and low-lying, with low cliffs at Whiting Ness and areas of low-lying dunes in between. The presence of the rock platform and sandy beaches adds some subtlety of form to the intertidal zone but these are small scale variations in patterning. From viewpoints along the coastline the sea itself is likely to be the main focus, with its open and expansive nature contrasting with inland areas. There are few other natural focal points in the northern part of the character area. Towards Monifieth, views southwards extend to hills on the opposite side of the Firth. There are also few man-made focal points on the coast although the lighthouse at the tip of Barry Links is seen from many locations. Inland, there are various overhead lines which are prominent within the flat, low-lying landscape.

### **Lighting**

- 2.118 This is a well-lit coastal edge where there are settlements. However, there are also areas with less illumination, particularly Barry Links and the section of coastline between Carnoustie and Arbroath. Illumination from occasional boats and ships will be visible out to sea.

### **Movement**

- 2.119 Shipping movements are less prominent than on the Firth of Forth but this is nevertheless a busy seascape, particularly in areas of the Inner Firth and also in and around the settlements and main roads. There is commercial and recreational activity associated with Arbroath Harbour, both inland and at sea, and recreational activity along the whole of the coastline including water-

based sports and activities such as sailing. The railway line is visible from large sections of this coastline.

### **Aspect**

- 2.120 Aspect along the Outer Firth is generally south to south easterly, with of localised variations. Settlements are generally orientated to face the sea.

### **How experienced**

- 2.121 The seascape in this character unit is experienced by a range of receptors. Arbroath is popular with visitors for its wide variety of tourism and recreational activities including promenade and cliff top walks as well as beach and water-related leisure use. The coastline in general is well-used by walkers with sailing taking place on the water. The presence of several coastal links golf courses increases the number of recreational receptors who will experience this environment. Aside from recreational use by visitors and locals the seascape will be experience by residential receptors, some of whom will have direct view of the sea and coast, or indeed live adjacent to the coastline itself. The coast will also be viewed from the network of local roads both inside and outwith the settlements and from the railway line, which runs parallel to, and a short distance away from, the coast for much of its length through this character area.

### **Modification/Remoteness/Sense of Naturalness**

- 2.122 This is a highly modified coastline in urban areas and with agriculture or golf courses forming much of the immediate hinterland. It is not remote, and there is no perception of remoteness aside perhaps from areas at the outer extent of Barry Links around Buddon Ness, which can only be accessed by the public by walking along the shore. The coastal intertidal zone possesses a greater sense of naturalness.

### **Exposure**

- 2.123 This is an open and exposed seascape although certain areas do have a more sheltered feel, such as Carnoustie Bay.

### **Process and dynamics**

- 2.124 The coastline is subject to a range of natural processes relating to wind and wave action. Barry Links is one of the largest beach/dune systems in Scotland. The sand dunes rest on sediments deposited under changing relative sea level and climatic conditions following deglaciation of the last Scottish ice sheet. Coastal erosion has become a problem at Carnoustie and defences have been installed in an attempt to counter this. Where there are no defences the coast is subject to cycles of sand erosion and accretion. The presence of sailing boats and people engaged in water sports may increase the sense of the sea as a dynamic environment.

### **Quality/condition**

- 2.125 The quality of the seascape and coastal zone is medium to high particularly in relation to features of the shoreline and intertidal zone. Compared to some other character areas on the coast, the overall character of this unit is

perhaps less well defined and more fragmented because of the range of land uses encountered and the variable quality of the more urban areas.

### **Designation**

- 2.126 There are no landscape designations within this character area.

### **Sensitivity**

- 2.127 This is a **medium** sensitivity seascape unit. The area around Barry Links and Buddon Ness possess a sense of remoteness and naturalness; however, this is countered by the extensive coastal settlement and large scale, open character of the Outer Firth and coastline towards Arbroath both of which tend to diminish sensitivity to offshore wind development.

### **Forces for Change**

- 2.128 There is some development pressure on the coastal fringes within and on the edge of settlements. Onshore wind development may occur in the coastal hinterland. Two developments at Dusty Drum and East Skichen in the Sidlaw Hills, which form a backdrop to Arbroath and Carnoustie, are currently at application stage.

## **SA9: DUNDEE**

### **Definition of regional seascape unit boundaries**

- 2.129 This unit comprises the section of coastline between Monifieth and Invergowrie, centred on Dundee. The coastal edge here is almost entirely developed.

### **Key characteristics**

- Settled coastal fringe centred on the urban developments in and around the city of Dundee;
- Industry, bridges and other infrastructure, such as the railway and airport;
- Views focussed on the Tay, but also inland to the Sidlaw Hills; and,
- Well-used for recreation particularly the beaches around Monifieth and Broughty Ferry.

### **Scale and Openness**

- 2.130 This is a medium scale seascape with containment by surrounding hills to the north. Views are primarily orientated southwards across the water to Fife thus reducing the sense of openness in the seascape. There are coastal views along the Firth to the North Sea but these are contained somewhat by the profile of Buddon Ness on the north side of the estuary and St Andrews Bay and Fife Ness to the south.

### **Form**

- 2.131 The Inner Firth is an incised channel which is strongly contained by hills on either side. The city of Dundee and associated settlements forms a strongly

developed coastal edge throughout the length of this character area which is relatively low-lying within urban areas, with the exception of some locally prominent hills. Beyond Broughty Ferry, the Firth opens out somewhat and has larger areas of intertidal sands. Outside of the developed areas, the hinterland is primarily agricultural, rising towards the Sidlaw Hills.

### **Settlement**

- 2.132 This is an almost entirely settled and developed linear coastal zone which centres on the City of Dundee, Scotland's fourth largest city. Larger scale infrastructure is found around the port, particularly associated with the Oil and Gas Offshore Support Facility.

### **Pattern and foci**

- 2.133 The Firth of Tay is the main focus although there are few distinctive natural features contained within the Firth itself with the exception of Buddon Ness which can be seen extending into the Firth in views east out to sea. Within the City of Dundee, both Dundee Law and Balgay Hill are prominent local landmarks and further afield the Firth is contained on both sides by hilly agricultural hinterland, rising in the north to the prominent summits of the Sidlaw Hills which form a distant backdrop to this character area. Urban developments and infrastructure features also form focal points in the seascape, particularly the rail and road bridges across the Firth but also various residential tower blocks throughout the city.

### **Lighting**

- 2.134 This is a well-lit coastal edge. Within the Firth there will also be illumination from streetlights on the road bridge, as well as larger ships and boats moving up and down the water. Both the airport and harbour are particularly well illuminated.

### **Movement**

- 2.135 This is a busy seascape due to the presence of Dundee with its commercial seaport, airport, bridges and network of major and minor coastal routes including the A930 and Dundee to Aberdeen railway line.

### **Aspect**

- 2.136 There is a southerly aspect from the north side of the Firth of Tay with settlements generally oriented to face the sea.

### **How experienced**

- 2.137 Within this coastal area, the seascape is primarily experienced from busy coastal routes and well-used beaches and promenades. There are many residential receptors who will also have views of the coast including some within very close proximity. The coastal edge in Dundee is becoming a focus for redevelopment associated with the leisure, visitor and recreational uses.

### **Modification/Remoteness/Sense of Naturalness**

- 2.138 This is a highly modified coastal zone. It is not remote and a sense of naturalness is felt only in the contrast between both the city and the hills of

its agricultural hinterland, and the intertidal areas of the Firth exposed at low tide including the extensive sand flats around Monifieth.

### **Exposure**

- 2.139 The Inner Firth is more sheltered with the sense of exposure increasing somewhat as the estuary starts to widen to the east of Tayport and Broughty Ferry.

### **Process and dynamics**

- 2.140 The Firth of Tay is subject to a range of wave, wind and tidal processes that influence the shape and character of the coastline. These contribute to the perception of the coastal zone as a dynamic environment, as does the large area of foreshore exposed around Monifieth at low tide, and the presence of shipping within the Firth.

### **Quality/condition**

- 2.141 This is a medium quality seascape. Although the condition of the coastal zone is generally good as reflected in a variety of natural conservation related designations, the range of different land uses and large extent of developed areas contributes to a sense that the seascape character here is not as well-defined when compared to other, perhaps more remote, areas described in this study.

### **Designation**

- 2.142 There are no landscape designations within the Firth of Tay. Within the City of Dundee there are three designated historic landscapes at Balgay Park, Baxter Park and Camperdown House. There is also a country park at Camperdown.

### **Sensitivity**

- 2.143 This is a **low** sensitivity area to off shore wind farm development primarily due to the influence of Dundee and other settlements on the character of the seascape.

### **Forces for Change**

- 2.144 There are development pressures in and around Dundee and other settlements on the coastal fringe. There is also existing and planned onshore wind development in the hilly areas surrounding the coast.

## **SA10: INNER FIRTH OF TAY**

### **Definition of regional seascape unit boundaries**

- 2.145 This unit comprises the Inner Firth of Tay between, on the north coast, Invergowrie and the breakwaters to the east of Port Allen and, on the south coast, between Newburgh and Tayport. The character area includes a narrow strip of land adjacent to the southern coastline and the extensive area of predominantly low-lying farmland of the Carse of Gowrie, adjacent to the northern coastline.

## Key characteristics

- Long and narrow form of the Inner Firth;
- Extensive intertidal mudflats and sandbanks;
- Narrow coastal strip with areas of low cliffs on the south side of the Firth;
- Narrow shingle and cobble beaches;
- South side enclosed by relatively low-lying wooded hills, rocky in places, which rise directly from the coastal edge, including the Ochil Hills;
- Extensive reed beds along the north bank of the Firth;
- Broad swathe of low-lying agricultural land – the Carse of Gowrie – to the north of the Tay, bisected by the A90 and backed by the Sidlaw Hills;
- Relatively sparsely settled when compared to strongly developed urban area of Dundee; and,
- Linear coastal settlement at Newport on Tay located between Tay Bridge and Tay Road Bridge.

## Scale and Openness

- 2.146 Overall this is a medium scale seascape influenced by the containment of the hills on either side of the Firth.

## Form

- 2.147 The incised Inner Firth is the dominant form within this character unit, highlighted by the containment of the Sidlaw and Ochil Hills. The vertical emphasis of these hills contrasts strongly both with the intertidal flats within the Firth and the low lying agricultural land to the north.

## Settlement

- 2.148 Within the Carse of Gowrie there are several villages such as Longforan, Inchtute and Errol, with other small settlements and farms, scattered throughout the farmland, along with individual residences. To the south of the Tay, the coastal strip also includes a scattering of small villages, such as Balmerino, and farms. Between the rail and road bridges is the linear development of Newport-on-Tay and associated suburbs.

## Pattern and foci

- 2.149 The estuary itself is the main focus followed by the backdrop of the surrounding hills, some of which, such as the Ochils, have quite distinctive profiles and are additionally characterised by the extent of woodland. Exposure of the intertidal flats creates more subtle patterning effects within the Firth, whilst the Carse of Gowrie is dominated by large geometric fields, with hedges and hedgerow trees more common along roads and tracks. Around Errol there are shelterbelts and policy woodlands associated with the

estate and the reed beds which line the bank of the estuary here form an important and characteristic element.

### **Lighting**

- 2.150 There is little illumination in the Inner Tay west of Dundee and Newport on Tay, being confined mostly to the scattered villages and settlements in the Carse of Gowrie. The river is marked by navigation lights upstream to Perth.

### **Movement**

- 2.151 Movement within the Inner Firth is less prominent when compared to the strongly developed coastal edge of the Outer Firth and is primarily associated with the road and rail network, particularly the fast-moving traffic on the A90. Some shipping still makes use of the navigable stretch of the River Tay to Perth. The extent of the intertidal flats exposed at low tide also highlights movement of the river and estuarial waters. In this flat landscape the sky is also an important element and the pattern of cloud cover and nature of light can have dramatic effects on the perception of character and movement.

### **Aspect**

- 2.152 There is a north/south aspect on either side of the Firth.

### **How experienced**

- 2.153 This character area is primarily experienced from the network of minor roads and settlements scattered throughout the landscape. Views of the Firth itself may be obscured by trees and other vegetation or localised variations in topography. The A90 is an important transportation corridor running here between Perth and Dundee. Many visitors to area will experience the landscape of the Firth from this road or from the adjacent railway line. There is some recreational use of the river from Dundee and Newport-on-Tay.

### **Modification/Remoteness/Sense of Naturalness**

- 2.154 The intensively farmed and modified landscape of the Carse of Gowrie perhaps has a greater sense of naturalness and remoteness than is actually the case due to the relative sparsity of settlement. The estuarial seascape of the Inner Firth also has a greater sense of naturalness when compared to its neighbouring character areas, for this same reason. Both these perceptions are heightened by the backdrop of hills, particularly the higher and more distant Sidlaw Hills.

### **Exposure**

- 2.155 The containment of the surrounding hills lends this area a more sheltered feel when compared to the Outer Firth and adjacent coastline to the north and south.

### **Process and dynamics**

- 2.156 The Inner Firth is largely sheltered from the effects of wave action however it is a dynamic coastal environment subject to a range of processes associated with tidal currents and the river. The dynamic nature of this environment is also emphasised by movements of weather fronts across the wide, open sky.

### Quality/condition

- 2.157 The high quality and good condition of the Firth itself and tidal zones is recognised by its conservation designations reflecting a variety of important habitats for flora and fauna. The agricultural land within the Carse of Gowrie is of more variable condition and quality as many of the hedgerows have become gappy and lost trees not replaced.

### Designation

- 2.158 The south bank of the Inner Firth is designated as the Tay Coast Special Landscape Area in the St Andrews and East Fife Local Plan (2009). There are also a number of designated GDLs as listed in Historic Scotland's Inventory, comprising Errol Park, Fingask Castle, Glendoick, Megginch Castle, Naughton, and Rossie Priory.

### Sensitivity

- 2.159 This character unit has a **low** sensitivity to offshore wind development outwith the area due to its physical separation from the open sea.

### Forces for Change

- 2.160 The location of this character area between Firth and Dundee means that there is primarily pressure for housing development. There may also be pressure for onshore wind development. The Perth and Kinross Wind Energy SPG (2005) indicates that the hills to the north of the A90 fall within a broad area of search for this type of development.

## SA11: ST ANDREWS BAY

### Definition of regional seascape unit boundaries

- 2.161 This unit comprises the large stretch of sandy coastline extending southwards from Tayport, via Tentsmuir Point, to St Andrews. It includes the Eden Estuary and West Sands, where an abrupt change in coastal direction, and an increase in coastal elevation, marks a transition from the sandy bay to the rocky foreshore of St Andrews.

### Key characteristics

- Long, sandy beaches;
- Expansive intertidal shores around the Eden Estuary;
- Significant dune systems at Tentsmuir;
- Large areas of sandbars at Tentsmuir Point;
- Tentsmuir Forest, an extensive, open and mature forest of pine trees;
- Low-lying agricultural hinterland with scattered farmsteads and geometrically laid out fields;
- Golf links courses at the edge of St Andrews.

## **Scale and Openness**

- 2.162 The flat, low-lying coastal landform combined with the great expanse of open sea and largely linear shoreline creates a large scale, expansive seascape, apart from around the Eden estuary which comprises a smaller scale component. The open sea is flanked by coastlines to north and south, which slightly diminishes the scale.

## **Form**

- 2.163 This area is characterised by its broad, flat land profile and strong horizontal emphasis, heightened by the coastal edge and other linear features such as forest edges and field boundaries. It is composed of a low-lying, broad sandy headland between the mouths of the Tay to the north and the Eden to the south. Between the rivers is a wide flat sandy beach, backed by wind-blown dune systems. Behind the dunes, the flat landform continues. South of the Eden, which forms a broad muddy estuary, is another long beach backed by dunes and a golf course. The land begins to rise to the south of this, where the coastline turns sharply westward.

## **Settlement**

- 2.164 Tayport is the only town of any size within this character area. There are scattered farmsteads and smaller settlements, including the village of Leuchars, elsewhere, mainly lying within agricultural land. RAF Leuchars is an important Air Defence Station although not a prominent feature of the landscape. St Andrews is located immediately to the south of the area, Associated development, most importantly the golf courses, extends onto the links area between the town and the Eden.

## **Pattern and foci**

- 2.165 The seascape here generally has a simple composition of long sandy beaches backed by dune systems and extensive areas of forest. Offshore there are large areas of intertidal flats and sandbars. In this low-lying area there are few natural focal points aside from the distinctive areas of forestry. In this context, the open sea and sky is a focus of attention in itself, as well as the more sheltered estuary of the River Eden. Inland, both fields and forest are notable for their linear edges, geometric shapes, and limited variations in colour and texture. Industrial development, though limited, can be a feature in the landscape, such as the former paper mill at Guardbridge with its distinctive chimney. Other visual foci occur at the edges, in Dundee to the north, and more immediately in St Andrews to the south.

## **Lighting**

- 2.166 With the exception of lighting in and around settlements, primarily Tayport, Leuchars and St Andrews, there is little illumination in this seascape unit, particularly on the coastal edge around Tentsmuir, although RAF Leuchars is a source of lighting. To the north, lighting along the Dundee and Angus coast is visible.

## **Movement**

- 2.167 Aside from movements in and around the settlements, there is vehicular movement associated with the network of major and minor roads. The airfield at RAF Leuchars is a source of movement associated with the fighter squadron based there. Movement is more obvious south of the Eden, with activity associated with the golf courses, visitors and the edge of St Andrews. The central and northern part of this area is quiet, with limited activity. Along the coastal edge shipping movements are seen in the Outer Firth and North Sea, together with smaller boats used for leisure. In this open and expansive seascape, the movement of weather systems across the wide sky is characteristic, and weather conditions will also affect the perception of movement within the sea and, at a smaller scale, in the dune landscape.

## **Aspect**

- 2.168 The aspect of this character area is predominantly easterly, apart from the northern coast around Tentsmuir Point which looks north across the Outer Firth of Tay and St Andrews Links which faces north east. Within the Eden Estuary the seascape is enclosed by the rising coastal hills to the south and west. The view is generally eastward to the open sea, with the Angus and Fife coastlines visible to the periphery. Inland, there are extensive views, mainly to the west, across flatter parts landscape to a backdrop of low-lying hills.

## **How experienced**

- 2.169 The seascape is primarily experienced by recreational users, visitors and locals alike, on foot and from the coastal edge. Visitors access Tentsmuir Forest and the long beach to the east via the FCS car park. There is also a network of footpaths and National Cycle Route 1 and Fife Coastal Path running through Tentsmuir Forest. The Eden Estuary Nature Reserve and Tentsmuir Point National Nature Reserve are both popular for recreational use including bird watching. Road users will experience the character area from the main routes, particularly the A91, and also a number of minor roads although generally these do not approach the coast. The seascape will also be experienced from a number of settlements including Tayport and St Andrews, with the latter also home to the world-famous golf links.

## **Modification/Remoteness/Sense of Naturalness**

- 2.170 The dynamic character of the dunes and intertidal areas, together with the wide, open sea and sky gives a high degree of naturalness to the coastal edge. Coupled with the lack of settlement and roads, this lends the area a greater sense of remoteness than is physically actually the case. The managed forest and agricultural land, in contrast, feels less natural because of its form and character. Development at St Andrews Links, and the ease of access, means this area is not at all remote. The area around the Eden Estuary is influenced by the RAF base and by the former mills at Guardbridge, although it has a sense of naturalness arising from its status as a nature reserve.

## Exposure

- 2.171 Whereas the coastal edge can feel very exposed, increasingly so to the north, the inland areas feel somewhat less so, particularly in and around the forested areas of Tentsmuir where the trees offer a large degree of shelter. To the south, exposure to the elements is still pronounced, compared to the more sheltered areas within St Andrews nearby.

## Process and dynamics

- 2.172 This is a highly dynamic seascape where the sense of an ever-changing environment can be heightened by changes in weather and lighting conditions. Coastal processes produced constant change in the seascape; Tentsmuir Point particularly is a very dynamic environment as the Abertay Sands are currently moving seawards at a rate of about five metres a year with an associated movement of the dune front. However at the southern end of the NNR the dunes area currently in retreat. The sandbanks at the mouth of the Eden are also particularly dynamic.

## Quality/condition

- 2.173 The high quality and condition of this seascape is recognised in a range of nature conservation designations. The forested areas inland are carefully maintained and the arable farmland is intensively managed although field boundaries and tree are neglected in places. The dune systems in the St Andrews Links area are protected by management, while in the north these are in good condition due to reduced usage of the area.

## Designation

- 2.174 This coastline is designated as part of the East Fife AGLV. St Andrews Links is listed on the Inventory of Gardens and Designed Landscapes in Scotland, together with the garden at Earlshall, adjacent to Leuchars.

## Sensitivity

- 2.175 This is a **high** sensitivity seascape. Although certain characteristics, such as its large scale and openness, tend to decrease sensitivity to offshore wind development, the area around Tentsmuir in particular has a high degree of naturalness. Although the presence of large settlements nearby can tend to decrease sensitivity, the smaller scale components of the Eden Estuary and St Andrews Bay, and contrast between these and the sweep of beach associated with Tentsmuir, contribute to a diverse and varied character with higher sensitivity, as reflected in the various designations which apply to the area. It is also a popular recreational area, with many visitors attracted by the open seaward aspect and readily accessible beaches.

## Forces for Change

- 2.176 This depositional coast is subject to shifts in coastal processes, which may affect the shape of the Eden and Tay estuaries. Management of the Tentsmuir Forest, including felling, restructuring or replanting, will affect the hinterland. The future use of RAF Leuchars may affect the area around the Eden estuary. There is pressure for housing development as the area is within easy reach of the major settlements of St Andrews and Dundee. Development along the

edge of St Andrews would also affect the character of St Andrews Links courses.

## **SA12: ST ANDREWS TO FIFE NESS**

### **Definition of regional seascape unit boundaries**

- 2.177 This unit comprises the gently sloping agricultural hinterland, rocky coastline and low cliffs stretching for approximately 15km between St Andrews and Fife Ness.

### **Key characteristics**

- Diverse coastal edge comprising small sandy bays, extensive wave-cut rock platforms, low cliffs and narrow, wooded dens;
- Small rocky headlands of Buddo Ness and Kinkell Ness;
- Open and exposed feel to coastline;
- Gently undulating agricultural landscape slopes down to coastal edge;
- Historic settlement and landmark buildings of St Andrews; and,
- Popularity for recreational use.

### **Scale and Openness**

- 2.178 Overall this is a medium to large scale seascape with a high degree of openness in clifftop areas. However, there is a wealth of fine detail within the coastal edge including a number of smaller scale sheltered coves and inlets.

### **Form**

- 2.179 This seascape character unit has a simple form comprising relatively straight but indented coastal edge marked by low cliffs, rocky platforms and the occasional sandy bay, giving way to an undulating agricultural hinterland which slopes gently down to the coast. There is a strong horizontal emphasis to the landform.

### **Settlement**

- 2.180 St Andrews is the only significant area of settlement, which is visible in views along the coast to the north. There are small villages at Boarhills and Kingbarns and scattered farms and individual houses, together with isolated larger scale development such as the St Andrews Bay Hotel, and a large caravan site just to the east of St Andrews by the East Sands.

### **Pattern and foci**

- 2.181 Overall this character area has a relatively simple character and composition. Within the coastal zone there is a wealth of smaller scale detail and features such as cliffs, rocky platforms and wooded dens, but a lack of prominent natural focal points. In this context the coastal edge and sea itself become foci. Inland, the agricultural landscape has a simple pattern of geometrical fields and predominantly linear shelterbelt planting. Within this low lying landscape, trees and woodland can also become focal points, as can elements

of the townscape such as the St Andrews Cathedral ruins. Long views northwards are afforded to the long low coastline to the north of the Tay estuary.

### **Lighting**

- 2.182 Outside of the settlement of St Andrews this is not a well-lit area, particularly on and adjacent to the coastal edge, although there is some illumination associated with small settlements, farms and other developments such as the St Andrews Bay Hotel. There is a small lighthouse at Fife Ness. Dundee forms a distant light source to the north, the influence of which diminishes towards the south.

### **Movement**

- 2.183 Apart from pedestrian and vehicular movement in and around St Andrews, most movement in the character area is limited to vehicles on the A917 and minor roads connecting to it. The main road is relatively quiet and is set back from the coast following the ridge tops of coastal hills. Within the coastal zone there will be movement associated with the golf courses and coastal footpaths not to mention agricultural work in the surrounding fields. As with other areas characterised by large scale open views of the sea and sky, there will be movement associated with wind and wave action on the sea and clouds. Large ships are often visible offshore.

### **Aspect**

- 2.184 The aspect of this character unit is predominantly north easterly. However, from Fife Ness there are also views to the east, and south across the Firth of Forth.

### **How experienced**

- 2.185 The coastal edge (including cliff tops and sandy beaches) is well used by both locals and visitors for recreational activities including beach access, golf, walking and other outdoor activities. There are also a number of visitor destinations within the character unit such as the gardens at Cambo Estate. The Fife Coastal Path traverses the entire length of the coastline: walkers will experience the local variations unfolding along coastline, while the headland at Fife Ness provides more extensive, elevated views across the seascape. The seascape will also be experienced from within St Andrews by residents and visitors alike and also from the A917, promoted as a scenic coastal route, which runs parallel to, and has views of, the coast and sea.

### **Modification/Remoteness/Sense of Naturalness**

- 2.186 The coastal edge in particular has a strong sense of naturalness with its rocky outcrops, wave-cut platforms and bird life. Although not remote physically, the sense of remoteness may be heightened along the coastal edge as much of it is only accessible on foot. This is tempered by the proximity of urban development in and around St Andrews which extends out along the A917, for example the St Andrews Bay Hotel. The agricultural hinterland is intensively managed, with rectilinear fields and shelterbelts extending up to the narrow rocky foreshore in places, reducing the sense of naturalness.

## **Exposure**

- 2.187 This is an open and exposed seascape with little shelter apart from the narrow wooded dens and areas of shelterbelt planting around the scattered farmsteads. More enclosed sandy coves provide a degree of localised shelter.

## **Process and dynamics**

- 2.188 The character area is subject to a range of coastal processes, most importantly erosion by wind and wave action. The dynamic nature of the seascape may be heightened in certain weather conditions due its open and expansive character. Occasionally, dune systems can be damaged by storm tides.

## **Quality/condition**

- 2.189 The coastal edge has a high quality relating to a diverse range of characteristic feature such as the cliffs, rock platforms and small, sandy coves. Landward areas of agricultural fields are intensively managed but field boundaries and features are poorly maintained and there are a number of derelict buildings, particularly closer to Fife Ness, which detract from the overall quality of the area.

## **Designation**

- 2.190 The coastline is designated as part of the East Fife AGLV. There designed landscape and gardens at the Cambo Estate are also listed in Historic Scotland's GDL inventory.

## **Sensitivity**

- 2.191 This is a **high** sensitivity landscape. Although the coastal edge can feel open and exposed at cliff top locations, there is also a wealth of smaller scale detail along the coast, such as sandy coves and incised inlets, which tend to increase sensitivity to the type of development proposed. Aside from the historic town of St Andrews, this is a largely undeveloped seascape with little lighting. There are popular beaches and coastal attractions along the coast.

## **Forces for Change**

- 2.192 There is development pressure associated with the town of St Andrews. Onshore wind energy development is also a possibility, with a planning application having been submitted recently for a 12MW capacity wind farm at Kenly, just to the south of the A917.

# **SA13 EAST NEUK OF FIFE**

## **Definition of regional seascape unit boundaries**

- 2.193 This unit includes the coast of the East Neuk of Fife, from the headland of Fife Ness in the east to Chapel Ness near Earlsferry.

## **Key characteristics:**

- Rocky coastline and shingle beaches, generally low lying;
- Attractive fishing villages centred on busy harbours;

- An exposed landscape;
- Distinctive red sandstone cliffs and soils.

### **Scale and Openness**

- 2.194 Medium to large scale coastal area, enclosed to the south by the Lothian coast but increasingly open views to the east and at Fife Ness.

### **Form**

- 2.195 The coastline is composed rocky foreshore of exposed igneous rock platforms and caves, with small headlands, low cliffs and sheltered bays, around Earlsferry and Elie.

### **Settlement**

- 2.196 Small areas of settlement are dispersed regularly along the coast, generally small villages with harbours, including Crail, Piteenweem, and Anstruther. These are located on the coastal edge, often fronting the sea and with historic maritime associations, particularly fishing. There are also individual farmsteads and dwellings scattered along the coast, following the A917 coastal road and other minor roads inland. Along the coastal edge a number of caravan and camping sites and golf courses are features. A disused airfield and occasional larger scale commercial development are located southwest of Fife Ness, but otherwise large scale development is limited.

### **Pattern and foci**

- 2.197 A hinterland of open, gently undulating farmland extends down to the rocky shoreline. There are few inlets along this stretch of coastline and where they do occur they coincide with the small settlements and harbours. Lighthouses and sea walls are features of the harbours, as are the distinctive vernacular pattern of small cottages and the sea front.
- 2.198 The Isle of May is a prominent and constant feature in seaward views across the firth, with distant views to North Berwick Law and the Lothian coast and the Lammermuir Hills beyond.

### **Lighting**

- 2.199 The area is influenced by the lighting from the regular pattern of villages within the area and the influence of towns along both the northern and southern shores of the Firth of Forth, including the city of Edinburgh to the southwest.

### **Movement**

- 2.200 The busy A917 road runs between Elie and Crail, generally following the line of the coast and set back usually within 1km of the edge. The road has some influence on the character of the hinterland within the area. A small number of minor roads are concentrated around the coastal villages and quiet minor road runs from Crail to Fife Ness.
- 2.201 At sea large ships are often visible and activity from smaller fishing and shipping vessels are particularly noticeable and characteristic around the small harbours.

### **Aspect**

- 2.202 The coast faces predominantly south-southeast, with little variation along the relatively straight coastline.

### **How experienced**

- 2.203 The seascape is experienced by a number of residents within the villages and the scattered farmsteads located on the coastal edge. Long sections of the Fife Coastal path follow the edge of the rocky foreshore, set below the low but sharply rising coastal hills. Views inland are limited and focused out across the Firth of Forth.
- 2.204 The A917 coastal road is promoted as a scenic coastal route through Fife, and this section of the route is particularly well used. From the road, travellers experience open, wide and extensive views out across the Firth of Forth and to the open sea to the east, often seen across narrow margins of arable farmland. The road and rocky foreshore are generally not intervisible, with the road set back from and slightly elevated above shore.

### **Modification/Remoteness/Sense of Naturalness**

- 2.205 The area is settled with limited sense of naturalness. The area is however not heavily modified by development, with arable farmland and small settlements within the hinterland and at the coastal edge. The harbours lend a sense of a close maritime connection between the settled coast and the sea.

### **Exposure**

- 2.206 There is a greater sense of exposure to the east, particularly on the prominent headland of Fife Ness which protrudes into the North Sea. This becomes reduced further west along the coast, as the Firth of Forth becomes gradually more enclosed.

### **Process and dynamics**

- 2.207 Processes of erosion are generally limited along this stretch of coastline due to the predominance of carboniferous rocky platforms at the coastal edge, which deflect strong tidal currents. There are areas of localised erosion within the sheltered bay at Earlsferry.

### **Quality/condition**

- 2.208 The quality and condition of the seascape unit is medium to high. There is limited development outwith the settlements, with the exception of the airfield at Fife Ness. The overall quality and condition of the agricultural farmland and links abutting the shore is generally good. Caravan parks and small scale development effect the character locally.

### **Designation**

- 2.209 The coastline is designated as part of an AGLV. Balcaskie is included on the Inventory of Gardens and Designed Landscapes in Scotland.

### **Sensitivity**

- 2.210 This is a well visited coastline, with the historic villages and golf courses being the most popular destinations. There is limited modern development within

the landscape, and the traditional villages are small in scale. The outlook of this coast is generally to the southeast, towards the Lothian coast, with the East Neuk villages being focused on their harbours. However, other areas have a wider outlook to the open sea, with the Isle of May a prominent feature in many views. Overall, this area is considered to be of **high** sensitivity to offshore development.

### **Forces for Change**

- 2.211 Pressures for housing and development related to tourism, such as caravan parks, are likely to be forces for future change.

## **SA14 KIRKCALDY AND LARGO BAY**

### **Definition of regional seascape unit boundaries**

- 2.212 From the island of Inchkeith, the Forth widens considerably, with wide bays to north and south. The coastal area of the northern bay extends from Pettycur by Kinghorn, to Chapel Ness at Earlsferry.

### **Key characteristics:**

- Large coastal settlements with an industrial character;
- Generally low-lying coast;
- Sandy beaches and bays, including the wide Largo Bay;
- Areas of reclaimed land protected by coastal defences;

### **Scale and Openness**

- 2.213 A medium to large scale area, semi-enclosed by headland at Kincaig Point to the east and the Lothian coast to the south and Lammermuirs beyond. Views to the open sea are framed by the headlands

### **Form**

- 2.214 The shore is varied, with contained bays, sand and narrow shingle beaches, boulder clay cliffs and areas of re-claimed land, including coal mining spoil heaps, which are protected by hard sea-defences. The hinterland is generally low-lying and gently undulating, dropping gradually down to the shore. Largo Bay is a widely curved bay of predominantly sandy beaches with some rocky outcrops to the south of Lower Largo. At the eastern extent near Earlsferry, small pocket beaches are enclosed by rock extrusions that protrude into the estuary.

### **Settlement**

- 2.215 This is a very settled area, with settlement and large scale development extending along much of the coastline to the west of Leven. The seascape is influenced by the presence of masts, large scale industrial development and by the developed coastal edges, particularly around the settlements of Kirkcaldy, Leven, Buckhaven and Kinghorn.

### **Pattern and foci**

- 2.216 The coast is characterised by long stretches of sandy beaches backed by settlement and broad expanses of gently sloping farmland. The headlands of Kincaig Hill to the east, and across the Forth, North Berwick Law and Bass Rock to the southeast, are prominent features that frame views eastwards to the open sea beyond the firth. The back drop of hills in views inland to the north is distinctive, particularly Largo Law.

### **Lighting**

- 2.217 The stretch of coast is settled, with lighting associated with the docks and harbours, roads and industrial development dispersed along it. Street lighting is present within the settlement and along promenades. The area is also influenced by lighting from Edinburgh and settlement along the southern shore of the Forth.

### **Movement**

- 2.218 The network of roads running between the settlements strongly influences the area. There is also movement from marine activities within the Firth of Forth and around the docks and harbours at the coastal edge.

### **Aspect**

- 2.219 The aspect varies across this coastal stretch. South of Kirkcaldy the coastline faces east, looking out of the Firth of Forth past the Isle of May and Bass Rock. Kirkcaldy itself follows a gentle arc as the aspect turns from east to southeast facing along the settled front. Largo Bay continues the sweep, facing predominantly southwards, with the eastern outlook screened by Kincaig point.

### **How experienced**

- 2.220 The seascape is experienced by a wide range of receptors, including large numbers of residents within settlements. Visitors to the towns and villages, generally experience the seascape from lower lying modified coastal edges, including harbours and promenades.
- 2.221 Recreational receptors include golfers on the Lundin Links, walkers following the Fife Coastal Path, as well as those engaging in other water-based recreational pursuits on the estuary itself.

### **Modification/Remoteness/Sense of Naturalness**

- 2.222 This is a heavily modified coast, with harbours, reclaimed land and reinforced sea walls particularly around coastal towns. There are small pockets of attractive and more natural areas, such as around Largo Bay and West Wemyss.
- 2.223 There is little sense of isolation, with the coast being largely accessible by road as a result of the dispersal of the towns and villages along the coastal edge. Between the settlements, the Fife Coastal Path provides access along the length of the shoreline.

### **Exposure**

- 2.224 The coastline is generally sheltered, facing into a broad, semi-enclosed areas of the firth contained, with limited exposure with the open sea.

### **Processes and dynamics**

- 2.225 This stretch of coast is subject to a complex pattern of coastal processes. There is a strong westerly net drift of material from around Lower Largo to Kirkcaldy. At Lower Largo itself, the shore rock platform causes a drift divide with material to the east of this point moving eastwards due to the influence of wave action from differing directions. Moving down the coast to East and West Wemyss, there is a great deal of erosion and beachfront development is at risk. Colliery waste which in previous years was tipped onto the beaches is being eroded. At Kirkcaldy the harbour blocks the drift from the east and there is also a sea wall defence. South of this, due to the orientation of the coastline, net drift is slowed and there are sandy deposits – these are exposed to severe wave conditions travelling into the Firth of Forth from the North Sea.

### **Quality/condition**

- 2.226 The area is heavily influenced by large scale development, particularly in the west, with insensitive development in places. However there are a large number of receptors and this is an accessible recreational coast.

### **Designations**

- 2.227 The area east of Leven is designated as part of the East Fife AGLV. There is a small AGLV at Wemyss. The coastline south of Kirkcaldy is designated as part of another AGLV. There are coastal Inventory-listed designed landscapes at Ravenscraig Park and Wemyss Castle.

### **Sensitivity**

- 2.228 The open sea to the east is not the main focus of views, except in the southern part where eastward views are channelled along the Firth. In this southern area, development is influential, particularly the large settlement of Kirkcaldy, and the industrial seafront at Methil and Leven. The more intact area of Largo Bay has a limited relationship with the outer Forth. The area is generally busy and complex, and is considered to be of **medium** sensitivity to offshore development.

### **Forces for Change**

- 2.229 Future forces for change are likely to relate to development pressures, particularly around settlements and possibly large scale industrial development.

## **SA15 INNER FIRTH OF FORTH**

### **Definition of regional seascape unit boundaries**

- 2.230 This unit comprises the inner section of the Firth of Forth, covering both north and south shores. The inner Firth is enclosed to the east by the

headlands of Kinghorn Ness to the north, and Leith Docks to the south, some 8km apart. The island of Inchkeith in between provides further enclosure. The seascape area extends westward to the Forth Bridges, where the Forth narrows to less than 2km, beyond which the firth is more estuarine in character.

### **Key characteristics:**

- Relatively narrow inlet, only partially maritime in character
- Scatter of small islands
- Settled coastlines to north and south, with a number of landmark buildings and bridges
- Frequent passing cargo ships and occasional cruise ships, as well as smaller pleasure craft
- Rocky shoreline, particularly to the north, with sandy beaches

### **Scale and Openness**

- 2.231 Medium scale, increasingly contained by hills as the firth narrows to the west. Views to the outer firth, with very limited views to the open sea in the far distance. Small bays and wooded braes and steep hills provide localised areas of containment.

### **Form**

- 2.232 The coastline is varied and more incised than that of the outer Firth. The northern coast is composed of a series of small bays with a foreshore of sand and shingle beaches backed by steeply rising and irregular coastal hills. Areas of reclaimed land and hard edges formed by docks, harbours and industrial development are also regular features.

### **Settlement**

- 2.233 The coastal area is well settled. To the south, the suburbs of the city of Edinburgh occupy the shore, including Leith and Granton with their harbours. Further east the smaller settlement of Cramond clusters around the mouth of the Almond, beyond which is the estate of Dalmeny House. This whole coast therefore has a relatively developed appearance. Around the Forth Bridges, there is settlement on both sides of the Forth, as well as prominent infrastructure such as the Hound Point terminal. Along the north coast, settlement is limited to clusters, though the modern housing of Dalgety Bay is particularly prominent. The smaller settlements of Aberdour, Burntisland and Kinghorn each have their small harbours, with more industrial development at Burntisland.

### **Pattern and foci**

- 2.234 The pattern of this area is defined by built development. To the north the pattern of villages alternating with wooded farmland is associated with the pattern of headlands and bays. To the south the pattern is simpler, being more continuously developed to the east and wooded parkland to the west.

- 2.235 The area has a wealth of visual foci. The small scattered islands within the firth form distinctive features, such as Inchcolm with its abbey, Inchmickery with its distinctive defences, and Cramond Island linked by a causeway. Arthurs Seat and Edinburgh Castle are landmark features on land to the south and the distinctive profile of the Pentland Hills form a recognisable back-drop to views from the north of the firth. Man-made foci include the Forth Bridges and the gasometer at Granton, as well as prominent settlements and the more distant Cockenzie power station.

### **Lighting**

- 2.236 Well lit with almost continuous settlement following the coasts of the firth to the north and south. Shipping and the Hound Point terminal are a source of lighting within the firth itself. The Forth Bridges and floodlit.

### **Movement**

- 2.237 The area is influenced by frequent shipping movement within the Forth, including container ships, oil tankers, cruise ships which moor off the Forth Bridge, and recreational sailing boats. The area is also influenced by air traffic approaching Edinburgh airport. Vehicular traffic on the many stretches of coastal roads, and trains on the Fife railways, also affect.

### **Aspect**

- 2.238 The coastline is varied in its orientation, but predominantly the aspect is north/south facing across the Firth of Forth. The only significant east-facing area is the frontage of Dalmeny Estate, which looks along the Forth, various islands in the foreground.

### **How experienced**

- 2.239 The Forth is highly visible from the towns and urban centres fringing it to the north and south. The water and the coastal edge is also highly used recreationally, particularly the Fife coast, with a high concentration of footpaths, cycle routes and opportunities for water-based activities. The firth itself is a focus of views, and provides a foreground.

### **Modification/Remoteness/Sense of Naturalness**

- 2.240 Highly modified coast and coastal fringe, with large urban centres and industrial development extending up to the coastal edge. The predominance of built development and infrastructure means there is no sense of remoteness in this coast, though there are scattered areas with a degree of naturalness.

### **Processes and dynamics**

- 2.241 Along both the southern and northern coastlines of the Firth of Forth, longshore drift occurs in a westerly direction, influenced by wave action in the North Sea. This is less pronounced on the northern shore where there are a number of self-contained bays. The southern coast of the Firth of Forth is sheltered from wave action. Sections of this coastline are also protected by concrete/blockwork revetments. Features including Granton Harbour and the breakwater at Cramond act as groynes, and there is considerable build-up of sand and pebbles in this area.

### Quality/condition

- 2.242 The condition of the area is mixed. Industrial and harbour development often reduces apparent quality, while other settlements, such as the more intact village of Aberdour, are in better condition. Some parts of Edinburgh's waterfront have a settlement fringe character, with ongoing regeneration.

### Designations

- 2.243 The coastline between Dalgety Bay and Kinghorn is largely designated as part of an AGLV. Inchkeith (Fife) is also an AGLV. On the Edinburgh side, the Dalmeny House parklands, and the open space between Cramond and Granton, are designated as AGLVs.
- 2.244 The extensive parklands of Dalmeny House, and the gardens of Lauriston Castle, are listed on the Inventory of Gardens and Designed Landscapes in Scotland. North of the Forth, there are Inventory-listed sites at Aberdour Castle, Donibristle House, and the more extensive policies of St Colme House.

### Exposure

- 2.245 Very limited exposure due to the enclosed nature of this section of the firth and the sense of shelter provided by the hills inland.

### Sensitivity

- 2.246 This area has a very limited visual relationship with the open sea. Although the area has a high number of receptors, it is extensively man-modified, including some inshore development, and frequent shipping movements. It is considered to be of **low** sensitivity to offshore development of the type proposed.

### Forces for Change

- 2.247 Development pressure at the coastal edge and within the settlements abutting the coast.

## SA16 EDINBURGH TO GULLANE

### Definition of regional seascape unit boundaries

- 2.248 This unit extends from Leith Docks, eastwards to the small island of Eyebroughy, west of North Berwick. It includes the built-up shoreline of Portobello, Musselburgh, Cockenzie and Port Seton, as well as the less developed East Lothian coast around Gullane.

### Key characteristics:

- A broad bay, generally low-lying;
- Developed western part of coast, including docks, harbours, and commercial development, as well as smaller-scale fishing villages;
- Open sandy bays to the east, with extensive sand and mudflats and dune systems;

- Northerly aspect means that views are often contained within the Firth of Forth;
- Designed landscapes and woodland along the less developed coast;
- Popular and accessible recreational areas, including Portobello beach, Gullane Bay and Aberlady Bay nature reserve.

### **Scale and Openness**

- 2.249 The seascape is generally medium to large in scale, and most areas have a high degree of openness. There are no cliffs or other elevated coast to provide enclosure, and bays are broad. However, views to the open sea are generally limited, as most views are oriented toward the Fife coast. The undeveloped hinterland is also of medium to large scale, with large arable fields, although it is generally well wooded.

### **Form**

- 2.250 The seascape unit comprises generally shallow, open bays, set within a wide, concave curve. The coast is low-lying, with no cliffs. Generally, the coastal plain is flat or very gently sloping. The foreshore is most often sandy, with dune systems behind some of the bays. Rocky outcrops define low-lying headlands, and provide the setting for harbours. Mud and sand flats extend below high tide, particularly in Aberlady Bay.

### **Settlement**

- 2.251 The western part of this seascape area is increasingly densely settled. The principal settlements are the resort suburb of Portobello, the town of Musselburgh at the mouth of the Esk, and the villages of Prestonpans and Cockenzie and Port Seton. Further east the villages of Longniddry, Aberlady, and Gullane are set back from the coast. The settled areas of Leith (Seafield and Craigentenny) are set back from the coast, with commercial and industrial development lining the shore from Leith Docks to the mouth of the Braid Burn.

### **Pattern and foci**

- 2.252 In the east, landscape pattern is defined by the large-scale designed landscapes, including Archerfield and Gosford House estates. These are interspersed with links golf courses. Elsewhere arable farmland is divided by deciduous shelterbelts and wooded burns. Settlements are generally clustered around a harbour, with a small old village surrounded by extensive 20<sup>th</sup> century development, particularly at Prestonpans and Musselburgh. At Portobello the Victorian street pattern is legible from the beach.
- 2.253 The principal visual focus in this seascape area is Cockenzie Power Station, with its two 153m-high chimneys clearly visible from most locations. The main natural landmarks visible are outside the seascape area, including North Berwick Law and the Bass Rock to the east, and Arthur's Seat to the west.

### **Lighting**

- 2.254 This coastline is settled and developed, and lighting is a feature of night time views. Much of the coast has a road on the shore-front, and many sections

are lit, with additional lights from streetlighting within towns and villages. Industrial lighting at Cockenzie power station, including navigation lights on the chimneys, makes this a night time as well as a daytime landmark. Leith Docks and the surrounding industrial developments are also well lit. The eastern part of the area tends to be darker.

### **Movement**

- 2.255 Most of this area has a road running along the shore, any many sections have busy A roads, including the A199 at Seafield and Musselburgh, and the A198 further east. The B1348 follows the coast between Musselburgh and Longniddry. The hinterland is generally busy, with a dense network of roads including the A1. Offshore movement is apparent as many ships move up and down the Forth, bound for Rosyth, Hound Point or Leith Docks. Recreational boating activity is more limited, with a few boats based in the small harbours. Sailing boats are often visible at weekends.

### **Aspect**

- 2.256 This coast has a generally northerly aspect, with views across to Fife. This does change gradually along the seascape unit, as the coast curves around. From Portobello, the open sea can be seen, between North Berwick and Elie Ness, with North Berwick Law and the Bass Rock being prominent. Further east, views look more to the north, with Largo Law becoming a visual focus. Around Aberlady and Gullane, the aspect is principally northwest and west, with no view of the open sea, but views into the inner Forth and to the Forth bridges. Edinburgh and Arthur's Seat are key features in these views.

### **How experienced**

- 2.257 There are many recreational destinations in this area, including come of the more popular beaches in the Lothians. In particular, Portobello beach is much visited by people from Edinburgh. Gullane Beach is also popular, while Aberlady Bay attracts birdwatchers. The long-distance John Muir Way runs east from Musselburgh, generally following the coast, and offering many coastal views to walkers. Other recreational users include golfers, visitors to Gosford House, people staying at caravan parks, and visitors to the coastal settlements.
- 2.258 The experience of the coast is mediated by development for much of this area, particularly at Musselburgh. Only at Aberlady Bay and other areas in the east is there a more immediate coastal experience. The sea in this sheltered area is generally relatively calm, and the enclosed views lead to a reduced sense of the marine edge.

### **Modification/Remoteness/Sense of Naturalness**

- 2.259 The shoreline of Leith Docks is heavily modified, through historic land reclamation and industrial development. Around Musselburgh, ongoing land reclamation of ash lagoons has created an area of flat, artificial ground extending in front of the settlement. Along most of the western part of this area, the coastline or immediate hinterland has been modified to some degree. Further east there is a greater sense of naturalness, particularly around the Aberlady Bay nature reserve where bird life is a part of the

seascape experience. However, no part of this coastline is far from development, and there is therefore very limited remoteness or wildness.

### **Exposure**

- 2.260 Although generally low-lying, the coast is often sheltered, either by woodland associated with designed landscapes, or by built development. The enclosed nature of views also limits any sense of exposure along this coast.

### **Processes and dynamics**

- 2.261 Tidal currents are relatively weak in this outer part of the Firth of Forth. Longshore drift is driven by wave action in the North Sea, directly in the western part of the seascape unit, and indirectly in the sheltered east. This results in a moderate, generally westward drift of material, interrupted by rocky outcrops. There is a mix of erosion and deposition ongoing, with groynes on Portobello Beach helping to retain material. Large sections of this coastline are protected by some form of sea wall or other marine defence, most prominently at Leith Docks.

### **Quality/condition**

- 2.262 At its western end, this coastline is somewhat degraded. Industrial and other development has adversely affected the coastal character, particularly at Leith Docks and Musselburgh lagoons. Other areas are more intact, even where developed, such as Portobello beach and the older settlement nuclei. The condition of the coastline is generally better to the east, with intact sand dunes and saltmarsh.

### **Designations**

- 2.263 The coastline east of Seton Sands is designated as an AGLV by East Lothian Council. There are Inventory-listed designed landscapes along the coast, at Cockenzie House, Gosford House, Luffness, Greywalls and Archerfield.

### **Sensitivity**

- 2.264 This coastline has a very high level of human influence, particularly in the west, though the eastern areas are more intact. The limited nature of marine influence, and the relatively sheltered nature of this coast, reduces its sensitivity to development taking place offshore. The high level of residential and recreational use tends to increase its sensitivity. Overall, the sensitivity of this seascape area is considered to be **medium**.

### **Forces for Change**

- 2.265 Development pressures in this area include ongoing redevelopment of industrial areas, for example at Leith Docks. The ash lagoons at Musselburgh continue to be used for disposal of ash from Cockenzie Power Station, and will eventually be reclaimed for recreational use. There are also development pressures for new housing across this area. The eastern part of this seascape area is less likely to be subject to change.

## SA 17 EYEBROUGHY TO TORNESS POINT

### Definition of regional seascape unit boundaries

2.266 The small island of Eyebroughy, west of North Berwick provides the northern extent and Torness Point provides the southern extent of the East Lothian Regional Seascape Unit. The visibility splays at the edge of this unit are defined by these headlands, with the area west of North Berwick providing views out to the North Sea and Torness Point containing views south.

### Key Characteristics

- Diversity of coastal scenery and habitats;
- Extensive views due to flat terrain and few woodlands;
- Generally low-lying coast;
- Alternation of rocky headlands and sandy pocket bays;
- Backed by relatively unfragmented agricultural land;
- Popular recreational coast;
- Transport routes form prominent linear features;
- Relatively densely settled by the towns of Dunbar and North Berwick; and
- Major localised visual impacts of cement works and Torness Power Station.

### Scale and Openness

2.267 A large scale coastline, generally open and allowing long views both seaward and along the coast. The low lying nature of the coastal landscape does not provide enclosure except in occasional areas of higher cliffs, such as around Tantallon Castle east of North Berwick. The hinterland is relatively open with areas of containment around urban areas.

### Form

2.268 The coastline is generally composed of low rocky headlands, dividing sandy beaches. These headlands often comprise large areas of rocks which only occasionally rise up into the cliffs such as those around Tantallon. Beaches range from small pockets of sand to the broad estuarine sands of Belhaven Bay, where a substantial dune system has built up. Elsewhere, beaches are backed by arable farmland, and by sloping cliffs. A number of small islands stand offshore of the rockier sections, the most prominent being the volcanic Bass Rock. Other offshore islands include Cragleith and Eyebroughy. Inland, North Berwick Law is the highest point on this coast, also an isolated volcanic feature. At Dunbar there are a series of rounded headlands which are bounded by extensive rocky cliffs. Along the Barns Ness shoreline there are a number of small embayment beaches intersected by rock outcrops. The largest appears to the south of Barns Ness lighthouse, where the beach is predominantly sandy and low dunes have formed.

## Settlement

- 2.269 Settlement on the shoreline in this landscape is concentrated at Dunbar and North Berwick, a small settlement to the northern extents of the regional seascape unit sited on a headland. There are scattered farmsteads and dwellings along a network of major and minor roads inland. Tourism has a strong impact on this landscape type and a number of camping and caravan sites are prominent as well as golf courses close to the coastal edge. Some isolated industrial features including Torness nuclear power station and cements works.

## Pattern and foci

- 2.270 There is a unifying influence in the landscape in the form of the relatively linear coastline with open beaches. The low-lying nature of the coast allows a number of natural and man-made features to provide prominent landmarks, including Bass Rock and North Berwick Law to the north, the Cement Works at Dunbar and Torness Power Station on the coastal edge to the south of the regional seascape unit.
- 2.271 Turbines may visually compete but could also relate with the strong industrialised foci of the power station at Torness in some views. North Berwick Law is a prominent feature in the hinterland.

## Lighting

- 2.272 This coastline is settled and developed in places and lighting is a feature of time views, including industrial lighting at Torness, street lighting in towns and along the A1. There would be some lighting from ships at sea. There is a sense of space in the low-lying nature of the coast and lighting from man-made features along the coast would provide prominent elements along the shoreline at night.

## Movement

- 2.273 The A1087 runs along the coast from Dunbar to North Berwick. The busy A1 road and the East Coast Main Line pass close to the coastline to the south. The A1 constitutes an important transport corridor which strongly influences the adjoining landscape. There will also be movement from ships at sea and marine activities around the recreational beach areas of the coastal edge.

## Aspect

- 2.274 The coastline faces north-east, with limited variation and as a result can experience severe wave conditions generated by the North Sea. During the summer months, the sun rises to the north-east, swinging around to the south-east during winter. Seaward views look across to Fife Ness and the East Neuk, with the Isle of May in the foreground.

## How experienced

- 2.275 The seascape is experienced in a range of ways, including by numerous residents. Tourists and visitors to the area experience the coast from the seafronts of North Berwick and Dunbar, and from the beaches along the

coast. Walkers on the John Muir Way experience the coastline unfolding and changing gradually, while those who climb North Berwick Law experience a broad panorama taking in this whole seascape. Other visitors experience the historic aspect of the coast, at Tantallon Castle, or the natural heritage aspect, using the remote cameras at the Seabird Centre. Travellers on the A1 and East Coast Main Line experience part of this coast as they pass rapidly between Dunbar and Cockburnspath. The extensive tidal reach of the beaches results in a calm sea, however where rocks are present, the power of the waves against the rocks results in a dynamic and audible sense of the sea along the coast.

### **Modification/Remoteness/Sense of Naturalness**

- 2.276 The arable, settled nature of the hinterland has an effect on the seascape, particularly where development adjoins the coast. The prominent power station at Torness has a strong influence over a long section of coast, reducing the sense of naturalness. The level of modification is reduced in areas where some separation is available between coast and land, such as below the cliffs around Seacliff, or in the south of the area.
- 2.277 Transport corridors and intrusive industrial development detract from the otherwise calm character of this landscape. Busy transport routes on land and sea gives a modified alongside built form at Dunbar and the industrialised coast consisting of the Power Station at Torness. The medium to large scale arable fields and sparse settlement areas provides a more naturalistic character. There is a presence of large tanker ships.
- 2.278 The coast is accessible via the John Muir Way up to Dunbar. Between Dunbar and North Berwick there are intermittent roads which access the coast from the A198, otherwise this stretch of the coast is not easily accessible and there is a sense of isolation along this stretch of coast due to the lack of structures and lack of human influences.

### **Exposure**

- 2.279 This seascape does not have particularly high exposure. It is an open seascape but generally low lying, and often feels sheltered. The arable farmland, often wooded, quickly reduces the sense of coastal exposure which is only felt at the coastal edge.
- 2.280 There is a sense of exposure around the open, expansive areas of sands along the coast, enclosed by the low relief of the surrounding hinterland which emphasises the breadth of the water surface. The openness and expanse of water conveys the sense of the sea, an attribute which can be used to help accommodate larger scaled development, which is diminished in scale relative to the expanse of the water.

### **Process and dynamics**

- 2.281 The extensive tidal reach of the beaches emphasise the dynamic experience of the sea in these areas. A dynamic character is also reflected where the coast is exposed to the power of the waves. There are few coastal defences along this coastline. At Dunbar there is a seawall and at Torness Point a substantial rock revetment and seawall protect the installation.



- 2.282 The mean spring tidal range within the area is 4.5m at Dunbar with a mean neap range of 2.2m. The tidal cycle has a period of just over 12 hours and high tide occurs at approximately the same time along the length of the coast.

### **Quality/condition**

- 2.283 The quality and condition of the East Lothian regional seascape unit is Low – Medium. Existing development, the industrialised coastline, transport infrastructure and busy shipping lanes provide a development character in places to the regional seascape area.

### **Designation**

- 2.284 The coastline is designated as part of an Area of Great Landscape Value (AGLV). The coast west of north Berwick is designated as the Firth of Forth Site of Special Scientific Interest (SSSI) around Belhaven Bay. Aberlady Bay is a Local Nature Reserve. North Berwick Law is designated as a SSSI as is the coast north of Dunbar and Barns Nest Coast.. There are Gardens and Designated Landscapes at Grey Walls, Archerfield, Luffness, Tynninghame. and Broxmouth Park. There are several Conservation Areas along the coast.

### **Sensitivity**

- 2.285 **Medium** Sensitivity. Existing development, the industrialised coastline and transport infrastructure already give a localised development character in places and busy shipping lanes are present in the sea. Internal intervisibility is generally high, due to the simplicity of the landform and the lack of tree cover.
- 2.286 Turbines would relate to the relatively large scale seascape and generally linear coastline. Wind energy would relate to the perception of exposure and would be in keeping with the concentration of industrial development located along the coastline including the Power Station at Torness and Oswell Mains cement works.

### **Forces for Change**

- 2.287 Pressure for onshore wind energy development within the Lammermuir Hills and this may increase sensitivity in some areas due to the potential cumulative impact. There is no significant longshore drift evident on the beach systems and hence areas of long-term erosion are not all that apparent. The northern end of Belhaven Bay known as Sandy Hirst may experience erosion.

## **SA 18 TORNESS POINT TO ST ABBS HEAD**

### **Definition of regional seascape unit boundaries**

- 2.288 Torness Point provides the northern extent and St Abb's Head provides the southern extent of the St Abb's Head to Torness Point Regional Seascape Unit. The visibility splays at the edge of this unit are defined by these headlands, with Torness Point providing views out to the North Sea and St Abb's Head containing views south.

## Key Characteristics

- A landscape with a barren, exposed character and dramatic open views;
- Coastline formed by high, near vertical cliffs carved into strongly-folded resistant sedimentary rocks;
- Pocket beach at Pease Sands;
- Land cover dominated by arable and pastoral fields of varying size, field boundaries of mature thorn hedges with occasional hedgerow trees on lower ground;
- Gorse and other scrub common on steep slopes and exposed locations;
- Widely dispersed farmsteads along minor roads; and
- Cocksburnspath located inland near the coastal edge.

## Scale and Openness

- 2.289 There is a transition between the hill slopes of the Lammermuir hills and the coast. Towards the coast the terrain opens out into a broad, gently undulating plain elevated along the coastline, giving the area an atmosphere of tranquillity.
- 2.290 The expansive views from the elevated coastline and open, exposed landscape has dramatic distant views along the rugged coastline and over the horizon of the North Sea. Localised enclosure such as moors and small scale settlement are located inland and create a more intimate and contained character. The pocket beach at Pease Sands provides accessible enclosure along the rugged coast.

## Form

- 2.291 Generally elevated, the topography ranges from sea level to 250m, is characterised in inland areas by an undulating landform with strong slopes, valleys and areas of moor vegetation. At the coast the land drops away, in some place steeply to cliffs with a rocky shoreline below. There are significant headlands at St Abb's Head, Fast Castle Head and Reed Point. The majority of the shoreline is indented by rock form with steep sides which result in elevated views out to the sea.

## Settlement

- 2.292 Settlement in this landscape is concentrated in a sheltered location inland at Cocksburnspath to the north of the area. There are scattered farmsteads and dwellings along a network of major and minor roads inland. Fast Castle is located on the coast along with several other National Trust properties. Tourism has a strong impact on this landscape and a number of camping and caravan sites are prominent, particularly around the pocket beach at Pease Sands.

## Pattern and foci

- 2.293 The predominantly rugged coastline comprising cliffs creates a unifying influence along the coast. The localised focus of the headlands at St Abbs and

Fast Castle Head are prominent features creating a strong degree of indentation.

### **Lighting**

- 2.294 Little lighting on land and none at sea, apart from ships.

### **Movement**

- 2.295 The area is traversed by the A1107. The busy A1 road and the main East Coast rail line are located inland of several areas of moor. The A1 constitutes an important transport corridor which strongly influences the adjoining landscape.
- 2.296 Existing marine based activities consist of boats in harbours and ships at sea.

### **Aspect**

- 2.297 The coastline faces north-east, with limited variation and as a result can experience severe wave conditions generated by the North Sea. During the summer months, the sun rises to the north-east, swinging around to the south-east during winter. On clear days the east facing and turbines would be backlit in the morning.

### **How experienced**

- 2.298 This is a largely open, exposed landscape with dramatic distant views along the rugged coastline and over the North Sea. Experienced from transport corridors, major rail and road routes, settlement and from beaches and generally in the context of activity. There are panoramic views from St Abb's Head.

### **Modification/Remoteness/Sense of Naturalness**

- 2.299 Busy transport routes on land and sea, with the presence of large tanker ships, gives a modified feel although the presence of small traditional settlements and a strong rural hinterland counters this impression. The high cliffs, moorland and sparse settlement of St Abb's Head has a more naturalistic character. There is a sense of ruggedness, naturalness and remoteness along the shoreline. There are no footpaths along the majority of the costal edge resulting in little actual accessibility to the coast and the hinterland, except along the A1107 inland. This gives a sense of isolation to the north of St Abb's Head.

### **Exposure**

- 2.300 Fairly exposed due to openness and lack of shelter provided by the landform. St Abb's Head is particularly exposed and windswept.

### **Process and dynamics**

- 2.301 A dynamic character is reflected where the coast are exposed to the power of the waves along the rugged coast. At Torness Point a rock revetment gives coastline protection. At Pease Sands gabions provide coastal defences around the caravan park.

### **Quality/condition**

- 2.302 The quality and condition of the regional seascape unit is Medium.

### **Designation**

- 2.303 The coastline is designated as part of an Area of Great Landscape Value (AGLV). Pease Bay, Siccar Point and Abbs Head to Fast Castle, Coldingham Common Long and Coldingham Lock SSSI are located along this stretch of coast. An Area of Berwickshire and North Northumberland Special Area of Conservation (SAC) is also located along and beyond the coast.

### **Sensitivity**

- 2.304 **Medium** Sensitivity. Turbines would relate to the relatively large scale seascape and generally linear coastline, although turbines may visually compete with the strong foci of the high cliffs at St Abbs. Busy shipping lanes are present in the sea although the land is not over developed. Expansive views are available along the coastline and to and from the adjoining moorland, giving high intervisibility.
- 2.305 Wind energy would relate to the perception of exposure but may conflict with the scale and character of the dramatic coastal edge which exists in some sections of coastline.

### **Forces for Change**

- 2.306 Pressure for onshore wind energy development within the Lammermuir Hills and this may increase sensitivity in some areas due to the potential cumulative impact. Integrity of agricultural character. Impact of A1 dualling scheme and potential tourism development pressure.

## **SA 19 ST ABB'S HEAD TO EYEMOUTH**

### **Definition of regional seascape unit boundaries**

- 2.307 St Abb's Head provides the northern extent and Eyemouth provides the southern extent of the Eyemouth to St Abbs Regional Seascape Unit. The visibility splays at the edge of this unit are defined by these headlands, with St Abb's Head providing views out to the North Sea and Ramfauds south of Eyemouth containing views south.

### **Key Characteristics**

- A diverse coastal landscape of rugged sea cliffs;
- A landscape with a barren, exposed character and dramatic open views enclosed by the significant headland to the North Sea;
- Coastal edge rises to the isolated volcanic cliffs at St Abb's Head, frequented by tourists and solely accessible via footpaths;
- Settlement sited at the coast in sheltered folds and valleys inland at Coldingham and at the harbours edge at Eyemouth and St Abbs;
- Large rolling countryside inland, with wooded areas and widely dispersed farmsteads along minor roads;
- Transport corridors occupy elevated locations along the clifftops; and

- The Berwickshire Coast Path runs alongside the coast between St Abb's Head and Eyemouth.

### **Scale and Openness**

- 2.308 The rugged, exposed and dramatic coastline and has distant views along the shoreline and over the North Sea.

### **Form**

- 2.309 Generally elevated, the topography is characterised in inland areas by a rugged, strongly undulating landform with strong slopes, hillocks and gently contrasting sloping areas. At the coast the land drops away steeply to cliffs with a rocky shoreline below.

### **Settlement**

- 2.310 Settlement in this landscape is concentrated in sheltered locations along the coast at the harbours of St Abbs and Eyemouth. The village of Coldingham which is located inland dates from early medieval times. Eyemouth is on the coast and is part seaside resort and part working fishing harbour. There are scattered farmsteads and dwellings along a network of major and minor roads inland. Modern dwellings and village fringe developments are found in a number of areas. Tourism has a strong impact on this landscape type and a number of camping and caravan sites are prominent.

### **Pattern and foci**

- 2.311 Localised focus of the headlands at St Abbs and Eyemouth along a unified rugged coastline.

### **Lighting**

- 2.312 This coastline is settled and developed in places and lighting is a feature of views, including street lighting in Eyemouth, Coldingham and St Abbs and along the A1107. There would be some lighting from ships at sea and the lighthouse at St Abb's Head. There is a sense of space from elevated sections of the coast.

### **Movement**

- 2.313 The area is traversed by the A1107 near to the coast. The busy A1 road and the main East Coast rail line run close to the coast south of Eyemouth. The A1 constitutes an important transport corridor which strongly influences the adjoining landscape.

### **Aspect**

- 2.314 The coastline which faces east turns inland between the headlands at St Abb's Head and Eyemouth. The east facing turbines would be backlit in the morning. Inland hills tend to limit views of sunsets.

### **How experienced**

- 2.315 This is a largely open, exposed landscape with dramatic distant views along the rugged coastline and over the North Sea. Experienced from transport corridors, major rail and road routes, settlement and from beaches and

generally in the context of activity. There are panoramic views from St Abb's Head.

### **Modification/Remoteness/Sense of Naturalness**

- 2.316 Busy transport routes on land and sea gives a modified feel although the presence of small traditional settlements and a strong rural hinterland counters this impression. The high cliffs, moorland and sparseness of St Abb's Head has a more naturalistic character.

### **Exposure**

- 2.317 Fairly exposed due to openness and lack of shelter provided by landform. St Abbs is particularly exposed and windswept with inland areas of the coastline slightly more sheltered.

### **Process and dynamics**

- 2.318 The extensive tidal reach of the beaches emphasise the dynamic experience of the sea in these areas. A dynamic character is also reflected where the coast is exposed to the power of the waves.

### **Quality/condition**

- 2.319 The quality and condition of the regional seascape unit is High.

### **Designation**

- 2.320 The Berwickshire and North Northumberland Special Area of Conservation (SAC) are located along and beyond the coast. The Berwickshire Coast SSSI is also located along this stretch of coast.

### **Sensitivity**

- 2.321 **High** Sensitivity. Turbines may be evident from the elevated, well-visited yet isolated cliffs at St Abb's Head. The turbines may visually compete with the strong foci of the high cliffs at St Abb's Head. Existing development and transport infrastructure already give a localised development character in places and busy shipping lanes are present in the sea. Internal intervisibility is generally high, due to the simplicity of the landform inland. Expansive views are available along the coastline with high external intervisibility and sensitivity. Care should be taken not to encroach on panoramic views from the more remote St Abb's Head.
- 2.322 Wind energy would relate to the perception of exposure but may conflict with the scale of the dramatic coastal edge which exists in some sections of coastline.

### **Forces for Change**

- 2.323 Pressure for expansion in existing villages and the impact of the A1 dualling scheme.

## SA 20 EYEMOUTH TO BERWICK-UPON-TWEED

### Definition of regional seascape unit boundaries

- 2.324 Eyemouth provides the northern extent and Berwick-upon-Tweed provides the southern extent of this Regional Seascape Unit. The visibility splays at the edge of this unit are defined by these headlands, with Berwick-upon-Tweed providing views out to the North Sea and Eyemouth containing views north.

### Key Characteristics

- The coastline is relatively linear, and is comprised of mainly rocky cliffs;
- The enclosed harbour at Burnmouth is a feature in the area and is also surrounded by rocky cliffs;
- There are several small headlands to the south of Eyemouth, including Agate Point and Horse Head;
- The Berwickshire Coast Path runs close to the shoreline;
- Inland the medium to large scale landscape is open and undulating; and
- The busy A1 road and the main East Coast rail line runs close to the coast.

### Scale and Openness

- 2.325 The land rises relatively sharply from the coast to the A1 and the main East Coast rail line. There are views of the sea from the elevated landform along the coastal edge giving a sense of scale and openness, although the steep cliffs and rocks below also create a sense of enclosure. The coastal fringe landscape is rocky and linear and only indent at Harker's Haven, Burnmouth Bay and at Marshall Meadows Point.

### Form

- 2.326 At the coast the land drops away, in some place steeply to cliffs with a rocky shoreline below. Inland, areas comprise of an undulating landform with little vegetation. There are several small headlands located along the coast and indents at Burnmouth harbour and Marshall Meadows Bay.

### Settlement

- 2.327 The town of Berwick-Upon-Tweed is located to the south of the area and Eyemouth is located to the north. Burnmouth which is accessed via a steep road which then stretches along the harbour developed as a small fishing harbour and still retains some of its original character. Burnmouth lies at the point where a burn slices through the high cliffs Inland the coastal plain is characterised by small nucleated settlements. There is a Golf Club along the coast at Eyemouth and a caravan park at Marshall Meadows Point.

### Pattern and foci

- 2.328 There is a unifying influence of the linear coastline. There is the localised focus of Burnmouth harbour and the development at Berwick-upon Tweed and Eyemouth at either end of the unit.

### **Lighting**

- 2.329 Little lighting on land at the major settlements and none at sea, apart from ships.

### **Movement**

- 2.330 The busy A1 road and the main East Coast rail line run close to the coast. The A1 constitutes an important transport corridor which strongly influences the adjoining landscape.

### **Aspect**

- 2.331 East facing and turbines would be backlit in the morning.

### **How experienced**

- 2.332 This is a largely open, exposed landscape with distant views from the rugged coastline over the North Sea. Experienced from transport corridors, major rail and road routes, settlement at Berwick-upon-Tweed, Eyemouth and Burnmouth as well as recreational areas. The area is also experienced from the Berwickshire Coast Path which at times is located on the very edge of the cliffs.

### **Modification/Remoteness/Sense of Naturalness**

- 2.333 Busy transport routes on land plus Berwick-upon –Tweed, Eyemouth and Burnmouth gives a modified feel. The cliffs and small headland give the area a more naturalistic feel.

### **Exposure**

- 2.334 Fairly exposed due to elevated character on the cliff tops and along the rugged coastline.

### **Process and dynamics**

- 2.335 A dynamic character is reflected where the coast is exposed to the power of the waves along the cliffs.

### **Quality/condition**

- 2.336 The quality and condition of the Eyemouth to Berwick-upon-Tweed regional seascape unit is Medium. Existing development in the main centres and transport infrastructure provide a development character in places. The linear coastline is relatively unspoilt.

### **Designation**

- 2.337 The coastline is designated as part of an Area of Great Landscape Value (AGLV). The Berwickshire and North Northumberland Special Area of Conservation (SAC) are located along and beyond the coast. Netherbyres and Ayton Castle Garden and Designated Landscapes and Burnmouth Coast SSSI are also located in the area.

### **Sensitivity**

- 2.338 **Low Sensitivity.** Turbines would relate to the relatively linear elevated coastline. Existing development and transport infrastructure already give a

localised development character in places and shipping lanes are present in the sea.

### **Forces for Change**

- 2.339 Impact of AI dualling scheme and potential tourism development pressure along with the decline of fishing industries.

## **SA 21 BERWICK-UPON-TWEED TO HOLY ISLAND**

### **Definition of regional seascape unit boundaries**

- 2.340 Berwick-upon-Sea provides the northern extent and Holy Island provides the southern extent of the Holy Island to Berwick-upon-Tweed Regional Seascape Unit. The visibility splays at the edge of this unit are defined by these headlands with Berwick-upon-Tweed providing views out to the North Sea and Holy Island containing views south.

### **Key Characteristics**

- Berwick-upon-Tweed and Holy Island are distinctive features;
- Narrow, low-lying, windswept coastal plain with wide views east towards the sea;
- Diverse coastal scenery, with a coast of spectacular high cliffs, off-shore islands, and rocky headlands to the north, contrast with a coast of wide sweeping sandy bays backed by sand dunes and intertidal flats to the south;
- An intensively farmed landscape of predominantly open mixed arable land with limited trees and woodland, and permanent pasture/semi-natural grassland typical of the valleys and coastal fringes;
- The River Tweed crosses the coastal plain at Berwick-upon-Tweed;
- Lindisfarne National Nature Reserve is located along the shoreline south of Berwick-upon-Tweed;
- The Northumberland Coast Path runs parallel to the coast ;
- Holy Island is accessed via the Lindisfarne Causeway;
- A distinctive historic heritage reflects the importance of ecclesiastical influences and the strategic defence of the coast as well as the English/Scottish border. Features include prominent medieval castles, fortifications and structures from both world wars and religious buildings; and
- Dispersed pattern of isolated farmsteads, small nucleated villages, fishing villages and small coastal resort towns.

### **Scale and Openness**

- 2.341 The coastal fringe landscape is varied. Spectacular and inaccessible high rocky cliffs characterise the coast to the north of the Tweed estuary. To the south are softer limestone cliffs, the sandy beaches of Cocklawburn and Cheswick

and the extensive intertidal mud flats, saltmarsh and sand dunes of Lindisfarne. The largely straight coastline and open, exposed landscape with wide, sweeping, sandy bays backed by sand dunes, has dramatic distant views along the rugged coastline and over the North Sea.

### **Form**

- 2.342 There are headlands in the extreme north of the area with less resistant areas being eroded to form bays at Cheswick Sands, Cocklawburn Beach as well as Lindisfarne Natural Nature Reserve form sandy flat areas.

### **Settlement**

- 2.343 The walled and extensively fortified town of Berwick-Upon-Tweed, located at the river's mouth, has a well-preserved form and character which reflects its strategic importance in Elizabethan times and its past prosperity as an agricultural market town and fisheries port. Berwick was extensively fortified as a walled town and formed a cornerstone of Tudor defences. The river Tweed formed a natural frontier between the kingdoms of England and Scotland, and the landscape of the adjacent coastal plain has been strongly influenced by the legacy of medieval cross-border warfare.
- 2.344 Smaller coastal towns and villages have developed as fishing and trading centres, but are now more geared towards tourism. There is a dispersed pattern of isolated farmsteads, small nucleated villages, fishing villages and small coastal resort towns.
- 2.345 The Holy Island of Lindisfarne is linked to the mainland only by a tidal causeway. The island retains a remote, spiritual quality which first prompted the founding of an ancient monastery in 635. Lindisfarne castle is located on the south east of the island.

### **Pattern and foci**

- 2.346 The localised focus of the Berwick-upon-Tweed and Holy Island settlements. Otherwise the coast is relatively flat south of Berwick-upon-Tweed.

### **Lighting**

- 2.347 There is little lighting on land and none at sea, apart from ships. There would be some lighting from Berwick-upon-Tweed and Holy Island on the coast.

### **Movement**

- 2.348 The busy A1 road and the main East Coast rail line runs close to the coast. The A1 constitutes an important transport corridor which strongly influences the adjoining landscape.

### **Aspect**

- 2.349 East facing turbines.

### **How experienced**

- 2.350 This is a largely open, exposed landscape with dramatic distant views from the sand dunes and beaches as well as from the northern rugged coastline over the North Sea. The landscape is experienced from transport corridors, rail and road routes, Berwick-upon-Tweed, Holy Island and from beaches.

### **Modification/Remoteness/Sense of Naturalness**

- 2.351 Busy transport routes on land and sea plus Berwick-upon-Tweed gives a modified feel although the presence of small traditional settlements and a strong rural hinterland counters this impression. Presence of large tanker ships. The island and sand dunes have a more naturalistic character.

### **Exposure**

- 2.352 Fairly exposed due to openness and lack of shelter provided by sand dunes and beaches and rugged coastline to the north.

### **Process and dynamics**

- 2.353 The extensive tidal reach of the beaches emphasise the dynamic experience of the sea in these areas. A dynamic character is also reflected where the coast are exposed to the power of the waves.

### **Quality/condition**

- 2.354 The quality and condition of the Holy Island to Berwick-upon-Tweed regional seascape unit is Medium.

### **Designation**

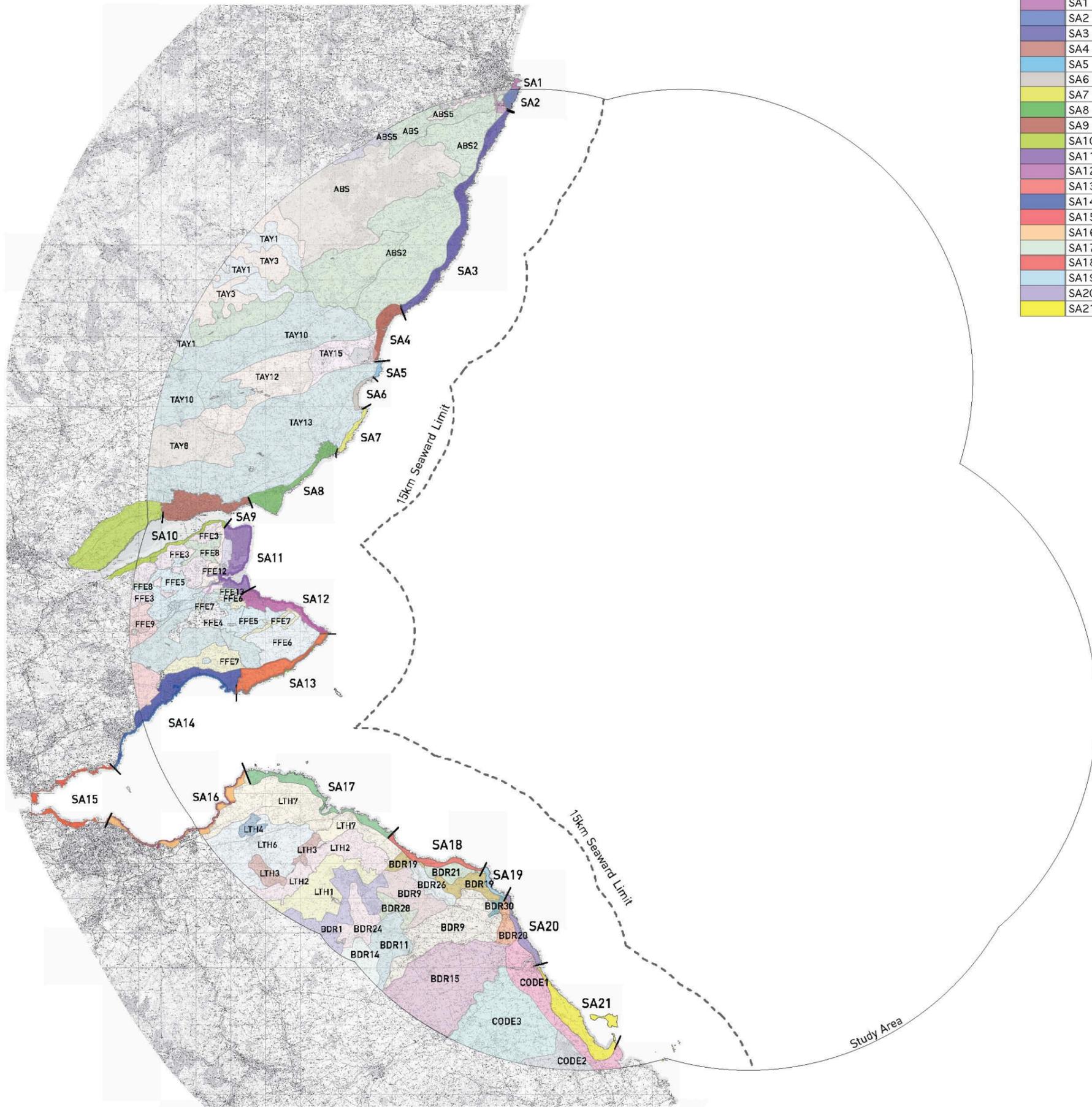
- 2.355 The coastline is designated as part of an Area of Great Landscape Value (AGLV). Lindisfarne RAMSAR and National Nature Reserve are located to the south of the regional seascape unit and stretches around Holy Island. Bamburgh Coast and Hills SSSI is located along the coastal edge. The Berwickshire and North Northumberland Special Area of Conservation (SAC) are located along and beyond the coast. Lindisfarne Castle Registered Park and Garden is located on Holy Island.

### **Sensitivity**

- 2.356 **Medium Sensitivity.** Turbines would relate to the relatively large scale seascape and generally linear coastline. Existing development and transport infrastructure already give a localised development character in places and busy shipping lanes are present in the sea. Expansive views are available along the coastline giving a high external intervisibility.
- 2.357 Wind energy would relate to the perception of exposure but may conflict with the scale and character of traditional settlements and the soft coastal edge which exists in some sections of coastline. Turbines may visually compete with the island foci of the Holy Island.

### **Forces for Change**

- 2.358 Pressure for expansion in existing villages, the impact of the A1 dualling scheme and potential tourism pressure. The decline of the coal-mining and fishing industries and the increasing importance of recreation and tourism has brought about changes to the character of the coastal plain.



	REGIONAL SEASCAPE CHARACTER UNITS/AREAS
SA1	Nigg Bay
SA2	Greg Ness to Cove Bay
SA3	Cove Bay to Milton Ness
SA4	Montrose Bay
SA5	Long Craig
SA6	Lunan Bay
SA7	Lang Craig to The Deil's Heid
SA8	Arbroath to Monifieth
SA9	Dundee
SA10	Inner Firth of Tay
SA11	St Andrews Bay
SA12	St Andrews to Fife Ness
SA13	East Neuk of Fife
SA14	Kirkcaldy & Largo Bay
SA15	Inner Firth of Forth
SA16	Edinburgh to Gullane
SA17	Eyebroughy to Torness Point
SA18	Torness Point to St Abbs Head
SA19	St Abbs Head to Eyemouth
SA20	Eyemouth to Berwick upon Tweed
SA21	Berwick-Upon-Tweed to Holy Island

	LANDSCAPE CHARACTER AREAS
ABC1	Major River Valleys
ABC4	Open Farmland
ABS2	Agricultural Farmlands
ABS4	Moorland Plateaux
ABS5	Straths and Valleys
BDR1	Dissected Plateau Moorland
BDR9	Platform Farmland
BDR11	Grassland with Hills
BDR14	Upland Fringe Moorland
BDR15	Lowland with Drumlins
BDR16	Rolling Lowland Margin
BDR19	Coastal Farmland
BDR20	Coastal Pasture
BDR21	Coastal Moorland
BDR24	Upland Valley with Farmland
BDR26	Pastoral Upland Fringe Valley
BDR28	Wooded Upland Fringe Valley
BDR30	Coastal Valley
FFE3	Upland Foothills
FFE4	Pronounced Volcanic Hills and Craigs
FFE5	Lowland Hills and Valleys
FFE6	Lowland Open Sloping Farmland
FFE7	Lowland Dens
FFE8	Lowland Glacial Meltwater Valleys
FFE9	Lowland River Basin
FFE11	Coastal Hills
FFE12	Coastal Terraces
LTH1	Uplands
LTH2	Upland Fringes
LTH3	Lowland River Valleys
LTH4	Lowland Hills and Ridges
LTH6	Lowland Plains
LTH7	Coastal Margins
TAY1	Highland Glens
TAY3	Highland Summits and Plateaux
TAY10	Broad Valley Lowland
TAY12	Low Moorland Hills
TAY15	Lowland Loch Basin
CODE 1	North Northumberland and Coastal Plain
CODE 2	Northumberland Sandstone Hills
CODE 3	Cheviot Fringe
URBAN	Urban

**FTOWDG**

**REGIONAL SEASCAPE AND LANDSCAPE CHARACTER AREAS**

Drawn by : JR	Checked by : RS
Date : 21.09.11	S.0340_02-A

1 : 750,000 @ A3

# **Annex 3**

## Viewpoint Assessment

<b>Viewpoint 2: Beach Road, Kirkton, St Cyrus</b>			
<i>OS grid reference</i>	375188, 764634	<i>Figure number</i>	14.18 (Volume 3)
<i>Regional Seascape Unit</i>	SA4 Montrose	<i>Landscape designation</i>	South East Aberdeenshire Coast SLA
<i>Direction of view towards the site</i>	South	<i>Distance to closest turbine</i>	50.0 km
<i>Estimated number of days per year on which the turbines would be visible (based on atmospheric visibility data set out in <b>Table 3.8</b>)</i>			90 days (25%)
<i>Location and Receptors:</i>			
<p>Located at the east end of Beach Road in St Cyrus, this elevated viewpoint, at 75m AOD is by a car park offering access to a coastal footpath and beach below. National Cycle Network Route 1 passes nearby, 250m inland. Receptors are recreational, including walkers and cyclists.</p>			
<i>Sensitivity: <b>High</b></i>			
<p>Popular recreational destination with beach access, and wide open immediate and elevated sea views. The susceptibility is judged to be high and the value medium.</p>			
<i>Current View:</i>			
<p>The elevation of this viewpoint, directly above the Sands of St Cyrus gives a striking outlook on to the long, smooth beach as it spills out and meets the North Sea. The North Sea occupies around 120° of the view, stretching out to the horizon, as boundless as the sky. The light-reflecting qualities of the sea and the action of the surf, intensify the stillness and muted colours of the expansive beach, which stretches on for 8 km south. Occasional shipping is seen in the seaward view.</p> <p>There are steep grassy slopes leading to the beach below, with the cliffs of Milton Ness to the north, containing the view of Montrose Bay and punctuating the sea view in this direction. Wide views are available south over Montrose Bay, including the sands, the mouth of River North Esk, lower lying landscape of arable fields and woodland, and the town of Montrose approximately 6 km away. A number of headlands can be seen beyond Montrose - Scurdie Ness and the higher elevated Lang Craig form part of the southern skyline. To the north, the low red cliffs of Milton Ness can be seen, with Rockhall Fishing Station perched atop.</p>			
<i>Magnitude of impact: <b>Very low</b></i>			
<p>The wind farm will be visible to the right of the open sea view, occupying around 10° of the view. Viewed at a distance of 49 km, the turbines will appear in the far distance, the lower parts of their towers sitting below the horizon. It is also the case that some of the turbines have part of their blade sweep (below the hub) screened below the horizon. The man-made appearance of the wind farm will contrast with the horizontal, even sea. Looking south, the wind farm will sometimes appear backlit by the sun.</p> <p>The scale of the change will be barely perceptible, and will be experienced from locations across a medium geographical extent. The change will be long term and reversible. The magnitude of impact is judged to be very low.</p>			
<i>Level of effect and significance: <b>Negligible</b> (not significant)</i>			
<i>Consideration of lighting:</i>			
<p>Lighting may be visible in this view, but will not be prominent due to distance. It is possible that the intermittent nature of the lights will draw the eye, but they will only be seen in very clear conditions, when they will appear in the context of distant lighting on the Fife coast.</p>			
<i>Magnitude of cumulative impact: <b>Low</b></i>			
<p>Inch Cape will be visible 20 km to the south, and Seagreen will be around 30 km to the east of this viewpoint. These wind farms will appear more prominent than Neart na Gaoithe, which will be seen partly behind Inch Cape. The larger size of Inch Cape will emphasise its separation from Neart na Gaoithe, though the latter will extend the number of turbines visible. The additional effect of Neart na Gaoithe in this baseline will be low.</p> <p>There is theoretical visibility of operational onshore wind farms to the north, and of the consented Kincardine Offshore Wind Farm, from the St Cyrus area, though Neart na Gaoithe is not anticipated to give rise to cumulative effects with these schemes.</p>			
<i>Level of cumulative effect and significance: <b>Minor</b> (not significant)</i>			

<b>Viewpoint 5: Dodd Hill</b>			
<i>OS grid reference</i>	345255, 739616	<i>Figure number</i>	14.19 (Volume 3)
<i>Landscape Character Type</i>	Upland Hills and Hill Slopes, The Ochils and Sidlaw Hills	<i>Landscape designation</i>	None
<i>Direction of view towards the Wind Farm Area</i>	Southeast	<i>Distance to closest turbine</i>	44.4 km
<i>Estimated number of days per year on which the turbines would be visible (based on atmospheric visibility data set out in <b>Table 3.8</b>)</i>			106 days (29%)
<i>Location and Receptors:</i>			
An inland location on a footpath along a series of low-lying summits, with the Angus coast to the east. Dodd Hill forms the final summit in the row at approximately 250m AOD. Visual receptors include recreational users such as walkers.			
<i>Sensitivity: <b>Medium</b></i>			
Recreational receptors have an interest in the panoramic views across the landscape and seascape. At this inland location where the sea is less immediate. The susceptibility is judged to be low and the value medium.			
<i>Current View:</i>			
This elevated viewpoint overlooks an area of moorland scrub of bilberry, heather and broom. Beyond this an undulating productive landscape of low-lying hills and ridges sloping towards the southeast, is populated by scattered farmsteads, pockets of coniferous plantation, broadleaved and mixed shelterbelts. Reservoirs at Monikie Country Park are visible, 4 km away to the east.			
The North Sea beyond this landscape forms a small element, occupying around 60° of a 360° panorama. The sea generally appears as a thin blue band on the horizon, though to the south it is seen in the middle distance between Fife Ness, 35 km away, and St Andrews, 25 km away. Tentsmuir Forest can also be seen to the south, around 12 km away, as a dark even blanket of coniferous plantation, extending beyond and in front of the more distant St Andrews and Eden Estuary. In the same direction again, and nearer, the mouth of the Tay is visible along with the city itself, around 8 km away. Two turbines at the Michelin Tyre Factory in Dundee can be seen 7 km away to the south. This is an expansive, complex view, in which the sea is a small element among many others.			
<i>Magnitude of impact: <b>Very low</b></i>			
Within the limited area of sea visible from this location, the wind farm will be a small and distant change within a wide, complex view. The wind farm will occupy around 15° of this 360° view. Turbines will be set against the skyline, breaking the horizon of the sea, but set within a view which contains a number of man-made features nearby, including pylons, masts and wind turbines. Looking southeast, the wind farm will sometimes appear backlit by the sun.			
The scale of the change will be barely perceptible, and will be experienced from locations across a small geographical extent. The change will be long term and reversible. The magnitude of impact is judged to be very low.			
<i>Level of effect and significance: <b>Negligible</b> (not significant)</i>			
<i>Consideration of lighting:</i>			
Lighting will be visible in this view on the distant horizon. There are many closer light sources though the wind farm lights will appear in the dark offshore area of the view. At this distance the lights will only be perceptible in very clear conditions, and are unlikely to be a prominent feature of the view.			
<i>Magnitude of cumulative impact: <b>Low</b></i>			
Inch Cape will be seen to the east, somewhat closer and occupying a broader angle of view. The Seagreen turbines are theoretically visible, partly behind Inch Cape, but well over 50 km distant. The size difference between Inch Cape and Neart na Gaoithe is likely to emphasise the greater proximity of the former. The additional effect of Neart na Gaoithe in this baseline will be low.			
Onshore wind farms in the Sidlaw Hills (operational and consented), as well as single turbines and small groups of small turbines on farms across Angus, will be visible from this point. The former are behind the viewer, and will be seen in successive views. The latter may be seen in the foreground of the seaward view, but their different scale and context will not lead to significant cumulative effects.			
<i>Level of cumulative effect and significance: <b>Minor</b> (not significant)</i>			

<b>Viewpoint 6: Braehead of Lunan</b>			
<i>OS grid reference</i>	368988, 752598	<i>Figure number</i>	14.20 (Volume 3)
<i>Regional Seascape Unit</i>	SA6 Lunan Bay	<i>Landscape designation</i>	None
<i>Direction of view towards the site</i>	Southeast	<i>Distance to closest turbine</i>	40.3 km
<i>Estimated number of days per year on which the turbines would be visible (based on atmospheric visibility data set out in <b>Table 3.8</b>)</i>			135 days (37%)
<i>Location and Receptors:</i>			
<p>This viewpoint is located on the edge of Braehead of Lunan, a small hamlet on a minor road sharing its route with NCN Route 1. The Edinburgh to Aberdeen railway line is located 250m away, towards the coast. Visual receptors include residents, cyclists, road users and railway passengers.</p>			
<i>Sensitivity: <b>High</b></i>			
<p>Residential receptors with proprietary interest and prolonged viewing opportunities, as well as recreational receptors who have an interest in the open coastal views.</p>			
<i>Current View:</i>			
<p>This viewpoint, located at 75m AOD and within 500m of the coastline, is in an elevated position with views looking southeast, out to sea and across sandy Lunan Bay. The views of the sea north are screened by rising land, which limits the extent of the sea visible to around 100° of the view.</p> <p>The sea lies to the east, visible beyond arable fields and a single line of scattered pine trees. The position of the viewpoint, set back from the coast, means that the aforementioned fields comprise a significant part of the immediate views to north and east, and the coastline in this direction is hidden. To the south the land dips down, allowing views to the edge of the hamlet of Lunan and neighbouring sandy beach, and to the rocky headland of Long Craig, a small portion of sea visible beyond. The sea is visible at a distance beyond the fields, silhouetting the forms of the pine trees and experienced as a backdrop to this. The play of light on the sea and on the sands at Lunan Bay is an important element of the view, as is the interaction between sky and sea. Views from properties within Braehead of Lunan are limited by orientation and vegetation surrounding properties.</p>			
<i>Magnitude of impact: <b>Low</b></i>			
<p>The wind farm will be visible on the far right of the sea view, occupying around 10° of the view. From this perspective the wind farm does not appear within the open sea, but will be seen above the rocky headland of Long Craig to the south. The wind farm will appear on the horizon of the sea, a third of which will be viewed across open water, with the remainder seen beyond and meeting with the rocky headland of Long Craig in the middle ground. Looking southeast, the wind farm will sometimes appear backlit by the sun.</p> <p>The scale of the change will be small, and will be experienced from locations across a medium geographical extent. The change will be long term and reversible. The magnitude of impact is judged to be low.</p>			
<i>Level of effect and significance: <b>Minor</b> (not significant)</i>			
<i>Consideration of lighting:</i>			
<p>Lighting may be visible in this view in relatively clear conditions. The aviation lights will be seen above the headland to the southeast, and their intermittent nature may draw the eye in this generally dark view. Lighting is unlikely to be prominent at this distance.</p>			
<i>Magnitude of cumulative impact: <b>Low</b></i>			
<p>Inch Cape will be visible at less than 20 km across the central part of the sea view, occupying a broad angle of view and forming a focal point within the bay. Seagreen Phase 1 will be visible partly behind Inch Cape and further north, at around 35 km. Neart na Gaoithe will be viewed separately, in the context of the headland, and the smaller turbine size will emphasise its distance. The additional effect of Neart na Gaoithe in this baseline will be low.</p> <p>Although there is some theoretical visibility of proposed onshore wind farms, these are not close by and no further significant effects are predicted as a result of successive views of onshore wind turbines.</p>			
<i>Level of cumulative effect and significance: <b>Minor</b> (not significant)</i>			

<b>Viewpoint 7: Arbroath Signal Tower</b>			
<i>OS grid reference</i>	364047, 740440	<i>Figure number</i>	14.21 (Volume 3)
<i>Regional Seascape Unit</i>	SA8 Arbroath to Monifieth	<i>Landscape designation</i>	None
<i>Direction of view towards the Wind Farm Area</i>	South	<i>Distance to closest turbine</i>	32.1 km
<i>Estimated number of days per year on which the turbines would be visible (based on atmospheric visibility data set out in <b>Table 3.8</b>)</i>			188 days (52%)
<i>Location and Receptors:</i>			
<p>This viewpoint is located on the roof of the Arbroath Signal Tower Museum, a listed building with a historic connection to Bell Rock Lighthouse. Although the museum is open to the public, the top of the tower remains closed, except on rare occasions. The museum has a live webcam on the roof of the tower with views to the Bell Rock Lighthouse. There are seaward-facing windows within the museum.</p>			
<i>Sensitivity: <b>High</b></i>			
<p>Although this viewpoint is not directly accessible to the public, it is representative of views from the Arbroath sea front, where recreational visitors and local people have an interest in the open marine view. There is also an important visual link with the Bell Rock lighthouse. The susceptibility is judged to be high and the value medium.</p>			
<i>Current View:</i>			
<p>This viewpoint, on the roof of the tower of the museum, is located within Arbroath Harbour. There are expansive views of the North Sea, occupying around 150° of the view, with Bell Rock Lighthouse a vertical element on the horizon approximately 18 km away. The play of light and weather conditions means that this is sometimes indiscernible; however, when visible, the lighthouse appears as a small but distinctive vertical element on the horizon. The open view of the sea gives a flat and distant horizon, gently broken to the south where Fife appears on the horizon, around 30 km away, as a long narrow band of land gradually widening inland. Looking southwest the Arbroath to Carnoustie coastline is seen, low-lying with scattered tree groups. This view is interrupted in places by the tall floodlights of the nearby football stadium.</p> <p>The landscape that surrounds the signal tower, including the harbour, sea front and settlement, forms an interesting element of the view, with small boats heading to and from the harbour, a point of interest. Buoys and markers associated with the harbour also form points of interest further out to sea. Closer to the coast, the breakwaters and the harbour itself break up the shore line.</p>			
<i>Magnitude of impact: <b>Medium</b></i>			
<p>The wind farm will be visible at the centre-right of the sea view, occupying around 15° of the view. It will appear to the right (south) of the Bell Rock Lighthouse, the individual turbines appearing to be around twice the height of the lighthouse. Turbines will be set against the skyline, their man-made appearance, upright form and movement contrasting with the horizontal, even appearance of the open sea. Looking southeast, the wind farm will sometimes appear backlit by the sun.</p> <p>The scale of the change will be medium, and will be experienced from locations across a small geographical extent. The change will be long term and reversible. The magnitude of impact is judged to be medium.</p>			
<i>Level of effect and significance: <b>Moderate</b> (significant)</i>			
<i>Consideration of lighting:</i>			
Lighting is considered in detail in the assessment of nearby night time <b>Viewpoint N1</b> .			
<i>Magnitude of cumulative impact: <b>Low</b></i>			
<p>Inch Cape will be visible less than 20 km to the east, occupying a wide angle of the seaward view. Seagreen Phase I will be seen at greater distance, partly behind Inch Cape and extending north to the headland. The larger size of the Inch Cape turbines may emphasise their greater proximity. The additional effect of Neart na Gaoithe in this baseline will be low.</p> <p>Onshore turbines are not a visible feature in views from Arbroath.</p>			
<i>Level of cumulative effect and significance: <b>Minor</b> (not significant)</i>			

<b>Viewpoint 8: Carnoustie</b>			
<i>OS grid reference</i>	356224, 734145	<i>Figure number</i>	14.22 (Volume 3)
<i>Regional Seascape Unit</i>	SA8 Arbroath to Monifieth	<i>Landscape designation</i>	None
<i>Direction of view towards the Wind Farm Area</i>	Southeast	<i>Distance to closest turbine</i>	32.4 km
<i>Estimated number of days per year on which the turbines would be visible (based on atmospheric visibility data set out in <b>Table 3.8</b>)</i>			188 days (52%)
<i>Location and Receptors:</i>			
<p>The viewpoint is located to the south of the town of Carnoustie, on the recently refurbished coastal promenade behind Barry Sands and on National Cycle Network (NCN) Route 1. Receptors are likely to include local residents using the beach and promenade for recreation, golfers, users of the cycle route, as well as of the sailing club compound and the large play area. Other receptors include visitors to the nearby Leisure Centre and Golf Hotel, and passengers on the Edinburgh to Aberdeen railway line.</p>			
<i>Sensitivity: <b>High</b></i>			
<p>Recreational receptors, and people visiting and staying in local hotels, have an interest in the open views towards the sea, and prolonged viewing opportunities. The susceptibility is judged to be high and the value medium.</p>			
<i>Current View:</i>			
<p>This low-lying viewpoint on the sea front feels exposed. On a flat area protected by coastal defence, it marks the contrast between the wild open sea, full of movement, and the more formal townscape of Carnoustie. The open space is separated from the sea by a feature wall to the north, and a stretch of long coastal grasses to the south. The Links, on which the viewpoint is located, provides a number of recreational activities, including golfing, cycling and sailing, and are formalised by feature walls, seating alcoves, and hard-paved paths.</p> <p>The open sea occupies around 130° of the view, and the surrounding landscape orientates the viewer in this direction, with the promenade and several seating areas designed for this purpose. The colours and textures within the sea view are striking, including green and gold grasses, stones of muted pinks and greys and the smooth beige sand. The open view of the sea gives a flat and distant horizon, gently broken to the south where Fife appears on the horizon, around 20 km away, as a long narrow band of land gradually widening inland. Notably, the Bell Rock Lighthouse, on a clear day, breaks the horizon to the east, otherwise only broken intermittently by passing boats or ships.</p>			
<i>Magnitude of impact: <b>Medium</b></i>			
<p>The wind farm will be visible at the centre of the open sea view, occupying around 20° of the view. Turbines will be set against the skyline, their man-made appearance, upright form and movement contrasting with the horizontal appearance of the sea. Viewed at a distance of 32 km, the turbines will have the lower parts of their towers sitting below the horizon. Looking southeast, the wind farm will sometimes appear backlit by the sun.</p> <p>The scale of the change will be medium, and will be experienced from locations across a small geographical extent. The change will be long term and reversible. The magnitude of impact is judged to be medium.</p>			
<i>Level of effect and significance: <b>Moderate</b> (significant)</i>			
<i>Consideration of lighting:</i>			
<p>Lighting will be visible in this view, within the darkest sector of the view. Many light sources are visible close at hand including the recreational facilities and street lighting, though fewer lights can be seen in seaward views. Though the intermittent nature of the turbine lights may make them more noticeable, they are unlikely to be prominent in views from this location.</p>			
<i>Magnitude of cumulative impact: <b>Low</b></i>			
<p>Inch Cape will be clearly visible, at similar distance to Neart na Gaoithe, though with clearly larger turbines and occupying a larger angle of view. Seagreen turbines will be theoretically visible behind Inch Cape though only as blades due to their distance beyond the horizon. Inch Cape and Neart na Gaoithe will be seen separately, with the larger turbines of the former scheme likely to appear closer. Onshore turbines are not visible from this location, though the consented Kenly Wind Farm in Fife will be seen in views across the Firth of Tay. The additional effect of Neart na Gaoithe in this baseline will be low.</p>			
<i>Level of cumulative effect and significance: <b>Minor</b> (not significant)</i>			

<b>Viewpoint 9: Dundee Law</b>			
<i>OS grid reference</i>	339155, 731266	<i>Figure number</i>	14.23 (Volume 3)
<i>Regional Seascape Unit</i>	SA9 Dundee	<i>Landscape designation</i>	None
<i>Direction of view towards the Wind Farm Area</i>	Southeast	<i>Distance to closest turbine</i>	45.1 km
<i>Estimated number of days per year on which the turbines would be visible (based on atmospheric visibility data set out in <b>Table 3.8</b>)</i>			98 days (27%)
<i>Location and Receptors:</i>			
<p>This is an elevated viewpoint, the most prominent in Dundee and a popular recreational location, looking out across the city to the mouth of the Tay and the North Sea beyond. It is an Ordnance Survey recorded viewpoint at 174m AOD. Visual receptors include visitors and tourists as well as recreational users driving to the car park located at the summit. There are a number of interpretive boards relating to the view and landmarks.</p>			
<i>Sensitivity: <b>Medium</b></i>			
<p>Widely known and well-used as a panoramic viewpoint, it is popular with recreational users who are interested in the view. Although panoramic, from this inland location the open sea is a small element in the view. The susceptibility is judged to be medium and the value medium.</p>			
<i>Current View:</i>			
<p>A 360° panorama over Dundee, across the Firth of Tay and to the North Sea beyond. The sea occupies around 60° of the view. It forms a small part of the wide view, rather than a key element of it, one of many elements including surrounding human activity and more distant landscapes. Built development extends from below the trees on Dundee Law, to the firth and along the northern Tay coast and hinterland. A prominent feature of the view is the industrial activity on the Tay such as the offshore rig currently occupying a dock, punctuating the horizon, around 2 km to the southeast. A number of other less prominent vertical elements are visible including two wind turbines at Baldovie Industrial Estate (backclothed by development and arable farmland beyond) and a number of telecommunications masts at varying distances, including one on Dundee Law itself.</p> <p>The Tay Road Bridge crosses the firth to the south, 2 km away. The southern bank of the Tay forms a prominent part of the view as it curves to the north, comprising of rolling arable farmland, shelterbelts and the settlements of Newport and Tayport. Low-lying Tentsmuir Point lies tucked behind this, its sandbank and forestry plantation extending out into the mouth of the Tay, and into view. Further south, the town of St Andrews, the coastline to the east and farmland beyond this is visible on the horizon.</p>			
<i>Magnitude of impact: <b>Very low</b></i>			
<p>Within the limited area of sea visible from this location, the wind farm will be a distant feature within a wide and complex view. The wind farm will occupy around 15° of the view. It will be viewed across the mouth of the Firth of Tay, and to the left of the Tay Road Bridge, beyond Tentsmuir Point and Hare Law and Craig Law hills in Fife. It will be seen breaking the horizon of the sea in the distance, already interrupted by a tall mast located at Northfield, 5 km to the southeast of the viewpoint, and to the right of the array. Looking southeast, the wind farm will appear backlit by the sun on clear mornings.</p> <p>The scale of the change will be barely perceptible, and will be experienced from locations across a small geographical extent. The change will be long term and reversible. The magnitude of impact is judged to be very low.</p>			
<i>Level of effect and significance: <b>Negligible</b> (not significant)</i>			
<i>Consideration of lighting:</i>			
<p>From this viewpoint, lighting across the urban area is visible, including bright lights along the sea front and lighting across the Tay Road Bridge. Further afield are lights in Fife and on hilltop communication masts. In this context, though the turbine lights may be visible, they are unlikely to be highly noticeable features.</p>			
<i>Magnitude of cumulative impact: <b>Very low</b></i>			
<p>From this viewpoint, operational turbines in Dundee are visible, as well as operational and consented turbines in the Sidlaw Hills to the north. Looking out to sea, Inch Cape will be visible above the Angus coastline, with Seagreen theoretically visible beyond, over 60 km away. Inch Cape and Neart na Gaoithe are at similar distance, though the former may look closer due to turbine size. Both wind farms are distant features within a 360 degree panoramic view. To the southeast, the consented Kenly Wind Farm may be visible in Fife. The additional effect of Neart na Gaoithe in this baseline will be very low.</p>			
<i>Level of cumulative effect and significance: <b>Negligible</b> (not significant)</i>			

<b>Viewpoint 10: Tentsmuir</b>			
<i>OS grid reference</i>	350325, 724227	<i>Figure number</i>	14.24 (Volume 3)
<i>Regional Seascape Unit</i>	SA11 St Andrews Bay	<i>Landscape designation</i>	Tentsmuir SLA
<i>Direction of view towards the Wind Farm Area</i>	East	<i>Distance to closest turbine</i>	32.0 km
<i>Estimated number of days per year on which the turbines would be visible (based on atmospheric visibility data set out in <b>Table 3.8</b>)</i>			188 days (52%)
<i>Location and Receptors:</i>			
Located to the east of the Forestry Commission car park in a popular recreational area on Fife Coastal Path and NCN Route 1. Receptors likely to be recreational users of the beach and dunes, including cyclists and walkers.			
<i>Sensitivity: <b>High</b></i>			
A popular beach location, with open marine views and many recreational receptors. The susceptibility is judged to be high and the value medium.			
<i>Current View:</i>			
From the forest car park, the long distance path and cycle route, the beach is accessed by a number of informal paths criss-crossing low sand dunes which are vegetated by coarse grasses and scattered spruce seedlings. No built development is visible east of the viewpoint, directly out to sea, with the beach and the sky both filling most of the view. The sea occupies around 170° of the view. The influence of the wind is highlighted both by these sounds and the movement of dune grasses. The sea appears very horizontal and the presence of sand banks adds to this.			
The coast itself is low-lying sand deposition with views north-easterly out over sand banks of Tentsmuir Point and Abertay sands. To the north there are views across the Firth of Tay to Barry Sands, approximately 7 km away, with the whitewashed lighthouse clearly visible. To the south, beyond Reres Wood plantation, St. Andrews and the undulating coastline to the east are visible on the horizon.			
<i>Magnitude of impact: <b>Medium</b></i>			
The wind farm will be visible at the centre-right of the open sea view, occupying around 20° of the view. Turbines will be set against the skyline, their man-made appearance, upright form and movement contrasting with the horizontal appearance of the sea. Viewed at a distance of 32 km, the turbines will have the lower parts of their towers sitting below the horizon, including part of their blade sweep (below the hub). Looking east and slightly to the south, the wind farm will appear backlit by the sun on clear mornings.			
The scale of the change will be medium, and will be experienced from locations across a medium geographical extent. The change will be long term and reversible. The magnitude of impact is judged to be medium.			
<i>Level of effect and significance: <b>Moderate</b> (significant)</i>			
<i>Consideration of lighting:</i>			
Lighting will be visible in this view, low on the horizon, and its intermittent nature will draw the eye. Limited lighting is visible from this location, with more distant lights on the Angus coast and the Sidlaw Hills beyond. Lights around St Andrews are visible, though the Fife coast further east is dark. The turbine lighting will form a new feature in the night time view, but will not affect dark sky quality due to its low position on the skyline.			
<i>Magnitude of cumulative impact: <b>Medium</b></i>			
Inch Cape and Neart na Gaoithe will appear side by side in the seaward view, the former occupying a wider angle of view, and with more of the turbines appearing above the horizon. The two schemes appear reasonably balanced in the view, but together will occupy most of the sea horizon. Seagreen will only be theoretically visible as blade tips and is unlikely to be perceived. The only onshore wind farm potentially visible is the consented Kenly Wind Farm in Fife. The additional effect of Neart na Gaoithe in this baseline will be medium.			
<i>Level of cumulative effect and significance: <b>Moderate</b> (significant)</i>			

<b>Viewpoint 11: Strathkinness</b>			
<i>OS grid reference</i>	346663, 716398	<i>Figure number</i>	14.25 (Volume 3)
<i>Landscape Character Type</i>	Coastal Hills Headlands Plateaux and Moorlands	<i>Landscape designation</i>	None
<i>Direction of view towards the Wind Farm Area</i>	East	<i>Distance to closest turbine</i>	33.3 km
<i>Estimated number of days per year on which the turbines would be visible (based on atmospheric visibility data set out in <b>Table 3.8</b>)</i>			180 days (49%)
<i>Location and Receptors:</i>			
Situated in east of the small village of Strathkinness at 70m above Ordnance Datum (AOD), 3 km west of St Andrews, this elevated viewpoint overlooks St Andrews and the Firth of Tay. Located on NCN Route 1, receptors include cyclists and road users, as well as residential receptors.			
<i>Sensitivity: <b>High</b></i>			
Residential and recreational receptors, including users of the NCN Route 1, with views towards the coast. The susceptibility is judged to be high and the value medium.			
<i>Current View:</i>			
To the east, the skyline of St. Andrews appears beyond shelter belts of mixed woodland and undulating fields. The tower of the university building at Butts Wynd punctuates the horizon of the sea beyond the settlement. To the north, agricultural land gradually dips down towards the sandy Eden Estuary in the middle ground (4 km away), the dark blanket of coniferous forest at Tentsmuir beyond (8 km away), and beyond this again to sand banks at Barry Links (15 km away) at the mouth of the Firth of Tay. Mature windblown broadleaved trees form broken field boundaries close to coast, south of the Eden Estuary, standing out against the backdrop of the estuary as the land falls away. Inland, shelterbelts and hedges are more prominent and intact.			
Views to the sea are curtailed to the southeast by higher ground and local vegetation. The sea occupies around 80° of the view and appears as a narrow blue band, a distant element on the horizon. To the north the smooth horizon line is interrupted by the distant Angus coastline, as far as the cliffs east of Arbroath, 30 km away. On occasion, fighter jets from nearby RAF Leuchars can be seen and heard overhead and soaring above the sea.			
<i>Magnitude of impact: <b>Low</b></i>			
Within the limited area of sea visible from this location, the wind farm will be seen on the far right of the horizon. Occupying around 20° of the view, the turbines will be seen on the horizon of sea, with a small section on the right gradually disappearing behind the coastline near the hamlet of Boarhills, 15 km to the east. The wind farm will occupy the part of the sea which is seen above the southern part of the town of St Andrews, to the right of the historic centre with its towers and spires. Viewed at a distance of 33 km, the turbines will have the lower parts of their towers sitting below the horizon, including part of their blade sweep. The wind farm will appear backlit by the morning sun, and may appear brighter in later afternoon.			
The scale of the change will be small, and will be experienced from locations across a small geographical extent. The change will be long term and reversible. The magnitude of impact is judged to be low.			
<i>Level of effect and significance: <b>Minor</b> (not significant)</i>			
<i>Consideration of lighting:</i>			
Lighting will be visible in this view, and its intermittent nature will draw the eye, though it may not be especially prominent at this distance. Lights will appear in the context of visible lights, within St Andrews and the Kinkell Braes caravan park, that are closer to the viewpoint. There are lights in the wider view including around Leuchars, along the Angus coast, and masts on the Sidlaws, though there are other areas of darkness.			
<i>Magnitude of cumulative impact: <b>Low</b></i>			
Inch Cape will be clearly visible in this view, to the north of Neart na Gaoithe, and occupying a larger portion of the view. Seagreen will be barely perceptible due to distance and being partly below the horizon. Inch Cape turbines are likely to appear perceptibly larger or closer in the view. The onshore Kenly Wind Farm (consented) will be seen if it is built, and will be in front of Neart na Gaoithe from this angle. The onshore location and greater proximity will allow Neart na Gaoithe to recede behind Kenly. Due to the turbines being partly hidden behind the land, the additional effect of Neart na Gaoithe in this baseline will be low.			
<i>Level of cumulative effect and significance: <b>Minor</b> (not significant)</i>			

<b>Viewpoint 12: St Andrews, East Scores</b>			
<i>OS grid reference</i>	351572, 716671	<i>Figure number</i>	14.26 (Volume 3)
<i>Regional Seascape Unit</i>	SA12 St Andrews Bay	<i>Landscape designation</i>	None
<i>Direction of view towards the Wind Farm Area</i>	East	<i>Distance to closest turbine</i>	28.5 km
<i>Estimated number of days per year on which the turbines would be visible (based on atmospheric visibility data set out in <b>Table 3.8</b>)</i>			203 days (56%)
<i>Location and Receptors:</i>			
Popular location within the town, by the cathedral ruins, overlooking St Andrews Bay, on the Fife Coastal Path. Receptors are recreational, including those visiting the cathedral, walkers on the Fife Coastal Path and other tourists. There are some nearby residential properties to the east, at Shorehead.			
<i>Sensitivity: <b>High</b></i>			
A widely known and well-used viewpoint, with many recreational and nearby residential receptors who have an interest in the open marine view. The susceptibility is judged to be high and the value medium.			
<i>Current View:</i>			
The Fife Coastal Path, on which this viewpoint is located, wraps around the coastline of St Andrews and is a formalised path and paved, with interpretation boards and feature railings. The viewpoint is slightly elevated at around 5m AOD, a stopping point next to the cathedral and some cannons, on the route uphill from East Sands beach towards St Andrews Castle. The position of the viewpoint, raised above the rocky foreshore and close to buildings, gives a sense of protection from the sea, whilst providing an open outlook.			
The sea view from this point is strongly influenced by the changing tide, responding to rise and fall of the sea. Below the cliffs to the northeast the rocky foreshore appears and disappears in response to the tide, as does the sandy beach of East Sands, beyond the harbour to the southeast. The element which divides these two features, the long easterly projecting pier, is a constant feature in the view, always above sea level. Beyond these middle ground features, and other built features associated with the town, the sea occupies around 80° of the view, the stretching out to a distant horizon, intermittently broken by large ships sometimes present. On either side of the horizon, distant coastline can be seen, particularly to the north.			
<i>Magnitude of impact: <b>Medium</b></i>			
The wind farm will be visible on the far right of the sea view, occupying around 20° of the view. From this perspective the wind farm bears a relationship to the coastline near the hamlet of Boarhills, behind which the southern extents of the wind farm gradually disappear. The wind farm will be predominantly viewed on the horizon of the sea, with the exception of the small southern section screened at varying degrees by the coastline. Viewed from an elevated point on the periphery of St Andrews historic centre, the wind farm will be viewed above the rocky foreshore, pier and East Sands beach. Looking east, the wind farm will appear backlit by the morning sun.			
The scale of the change will be medium, and will be experienced from locations across a small geographical extent. The change will be long term and reversible. The magnitude of impact is judged to be medium.			
<i>Level of effect and significance: <b>Moderate</b> (significant)</i>			
<i>Consideration of lighting:</i>			
Lighting is considered in detail in the assessment of night time <b>Viewpoint N3</b> .			
<i>Magnitude of cumulative impact: <b>Medium</b></i>			
In this view, the Inch Cape wind farm will be centrally positioned within the seaward part of the view. Neart na Gaoithe will be partly behind the headland. Due to the relative distances, the turbine sizes are unlikely to be perceptibly different, while Seagreen will be almost entirely behind the horizon. On the landward skyline to the southeast, Kenly wind farm (consented) will be visible, further south than Neart na Gaoithe. The two offshore wind farms together will occupy much of the seaward view, and the additional effect of Neart na Gaoithe in this baseline will be medium.			
<i>Level of cumulative effect and significance: <b>Moderate</b> (significant)</i>			

<b>Viewpoint 13: Fife Ness, Lochaber Rocks</b>			
<i>OS grid reference</i>	363844, 709759	<i>Figure number</i>	14.27 (Volume 3)
<i>Regional Seascape Unit</i>	SA13 East Neuk of Fife	<i>Landscape designation</i>	St Andrews to Fife Ness LLA
<i>Direction of view towards the Wind Farm Area</i>	East	<i>Distance to closest turbine</i>	15.6 km
<i>Estimated number of days per year on which the turbines would be visible (based on atmospheric visibility data set out in <b>Table 3.8</b>)</i>			293 days (80%)
<i>Location and Receptors:</i>			
<p>Easternmost point of Fife, next to Fife Ness Lighthouse and Coast Guard Station, with unobstructed views across the North Sea, on the Fife Coastal Path. A bird hide belonging to the Fife Bird Club is located here, and a small group of homes is located just south of the Coast Guard Station. Craighead Golf Course surrounds the point. Receptors include residents, crew at the Coast Guard Station, walkers on the Fife Coastal Path, visitors to the point, bird watchers and golfers.</p>			
<i>Sensitivity: <b>High</b></i>			
<p>Recreational and nearby residential receptors have an interest in this open marine view. The susceptibility is judged to be high and the value medium.</p>			
<i>Current View:</i>			
<p>In this very wide and expansive view, located directly on the coastline, the sea occupies around 240° of the view, giving a sense of being surrounded by water. The viewpoint is located just above sea level and is locally very changeable, responding to the rise and fall of the tide across the foreshore that comprises a platform of rock dotted with rounded pools. In contrast to this flatter, rounded platform of rock, the low cliffs to either side is a more angular rocky foreshore. The broad sea horizon of sea is broken by the Bell Rock Light House, visible 20 km away, and sometimes by passing ships. This horizon stretches from the distant Angus coastline to the north, to the Lothian coastline similarly distant to the south. Looking south, the Isle of May is seen in the middle ground, 10 km away, against a backdrop of East Lothian, 30 km away. East Lothian itself appears layered, with the distinct features of Bass Rock and North Berwick Law perceptible against the more distant Lammermuir Hills.</p>			
<i>Magnitude of impact: <b>High</b></i>			
<p>The wind farm will be visible to the east, occupying around 40° of the view. Turbines will be set above the flat skyline of the sea. Their man-made appearance, upright form and movement will contrast with the horizontal expanse of the sea. Looking east, the wind farm will appear backlit by the morning sun. In clear weather it would appear side-lit by the afternoon sun, brightening the appearance of the turbines.</p> <p>The scale of the change will be large, and will be experienced from locations across a medium geographical extent. The change will be long term and reversible. The magnitude of impact is judged to be high.</p>			
<i>Level of effect and significance: <b>Major</b> (significant)</i>			
<i>Consideration of lighting:</i>			
<p>Lighting will be visible in this view, and will appear across the darkest area of the outlook, where passing ships are the only lights currently seen. Though there are nearby light sources, such as the golf club on higher ground, generally this is a dark coast. The red lights will not affect stargazing or 'dark sky' quality, but their intermittent nature will draw the eye, and is likely to form a new focal feature in night time views.</p>			
<i>Magnitude of cumulative impact: <b>High</b></i>			
<p>Inch Cape Wind Farm will be visible to the north, occupying a smaller angle of view, and visibly more distant due to the turbine towers being partly behind the horizon. Seagreen will be theoretically visible as turbine blades, though is unlikely to be clearly perceptible behind Inch Cape. No onshore wind farms will be clearly visible from this location, though from higher ground just inland several smaller scale wind turbines, and the consented Kenly wind farm, will be visible. The additional effect of Neart na Gaoithe in this baseline will be high.</p>			
<i>Level of cumulative effect and significance: <b>Major</b> (significant)</i>			

<b>Viewpoint 14: Anstruther Easter</b>			
<i>OS grid reference</i>	357897, 704143	<i>Figure number</i>	14.28 (Volume 3)
<i>Regional Seascape Unit</i>	SA13 East Neuk of Fife	<i>Landscape designation</i>	East Neuk LLA
<i>Direction of view towards the Wind Farm Area</i>	East	<i>Distance to closest turbine</i>	22.1 km
<i>Estimated number of days per year on which the turbines would be visible (based on atmospheric visibility data set out in <b>Table 3.8</b>)</i>			239 days (66%)
<i>Location and Receptors:</i>			
<p>Located on the Fife Coastal Path, by a local park and play area, and neighbouring car park on the coast. Residential properties are located just south of the park, an outdoor activity centre is located at the park, and a caravan park is located nearby to the north. Receptors include local residents, walkers, visitors to the park and activity centre, and those staying in the caravan park.</p>			
<i>Sensitivity: <b>High</b></i>			
<p>Residential receptors with proprietary interest and prolonged viewing opportunities, as well as recreational receptors who have an interest in the open marine views. The susceptibility is judged to be high and the value medium.</p>			
<i>Current View:</i>			
<p>This viewpoint is located on the closest mainland point to the Isle of May, 8 km away, which is central in the view. The steep-sided island rises above the sea horizon, and both lighthouses are visible: the traditional white Low Light on lower land to the left, and the Isle of May Lighthouse, a square silhouetted bulk crowning the centre of the island. Along the shore front the remains of rectangular 1930s tidal bathing pools form an area of sheltered water, behind rocky outcrops in the bay. This has fallen into disrepair with the remains of faded blue tiling visible in the smallest pool, though it is sometimes used by the activity centre for canoe lessons. Sedimentary rock formations protrude in bands from the sea beyond this.</p> <p>The sea occupies around 150° of the view, open to the northeast with only 2 km of the local East Neuk coastline visible, and no land beyond this to be seen. The level plain of the sea extends to the Isle of May at the centre of the view, before continuing briefly until it meets with the distant coastline southeast. A minuscule St Abb's Head is visible over 40 km away, on a clear day. Looking due south the distinct features of the Bass Rock and North Berwick Law are perceptible against the more distant Lammermuir Hills.</p>			
<i>Magnitude of impact: <b>High</b></i>			
<p>With the Isle of May at the centre of this view, the wind farm will be located roughly equidistant between the island and the East Neuk coastline to the northeast. Occupying around 30° of the view, turbines will be set on the horizon of the open sea, the vertical man-made structures and motion of the blades standing out in this simple, horizontal view. Looking east, the wind farm will appear backlit by the morning sun. In clear weather it would appear side-lit by the afternoon sun, brightening the appearance of the turbines.</p> <p>The scale of the change will be large, and will be experienced from locations across a medium geographical extent. The change will be long term and reversible. The magnitude of impact is judged to be high.</p>			
<i>Level of effect and significance: <b>Major</b> (significant)</i>			
<i>Consideration of lighting:</i>			
<p>Lighting will be visible in this view. Though there are light sources much closer to the viewpoint, including lighting around the harbour and street lights in the village, the intermittent nature of the lights will draw the eye. The turbine lighting will also be seen in a currently dark part of the view, between the lights along the Fife and East Lothian coasts.</p>			
<i>Magnitude of cumulative impact: <b>Medium</b></i>			
<p>Looking northeast, Inch Cape will be partly visible, though the majority of the wind farm will be out of sight behind the headland. Seagreen will only be theoretically visible as blade tips. Although not visible from this location, operational onshore turbines, and the Methil demonstrator turbine, can be seen from nearby locations. The consented Kenly scheme will also be visible as well as the consented Forthwind turbines, and the less certain scoping-stage extension. Forthwind will be seen in the context of the more developed Fife coast to the west. Across the Forth, operational wind farms on the Lammermuirs are visible in the distance. The additional effect of Neart na Gaoithe in this baseline will be medium.</p>			
<i>Level of cumulative effect and significance: <b>Moderate</b> (significant)</i>			

<b>Viewpoint 15: Largo Law</b>			
<i>OS grid reference</i>	342709, 704970	<i>Figure number</i>	14.29 (Volume 3)
<i>Landscape Character Type</i>	Pronounced Hills	<i>Landscape designation</i>	Largo Law LLA
<i>Direction of view towards the Wind Farm Area</i>	East	<i>Distance to closest turbine</i>	37.0 km
<i>Estimated number of days per year on which the turbines would be visible (based on atmospheric visibility data set out in <b>Table 3.8</b>)</i>			151 days (41%)
<i>Location and Receptors:</i>			
Elevated location, enabling wide views across Fife and the Firth of Forth, on a locally-signposted footpath. Receptors are walkers visiting the summit of Largo Law.			
<i>Sensitivity: <b>Medium</b></i>			
Moderately used viewpoint with panoramic views, visited by recreational receptors who have an interest in the view. Marine views are limited to the Firth of Forth. The susceptibility is judged to be medium and the value medium.			
<i>Current View:</i>			
Largo Law is a locally prominent volcanic plug, located 2 km from the coast and steeply rising to a point above lush arable land, and the small contiguous coastal villages of Lower Largo and Lundin Links. Neither the view from the summit or the path to the summit, are recorded in either Explorer or Landranger OS maps.			
The North Sea and Firth of Forth combined, occupy around 140° of the view. These are visually differentiated to the southeast, by the headlands between the Fife coast at Earlsferry, 7 km away, and North Berwick Law, easily identifiable 20 km away on the south side of the firth. Looking left of this pinch point, and east, the open North Sea appears distant, a narrow, reflective plain, and at this elevation the Isle of May is seen below the line of the horizon. On a clear day, St Abb's Head appears small but distinctive on the distant horizon, 60 km away. Looking right of this pinch point, and south, the Firth of Forth appears wide and round, viewed across the almost semi-circular Largo Bay in the foreground, and contained by the long stretch of land on the horizon, south of the firth. To the east of the bay North Berwick Law and the island of Craigeith, Lamb and Fidra can be seen 20 km away, and to west of the bay, the island of Inchkeith can be seen 25 km away. Shipping lanes are apparent by a number of tankers and boats present in the firth. Locally the Fife coastline is developed, particularly to the west where the towns of Leven and Methil are extensive. To the east coastal settlements are smaller, but numerous, with distinctive spires, towers and lighthouses visible above the line of the coast.			
<i>Magnitude of impact: <b>Low</b></i>			
Within the limited area of sea visible from this location, the wind farm will be a small and relatively distant element within a wide, complex view. Turbines will be set against the skyline, breaking the horizon of the sea, but set within a view which contains a number of man-made features nearby, including masts and quarries. Looking east, the wind farm will appear backlit by the morning sun. In clear weather it would appear side-lit by the afternoon sun, brightening the appearance of the turbines.			
The scale of the change will be small, and will be experienced from locations across a small geographical extent. The change will be long term and reversible. The magnitude of impact is judged to be low.			
<i>Level of effect and significance: <b>Minor</b> (not significant)</i>			
<i>Consideration of lighting:</i>			
Lighting is likely to be visible in this view, though is unlikely to be overly prominent due to the distance. There are many light sources much closer to the viewpoint, particularly in the towns of Methil and Leven, as well as more distant lights in East Lothian. Receptors are likely to be few in number during the hours of darkness.			
<i>Magnitude of cumulative impact: <b>Low</b></i>			
Both Neart na Gaoithe and Inch Cape will be visible in distant views east from this panoramic viewpoint, appearing in the same sector of the view. Their distance means that their relative scale will appear similar, and individual turbines may not be clearly apparent. Seagreen is theoretically visible but over 50 km distant. Closer at hand are operational wind farms to the west of Kirkcaldy, and the Methil offshore turbine. In future, the consented and scoping Forthwind turbines will be seen in the Forth, around 10 km to the southwest and more prominent than the wind farms in the outer Forth and Tay. The additional effect of Neart na Gaoithe in this baseline will be low.			
<i>Level of cumulative effect and significance: <b>Minor</b> (not significant)</i>			

<b>Viewpoint 16: Isle of May</b>			
<i>OS grid reference</i>	365655, 699329	<i>Figure number</i>	14.30 (Volume 3)
<i>Regional Seascape Unit</i>	SA13 East Neuk of Fife	<i>Landscape designation</i>	Forth Islands LLA
<i>Direction of view towards the Wind Farm Area</i>	Northeast	<i>Distance to closest turbine</i>	16.4 km
<i>Estimated number of days per year on which the turbines would be visible (based on atmospheric visibility data set out in <b>Table 3.8</b>)</i>			290 days (79%)
<i>Location and Receptors:</i>			
<p>Located in elevated position next to the heliport, enabling boundless views across the North Sea from this popular day-trip island. Receptors include day visitors and workers and very small numbers of visitors staying on the island. The island is owned and managed by Scottish Natural Heritage and is open to visitors from April to September annually.</p>			
<i>Sensitivity: <b>High</b></i>			
<p>Recreational receptors have an interest in the view, although relatively few in number, they come partly to experience the remoteness of the island setting and the open marine views, as well as the natural and cultural heritage interests. The susceptibility is judged to be high and the value medium.</p>			
<i>Current View:</i>			
<p>Arriving by boat at Kirk Haven, the island feels wild and remote, despite a collection of buildings including two lighthouses, associated housing and stables, some old military blocks and a visitor centre. The island is uninhabited, except by seasonal staff.</p> <p>The sea view from this point occupies around 190° of the view. Set back from coast by around 150m, the foreground comprises rough wind-swept grass across uneven ground, with exposed rocky patches topped with moss or lichen. The coastline is generally screened by raised ground and high cliff tops, causing the sea to appear as a horizontal band. The exception to this is looking southwest along the path towards Kirk Haven, where a small section of the coastline is visible beyond the gradual drop of the land to the sea. A large portion of the horizon comprises the expansive sea as it meets the sky directly, but land is visible to the north and south where it interrupts this level horizon. Fife Ness is visible 8 km away to the north, with the Angus and Aberdeenshire coastline beyond, fading into the distance. To the south, land can be seen between St Abb's Head, 35 km to the southeast, and Dunbar, around 18 km to the south, along which there are a number of industrial features visible, including Torness Power Station, the cement works and masts. Onshore wind turbines can be seen in the distant Lammermuir Hills to the south.</p>			
<i>Magnitude of impact: <b>High</b></i>			
<p>The wind farm will be visible at the centre of the open sea view, occupying around 40° of the view. Turbines will be set against the skyline, their man-made appearance, upright form and movement contrasting with the horizontal appearance of the sea. Looking northeast, the wind farm will rarely appear backlit against the sun, but in clear weather would often appear side-lit by the sun, brightening the appearance of the turbines</p> <p>The scale of the change will be large, and will be experienced from locations across a small geographical extent. The change will be long term and reversible. The magnitude of impact is judged to be high.</p>			
<i>Level of effect and significance: <b>Major</b> (significant)</i>			
<i>Consideration of lighting:</i>			
<p>Lighting will be visible in this view, and will be seen across a currently dark area of the sea, where only the lights of passing ships appear. It will be more distant than lighting that is visible along the Fife coast, but closer than many of the light sources on the Lothian coast to the south. The intermittent nature of the lights will draw the eye, although the nature of the Island means that receptor numbers will be very few during the hours of darkness.</p>			
<i>Magnitude of cumulative impact: <b>High</b></i>			
<p>Inch Cape will be clearly visible to the left (north) of Neart na Gaoithe, though clearly at greater distance. Further away, but likely to be visible, Seagreen will appear behind both schemes. Together the offshore wind farms occupy well over 50 degrees of the view. Operational turbines visible include smaller turbines in Fife, and more distant wind farms on the Lammermuirs. Proposed wind farms will be visible to both north and south. Looking west, the Methil demonstrator turbine can be seen around 25 km away, and the consented and proposed Forthwind turbines will be seen alongside if built. The additional effect of Neart na Gaoithe alongside this pattern of proposed development will be high.</p>			
<i>Level of cumulative effect and significance: <b>Major</b> (significant)</i>			

<b>Viewpoint 17: North Berwick Law</b>			
<i>OS grid reference</i>	355645, 684235	<i>Figure number</i>	14.31 (Volume 3)
<i>Landscape Character type</i>	Coastal Margins	<i>Landscape designation</i>	North Berwick Law SLA
<i>Direction of view towards the Wind Farm Area</i>	Northeast	<i>Distance to closest turbine</i>	33.1 km
<i>Estimated number of days per year on which the turbines would be visible (based on atmospheric visibility data set out in <b>Table 3.8</b>)</i>			180 days (49%)
<i>Location and Receptors:</i>			
<p>This viewpoint is located at the summit of North Berwick Law, a popular walking destination close to the town of North Berwick, enabling wide and elevated views over the Firth of Forth. It is an Ordnance Survey recorded viewpoint at 187m AOD. Receptors are walkers, specifically visiting this point for its 360° panorama.</p>			
<i>Sensitivity: <b>High</b></i>			
<p>A widely known and well-used viewpoint, with many recreational receptors who climb the hill to appreciate the panoramic views, of which marine views form a section. The susceptibility and value are judged to be high.</p>			
<i>Current View:</i>			
<p>North Berwick Law is a prominent volcanic plug, located 1 km from the coast and standing out against the flat plains of East Lothian. The John Muir Way passes alongside the base of this conical hill. The viewpoint is accessed via a steep path, leading to an elevated view which starkly reveals the very level nature of the surrounding sea and landscape. The North Sea and Firth of Forth are present within around 240° of the view.</p> <p>Looking north, the coastline of Fife is visible, around 15 km away. This long thin band of land on the horizon gradually thins to the narrow point of Fife Ness. Looking northeast and east, a boundless sea view is available, and the horizon line remains unbroken, as both the Isle of May (15 km away) and the Bass Rock (5 km away) remain set against the distant sea. Boats and tankers interrupt the surface of the sea at irregular points across the whole body of water. Locally, the sandy beaches of Broad Sands and Milsley Bay spill out from the land and meet the sea, beyond North Berwick. Either side of this, expansive agricultural plains and small settlements are set against the sea, the coastline obscured.</p>			
<i>Magnitude of impact: <b>Medium</b></i>			
<p>The wind farm will be visible on the horizon of the open sea, occupying around 25° of the 360° view. In this view, the Bass Rock appears in the middle ground against the backdrop of the sea, and below the part of the horizon which will be occupied by the wind farm, drawing the eye in this direction. Turbines will be set against the skyline, breaking the sea horizon, but are set within a wide view which contains a number of man-made features along the local coastline, including Cockenzie and Torness Power Stations and the cement works by Dunbar. Looking northeast, the wind farm will rarely appear backlit against the sun, but in clear weather would often appear side-lit by the sun, brightening the appearance of the turbines.</p> <p>The scale of the change will be medium, and will be experienced from locations across a small geographical extent. The change will be long term and reversible. The magnitude of impact is judged to be medium.</p>			
<i>Level of effect and significance: <b>Moderate</b> (significant)</i>			
<i>Consideration of lighting:</i>			
<p>Lighting is likely to be visible in this view, though is unlikely to be overly prominent due to distance. There are many light sources much closer in the view, including lighting within North Berwick below, and lights on the Fife Coast, as well as significant sources of light in views towards Edinburgh. The intermittent nature of the lights will draw the eye, and will be seen in the darkest part of the view.</p>			
<i>Magnitude of cumulative impact: <b>Low</b></i>			
<p>Inch Cape wind farm will be visible above the Isle of May, stretching across the horizon to either side. Although the wireline view indicates the apparent turbine height will be similar, Inch Cape will be over 50 km away and is likely to be less prominent in all but the clearest conditions. Seagreen is even more distant. Operational wind farms on the Lammermuirs are clearly visible, and proposals in this area are unlikely to change the visible pattern of turbines. Small scale turbines are visible within farmland closer at hand. Looking north, the consented Kenly wind farm will be visible in Fife. Some 25 km to the northeast the Methil demonstrator turbine can be seen against the developed backdrop of Kirkcaldy. In future, the Forthwind turbines may appear in this section of the view, around 20 km distance. Due to the distance of Neart na Gaoithe and other wind farms, the additional effect in this baseline will be low.</p>			
<i>Level of cumulative effect and significance: <b>Minor</b> (not significant)</i>			

<b>Viewpoint 18: Dunbar</b>			
<i>OS grid reference</i>	367583, 679172	<i>Figure number</i>	14.32 (Volume 3)
<i>Regional Seascape Unit</i>	SA17 Eyebroughy to Torness Point	<i>Landscape designation</i>	Belhaven Bay SLA
<i>Direction of view towards the Wind Farm Area</i>	North	<i>Distance to closest turbine</i>	28.0 km
<i>Estimated number of days per year on which the turbines would be visible (based on atmospheric visibility data set out in <b>Table 3.8</b>)</i>			203 days (56%)
<i>Location and Receptors:</i>			
<p>Located at the edge of Bayswell Park, a small area of formal open space just west of Dunbar Town Centre, this viewpoint is close to residential areas of the town. It is also on the John Muir Way long-distance footpath, and an interpretation board is sited nearby.</p>			
<i>Sensitivity: <b>High</b></i>			
<p>Recreational receptors, either walkers or visitors to Dunbar, will stop to appreciate the coastal views over the harbour and castle. Residential receptors nearby will have a proprietary interest in the view, which is within a locally designated area. The susceptibility is judged to be high and the value medium.</p>			
<i>Current View:</i>			
<p>The seaward part of the view is framed by large houses to the west and by the Dunbar Leisure Pool to the east. The Bass Rock can be seen to the northwest, with the Fife coast behind, extending out towards the Isle of May. To the northeast the view includes the ruins of Dunbar Castle and the harbour mouth, along with a number of small inshore islets. The Leisure Pool is a prominent building viewed across the park, which has several benches oriented towards the view, as well as picnic tables and a cannon. On the east side of the park is a low building used by the Sea Cadets, with the imposing Lauderdale House beyond. Housing facing the park from the south is of two and three storeys, with large Victorian villas to the west. To the south, lower buildings permit long views to the Lammermuir Hills, with wind turbines visible on the ridge line.</p>			
<i>Magnitude of impact: <b>Medium</b></i>			
<p>The wind farm will be visible on the horizon of the open sea, occupying around 25° of the view. The turbines will be set above the outlying islets, and to the left (north) of the castle ruins, that serve to draw the eye out to sea. Turbines will be set on the skyline, with part of the tower base below the horizon. Passing ships may momentarily obscure views of the turbines, as they will be closer to the shore. Looking northeast, the wind farm will rarely appear backlit against the sun, but in clear weather would often appear side-lit by the sun, brightening the appearance of the turbines.</p> <p>The scale of the change will be medium, and will be experienced from locations across a medium geographical extent. The change will be long term and reversible. The magnitude of impact is judged to be medium.</p>			
<i>Level of effect and significance: <b>Moderate</b> (significant)</i>			
<i>Consideration of lighting:</i>			
<p>Lighting is considered in detail in the assessment of night time <b>Viewpoint N6</b>.</p>			
<i>Magnitude of cumulative impact: <b>Low</b></i>			
<p>From over 50 km, Inch Cape will be partly hidden behind the horizon from this location, and Seagreen is not visible. Neart na Gaoithe will appear largely in front of Inch Cape, which is unlikely to be prominent in the view. Although not seen from this location, wind turbines on the Lammermuirs are clearly visible from the Dunbar area. The Forthwind turbines are theoretically visible from Dunbar, but seen across the intervening wooded landscape are unlikely to be prominent. The only other proposed wind farms visible from Dunbar will also be on the Lammermuir range to the south. The additional effect of Neart na Gaoithe in this future baseline will be low.</p>			
<i>Level of cumulative effect and significance: <b>Minor</b> (not significant)</i>			

<b>Viewpoint 19: Innerwick</b>			
<i>OS grid reference</i>	372437, 673859	<i>Figure number</i>	14.33 (Volume 3)
<i>Landscape Character Type</i>	Coastal Margins	<i>Landscape designation</i>	None (overlooks Dunbar to Barns Ness SLA)
<i>Direction of view towards the Wind Farm Area</i>	North	<i>Distance to closest turbine</i>	30.5 km
<i>Estimated number of days per year on which the turbines would be visible (based on atmospheric visibility data set out in <b>Table 3.8</b>)</i>			198 days (54%)
<i>Location and Receptors:</i>			
<p>Located at the east end of the village of Innerwick, this viewpoint is opposite a farm and houses that have seaward views. The location is used for local recreation and represents views from the village and its immediate surroundings.</p>			
<i>Sensitivity: <b>High</b></i>			
<p>Representative of residential viewers who have a proprietary interest and prolonged viewing opportunities, of the elevated views across Barns Ness to the sea. The susceptibility is judged to be high and the value medium.</p>			
<i>Current View:</i>			
<p>Agricultural land slopes away from the viewpoint to the north and northeast, comprising very large arable fields with low boundaries. In the centre of the view is the white lighthouse at Barns Ness, which is flanked at some distance to each side by the Dunbar cement works to the north, and Torness Power Station to the east. Beyond this, the North Sea and Firth of Forth occupies a broad angle of the view. There are few visual interruptions in the foreground or middle distance, due to the viewpoint being elevated above the coastal plain. Beyond the Firth of Forth, the Fife coast is clearly visible, with the Isle of May in front. To the south, the nearby farm buildings obscure longer views. The village of Innerwick is seen to the west, largely comprised of vernacular buildings backed by mature trees. Higher ground is visible beyond.</p>			
<i>Magnitude of impact: <b>Medium</b></i>			
<p>The Offshore Wind Farm will be visible on the horizon, within the central part of the open sea in this view. Occupying around 20° of the view, the wind farm will be relatively distant but will form a focal feature in marine views. Although the view includes prominent industrial features, the presence of the turbines in the open sea may distract from the Barns Ness lighthouse that currently forms the focal points in this view. The turbines will be on the skyline, above and to the right (east) of the lighthouse. Looking north, the wind farm will not appear backlit by the morning sun. In clear weather it would appear side-lit by the late morning and afternoon sun, brightening the appearance of the turbines.</p> <p>The scale of the change will be medium, and will be experienced from locations across a small geographical extent. The change will be long term and reversible. The magnitude of impact is judged to be medium.</p>			
<i>Level of effect and significance: <b>Moderate</b> (significant)</i>			
<i>Consideration of lighting:</i>			
<p>Lighting is likely to be visible in this view, though at 30 km is unlikely to be overly prominent. The intermittent nature of the lights will draw the eye, and will be seen in the darkest part of the view, between the main light sources at the cement works and Torness Power Station.</p>			
<i>Magnitude of cumulative impact: <b>Low</b></i>			
<p>Inch Cape is around 55 km from this viewpoint and Seagreen somewhat further. Neither is anticipated to be prominent. Neart na Gaoithe will appear in front of both schemes, particularly Inch Cape, and the two are likely to appear as a single group of turbines on the horizon. Much closer at hand, wind farms on the Lammermuirs are clearly visible from the Innerwick area, and future proposals are concentrated in the same areas. The additional effect of Near na Gaoithe in the future baseline will be low.</p>			
<i>Level of cumulative effect and significance: <b>Minor</b> (not significant)</i>			

<b>Viewpoint 20: Coldingham Moor</b>			
<i>OS grid reference</i>	383563, 669442	<i>Figure number</i>	14.34 (Volume 3)
<i>Regional Seascape Unit</i>	SA18 Torness Point to St Abbs Head	<i>Landscape designation</i>	Berwickshire Coast SLA
<i>Direction of view towards the Wind Farm Area</i>	North	<i>Distance to closest turbine</i>	32.9 km
<i>Estimated number of days per year on which the turbines would be visible (based on atmospheric visibility data set out in <b>Table 3.8</b>)</i>			180 days (49%)
<i>Location and Receptors:</i>			
<p>Located on Dowlaw Road, opposite a mast, on elevated headland with wide seaward views at 220m AOD. The road leads to Dowlaw Farm and to a short coastal path to the ruined remains of Fast Castle. Receptors are users of this road and walkers.</p>			
<i>Sensitivity: <b>Medium</b></i>			
<p>On a moderately well-used minor road, this viewpoint is representative of residential viewers visiting Fast Castle and Siccar Point, and has open marine views. The susceptibility is judged to be high and the value medium.</p>			
<i>Current View:</i>			
<p>The sea view from this point occupies around 100° of the view, with Fife visible (40 km away) in the distance on a clear day in around a third of this view looking northwest. This elevated view, set back from the coast by around 1 km, looks across a wide expanse of undulating and uneven rough pasture, straight out to sea. The sea appears as a narrow band of deep blue - a level horizon against the sky, interrupted by small boats and occasional tankers, and by the distant coastline visible to the northwest on a clear day.</p> <p>The immediate coastline cannot be seen below the cliffs, and raised ground to the southeast of the viewpoint prevents views of the coastline to the east. The only visible coastline south of the Firth of Forth is a small section of East Lothian, around 7 km away. Landmarks such as Torness Power Station, North Berwick Law and the Bass Rock can be seen, representing a small, complex area within a simple view of three main elements - rough pasture, sea and sky. This gives the viewpoint a sense of remoteness, away from settlement and busy roads.</p>			
<i>Magnitude of impact: <b>Low</b></i>			
<p>The wind farm will be visible at the centre of the sea view, occupying around 20° of the view. In very clear weather it will be seen in front of the distant Angus coast, which lies in excess of 70 km away. At other times it will be seen against a flat sea horizon, the lower parts of their towers below the horizon. The man-made appearance, upright form and movement of the turbine will contrast with the horizontal open sea. Looking north, the wind farm will never appear completely backlit against the sun, but in clear weather would often appear side-lit, brightening the appearance of the turbines.</p> <p>The scale of the change will be small, and will be experienced from locations across a medium geographical extent. The change will be long term and reversible. The magnitude of impact is judged to be low.</p>			
<i>Level of effect and significance: <b>Minor</b> (not significant)</i>			
<i>Consideration of lighting:</i>			
<p>Little lighting is currently visible close at hand in this view, though there are lights along the East Lothian coast including at Torness Power Station, and the Black Hill transmitter mast. More distant lights are visible further into the Firth of Forth, and along the Fife coast. Although unlikely to be greatly prominent, the turbine lights will be noticeable due to their intermittent nature. The turbine lights will also be in the darkest part of the view, where there are currently no lights except passing ships.</p>			
<i>Magnitude of cumulative impact: <b>Low</b></i>			
<p>Inch Cape will be much more distant than Neart na Gaoithe, and almost entirely screened behind it. Seagreen is further distant and unlikely to be clearly perceptible. Nearby Drone Hill and Penmanshiel wind farms, and those on the Lammermuirs, are much more prominent in views from this road. Further proposals in these areas will fit into the existing pattern. The additional effect of Neart na Gaoithe in this future baseline will be low.</p>			
<i>Level of cumulative effect and significance: <b>Minor</b> (not significant)</i>			

<b>Viewpoint 21: St Abb's Head</b>			
<i>OS grid reference</i>	391231, 669168	<i>Figure number</i>	14.35 (Volume 3)
<i>Regional Seascape Unit</i>	SA19 St Abb's Head to Eyemouth	<i>Landscape designation</i>	Berwickshire Coast SLA
<i>Direction of view towards the Wind Farm Area</i>	North	<i>Distance to closest turbine</i>	33.1 km
<i>Estimated number of days per year on which the turbines would be visible (based on atmospheric visibility data set out in <b>Table 3.8</b>)</i>			180 days (49%)
<i>Location and Receptors:</i>			
<p>This viewpoint is situated on a rugged headland 150m from St Abb's Head Lighthouse. It is an Ordnance Survey recorded viewpoint at 94m AOD. Accessible by a coastal walk or along a minor road to a small parking bay nearby, receptors are predominantly recreational, including walkers, bird-watchers and visitors to the lighthouse.</p>			
<i>Sensitivity: <b>High</b></i>			
<p>Popular recreational destination with few human influences and open and elevated marine views. The susceptibility is judged to be high and the value medium.</p>			
<i>Current View:</i>			
<p>The sea view from this point occupies around 210° of the view, with Fife visible (45 km away) in the distance on a clear day in a small part of the view looking northwest. Perched atop this exposed headland and set back from the face of the cliffs, the point at which the sea meets the land is not visible. Instead, the sea appears as a continuous band of deep blue - a flat horizon against the sky, specked with small boats and occasional tankers. The immediate foreground comprises rough wind-swept pasture across uneven ground on thin soil, with exposed rocks. This pattern of rough pasture against deep blue sea is broken in places where the red-grey stone of the cliff tops protrude, and where some elements of the lighthouse and associated buildings extend into sight. The lighthouse itself is a white tower 9 m in height, and many of the surrounding elements are also white-washed, standing out against the darker surroundings.</p> <p>The viewpoint is marked by an interpretation board, which directs the viewer to certain features in this 360° panorama, concentrating on coastal features. To the west, rugged cliffs dominate the view for several kilometres, beyond which Torness Power Station is visible (16 km away) standing out against the low East Lothian plains. In the distance North Berwick Law can be seen, and the distinctive steep-sided Bass Rock can be seen out in the Firth of Forth, set against Fife in the far distance. Looking east, the village of St. Abbs is hidden behind a middle ground of rough, rolling pasture. The small town of Eyemouth can be seen (6 km away), beyond a coastline of less dramatic cliffs, along which the John Muir Way passes.</p>			
<i>Magnitude of impact: <b>Medium</b></i>			
<p>The wind farm will be visible on the long horizon of the open sea, occupying around 15° of the view. At this elevated position on a clear day, it will be viewed to the right of distant Fife Ness and Isle of May. Turbines will be set against the skyline, their man-made appearance, upright form and movement contrasting with horizontal appearance of the sea. Looking north, the wind farm will never appear backlit against the sun, but in clear weather would often appear side-lit by the sun, brightening the appearance of the turbines.</p> <p>The scale of the change will be medium, and will be experienced from locations across a small geographical extent. The change will be long term and reversible. The magnitude of impact is judged to be medium.</p>			
<i>Level of effect and significance: <b>Moderate</b> (significant)</i>			
<i>Consideration of lighting:</i>			
<p>At present, very little lighting is visible from this location, with only the nearby lighthouse buildings close at hand. Lights of passing ships are occasionally visible, and distant lights along the Berwickshire and East Lothian coasts. Although unlikely to be greatly prominent, the turbine lights will be noticeable due to their intermittent nature, and the darkness of the existing view. Few receptors are likely to be present during the hours of darkness.</p>			
<i>Magnitude of cumulative impact: <b>Low</b></i>			
<p>Inch Cape, over 55 km distant, will be seen partly behind Neart na Gaoithe, though it is unlikely to be clearly perceptible except on very clear days. Seagreen is theoretically visible but even more distant, at more than 60 km. No other operational or proposed wind farms are visible from St Abb's Head. The additional effect of Neart na Gaoithe in this future baseline will be low.</p>			
<i>Level of cumulative effect and significance: <b>Minor</b> (not significant)</i>			

<b>Viewpoint 22: St Andrews, West Sands</b>			
<i>OS grid reference</i>	350216, 717798	<i>Figure number</i>	14.36 (Volume 3)
<i>Regional Seascape Unit</i>	SA12 St Andrews Bay	<i>Landscape designation</i>	St Andrews Links LLA
<i>Direction of view towards the Wind Farm Area</i>	East	<i>Distance to closest turbine</i>	30.0 km
<i>Estimated number of days per year on which the turbines would be visible (based on atmospheric visibility data set out in <b>Table 3.8</b>)</i>			198 days (54%)
<i>Location and Receptors:</i>			
<p>The viewpoint is located on the West Sands beach, close to West Sands Road and the Links golf courses. The location is visited by recreational users who have an interest in the view, including beach users and walkers, as well as golfers who have a moderate interest in their wider surroundings.</p>			
<i>Sensitivity: <b>High</b></i>			
<p>Popular recreational location with an intimate connection to the sea and important views to the town of St Andrews. The susceptibility is judged to be high and the value medium.</p>			
<i>Current View:</i>			
<p>The viewpoint is on the broad beach of West Sands, just above the high tide line and adjacent to the low dunes. The town of St Andrews forms the focal point of the view to the south, at the head of the broad sweep of pale sand. The skyline of St Andrews includes a number of recognisable buildings including the abbey ruins and the castle, and forms a highly distinctive backdrop to this beach view. To the east, the Fife coast can be seen tapering down to low cliffs and wooded farmland. The Fairmount Hotel forms a prominent feature on the skyline.</p> <p>Looking north, the sands extend towards Tentsmuir Forest, forming a continuous line of coniferous woodland with the Angus hills seen above. To northeast, the Angus coast can be seen as a patchwork of farmland and woodland with occasional settlement. The open sea occupies around 80° of the view between the Fife and Angus coasts. The dunes block views to westward, although some westward view to the low Fife hills is available from the adjacent road and golf courses.</p>			
<i>Magnitude of impact: <b>Medium</b></i>			
<p>The Offshore Wind Farm will be visible to the east, low on the horizon and partly behind the east Fife coast. The lower parts of the turbine towers will be behind the sea horizon. The southern part of the array will be partly screened by the east Fife coast, with turbine blades visible above the skyline. The turbines will be separated from the historic skyline of St Andrews and will not interrupt this view, though their unfamiliar form and movement may introduce a new focal feature in the view. The turbines will appear darker against the morning sun, and front-lit in the afternoon when they may appear brighter in the view.</p> <p>The scale of the change will be medium, and will be experienced from locations across a small geographical extent. The change will be long term and reversible. The magnitude of impact is judged to be medium.</p>			
<i>Level of effect and significance: <b>Moderate</b> (significant)</i>			
<i>Consideration of lighting:</i>			
<p>Lighting within St Andrews is a feature of this view, with street lighting and building lights visible to the south. Lights on and around the Fairmount Hotel are also visible, though the eastern Fife coast is darker. To the northeast, although Tentsmuir is dark, lighting on the Angus coast can be seen, with the transmitters on the Sidlaw Hills visible. The aviation lights on the turbines will be visible, and will be seen in a currently dark area of the view. The intermittent lights may draw the attention in the sea view.</p>			
<i>Magnitude of cumulative impact: <b>Medium</b></i>			
<p>In this view, Inch Cape will be clearly visible to the north of Neart na Gaoithe, and occupying a larger portion of the view. Seagreen will be barely perceptible due to being almost entirely below the horizon. Due to the relative distances, the turbine sizes are unlikely to be perceptibly different. The onshore Kenly Wind Farm (consented) will be seen if it is built, on the skyline to the southeast, and potentially behind the St Andrews skyline. The two offshore wind farms together will occupy much of the seaward view, and the additional effect of Neart na Gaoithe in this baseline will be medium.</p>			
<i>Level of cumulative effect and significance: <b>Moderate</b> (significant)</i>			

<b>Viewpoint 23: Crail</b>			
<i>OS grid reference</i>	361013, 707243	<i>Figure number</i>	14.37 (Volume 3)
<i>Regional Seascape Unit</i>	SA14 East Neuk of Fife	<i>Landscape designation</i>	East Neuk LLA
<i>Direction of view towards the Wind Farm Area</i>	East	<i>Distance to closest turbine</i>	18.5 km
<i>Estimated number of days per year on which the turbines would be visible (based on atmospheric visibility data set out in <b>Table 3.8</b>)</i>			271 days (74%)
<i>Location and Receptors:</i>			
<p>The viewpoint is on West Braes on the west side of the village, overlooking Crail harbour and the adjacent beach. A number of east-facing residential properties are set along this elevated road, which also forms part of the Fife Coastal Path.</p>			
<i>Sensitivity: <b>High</b></i>			
<p>Represents residential and recreational receptors who have a keen interest in the attractive coastal views available from this location. The susceptibility is judged to be high and the value medium.</p>			
<i>Current View:</i>			
<p>In the foreground, well-tended private gardens merge into native coastal shrubs along the steep coastal braes, that slope down to the rocky foreshore and beach, forming an enclosed cove. On the far side of the cove is the harbour, forming the focus of the village that extends up the facing slopes. The older buildings cluster around the harbour itself, with larger Victorian villas on higher ground. Beyond the harbour the rocky coastline continues; across the next bay Sauchope Links Caravan Park is visible, with open farmland above the low cliffs. To the southeast, the view overlooks the outer Firth of Forth, with the Isle of May clearly visible. The Berwickshire coast is distant and is not a significant feature of this view. In other directions, the view is contained by nearby housing along West Braes, with the focus of the view clearly on the harbour to the east.</p>			
<i>Magnitude of impact: <b>High</b></i>			
<p>The Offshore Wind Farm will occupy around 30° of the view, forming a substantive segment of the marine part of the view. It will appear across the eastern horizon, to the south of the caravan park, and will be an unavoidable presence in views across the bay to the harbour. With their unfamiliar nature and movement, the turbines will become a new focal point in this view. Looking east, the wind farm will appear backlit by the morning sun, and silhouetted at certain times of year. In clear weather it would appear side-lit by the afternoon sun, brightening the appearance of the turbines.</p> <p>The scale of the change will be large, and will be experienced from locations across a small geographical extent. The change will be long term and reversible. The magnitude of impact is judged to be high.</p>			
<i>Level of effect and significance: <b>Major</b> (significant)</i>			
<i>Consideration of lighting:</i>			
<p>Lighting is considered in detail in the assessment of night time <b>Viewpoint N4</b>.</p>			
<i>Magnitude of cumulative impact: <b>Medium</b></i>			
<p>Looking northeast, Inch Cape will be partly screened behind the headland of Fife Ness, with only a small number of hubs visible. Seagreen will be entirely hidden. Although not visible from this location, smaller scale operational onshore turbines can be seen from nearby. The consented Kenly scheme will be visible from the Crail area, though not in views of the harbour. The proposed Forthwind turbines may be glimpsed from the higher ground west of Crail. Across the Forth, operational and proposed wind farms on the Lammermuirs are visible in the distance. Neart na Gaoithe will be much more visible than Inch Cape, and may draw attention to it when it is otherwise not prominent. The additional effect of Neart na Gaoithe in this baseline will be medium.</p>			
<i>Level of cumulative effect and significance: <b>Moderate</b> (significant)</i>			

<b>Viewpoint 24: Scottish Seabird Centre, North Berwick</b>			
<i>OS grid reference</i>	355412, 685550	<i>Figure number</i>	14.38 (Volume 3)
<i>Regional Seascape Unit</i>	SA17 Eyebroughy to Torness Point	<i>Landscape designation</i>	Port Seton to North Berwick SLA
<i>Direction of view towards the Wind Farm Area</i>	Northeast	<i>Distance to closest turbine</i>	32.5 km
<i>Estimated number of days per year on which the turbines would be visible (based on atmospheric visibility data set out in <b>Table 3.8</b>)</i>			188 days (52%)
<i>Location and Receptors:</i>			
<p>The Seabird Centre is a popular attraction in North Berwick, located at the rocky headland where the town meets the beach. It is a well-used location, with many people visiting the Seabird Centre and the beach, as well as residents and people moving around the town.</p>			
<i>Sensitivity: <b>High</b></i>			
<p>The viewpoint is representative of residential receptors, and large numbers of recreational receptors who visit the location in part for its scenic qualities. The susceptibility is judged to be high and the value medium.</p>			
<i>Current View:</i>			
<p>The distinctive outline of the Seabird Centre is a focal point on the headland, standing as it does relatively removed from the town. An area of archaeological remains, harbour buildings and low cottages also occupy this headland. To the south is the access to the town centre via Victoria Road, while Melbourne Road sweeps around to the southeast forming the main promenade. While there are older buildings nearby, much of this frontage comprises Victorian villas and townhouses facing out to sea. The beach extends away to the east from the viewpoint, comprising a broad sloping strip of sand backed by low grassy dunes, with a broad area of sand flats and rock exposed at low tide. Within this area is a seawater tidal swimming pool. Across the bay, above the houses on Melbourne Road is the wooded skyline, with some further housing and a caravan park visible. The coast continues in the form of low cliffs topped by wooded farmland, with the bay contained by a series of low rocky islets (the Leithies). Framed by the Seabird Centre and the Leithies, the outer Firth of Forth occupies around 80° of the view. Within this view, the Bass Rock forms a prominent focal point, its white-topped cliffs rising starkly from the sea, and the lighthouse emphasising its scale. The Isle of May can also be clearly seen, with the Fife coast to the north.</p>			
<i>Magnitude of impact: <b>Medium</b></i>			
<p>The Offshore Wind Farm will be seen low on the horizon to the northeast. Occupying around 20° of the view, it will lie between the Isle of May and the Bass Rock in the view. Due to the low elevation, the lower parts of the blade sweep will be below the horizon. The remaining part of the turbines will have a similar apparent height to the Isle of May, but will appear diminutive compared to the Bass Rock. Though their unfamiliar appearance and movement will draw attention, the Bass Rock will remain the main focal point in the view.</p> <p>The scale of the change will be medium, and will be experienced from locations across a small geographical extent. The change will be long term and reversible. The magnitude of impact is judged to be medium.</p>			
<i>Level of effect and significance: <b>Moderate</b> (significant)</i>			
<i>Consideration of lighting:</i>			
Lighting is considered in detail in the assessment of night time <b>Viewpoint N5</b> .			
<i>Magnitude of cumulative impact: <b>Low</b></i>			
<p>A small number of hubs of Inch Cape will only just be theoretically visible, with most of the wind farm below the horizon. Seagreen will not be visible at all. The turbine blades of Inch Cape will be seen behind the Isle of May, while Neart na Gaoithe will be more fully visible. The consented Kenly wind farm may be visible from nearby locations, while to the northwest, from the other side of the headland, the Methil demonstrator turbine can be seen against the developed backdrop of Kirkcaldy. In future, the Forthwind turbines will appear in this section of the view, if built, around 20 km distance. These will be sequential rather than successive views, though from close by locations. The additional effect of Neart na Gaoithe in this future baseline will be low.</p>			
<i>Level of cumulative effect and significance: <b>Minor</b> (not significant)</i>			

<b>Viewpoint 25: Tantallon Castle</b>			
<i>OS grid reference</i>	359585, 685029	<i>Figure number</i>	14.39 (Volume 3)
<i>Regional Seascape Unit</i>	SA17 Eyebroughy to Torness Point	<i>Landscape designation</i>	Tantallon Coast SLA
<i>Direction of view towards the Wind Farm Area</i>	Northeast	<i>Distance to closest turbine</i>	29.4 km
<i>Estimated number of days per year on which the turbines would be visible (based on atmospheric visibility data set out in <b>Table 3.8</b>)</i>			201 days (55%)
<i>Location and Receptors:</i>			
<p>Located at the top of the ruins of Tantallon Castle, this viewpoint is frequented by visitors to the historic site. Tantallon is well known as a relatively intact ruin in a spectacular coastal setting, and visitors come for the views as much as the historical interest.</p>			
<i>Sensitivity: <b>High</b></i>			
<p>Representative of views from a nationally important monument, experienced by viewers with an interest in their surroundings. The viewpoint also represents views experienced by walkers on the cliffs. The susceptibility is judged to be high and the value high.</p>			
<i>Current View:</i>			
<p>Panoramic views are available from the viewing platform at the top of the castle. The view takes in the Lammermuir Hills forming a backdrop to the farmland of East Lothian. Looking west are distant views to Arthur's Seat and North Berwick Law closer to hand. The coastal scenery below the castle, and visible in either direction, is dramatic and distinctive with substantial cliffs topped by coastal grassland and scrub. Below, rocky platforms and offshore islets create an intricate shore that changes with the state of the tide. The sea occupies around half of the 360° panorama. To the northwest, small islands including Craigleith can be seen, with the Fife coast extending behind them. The main feature in the seaward view is the Bass Rock, its geometric white shape rising abruptly from the sea only 2 km away. Somewhat further out is the Isle of May.</p>			
<i>Magnitude of impact: <b>Medium</b></i>			
<p>The Offshore Wind Farm will be visible within the outer Firth of Forth, occupying around 20° of the seaward view. The turbines will be seen further out than the Bass Rock and Isle of May, to the right (east) of the view. Due to the elevation of the viewpoint, the height of the more distant turbines will appear to be greater than that of the Isle of May, though they will not approach the scale of the Bass Rock. The turbines will be uncharacteristic features in the marine view, and their movement will serve to draw the eye, introducing a new focal feature into the view. Looking northeast, the turbines are unlikely to be backlit by the rising sun, but will be front-lit on sunny days.</p> <p>The scale of the change will be medium, and will be experienced from locations across a medium geographical extent. The change will be long term and reversible. The magnitude of impact is judged to be medium.</p>			
<i>Level of effect and significance: <b>Moderate</b> (significant)</i>			
<i>Consideration of lighting:</i>			
<p>Lighting in this view is restricted to farms in the surrounding farmland. Lights within North Berwick are not visible from this section of coast. More distant light sources include settlement further down the East Lothian coast and across the Forth in Fife, as well as occasional passing ships. Overall, this section of coast is one of the darkest in East Lothian. Tantallon Castle is not open to the public at night, though there may be some people in the nearby area after dark. The turbine lights will be visible and their intermittent nature is likely to draw attention in the otherwise dark view. The lights will not be bright enough to affect dark sky quality or impact on stargazing activities.</p>			
<i>Magnitude of cumulative impact: <b>Low</b></i>			
<p>This viewpoint is within 50 km of Inch Cape wind farm, which will be visible partly behind the Isle of May. Inch Cape will be to the left (north) of Neart na Gaoithe, as well as being partly behind. Seagreen is unlikely to be perceptible due to distance. From this elevated viewpoint, the Methil offshore turbine, and the proposed Forthwind turbines, will be visible across intervening land, though they are unlikely to be visible across adjacent areas at ground level. To the south, wind farms, including proposed schemes, on the Lammermuirs are clearly a separate group of developments in an upland area. The additional effect of Neart na Gaoithe in this future baseline will be low.</p>			
<i>Level of cumulative effect and significance: <b>Minor</b> (not significant)</i>			

<b>Viewpoint 26: Broad Sands</b>			
<i>OS grid reference</i>	352222, 685811	<i>Figure number</i>	14.40 (Volume 3)
<i>Regional Seascape Unit</i>	SA17 Eyebroughy to Torness Point	<i>Landscape designation</i>	Port Seton to North Berwick SLA
<i>Direction of view towards the Wind Farm Area</i>	Northeast	<i>Distance to closest turbine</i>	35.0 km
<i>Estimated number of days per year on which the turbines would be visible (based on atmospheric visibility data set out in <b>Table 3.8</b>)</i>			164 days (45%)
<i>Location and Receptors:</i>			
Located at the back of Broad Sands beach, the viewpoint is close to Yellow Craig to the west of North Berwick. Receptors here are beach users and walkers, including those on the John Muir Way that passes by the dunes.			
<i>Sensitivity: <b>High</b></i>			
This view is experienced by many recreational users who have an interest in the view, and is recognised as an important view in relation to the locally designated Special Landscape Area. The susceptibility is judged to be high and the value medium.			
<i>Current View:</i>			
The view is dominated by the broad swathe of pale sand, backed by high dunes with coastal grasses and shrubs. Looking east along the beach the vista terminates at the distinctive island of Fidra, behind which the Fife coast can be seen. Looking the other way North Berwick Law provides the visual focus, rising above the wooded headland that largely conceals the town of North Berwick. Where this headland tapers northwards into the sea, it leads the eye to a series of islands. In the foreground The Lamb lies to the left (north), with Craigleith beyond and the Bass Rock. Due to the perspective, these three islands appear equally spaced and similar in scale. Between Fidra and the Lamb, the view looks over the outer Firth of Forth, with the Fife coast and the Isle of May forming the backdrop.			
<i>Magnitude of impact: <b>Medium</b></i>			
The Offshore Wind Farm will be seen to the northeast, occupying the horizon between the Isle of May and Craigleith, to either side of The Lamb. The turbines extend across around 20° of the view. Part of the blade sweep will be below the horizon; from sea level, the hubs of the more distant turbines will be on the horizon line. So low on the horizon, the turbines will not approach the apparent scale of the closer islands of the Lamb or Craigleith, though the more distant Isle of May is also partly behind the horizon from this location. Although distant and low on the skyline, the turbines will be close to existing focal points, and their movement will draw further attention to their presence. Looking northeast, the turbines may be backlit during summer sunrises, and will appear front-lit on sunny days.			
The scale of the change will be medium, and will be experienced from locations across a small geographical extent. The change will be long term and reversible. The magnitude of impact is judged to be medium.			
<i>Level of effect and significance: <b>Moderate</b> (significant)</i>			
<i>Consideration of lighting:</i>			
This location is dark at night, with few light sources nearby. Some glimpses of street and building lights in North Berwick are seen to the east, and the Fidra lighthouse is visible to the northwest. More distant lights along the Fife coast have less of a presence in the view. The distant aviation lights on the turbines will not be prominent, though their intermittent nature may draw attention.			
<i>Magnitude of cumulative impact: <b>Low</b></i>			
From this sea level viewpoint, Inch Cape wind farm will only be visible as blade tips over the sea horizon, while Seagreen is not visible at all. Neart na Gaoithe will be the only wind farm in the seaward view. Looking northwest, the Methil offshore turbine can be seen, and may be joined by the two-bladed Forthwind turbines around 15 km away, all seen against the backdrop of development and onshore turbines in the Kirkcaldy area. To the north, Kenly wind farm in Fife is theoretically visible. The additional effect of Neart na Gaoithe in this future baseline will be low.			
<i>Level of cumulative effect and significance: <b>Minor</b> (not significant)</i>			

<b>Viewpoint 27: A198, North Berwick</b>			
<i>OS grid reference</i>	350682, 685144	<i>Figure number</i>	14.41 (Volume 3)
<i>Regional Seascape Unit</i>	SA17 Eyebroughy to Torness Point	<i>Landscape designation</i>	Tantallon Coast SLA
<i>Direction of view towards the Wind Farm Area</i>	Northeast	<i>Distance to closest turbine</i>	30.6 km
<i>Estimated number of days per year on which the turbines would be visible (based on atmospheric visibility data set out in <b>Table 3.8</b>)</i>			197 days (54%)
<i>Location and Receptors:</i>			
<p>The A198 forms part of the East Lothian Coastal Trail tourist route, and is used by tourists and visitors as well as by local people. The viewpoint lies between North Berwick in the west and Tantallon Castle to the east, and continues south towards Dunbar.</p>			
<i>Sensitivity: <b>High</b></i>			
<p>Though this is a passing view on a main road, it is a route used by many recreational visitors and links popular visitor locations. The road has a footpath likely to be used for coastal walks. The susceptibility is judged to be high and the value medium.</p>			
<i>Current View:</i>			
<p>The A198 here is at its closest point to the coast, skirting the tops of coastal braes that slope steeply down to the shore, out of sight from the road. Only the outer edge of wave cut platforms can be seen, extending near at hand and at the rocky headland to the east. Bounded only by a low stone wall, the road continues eastward towards the outline of Tantallon Castle on the skyline. The southward view looks across farmland though tree lines restrict more distant views. Looking west, the road curves around towards a group of low buildings on the skyline, with low woodland to seaward. The town of North Berwick is not visible from this section. Looking north across the outer Firth of Forth, the Fife coast extends across the skyline. Beyond its eastern tip the Isle of May is visible. To the northeast the Bass Rock forms the principal focal point in the view, a distinctive white topped outcrop within the open water.</p>			
<i>Magnitude of impact: <b>Medium</b></i>			
<p>The Offshore Wind Farm will be seen behind the Bass Rock, with turbines visible to either side. The turbines will be seen across around 20° of the view, and will be low on the horizon. The majority of the turbines appear to the eastern side (right) of the rock, with a smaller number to the north. The turbines do not extend towards the Isle of May in the view. The Offshore Wind Farm will form a new focal feature in the view, of very different form and appearance to the Bass Rock, although the rock will continue to be the dominant feature in the seaward view. The turbines are likely to appear brightest on sunny afternoons, and may be backlit by the rising sun on summer mornings.</p> <p>The scale of the change will be medium, and will be experienced from locations across a medium geographical extent. The change will be long term and reversible. The magnitude of impact is judged to be medium.</p>			
<i>Level of effect and significance: <b>Moderate</b> (significant)</i>			
<i>Consideration of lighting:</i>			
<p>This location is dark at night, with nearby light sources limited to the visible cottages, and passing cars. Distant lights along the Fife coast can be seen, and in the sea are occasional passing ships and the Bass Rock lighthouse. The aviation lights on the turbines will be visible but are unlikely to be prominent. They will be a noticeable feature due to their intermittent nature, particularly as they disappear and reappear behind the Bass Rock when seen from a moving vehicle.</p>			
<i>Magnitude of cumulative impact: <b>Low</b></i>			
<p>Inch Cape wind farm will be visible, partly behind the Isle of May from this viewpoint. It will extend to the left (north) of Neart na Gaoithe but will be perceptibly more distant. To the north, Kenly wind farm (consented) is theoretically visible on the skyline of Fife. Looking northwest, the Methil offshore turbine can be seen, and may be joined by the two-bladed Forthwind turbines around 20 km away, all seen against the backdrop of development and onshore turbines in the Kirkcaldy area. To the south, the existing pattern of wind farms on the Lammermuirs will not be altered by planned future development. The additional effect of Neart na Gaoithe in this future baseline will be low.</p>			
<i>Level of cumulative effect and significance: <b>Minor</b> (not significant)</i>			

<b>Viewpoint 28: A199, East Linton</b>			
<i>OS grid reference</i>	357751, 676674	<i>Figure number</i>	14.42 (Volume 3)
<i>Landscape character type</i>	Lowland Plains	<i>Landscape designation</i>	Traprain SLA
<i>Direction of view towards the Wind Farm Area</i>	Northeast	<i>Distance to closest turbine</i>	36.2 km
<i>Estimated number of days per year on which the turbines would be visible (based on atmospheric visibility data set out in <b>Table 3.8</b>)</i>			156 days (43%)
<i>Location and Receptors:</i>			
This viewpoint is on a principal road linking Haddington and East Linton. It is at an elevated location, where a core path leads off to the northeast towards East Linton. Receptors include passing motorists and local recreational users.			
<i>Sensitivity: <b>Medium</b></i>			
The core path is used for local recreational walking, offering views across East Lothian and the Firth of Forth. A viewpoint is marked on OS maps slightly further up the hill, close to a parking area on the A199. The susceptibility is judged to be medium and the value medium.			
<i>Current View:</i>			
The settlement of East Linton lies below the viewpoint, its red pantiled roofs set within undulating wooded farmland. The sinuous landform around East Linton is cloaked in patchwork of arable fields, rising to the horizon where the wooded Lawhead Hill can be seen in front of the sea. This higher ground divides the sea view between the Peffer Sands to the north and the wider area around Tynninghame and Belhaven Bay to the south. Looking north the flatter farmland is more wooded, and punctuated by the Bass Rock and North Berwick Law. Beyond these features to the north and northeast, the skyline of Fife can be seen, including the distinctive Lomond Hills and several wind farms. To the south of Tynninghame, the Tyne estuary can be seen beyond East Linton, with open water, sand and conifer plantations drawing the eye down to the open water and the eastward coast. Beyond this the coastal farmland towards Dunbar is increasingly wooded. The distinctive church at Dunbar can clearly be seen. To the south the ground rises increasingly steeply, with nearby elevated farmland restricting views south. The edges of the Lammermuirs can be seen above this farmland, with the Black Hill mast and several wind turbines visible. Traprain Law forms the focal feature in the southward view, its broad flank facing the viewpoint			
<i>Magnitude of impact: <b>Low</b></i>			
The Offshore Wind Farm will be visible from this location, occupying around 20° of the seaward view. The turbines will appear above Lawhead Hill, partly behind the woodland on this hill, and extending across the skyline to north and south. The Offshore Wind Farm does not extend across Belhaven Bay in this view, and is well away from other focal features in the view. The movement of the turbines will attract attention to the Offshore Wind Farm. The turbines will be a distant feature on the seaward horizon, forming a relatively small and remote feature within this expansive panoramic view. The turbines are likely to appear brightest on sunny afternoons, and may be backlit by the rising sun on clear summer mornings.			
The scale of the change will be small, and will be experienced from locations across a medium geographical extent. The change will be long term and reversible. The magnitude of impact is judged to be low.			
<i>Level of effect and significance: <b>Minor</b> (not significant)</i>			
<i>Consideration of lighting:</i>			
Lighting is considered in detail in the assessment of night time <b>Viewpoint N4</b> .			
<i>Magnitude of cumulative impact: <b>Low</b></i>			
Inch Cape offshore wind farm will be theoretically visible from this location, and their larger size means they will appear similar in scale to the Neart na Gaoithe turbines. The Inch Cape turbines will be partly behind Neart na Gaoithe, and extending to the north. However, at well over 50 km away, atmospheric perspective is likely to clarify their greater distance in all but the clearest conditions, and these turbines are unlikely to be clearly visible. The even more distant Seagreen turbines will not be perceptible from this viewpoint.			
To the northwest, the Forthwind turbines may be visible in the context of other wind turbines in Fife, partly screened behind the landform of East Lothian in the foreground. Kenly Wind Farm (consented) may be visible to the north on the Fife skyline. Other proposed wind farms on the Lammermuirs are unlikely to change the pattern of turbines visible in this part of the view. The additional effect of Neart na Gaoithe in this future baseline is judged to be low.			
<i>Level of cumulative effect and significance: <b>Minor</b> (not significant)</i>			

<b>Viewpoint 29: Hopetoun Monument</b>			
<i>OS grid reference</i>	350077, 676425	<i>Figure number</i>	14.43 (Volume 3)
<i>Landscape Character Type</i>	Lowland Hills (South)	<i>Landscape designation</i>	Garleton Hills SLA
<i>Direction of view towards the Wind Farm Area</i>	Northeast	<i>Distance to closest turbine</i>	42.1 km
<i>Estimated number of days per year on which the turbines would be visible (based on atmospheric visibility data set out in <b>Table 3.8</b>)</i>			122 days (33%)
<i>Location and Receptors:</i>			
<p>This 29 m high monument stands on the volcanic Garleton Hills, to the north of Haddington. A car park provides access to short walks around the hill, and the top of the monument is freely accessible via steep spiral stairs. The walkway around the top of the monument is provided with information boards depicting the features that can be seen. The view from ground level, and from other nearby locations, is more restricted than the panorama available from the monument.</p>			
<i>Sensitivity: <b>High</b></i>			
<p>The monument is visited by people who climb the steps to appreciate the view. Their susceptibility is judged to be high, and the value of the view is judged to be medium, as it is locally designated.</p>			
<i>Current View:</i>			
<p>The walkway at the top of the monument offers views in all directions as the visitor walks around, though 360° views are prevented by the central pillar. The southern skyline is formed by the even profile of the Lammermuir Hills, with undulating elevated farmland set below. More distant to the southwest are the distinctive Pentland Hills, while Arthur's Seat is a feature of the westward view. It stands within Edinburgh, beside the sweep of the narrowing Firth of Forth that is framed by the Fife skyline to the north east. Below the distinctive Lomond Hills, several wind farms can be seen as well as shipping and rigs off Kirkcaldy and Methil. The Fife coast extends east, with the East Neuk villages visible along the steadily tapering headland. Closer at hand, the farmed landscape of East Lothian is spread out below the viewpoint, with an irregular network of arable fields inset with large farms and small villages. The prominent North Berwick Law forms the key focus of the northward view, and is flanked by the Bass Rock and Craigeith. Further out in the Forth the long, low Isle of May is clearly visible. To the west, the rugged line of the Garleton Hills leads the eye towards settlement and woodland around Belhaven Bay, with the church at Dunbar and the distant cement works visible on the coastal skyline.</p>			
<i>Magnitude of impact: <b>Low</b></i>			
<p>The Offshore Wind Farm will be visible on clear days, occupying around 15° of the seaward view. The turbines will be seen on the skyline to the right (south) of North Berwick Law, and above the Bass Rock. The turbines are likely to appear brightest on sunny afternoons, and may be backlit by the rising sun on clear summer mornings. Though their movement may draw attention, at over 40 km the turbines will not be prominent, and the focal features of this sector of the view will remain North Berwick Law and the Bass Rock.</p> <p>The scale of the change will be small, and will be experienced from locations across a very small geographical extent. The change will be long term and reversible. The magnitude of impact is judged to be low.</p>			
<i>Level of effect and significance: <b>Minor</b> (not significant)</i>			
<i>Consideration of lighting:</i>			
<p>Though aviation and navigation lighting are theoretically visible from this location, it is unlikely that they will be noticeable features of the view due to their distance. It is also unlikely that people would access the tower during the hours of darkness, and no significant effects are predicted.</p>			
<i>Magnitude of cumulative impact: <b>Low</b></i>			
<p>Although both Inch Cape and Seagreen wind farms are theoretically visible, they will be over 60 km and 70 km distant, respectively, and are unlikely to be noticeable features of the view. To the northwest, the Forthwind turbines in the Firth of Forth will be much closer, at around 20 km from the viewer, seen within the context of the busier inner Firth and other turbines in Fife. The consented Kenly Wind Farm will be visible on the skyline of Fife. Other proposed wind farms in the Lammermuirs will be visible, but will not affect the pattern of development visible. The additional effect of Neart na Gaoithe in this future baseline will be low.</p>			
<i>Level of cumulative effect and significance: <b>Minor</b> (not significant)</i>			

## Night Time Viewpoint Assessment

<b>Viewpoint N1: King's Road, Arbroath</b>			
<i>OS grid reference</i>	366004, 741075	<i>Figure number</i>	14.44 (Volume 3)
<i>Regional Seascape Unit</i>	SA8 Arbroath to Monifieth	<i>Landscape designation</i>	None
<i>Direction of view towards the Wind Farm Area</i>	Southeast	<i>Distance to closest turbine</i>	31.5 km
<i>Location and Receptors:</i>			
<p>The viewpoint is at the start of a coastal path close to the town, accessed from the car park on King's Road. There are likely to be some recreational receptors during the early hours of darkness, such as dog walkers.</p>			
<i>Sensitivity to changes in lighting: <b>High</b></i>			
<p>Representative of views experienced by small numbers of recreational users. The viewpoint also represents views from other coastal locations. Views from the town will be similar in outlook though more locally affected by nearby light sources. The susceptibility is judged to be high and the value medium.</p>			
<i>Current View:</i>			
<p>The main light sources in the view are street lights and building lights in the centre of Arbroath. These are clustered along the sea front to the southwest, and there are some lights visible across the upper part of the town to the west. There are fewer lights closer to the viewpoint, though car lights are seen passing on King's Road. Looking southwest along the Angus coast, some bright light sources can be seen, with the lights of Carnoustie glimpsed beyond. Further afield, the lights around St Andrews and Leuchars can be seen. To the south, the coast of Fife is largely dark, with no prominent lights apart from the lighthouse at Fife Ness. The northward coast is not seen in this view, but is largely dark apart from lights within small villages and houses.</p> <p>The seaward part of the view is dark, with the exception of passing ships and the intermittent flash of the Bell Rock lighthouse. The red light on the Inch Cape met mast is visible but not particularly noticeable.</p>			
<i>Magnitude of impact: <b>Low</b></i>			
<p>The aviation lights on the Offshore Wind Farm will be visible in the sea, close to the unlit coast of Fife Ness. The flashing pattern will make these lights more noticeable in the view. There may be a flickering effect as turbine blades pass in front of the more distant lights in the array. Some of the yellow navigation lights may be visible at the tower bases, though most will be behind the horizon. Though fewer in number, the flashing pattern will again attract the viewers' attention. The extent of the lights on the Offshore Wind Farm will be a novel feature in the view, but will be a series of distant point light sources that will not affect dark sky value.</p> <p>The scale of the change will be small, and will be experienced from locations across a small geographical extent. The change will be long term and reversible. The magnitude of impact is judged to be low.</p>			
<i>Level of effect and significance: <b>Minor</b> (not significant)</i>			
<i>Magnitude of cumulative impact: <b>Low</b></i>			
<p>Aviation and navigation lights on the Inch Cape turbines will be clearly visible to the east, closer to the viewer and occupying a much greater angle of view. Aviation lights on the Seagreen turbines will also be visible at a slightly greater distance to Neart na Gaoithe, and appearing between and to the north of the Inch Cape lights. The additional impact of Neart na Gaoithe lighting in this baseline scenario is judged to be low.</p>			
<i>Level of cumulative effect and significance: <b>Minor</b> (not significant)</i>			

## Viewpoint N2: Carmyllie

<i>OS grid reference</i>	354993, 743026	<i>Figure number</i>	14.45 (Volume 3)
<i>Landscape Character Type</i>	Dipslope Farmland	<i>Landscape designation</i>	None
<i>Direction of view towards the Wind Farm Area</i>	Southeast	<i>Distance to closest turbine</i>	39.6 km

### *Location and Receptors:*

This viewpoint is representative of the elevated open farmland in Angus, from where views to the sea are available. The viewpoint is located uphill from Carmyllie, and represents views experienced by local residents and road users.

### *Sensitivity to changes in lighting: **Medium***

Although there are likely to be few receptors at the specific viewpoint location, it does represent some scattered residential viewers. It also represents views experienced by passing users of roads in the area. This viewpoint does not represent any recreational users. The susceptibility is judged to be medium and the value medium.

### *Current View:*

This is a dark rural area, with limited light sources close at hand. There are occasional brighter outdoor lights at farms, but most building lights are at low level. Passing car lights are also seen on nearby and more distant roads. Looking further afield, lights around St Andrews and Leuchars can clearly be seen to the south, though there is very little light visible along the Fife coast. Inland three communications masts on the Sidlaw Hills are a notable feature, lit with red aviation lights. Within the seaward view, lights on the Inch Cape met mast can be seen: both the steady red light and the flashing yellow navigation light at its base. Lighthouses at the Bell Rock, Fife Ness and on the Isle of May can be identified.

### *Magnitude of impact: **Low***

The aviation and navigation lighting on the Offshore Wind Farm will be visible from this and similar locations in Angus. The lights will be seen on the horizon, to the right (south) of the Bell Rock lighthouse, and occupying around 15° of the view. Though the flashing pattern may make the lights somewhat more noticeable, the lights will be distant point features that are only likely to be seen by viewers who are actively looking. The lights are unlikely to be noticeable to passing motorists. They will have much less apparent brightness than the lights on the Sidlaw masts, and will not affect the dark rural character of this landscape at night time.

The scale of the change will be small, and will be experienced from locations across a medium geographical extent. The change will be long term and reversible. The magnitude of impact is judged to be low.

### *Level of effect and significance: **Minor** (not significant)*

### *Magnitude of cumulative impact: **Low***

Aviation and navigation lights on the Inch Cape turbines will be similarly visible, and somewhat closer to the viewpoint. Aviation lights on the Seagreen turbines will theoretically be visible, though will be very distant and unlikely to be clearly visible behind Inch Cape. The additional effect of Neart na Gaoithe in this baseline will be low.

### *Level of cumulative effect and significance: **Minor** (not significant)*

### Viewpoint N3: East Haven

<i>OS grid reference</i>	359368, 736345	<i>Figure number</i>	14.46 (Volume 3)
<i>Regional Seascape Unit</i>	SA8 Arbroath to Monifieth	<i>Landscape designation</i>	None
<i>Direction of view towards the Wind Farm Area</i>	Southeast	<i>Distance to closest turbine</i>	31.7 km
<i>Location and Receptors:</i>			
<p>East Haven is a small coastal settlement, a short distance northeast of Carnoustie. There are some houses that have a seaward outlook. The seafront car park is well used by day but there are unlikely to be large numbers of recreational visitors during the hours of darkness.</p>			
<i>Sensitivity to changes in lighting: <b>High</b></i>			
<p>Although there are relatively few receptors at this location, it is considered representative of other locations along the dark Angus coast, where there are residential and other receptors who will be sensitive to changes in lighting within their outlook. The susceptibility is judged to be high and the value medium.</p>			
<i>Current View:</i>			
<p>Generally, this is a dark, rural coastal location. A small number of street lights and building lights are visible within East Haven, though these are generally low intensity. Rising ground obscures inland light sources from this coastal location. Looking south along the coast, lights around At Andrews and Leuchars can be seen low on the horizon. Along the Fife coast there are very few light sources visible, though the Fife Ness lighthouse can be seen intermittently. Looking out to sea, the flash of the Bell Rock lighthouse can be clearly seen. Also visible though less noticeable is the red aviation light marking the position of the Inch Cape met mast.</p>			
<i>Magnitude of impact: <b>Low</b></i>			
<p>The aviation lights on the Offshore Wind Farm will be visible from this location, above the offshore horizon. They will be seen to the right (south) of the Bell Rock Lighthouse, and will occupy around 15° of the view. The flashing pattern of lights and the potential flicker caused by intervening blade movements will make the lights more noticeable, though they will remain as distant point sources. The general lack of light sources is also likely to make them more noticeable, but the dark character of the view will not be substantively altered. The navigation lights at the tower bases will not be visible from this location.</p> <p>The scale of the change will be small, and will be experienced from locations across a medium geographical extent. The change will be long term and reversible. The magnitude of impact is judged to be low.</p>			
<i>Level of effect and significance: <b>Minor</b> (not significant)</i>			
<i>Magnitude of cumulative impact: <b>Low</b></i>			
<p>Aviation lights on the Inch Cape turbines will be visible across a wider angle of view than Neart na Gaoithe. These lights will be closer to the viewpoint, although navigation lights are unlikely to be visible. The two groups of lights will be seen separately in the seaward view. The additional effect of Neart na Gaoithe in this baseline will be low.</p>			
<i>Level of cumulative effect and significance: <b>Minor</b> (not significant)</i>			

<b>Viewpoint N4: St Andrews: East Scores</b>			
<i>OS grid reference</i>	351572,716671	<i>Figure number</i>	14.47 (Volume 3)
<i>Regional Seascape Unit</i>	SA12 St Andrews to Fife Ness	<i>Landscape designation</i>	None
<i>Direction of view towards the Wind Farm Area</i>	East	<i>Distance to closest turbine</i>	28.5 km
<i>Location and Receptors:</i> See <b>Viewpoint 12</b>			
<i>Sensitivity to changes in lighting: High</i> A widely known and well-used viewpoint close to the town centre, with many recreational and nearby residential receptors who have an interest in the open marine view and are likely to be present during the hours of darkness. The susceptibility is judged to be high and the value medium.			
<i>Current View:</i> Street lighting nearby is visible, though the viewpoint itself is not lit. To the east, local lighting in the houses at Shorehead is visible, and there is some lighting around the harbour, including red and green flashing navigation lights. To the southeast, street lighting can be seen across the hillside including white lights within St Andrews Holiday Park. Beyond this to the east, the only lights are street lamps and internal lighting at the Fairmont Hotel, and nearby club houses. No further lights are visible on land along the Fife Coast. Looking out to sea, the flash of the Bell Rock lighthouse can be seen, and to the east of this is a red light marking the position of the Inch Cape met mast. These lights are clearly visible but not particularly noticeable features in the view. The only other seaward lights are from boats, including those moored in the bay. To the north, lights along the Angus coast can be clearly seen, including the street lights of Carnoustie and Arbroath. Above these, red lights on two transmission masts on the Sidlaw Hills form the most noticeable lighting in the northward view. These masts are approximately 27 km away, and the lights are presumably 2000 candela in line with statutory requirements. To the northwest, lighting across the Tentsmuir area is noticeably absent. Lighting associated with RAF Leuchars is just visible behind St Andrews. The town itself, to the west and south, is relatively dark as the viewpoint overlooks the castle and abbey, neither of which are lit.			
<i>Magnitude of impact: Medium</i> The aviation and navigation lights on the Offshore Wind Farm will be visible from this location. Aviation lights will be visible above the unlit coast of Fife Ness, extending out into the sea. These lights will be clearly visible, and their flashing pattern will make them more noticeable in the view. There may be a flickering effect as turbine blades pass in front of the more distant lights in the array. The yellow navigation lights will be visible at the tower bases. Though fewer in number, the flashing pattern will again attract the viewers' attention. Though seen in the context of the flashing harbour lights, the extent of the lights on the Offshore Wind Farm will be a novel feature in the view, and may distract attention from other features in the dusk panorama. The scale of the change will be medium, and will be experienced from locations across a small geographical extent. The change will be long term and reversible. The magnitude of impact is judged to be medium.			
<i>Level of effect and significance: Moderate</i> (significant)			
<i>Magnitude of cumulative impact: Medium</i> Aviation and navigation lights on Inch Cape turbines will be visible to the northeast, away from existing light sources, at a similar distance and occupying a slightly greater angle of view. Lights on the more distant Seagreen turbines will be less visible, due to distance and as the turbine hubs may be at or below the horizon. The additional impact of Neart na Gaoithe lighting in this baseline scenario is judged to be medium.			
<i>Level of cumulative effect and significance: Moderate</i> (significant)			

<b>Viewpoint N5: Crail</b>			
<i>OS grid reference</i>	361013, 707243	<i>Figure number</i>	14.48 (Volume 3)
<i>Regional Seascape Unit</i>	SA13 East Neuk of Fife	<i>Landscape designation</i>	East Neuk LLA
<i>Direction of view towards the Wind Farm Area</i>	East	<i>Distance to closest turbine</i>	18.5 km
<i>Location and Receptors:</i> See <b>Viewpoint 23</b>			
<i>Sensitivity to changes in lighting: High</i> Representative of residential receptors who have an interest in the night time view. There may be some local recreational receptors in the area during the hours of darkness. The susceptibility is judged to be high and the value medium.			
<i>Current View:</i> Lighting is a feature of this view at present, with street lights and building lights along West Braes. Looking across the bay, street and building lights are visible within the main part of the village and harbour, though there are no intense light sources. Beyond the immediate setting of the bay, the only light sources are at the caravan park further east along the coast. There are no views inland to north and west from this location, though these areas are characterised by rural darkness. Lights on occasional passing boats are visible. The intermittent flash of the lighthouse on the Isle of May is a feature in the Forth, though the seaward view is otherwise dark.			
<i>Magnitude of impact: Medium</i> The aviation and navigation lights of the turbines will introduce intermittent light sources into the dark marine view, which are likely to draw the eye and affect the experience of the view as being a relatively remote seascape. There may be a flickering effect as turbine blades pass in front of the more distant lights in the array, which will add to the flashing patterns of both aviation and navigation lights. The lights will be clearly visible but not bright, and will not affect dark sky value. The scale of the change will be medium, and will be experienced from locations across a small geographical extent. The change will be long term and reversible. The magnitude of impact is judged to be medium.			
<i>Level of effect and significance: Moderate</i> (significant)			
<i>Magnitude of cumulative impact: Low</i> Only a small number of aviation lights on the Inch Cape turbines will be theoretically visible across the headland of Fife Ness. No lights on the Seagreen turbines will be visible. Aviation lights on the proposed Forthwind turbines may be glimpsed from the higher ground west of Crail, but not from the village. The additional effect of Neart na Gaoithe in this baseline will be low.			
<i>Level of cumulative effect and significance: Minor</i> (not significant)			

<b>Viewpoint N6: Scottish Seabird Centre, North Berwick</b>			
<i>OS grid reference</i>	355412, 685553	<i>Figure number</i>	14.49 (Volume 3)
<i>Regional Seascape Unit</i>	SA17 Eyebroughy to Torness Point	<i>Landscape designation</i>	Port Seton to North Berwick SLA
<i>Direction of view towards the Wind Farm Area</i>	Northeast	<i>Distance to closest turbine</i>	32.5 km
<i>Location and Receptors:</i> See <b>Viewpoint 24</b>			
<i>Sensitivity to changes in lighting: High</i> Representative of recreational and residential receptors who have an interest in the night time view. Likely to be receptors present in this location during the hours of darkness. The susceptibility is judged to be high and the value medium.			
<i>Current View:</i> Lighting is a feature of this location, with street lights and building lights close at hand and around the harbour area. There are lights in the Seabird Centre but no bright outdoor lights. There are street lights along Melbourne Road extending around the bay to the east, and some lights visible on the far headland. Though some lights in Fife can be seen, the seaward aspect of the view is dark. The only lights visible are lighthouses on the Isle of May and the Bass Rock, as well as occasional passing ships.			
<i>Magnitude of impact: Low</i> The aviation lights on the turbines will be visible in this view, low on the seaward horizon, and appearing between the lights of the Bass Rock and the Isle of May. They will be noticeable due to their intermittent nature, and the flickering effect that may result from passing blade movements. A small number of the yellow navigation lights may just be seen. Due to the distance the lights are unlikely to be prominent in this view. The scale of the change will be small, and will be experienced from locations across a medium geographical extent. The change will be long term and reversible. The magnitude of impact is judged to be low.			
<i>Level of effect and significance: Minor</i> (not significant)			
<i>Magnitude of cumulative impact: Low</i> Though not visible from this location, from elsewhere in North Berwick the lights on the Forthwind turbines are likely to be clearly visible, though seen in the context of lighting along the Fife coast. Lights on the Inch Cape turbines are theoretically visible but at over 50 km are unlikely to be noticeable. The additional effect of Neart na Gaoithe in this future baseline will be low.			
<i>Level of cumulative effect and significance: Minor</i> (not significant)			

<b>Viewpoint N7: Dunbar</b>			
<i>OS grid reference</i>	367585, 679173	<i>Figure number</i>	14.50 (Volume 3)
<i>Regional Seascape Unit</i>	SA17 Eyebroughy to Torness Point	<i>Landscape designation</i>	Belhaven Bay SLA
<i>Direction of view towards the Wind Farm Area</i>	North	<i>Distance to closest turbine</i>	28.0 km
<i>Location and Receptors:</i> See <b>Viewpoint 18</b>			
<i>Sensitivity to changes in lighting: High</i> This local park is surrounded by residential receptors who have an interest in the open marine view and are likely to be present during the hours of darkness. The susceptibility is judged to be high and the value medium.			
<i>Current View:</i> There are no lights within the park itself, though there is street lighting along the adjacent streets. Other street lights and building lights are seen across visible parts of the town. The Dunbar Leisure Pool is a notable light source due to its large windows, though these lights may not be on all night. Adjacent car park lighting can be seen but there are no lights visible around the harbour and castle. To the north, distant lights are visible on the Fife coast, forming clusters that can be identified with the individual coastal settlements. There are no prominent masts or other lit structures. Looking out to sea, lights on passing ships can be seen, and there are intermittent flashes from lighthouses in the outer Forth, including on the Isle of May. Otherwise the seaward view has an absence of light sources.			
<i>Magnitude of impact: Medium</i> The aviation and navigation lights on the Offshore Wind Farm will be visible from this location. Aviation lights will be visible across part of the seaward view. These lights will be clearly visible, and their flashing pattern will make them more noticeable in the view. There may be a flickering effect as turbine blades pass in front of the more distant lights in the array. The yellow navigation lights will be visible at the tower bases. Though fewer in number, the flashing pattern will again attract the viewers' attention. The lights on the Offshore Wind Farm will be a novel feature in the view, and may distract attention from other features in the dusk panorama. The scale of the change will be medium, and will be experienced from locations across a small geographical extent. The change will be long term and reversible. The magnitude of impact is judged to be medium.			
<i>Level of effect and significance: Moderate</i> (significant)			
<i>Magnitude of cumulative impact: Very low</i> The aviation lights on the Inch Cape turbines will be theoretically visible, but at over 50 km distance are unlikely to be perceptible. Seagreen is even more distant. It is possible that aviation lights on the Forthwind turbines will be visible from nearby locations, though these will be seen in the context of existing lights in the Kirkcaldy area. The additional effect of Neart na Gaoithe in this baseline will be very low.			
<i>Level of cumulative effect and significance: Negligible</i> (not significant)			

<b>Viewpoint N8: A199, East Linton</b>			
<i>OS grid reference</i>	357751, 676674	<i>Figure number</i>	14.42 (Volume 3)
<i>Regional Seascape Unit</i>	Lowland Plains	<i>Landscape designation</i>	Traprain SLA
<i>Direction of view towards the Wind Farm Area</i>	Northeast	<i>Distance to closest turbine</i>	36.2 km
<i>Location and Receptors:</i> See <b>Viewpoint 28</b>			
<i>Sensitivity to changes in lighting: <b>Medium</b></i> Receptors during the hours of darkness will mainly be road users on the A199, who experience this view on the approach to East Linton. Recreational use is likely to be very limited at night.			
<i>Current View:</i> The most visible light sources are passing vehicle lights on the adjacent A199, leading the eye down to the street lights and building lights of East Linton below the viewpoint. Beyond the settlement to the east, vehicle lights along the A1 can be seen, with more distant lights of Dunbar on the horizon. Aside from these features, the local view is largely dark. To the south there are very few light sources, associated with farms. To the north there are occasional lights across the farmland, including some clusters of street lights, vehicle lights along local roads, and floodlit Fenton Tower. There are distant views of lights within the Fife coastal villages. Looking northwest, more intense lighting can be seen along the Fife coast around Kirkcaldy and Levenmouth. In the seaward part of the view, there are lights on passing ships in the Forth, and the light of the Bass Rock lighthouse can be seen.			
<i>Magnitude of impact: <b>Low</b></i> The aviation and navigation lights on the Offshore Wind Farm will be visible from this location, though some of the navigation lights will be hidden by rising ground that obscures part of the skyline. Aviation lights will be visible above this level, irregularly spaced above the horizon. A smaller number of navigation lights will be seen on the skyline. Their position in the currently dark seaward aspect of the view, combined with their intermittent pattern, may attract the viewer's attention. However, at this distance the lights are not predicted to be prominent features in the night time view, and are unlikely to be highly noticeable to passing motorists at this location. The scale of the change will be small, and will be experienced from locations across a small geographical extent. The change will be long term and reversible. The magnitude of impact is judged to be low.			
<i>Level of effect and significance: <b>Minor</b> (not significant)</i>			
<i>Magnitude of cumulative impact: <b>Very low</b></i> The aviation lights on the Forthwind turbines are likely to be visible from this location, seen in the context of the more brightly lit Kirkcaldy and Levenmouth coast rather than the dark outer Forth. Lights on the Inch Cape turbines are theoretically visible but at over 50 km are unlikely to be noticeable. The additional effect of Neart na Gaoithe in this future baseline will be very low.			
<i>Level of cumulative effect and significance: <b>Negligible</b> (not significant)</i>			

# Annex 4

## Implications for East Lothian AGLVs

### Areas of Great Landscape Value

- 9.50 Implications of the Project for the SLAs in East Lothian are set out in **Section 5**. Until the Proposed LDP has been adopted by the Council, the older AGLVs remain in place. These designations are less well-defined, having boundaries shown in the Local Plan, but no detailed citations or reasons for designation.
- 9.51 The following AGLVs are located along the East Lothian Coast, and have the potential to be adversely affected by the Project:
- Longniddry to North Berwick coastline;
  - North Berwick Law;
  - North Berwick to Dunbar coastline;
  - Barns Ness coastline; and
  - Thorntonloch Coastline.
- 9.52 The Longniddry to North Berwick coastline AGLV is similar in extent to the new Port Seton to North Berwick SLA. Like the SLA, the AGLV is largely outside the ZTV of the Offshore Wind Farm, though views of the turbines will be available from the northern part, from Eyebroughy to North Berwick. Although the AGLV does not extend across North Berwick beaches, and excludes the offshore islands, the qualities of this part of the AGLV are assumed to be similar to those stated for the SLA. The Offshore Wind Farm will be visible in some key views from this northern coast, and significant effects on landscape character and visual amenity are predicted. Other views towards Fife and Edinburgh will be unaffected. The majority of the AGLV is outside the ZTV and will remain unaffected.
- 9.53 North Berwick Law is a small AGLV, somewhat smaller than the new North Berwick Law SLA. The special qualities of this AGLV are assumed to be similar to those identified for the SLA. Though the Offshore Wind Farm will be visible from the summit, including in views of the Bass Rock, and significant effects on visual amenity are predicted, the Project will not affect the setting of this landmark, or its relationship with the wider East Lothian landscape.
- 9.54 The North Berwick to Dunbar Coastline AGLV covers the area of both the Tantallon Coast and Belhaven Bay SLAs, as well as areas further inland. The special qualities of this AGLV are assumed to be similar to those identified for the SLAs. The Offshore Wind Farm will be visible along the length of this coastline, and on clear days turbines will be an unavoidable feature of the view. Significant landscape and visual effects are predicted to occur. Although the turbines will be visible, other aspects of the AGLV, including the diverse coastal scenery, will be unaffected.
- 9.55 The Barns Ness Coastline AGLV is similar in extent to the Dunbar to Barns Ness SLA. As with the SLA, the Offshore Wind Farm will become an unavoidable presence in views on days when visibility allows. Significant effects on landscape character and visual amenity are predicted along this coast as a result, which will impact on offshore views that contribute to the AGLV. However, other qualities of the area will be unaffected.
- 9.56 Thorntonloch Coast AGLV lies to the south of Torness Power Station, and is very similar in extent to the Thorntonloch to Dunglass Coast SLA. The Offshore Wind Farm will be theoretically visible from this coastline, though effects on this coastal character area are not anticipated to be significant. Although views from the coast may be affected by the presence of the turbines, other qualities of the area will be unaffected.